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This document's normative language is English. Translation into other languages is permitted.

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1 Overview

The Redfish standard comprises a set of specifications maintained by the Redfish Forum, a working group within DMTF. The standard defines a protocol that uses RESTful interfaces to provide access to data and operations associated with the management of systems and networks. One of the strengths of the Redfish protocol is that it works with a wide range of servers: from stand-alone servers to rack-mount and bladed environments to large-scale data centers and cloud environments.

The Redfish standard addresses several key issues for infrastructures that require scalability. Large infrastructures often consist of many simple servers of different makes and types. This hyper-scale usage model requires a new approach to systems management. The Redfish protocol addresses these needs by providing a standard protocol based on out-of-band systems management.

With these goals in mind, the Redfish protocol was designed as an open-industry standard to meet scalability requirements in multi-vendor deployments. It easily integrates with commonly used tools, using RESTful interfaces to perform operations and using JSON for data payloads.

1.1 Who should read this document?

This document is useful to people who are consumers of the Redfish interface and want to understand the Redfish data model. These users might not be developing Redfish-enabled software.

1.2 How can I provide feedback?

Feedback on all Redfish specifications and documents is encouraged. Feedback can be directed to DMTF and the Redfish Forum by the following means:

- **Redfish User Forum:** https://redfishforum.com - User forum monitored by DMTF Redfish Forum personnel to answer questions about any Redfish-related topics.
- **DMTF Feedback Portal:** https://www.dmtf.org/standards/feedback - Formal submission portal for enhancements or proposals to DMTF and the Redfish Forum.

1.3 Where can I find more information?

The following web sites provide more information about the Redfish standard:

- **Redfish Developer Hub**

  Resources for developers who use Redfish to build applications. Contains an interactive schema explorer, hosted schema, and other links.

- **Redfish Specification Forum**

  DMTF Redfish-monitored user forum. Answers questions about Redfish-related topics.

- **DMTF GitHub repositories**

  Open source tools and libraries for working with Redfish.

- **Redfish standards**

  Schemas, specifications, mockups, white papers, FAQ, educational material, and more.

- **DMTF Redfish Forum**

  Working group that maintains the Redfish standard. Site lists member companies, future work and schedules, charter, and information about joining.

1.4 Related documents

The following documents are part of the Redfish development effort. They can be accessed or downloaded from DMTF's Redfish Standards web site: https://www.dmtf.org/standards/redfish

- DSP0218 - Platform Level Data Model (PLDM) for Redfish Device Enablement Specification - Binary-encoded JSON (BEJ) and dictionary-based mapping of Redfish schemas and properties into PLDM messages.
- DSP0266 - Redfish Specification - Main Redfish Specification.
- DSP0268 - Redfish Data Model Specification - Normative descriptions and additional text for every schema defined in DSP8010 and example payloads for every resource.
- DSP0270 - Redfish Host Interface Specification - "In-band" or "OS-based" Redfish host interface.
- DSP0272 - Redfish Interoperability Profiles Specification - Structure and JSON document that is used to define and publish an interoperability profile that checks an implementation's conformance to a defined minimum set of functionality.
- DSP2043 - Redfish Mockups Bundle - Set of mockups that can be used as sample output from `GET` responses from a Redfish service. Informative in nature, it was used to develop the schema. A person can set up an NGINX or similar server and configure it to output JSON format and then use this directory for demonstration purposes.
- DSP2044 - Redfish White Paper - Non-normative document helping those new to Redfish understand how to interact with the Redfish service and understand common functions and tasks.
- DSP2046 - Redfish Resource and Schema Guide - Informative documentation regarding common Redfish resource properties and a listing of properties that can be found in each of the Redfish resources.
- DSP2053 - Redfish Property Guide - Informative documentation providing an index to individual property definitions across all Redfish schema.
- DSP2065 - Redfish Message Registry Guide - Informative documentation providing details regarding the

messages defined in Redfish standard message registries.

- DSP8010 - Redfish Schema - Redfish schema definitions. These files are normative in nature and are normatively referenced by the *Redfish Specification*. The three schema formats are CSDL (OData Common Schema Definition Language format, which is in XML), JSON Schema, and OpenAPI schema. These schema definitions should be functionally equivalent, thus specifying the schema in three different languages.
- DSP8011 - Redfish Standard Registries - Redfish registry definitions. This bundle of Redfish registries includes message registries used for Redfish-defined messages including events and privilege maps.
- DSP8013 - Redfish Interoperability Profiles Bundle - Bundle of published Redfish interoperability profile documents and supporting schema and sample documents used for creating profiles.

2 Using this guide

Every Redfish response consists of a JSON payload containing properties that are strictly defined by a schema for that resource. The schema that defines a resource can be determined from the value of the `@odata.type` property returned in every Redfish response. This guide details the definitions for every Redfish standard schema.

Each schema section contains:

- The name, current version, and description of the schema.
- The release history of the schema. Lists each minor schema version and the DSP8010 release bundle that included it.
- List of the possible URIs where schema-defined resources can appear in a Redfish service following specification version v1.6 or later. See URI listings.
- Table that defines each property. Shows additional details for those properties when needed.
- List of available actions defined for the schema.
- Example JSON payload for a resource using the schema.

The property-level details include:

Column	Purpose
Property	The case-sensitive name of the JSON property as it appears in the JSON payload. Lists the schema version in parentheses when properties were added to or deprecated in the schema after the initial v1.0.0 release.
Type	The JSON data types for the property, which can include boolean, number, string, or object. • The `string (enum)` tag identifies enumerated strings. • String types with a `(URI)` tag will contain a URI. • Number types may specify the units, which are usually included as part of the property name. • Number types specifying "%" units or including "Percent" in the property name will have values typically in the range of `0` - `100` • Boolean types will have a value of `true` or `false`.

Column	Purpose
Attributes	Designates whether: • The property is read-only or read-write, if supported by the implementation. • The property is required to be returned in the resource payload or is required when creating a resource of that type. • The service might return a `null` value if the property value is temporarily unavailable.
Description	The description of the property, as copied directly from the schema's definition of the property.

2.1 URI listings

The *Redfish Specification v1.6.0* added mandatory support for the *OpenAPI Specification v3.0*. As part of this support, the URIs for every Redfish resource are defined to appear at known, fixed locations. Resource collections also appear at fixed locations, with the members of each collection appearing at URIs constructed by using a fixed path structure, with appropriate path segments equal to the value of `Id` properties of members along the path.

Support for v1.6.0 and OpenAPI can be determined by comparing the value of the `RedfishVersion` property in the service root (`/redfish/v1/`). Services that report a `1.6.0` or higher value, such as `1.6.1` or `1.7.0`, adhere to the URI definitions.

The URI listings do not apply to Redfish services that support specification versions earlier than v1.6.0. For those services, clients must use the hypermedia features of the API to discover hyperlinks from the service root to each resource. While services typically match the URIs listed in this document for many of their resources, this match is not guaranteed and results in errors.

3 Common properties

3.1 Properties that all Redfish schemas define

The following properties are defined for inclusion in every Redfish schema and therefore may be encountered in any response payload. They are documented here in this guide to avoid repetition in the Reference guide property tables.

> **Note:** Several of these properties are payload annotations but appear here because they are required for all Redfish resources.

3.1.1 Properties

Property	Type	Attributes	Notes
@odata.context	string (URI)	*read-only*	The OData description of a payload.
@odata.etag	string	*read-only*	The current ETag of the resource.
@odata.id	string (URI)	*read-only* *required*	The unique identifier for a resource.
@odata.type	string	*read-only* *required*	The type of a resource.
Description	string	*read-only*	The description of this resource. Used for commonality in the schema definitions.
Id	string	*read-only* *required*	The unique identifier for this resource within the collection of similar resources.
Name	string	*read-only* *required*	The name of the resource or array member.
Oem {}	object		The manufacturer- or provider-specific extension moniker that divides the `Oem` object into sections.

3.2 Frequently used properties

In addition, the following properties are frequently defined in Redfish schemas. Their definition and usage is the same throughout the Redfish data model.

3.2.1 Properties

Property	Type	Attributes	Notes
Actions {}	object		The Redfish actions available for this Resource.
Links {}	object		The links associated with the Resource, as defined by that Resource's schema definition. All associated reference properties defined for a Resource are nested under the Links property. Find all directly referenced, or subordinate, Resource properties from the root of the Resource.
RelatedItem [{	array		An array of links. Each link points to a Resource or part of a Resource as defined by that Resource's schema. This representation is not intended to be a strong linking methodology like other references. Instead, it shows a relationship between elements or subelements in disparate parts of the service. For example, fans might be in one area of the system and processors in another. The relationship between the two might not be obvious. This property can show that one is related to the other. In this example, it might indicate that a specific fan cools a specific processor.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			

3.3 Payload annotations

Payload annotations are a mechanism in which a service provides additional information about a given property or object. Redfish limits usage of these annotations to OData core terms, Redfish extensions, or Redfish messages.

3.3.1 Property-level annotations

A payload annotation for a single property takes the form of an additional property named `Property@Schema.Term`, where `Property` is the JSON property being annotated, `Schema` is the schema file where the definition for the annotation is found, and `Term` is the name of the annotation.

3.3.2 Properties

Property	Type	Attributes	Notes
@Message.ExtendedInfo {}	object		The additional information for a set of message structures for a property. These messages can be useful when a property is `null` due to an error condition and the service wants to convey why the property is `null`.

Property	Type	Attributes	Notes
@odata.count	integer	*read-only*	The number of items in a collection.
@Redfish.AllowableNumbers [ ]	array (string)	*read-only*	The numeric values or duration values, inclusive ranges of values, and (optional) incremental step values for a read-write property or action parameter, in a `<min>:<max>:<step>` format.
@Redfish.AllowablePattern	string	*read-only*	A regular expression that describes the allowable values for a read-write property or action parameter as supported by the service.
@Redfish.AllowableValues [ ]	array (string)	*read-only*	The string values that a service accepts for a property or action parameter.
@Redfish.Deprecated	string	*read-only*	Specifies that the property or value is deprecated. The string value explains the deprecation, including new property or properties or value to use.

In the following example, the property `ResetType` is annotated with the `Redfish` schema-defined `AllowableValues` term. `Redfish` is an alias for `RedfishExtensions`. This term indicates to the client that the service supports the values `On` and `ForceOff` for `ResetType`.

```
{
    "ResetType@Redfish.AllowableValues": [
        "On",
        "ForceOff"
    ]
}
```

3.3.3 Resource-level or object-level annotations

A payload annotation for an entire Resource or a JSON object takes the `@Schema.Term` form, where `Schema` is the schema file where the definition is found and `Term` is the name of the annotation. These payload annotations are used to provide further information about the object itself.

3.3.4 Properties

Property	Type	Attributes	Notes
@Redfish.ActionInfo	string (URI)	*read-only*	The URI to an ActionInfo Resource, which describes the parameters that this Action instance supports.
@Redfish.CollectionCapabilities {}	object		The reference to the Resource that represents the POST capabilities of a collection. For property details, see CollectionCapabilities.

Property	Type	Attributes	Notes
@Redfish.MaintenanceWindow {}	object		The maintenance window configuration that defines when to apply settings or operations to a Resource. For property details, see MaintenanceWindow.
@Redfish.OperationApplyTime	string (enum)	*read-write*	The client's requested apply time to complete a create, delete, or action operation. *For the possible property values, see @Redfish.OperationApplyTime in Property details.*
@Redfish.OperationApplyTimeSupport {}	object		An indication of whether a client can request a specific apply time for a create, delete, or action operation for a Resource through the OperationApplyTime term. For property details, see OperationApplyTimeSupport.
@Redfish.Settings {}	object		The reference to the Resource that represents the settings to apply to this object. For property details, see Settings.
@Redfish.SettingsApplyTime {}	object		The configuration settings that define when to apply the settings to a Resource. For property details, see PreferredApplyTime.
@Redfish.WriteableProperties [ ]	array (string)	*read-only*	Specifies the properties supported as read-write. The values contained are the names of the writable properties as defined in the Redfish schema that are available as read-write given the implementation, current configuration, and state of the resource.

3.3.5 Property details

3.3.5.1 @Redfish.OperationApplyTime

The client's requested apply time to complete a create, delete, or action operation.

string	Description
AtMaintenanceWindowStart	The requested operation is applied within the administrator-specified maintenance window.
Immediate	The requested operation is applied immediately. This value might result in an immediate host reset, manager reset, or other side effects.
InMaintenanceWindowOnReset	The requested operation is applied after a reset but within the administrator-specified maintenance window.
OnReset	The requested operation is applied on a reset.
OnStartUpdateRequest	The requested operation is applied when the `StartUpdate` action of the update service is invoked.
OnTargetReset	The requested operation is applied when the target is reset. Targets include devices, services, and systems.

This example annotates the object with the `Redfish` schema-defined action info term. `Redfish` is an alias for `RedfishExtensions`. This term indicates that the client can find more information about the `#ComputerSystem.Reset` action at the `/redfish/v1/Systems/1/ResetActionInfo` URI:

```
{
    "#ComputerSystem.Reset": {
        "target": "/redfish/v1/Systems/1/Actions/ComputerSystem.Reset",
        "@Redfish.ActionInfo": "/redfish/v1/Systems/1/ResetActionInfo"
    }
}
```

4 Common objects

Redfish schemas frequently define the following JSON objects. Like the individual common properties listed above, these objects share a common definition that is shown here to avoid repetition in the Reference guide property tables.

4.1 Actions

The `Actions` object contains the available actions for a resource.

4.1.1 Properties

Property	Type	Attributes	Notes
#{action name} {	object		A single Redfish action.
@Redfish.ActionInfo	string	*read-only*	The URI for an ActionInfo Resource that describes this action.
target	string	*read-only*	The target URI for the POST operation to invoke the action.
}			

4.2 Condition

4.2.1 Description

A condition that requires attention.

4.2.2 Properties

Property	Type	Attributes	Notes
ConditionType *(v1.22+)*	string (enum)	*read-only (null)*	The type of condition. *For the possible property values, see ConditionType in Property details.*
LogEntry {	object		The link to the log entry created for this condition. See the *LogEntry* schema for details on this property.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a LogEntry resource. See the Links section and the *LogEntry* schema for details.
}			
Message	string	*read-only*	The human-readable message for this condition.
MessageArgs [ ]	array (string)	*read-only*	An array of message arguments that are substituted for the arguments in the message when looked up in the message registry.
MessageId	string	*read-only* *required*	The identifier for the message.
Oem *(v1.21+)* {	object		See the Oem object definition in the Common properties section.
(pattern) {}	object		Property names follow regular expression pattern "^[A-Za-z0-9_]+$"
}			
OriginOfCondition {	object		A link to the resource or object that originated the condition.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}			
Resolution *(v1.14+)*	string	*read-only*	Suggestions on how to resolve the condition.
ResolutionSteps *(v1.18+)* [{ }]	array (object)		The list of recommended steps to resolve the condition. For property details, see ResolutionStep.
Severity	string (enum)	*read-only*	The severity of the condition. *For the possible property values, see Severity in Property details.*
Timestamp	string (date-time)	*read-only*	The time the condition occurred.
UserAuthenticationSource *(v1.20+)*	string	*read-only* *(null)*	The source of authentication for the username property associated with the condition.
Username *(v1.20+)*	string	*read-only* *(null)*	The username of the account associated with the condition.

4.2.3 Property details

4.2.3.1 ConditionType

The type of condition.

string	Description
Alert	The condition is an alert.
Informational	The condition is informational.
Subsystem	The condition is the health of a subsystem.

4.2.3.2 Severity

The severity of the condition.

string	Description
Critical	A critical condition requires immediate attention.
OK	Normal.
Warning	A condition requires attention.

4.3 Identifier

4.3.1 Description

Any additional identifiers for a resource.

4.3.2 Properties

Property	Type	Attributes	Notes
DurableName *(v1.1+)*	string	*read-only* *(null)*	The world-wide, persistent name of the resource.
DurableNameFormat *(v1.1+)*	string (enum)	*read-only* *(null)*	The format of the durable name property. *For the possible property values, see DurableNameFormat in Property details.*

4.3.3 Property details

4.3.3.1 DurableNameFormat

The format of the durable name property.

string	Description
EUI	The IEEE-defined 64-bit Extended Unique Identifier (EUI).
FC_WWN	The Fibre Channel (FC) World Wide Name (WWN).
GCXLID *(v1.15+)*	The globally unique CXL logical device identifier (GCXLID).
iQN	The iSCSI Qualified Name (iQN).
MACAddress *(v1.14+)*	The media access control address (MAC address).
NAA	The Name Address Authority (NAA) format.
NGUID *(v1.10+)*	The Namespace Globally Unique Identifier (NGUID).
NQN *(v1.6+)*	The NVMe Qualified Name (NQN).
NSID *(v1.6+, deprecated v1.12)*	The NVM Namespace Identifier (NSID). *Deprecated in v1.12 and later. This value has been deprecated due to its non-uniqueness and `NGUID` should be used.*
UUID	The Universally Unique Identifier (UUID).

4.4 IOStatistics

4.4.1 Description

The properties of this type represent IO statistics.

4.4.2 Properties

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to another IOStatistics resource.

4.5 IPv4Address

4.5.1 Description

This type describes an IPv4 address.

4.5.2 Properties

Property	Type	Attributes	Notes
Address	string	*read-write (null)*	The IPv4 address.
AddressOrigin	string (enum)	*read-only (null)*	This indicates how the address was determined. *For the possible property values, see AddressOrigin in Property details.*
Gateway	string	*read-write (null)*	The IPv4 gateway for this address.
Oem {}	object		See the Oem object definition in the Common properties section.
SubnetMask	string	*read-write (null)*	The IPv4 subnet mask.

4.5.3 Property details

4.5.3.1 AddressOrigin

This indicates how the address was determined.

string	Description
BOOTP	A BOOTP service-provided address.
DHCP	A DHCPv4 service-provided address.
IPv4LinkLocal	The address is valid for only this network segment, or link.
Static	A user-configured static address.

4.6 IPv6Address

4.6.1 Description

This type describes an IPv6 address.

4.6.2 Properties

Property	Type	Attributes	Notes
Address	string	*read-write (null)*	The IPv6 address.
AddressOrigin	string (enum)	*read-only (null)*	This indicates how the address was determined. *For the possible property values, see AddressOrigin in Property details.*
AddressState	string (enum)	*read-only (null)*	The current RFC4862-defined state of this address. *For the possible property values, see AddressState in Property details.*
Oem {}	object		See the Oem object definition in the Common properties section.
PrefixLength	integer	*read-only (null)*	The IPv6 address prefix Length.

4.6.3 Property details

4.6.3.1 AddressOrigin

This indicates how the address was determined.

string	Description
DHCPv6	A DHCPv6 service-provided address.
LinkLocal	The address is valid for only this network segment, or link.
SLAAC	A stateless autoconfiguration (SLAAC) service-provided address.
Static	A static user-configured address.

4.6.3.2 AddressState

The current RFC4862-defined state of this address.

string	Description
Deprecated	This address is currently within its valid lifetime but is now outside its RFC4862-defined preferred lifetime.

string	Description
Failed	This address has failed Duplicate Address Detection (DAD) testing, as defined in RFC4862, section 5.4, and is not currently in use.
Preferred	This address is currently within both its RFC4862-defined valid and preferred lifetimes.
Tentative	This address is currently undergoing Duplicate Address Detection (DAD) testing, as defined in RFC4862, section 5.4.

4.7 IPv6GatewayStaticAddress

4.7.1 Description

This type represents a single IPv6 static address to be assigned on a network interface.

4.7.2 Properties

Property	Type	Attributes	Notes
Address *(v1.1+)*	string	*read-write required (null)*	A valid IPv6 address.
Oem *(v1.1+)* {}	object		See the Oem object definition in the Common properties section.
PrefixLength *(v1.1+)*	integer	*read-write (null)*	The IPv6 network prefix length, in bits, for this address.

4.8 IPv6StaticAddress

4.8.1 Description

This type represents a single IPv6 static address to be assigned on a network interface.

4.8.2 Properties

Property	Type	Attributes	Notes
Address	string	*read-write required (null)*	A valid IPv6 address.
Oem {}	object		See the Oem object definition in the Common properties section.
PrefixLength	integer	*read-write required (null)*	The prefix length, in bits, of this IPv6 address.

4.9 Location

4.9.1 Description

The location of a resource.

4.9.2 Properties

Property	Type	Attributes	Notes
AltitudeMeters *(v1.6+)*	number (meters)	*read-write (null)*	The altitude of the resource in meters.
Contacts *(v1.7+)* [{	array		An array of contact information.
ContactName *(v1.7+)*	string	*read-write (null)*	Name of this contact.
EmailAddress *(v1.7+)*	string	*read-write (null)*	Email address for this contact.
PhoneNumber *(v1.7+)*	string	*read-write (null)*	Phone number for this contact.
}]			
Info *(v1.1+, deprecated v1.5)*	string	*read-only (null)*	The location of the resource. *Deprecated in v1.5 and later. This property has been deprecated in favor of the* `PostalAddress`, `Placement`, *and* `PartLocation` *properties.*

Property	Type	Attributes	Notes
InfoFormat *(v1.1+, deprecated v1.5)*	string	*read-only (null)*	The format of the `Info` property. *Deprecated in v1.5 and later. This property has been deprecated in favor of the* `PostalAddress` , `Placement` , *and* `PartLocation` *properties.*
Latitude *(v1.6+)*	number (deg)	*read-write (null)*	The latitude of the resource.
Longitude *(v1.6+)*	number (deg)	*read-write (null)*	The longitude of the resource in degree units.
Oem *(v1.1+)* {	object		See the Oem object definition in the Common properties section.
(pattern) {}	object		Property names follow regular expression pattern "^[A-Za-z0-9_]+$"
}			
PartLocation *(v1.5+)* {	object		The part location for a resource within an enclosure.
LocationOrdinalValue *(v1.5+)*	integer	*read-only (null)*	The number that represents the location of the part. For example, if `LocationType` is `Slot` and this unit is in slot 2, the LocationOrdinalValue is `2` .
LocationType *(v1.5+)*	string (enum)	*read-only (null)*	The type of location of the part. *For the possible property values, see LocationType in Property details.*
Orientation *(v1.5+)*	string (enum)	*read-only (null)*	The orientation for the ordering of the slot enumeration used by the `LocationOrdinalValue` property. *For the possible property values, see Orientation in Property details.*
Reference *(v1.5+)*	string (enum)	*read-only (null)*	The reference point for the part location. Provides guidance about the general location of the part. *For the possible property values, see Reference in Property details.*
ServiceLabel *(v1.5+)*	string	*read-only (null)*	The label of the part location, such as a silk-screened name or a printed label.
}			
PartLocationContext *(v1.16+)*	string	*read-only (null)*	Human-readable string to enable differentiation between `PartLocation` values for parts in the same enclosure, which might include hierarchical information of containing `PartLocation` values for the part.
PhysicalAddress *(v1.17+)* {	object		The physical address for a resource.
City *(v1.17+)*	string	*read-write (null)*	City, township, or shi (JP).
Country *(v1.17+)*	string	*read-write (null)*	The country.
ISOCountryCode *(v1.17+)*	string	*read-write (null)*	The ISO 3166-1 country code.

Property	Type	Attributes	Notes
ISOSubdivisionCode *(v1.17+)*	string	*read-write (null)*	ISO 3166-2 subdivision code.
PostalCode *(v1.17+)*	string	*read-write (null)*	The postal code.
StateOrProvince *(v1.17+)*	string	*read-write (null)*	State or province.
StreetAddress *(v1.17+)*	string	*read-write (null)*	The street-level address, including building, room, or other identifiers.
}			
Placement *(v1.3+)* {	object		A place within the addressed location.
AdditionalInfo *(v1.7+)*	string	*read-write (null)*	Area designation or other additional info.
Rack *(v1.3+)*	string	*read-write (null)*	The name of a rack location within a row.
RackOffset *(v1.3+)*	integer	*read-write (null)*	The vertical location of the item, in terms of RackOffsetUnits.
RackOffsetUnits *(v1.3+)*	string (enum)	*read-write (null)*	The type of rack units in use. *For the possible property values, see RackOffsetUnits in Property details.*
Row *(v1.3+)*	string	*read-write (null)*	The name of the row.
}			
PostalAddress *(v1.3+, deprecated v1.17)* {	object		The postal address of the addressed resource. *Deprecated in v1.17 and later. This object and its properties have been deprecated in favor of* `PhysicalAddress` *.*
AdditionalCode *(v1.3+)*	string	*read-write (null)*	The additional code.
AdditionalInfo *(v1.7+)*	string	*read-write (null)*	The room designation or other additional information.
Building *(v1.3+)*	string	*read-write (null)*	The name of the building.
City *(v1.3+)*	string	*read-write (null)*	City, township, or shi (JP).
Community *(v1.3+)*	string	*read-write (null)*	The postal community name.

Property	Type	Attributes	Notes
Country *(v1.3+)*	string	*read-write (null)*	The country.
District *(v1.3+)*	string	*read-write (null)*	A county, parish, gun (JP), or district (IN).
Division *(v1.3+)*	string	*read-write (null)*	City division, borough, city district, ward, or chou (JP).
Floor *(v1.3+)*	string	*read-write (null)*	The floor.
GPSCoords *(v1.3+, deprecated v1.6)*	string	*read-write (null)*	The GPS coordinates of the part. *Deprecated in v1.6 and later. This property has been deprecated in favor of the Longitude and Latitude properties.*
HouseNumber *(v1.3+)*	integer	*read-write (null)*	The numeric portion of house number.
HouseNumberSuffix *(v1.3+)*	string	*read-write (null)*	The house number suffix.
Landmark *(v1.3+)*	string	*read-write (null)*	The landmark.
LeadingStreetDirection *(v1.3+)*	string	*read-write (null)*	A leading street direction.
Location *(v1.3+, deprecated v1.7)*	string	*read-write (null)*	The room designation or other additional information. *Deprecated in v1.7 and later. This property has been deprecated in favor of the* `AdditionalInfo` *property.*
Name *(v1.3+)*	string	*read-write (null)*	The name.
Neighborhood *(v1.3+)*	string	*read-write (null)*	Neighborhood or block.
PlaceType *(v1.3+)*	string	*read-write (null)*	The description of the type of place that is addressed.
POBox *(v1.3+)*	string	*read-write (null)*	The post office box (PO box).
PostalCode *(v1.3+)*	string	*read-write (null)*	The postal code or zip code.
Road *(v1.3+)*	string	*read-write (null)*	The primary road or street.
RoadBranch *(v1.3+)*	string	*read-write (null)*	The road branch.

Property	Type	Attributes	Notes
RoadPostModifier *(v1.3+)*	string	*read-write (null)*	The road post-modifier.
RoadPreModifier *(v1.3+)*	string	*read-write (null)*	The road pre-modifier.
RoadSection *(v1.3+)*	string	*read-write (null)*	The road section.
RoadSubBranch *(v1.3+)*	string	*read-write (null)*	The road sub branch.
Room *(v1.3+)*	string	*read-write (null)*	The name or number of the room.
Seat *(v1.3+)*	string	*read-write (null)*	The seat, such as the desk, cubicle, or workstation.
Street *(v1.3+)*	string	*read-write (null)*	Street name.
StreetSuffix *(v1.3+)*	string	*read-write (null)*	Avenue, Platz, Street, Circle.
Territory *(v1.3+)*	string	*read-write (null)*	A top-level subdivision within a country.
TrailingStreetSuffix *(v1.3+)*	string	*read-write (null)*	A trailing street suffix.
Unit *(v1.3+)*	string	*read-write (null)*	The name or number of the apartment unit or suite.
}			

4.9.3 Property details

4.9.3.1 LocationType

The type of location of the part.

string	Description
Backplane *(v1.12+)*	A backplane.
Bay	A bay.

string	Description
Connector	A connector or port.
Embedded *(v1.13+)*	Embedded within a part.
Slot	A slot.
Socket	A socket.

4.9.3.2 Orientation

The orientation for the ordering of the slot enumeration used by the `LocationOrdinalValue` property.

string	Description
BackToFront	The ordering for the LocationOrdinalValue is back to front.
BottomToTop	The ordering for `LocationOrdinalValue` is bottom to top.
FrontToBack	The ordering for `LocationOrdinalValue` is front to back.
LeftToRight	The ordering for the LocationOrdinalValue is left to right.
RightToLeft	The ordering for the LocationOrdinalValue is right to left.
TopToBottom	The ordering for the LocationOrdinalValue is top to bottom.

4.9.3.3 RackOffsetUnits

The type of rack units in use.

string	Description
EIA_310	A rack unit that is equal to 1.75 in (44.45 mm).
OpenU	A rack unit that is equal to 48 mm (1.89 in).

4.9.3.4 Reference

The reference point for the part location. Provides guidance about the general location of the part.

string	Description
Bottom	The part is in the bottom of the unit.
Front	The part is in the front of the unit.
Left	The part is on the left side of the unit.
Middle	The part is in the middle of the unit.
Rear	The part is in the rear of the unit.
Right	The part is on the right side of the unit.
Top	The part is in the top of the unit.

4.10 Message

4.10.1 Description

The message that the Redfish service returns.

4.10.2 Properties

Property	Type	Attributes	Notes
Message	string	*read-only*	The human-readable message.
MessageArgs [ ]	array (string)	*read-only*	An array of message arguments that are substituted for the arguments in the message when looked up in the message registry.
MessageId	string	*read-only* *required*	The identifier for the message.
MessageSeverity *(v1.1+)*	string (enum)	*read-only*	The severity of the message. *For the possible property values, see MessageSeverity in Property details.*
Oem {}	object		See the Oem object definition in the Common properties section.
RelatedProperties [ ]	array (string)	*read-only*	A set of properties described by the message.
Resolution	string	*read-only*	Used to provide suggestions on how to resolve the situation that caused the message.
ResolutionSteps *(v1.2+)* [{ }]	array (object)		The list of recommended steps to resolve the situation that caused the message. For property details, see ResolutionStep.

Property	Type	Attributes	Notes
Severity *(deprecated v1.1)*	string	*read-only*	The severity of the message. *Deprecated in v1.1 and later. This property has been deprecated in favor of* `MessageSeverity`*, which ties the values to the enumerations defined for the* `Health` *property within* `Status`*.*
UserAuthenticationSource *(v1.3+)*	string	*read-only* *(null)*	The source of authentication for the username property associated with the message.
Username *(v1.3+)*	string	*read-only* *(null)*	The username of the account associated with the message.

4.10.3 Property details

4.10.3.1 MessageSeverity

The severity of the message.

string	Description
Critical	A critical condition requires immediate attention.
OK	Normal.
Warning	A condition requires attention.

4.11 Redundancy

4.11.1 Description

The common redundancy definition and structure used in other Redfish schemas.

4.11.2 Properties

Property	Type	Attributes	Notes
@odata.id	string (URI)	*read-only* *required*	The unique identifier for a resource.
Actions *(v1.2+)* {}	object		The available actions for this resource.

Property	Type	Attributes	Notes
MaxNumSupported	integer	*read-only (null)*	The maximum number of members allowable for this particular redundancy group.
MemberId	string	*read-only required*	The unique identifier for the member within an array.
MinNumNeeded	integer	*read-only required (null)*	The minimum number of members needed for this group to be redundant.
Mode	string (enum)	*read-write required (null)*	The redundancy mode of the group. *For the possible property values, see Mode in Property details.*
Name	string	*read-only required*	The name of the resource or array member.
Oem {}	object		See the Oem object definition in the Common properties section.
RedundancyEnabled *(v1.1+)*	boolean	*read-write (null)*	An indication of whether redundancy is enabled.
RedundancySet [{	array	*required*	The links to components of this redundancy set.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
Status {}	object	*required*	The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

4.11.3 Property details

4.11.3.1 Mode

The redundancy mode of the group.

string	Description
Failover	Failure of one unit automatically causes a standby or offline unit in the redundancy set to take over its functions.
N+m	Multiple units are available and active such that normal operation will continue if one or more units fail.
NotRedundant *(v1.3+)*	The subsystem is not configured in a redundancy mode, either due to configuration or the functionality has been disabled by the user.

string	Description
Sharing	Multiple units contribute or share such that operation will continue, but at a reduced capacity, if one or more units fail.
Sparing	One or more spare units are available to take over the function of a failed unit, but takeover is not automatic.

4.12 RedundantGroup

4.12.1 Description

The redundancy information for the devices in a redundancy group.

4.12.2 Properties

Property	Type	Attributes	Notes
GroupName *(v1.5+)*	string	*read-only*	The name of the redundant group.
MaxSupportedInGroup *(v1.4+)*	integer	*read-only* *(null)*	The maximum number of devices supported in this redundancy group.
MinNeededInGroup *(v1.4+)*	integer	*read-only* *required* *(null)*	The minimum number of devices needed for this group to be redundant.
RedundancyGroup *(v1.4+)* [{	array	*required*	The links to the devices included in this redundancy group.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
RedundancyType *(v1.4+)*	string (enum)	*read-write* *required* *(null)*	The redundancy mode of the group. *For the possible property values, see RedundancyType in Property details.*
Status *(v1.4+)* {}	object	*required*	The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

4.12.3 Property details

4.12.3.1 RedundancyType

The redundancy mode of the group.

string	Description
Failover	Failure of one unit automatically causes a standby or offline unit in the redundancy set to take over its functions.
NotRedundant	The subsystem is not configured in a redundancy mode, either due to configuration or the functionality has been disabled by the user.
NPlusM	Multiple units are available and active such that normal operation will continue if one or more units fail.
Sharing	Multiple units contribute or share such that operation will continue, but at a reduced capacity, if one or more units fail.
Sparing	One or more spare units are available to take over the function of a failed unit, but takeover is not automatic.

4.13 ReplicaInfo

4.13.1 Description

Defines the characteristics of a replica of a source.

4.13.2 Properties

Property	Type	Attributes	Notes
ConsistencyEnabled	boolean	*read-only (null)*	True if consistency is enabled.
ConsistencyState	string (enum)	*read-only (null)*	The current state of consistency. *For the possible property values, see ConsistencyState in Property details.*
ConsistencyStatus	string (enum)	*read-only (null)*	The current status of consistency. *For the possible property values, see ConsistencyStatus in Property details.*
ConsistencyType	string (enum)	*read-only (null)*	Indicates the consistency type used by the source and its associated target group. *For the possible property values, see ConsistencyType in Property details.*

Property	Type	Attributes	Notes
DataProtectionLineOfService *(v1.1+)* {	object		A pointer to the DataProtection line of service element that describes this replica.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}			
FailedCopyStopsHostIO	boolean	*read-only (null)*	If true, the storage array tells host to stop sending data to source element if copying to a remote element fails.
PercentSynced	integer (%)	*read-only (null)*	Specifies the percent of the work completed to reach synchronization.
RemoteSourceReplica *(v1.4+)*	string	*read-only (null)*	ReplicaFaultDomain describes the fault domain (local or remote) of the replica relationship.
Replica {	object		Deprecated - Use Source Replica. The resource that is the source of this replica.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}			
ReplicaFaultDomain *(v1.3+)*	string (enum)	*read-only (null)*	ReplicaFaultDomain describes the fault domain (local or remote) of the replica relationship. *For the possible property values, see ReplicaFaultDomain in Property details.*
ReplicaPriority	string (enum)	*read-only (null)*	The priority of background copy engine I/O to be managed relative to host I/O operations during a sequential background copy operation. *For the possible property values, see ReplicaPriority in Property details.*
ReplicaProgressStatus	string (enum)	*read-only (null)*	The status of the session with respect to Replication activity. *For the possible property values, see ReplicaProgressStatus in Property details.*
ReplicaReadOnlyAccess	string (enum)	*read-only (null)*	This property specifies whether the source, the target, or both elements are read only to the host. *For the possible property values, see ReplicaReadOnlyAccess in Property details.*
ReplicaRecoveryMode	string (enum)	*read-only (null)*	Describes whether the copy operation continues after a broken link is restored. *For the possible property values, see ReplicaRecoveryMode in Property details.*
ReplicaRole	string (enum)	*read-only (null)*	The source or target role of this replica. *For the possible property values, see ReplicaRole in Property details.*
ReplicaSkewBytes	integer (bytes)	*read-only (null)*	Applies to Adaptive mode and it describes maximum number of bytes the SyncedElement (target) can be out of sync.

Property	Type	Attributes	Notes
ReplicaState	string (enum)	*read-only (null)*	ReplicaState describes the state of the relationship with respect to Replication activity. *For the possible property values, see ReplicaState in Property details.*
ReplicaType	string (enum)	*read-only (null)*	ReplicaType describes the intended outcome of the replication. *For the possible property values, see ReplicaType in Property details.*
ReplicaUpdateMode	string (enum)	*read-only (null)*	Describes whether the target elements will be updated synchronously or asynchronously. *For the possible property values, see ReplicaUpdateMode in Property details.*
RequestedReplicaState	string (enum)	*read-only (null)*	The last requested or desired state for the relationship. *For the possible property values, see RequestedReplicaState in Property details.*
SourceReplica *(v1.2+)* {	object		The URI to the source replica when located on a different Swordfish service instance.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}			
SyncMaintained	boolean	*read-only (null)*	Synchronization is maintained.
UndiscoveredElement	string (enum)	*read-only (null)*	This property specifies whether the source, the target, or both elements involved in a copy operation are undiscovered. *For the possible property values, see UndiscoveredElement in Property details.*
WhenActivated	string (%)	*read-only (null)*	Specifies when point-in-time copy was taken or when the replication relationship is activated, reactivated, resumed or re-established.
WhenDeactivated	string (%)	*read-only (null)*	Specifies when the replication relationship is deactivated.
WhenEstablished	string (%)	*read-only (null)*	Specifies when the replication relationship is established.
WhenSuspended	string (%)	*read-only (null)*	Specifies when the replication relationship is suspended.
WhenSynced	string	*read-only (null)*	The point in time that the Elements were synchronized.
WhenSynchronized	string (%)	*read-only (null)*	Specifies when the replication relationship is synchronized.

4.13.3 Property details

4.13.3.1 ConsistencyState

The current state of consistency.

string	Description
Consistent	Consistent.
Inconsistent	Not consistent.

4.13.3.2 ConsistencyStatus

The current status of consistency.

string	Description
Consistent	Consistent.
Disabled	Consistency disabled.
InError	Consistency error.
InProgress	Becoming consistent.

4.13.3.3 ConsistencyType

Indicates the consistency type used by the source and its associated target group.

string	Description
SequentiallyConsistent	Sequentially consistent.

4.13.3.4 ReplicaFaultDomain

ReplicaFaultDomain describes the fault domain (local or remote) of the replica relationship.

string	Description
Local	Local indicates that the source and target replicas are contained within a single fault domain.
Remote	Remote indicates that the source and target replicas are in separate fault domains.

4.13.3.5 ReplicaPriority

The priority of background copy engine I/O to be managed relative to host I/O operations during a sequential background copy operation.

string	Description
High	Copy engine I/O has higher priority than host I/O.
Low	Copy engine I/O lower priority than host I/O.
Same	Copy engine I/O has the same priority as host I/O.
Urgent	Copy operation to be performed as soon as possible, regardless of the host I/O requests.

4.13.3.6 ReplicaProgressStatus

The status of the session with respect to Replication activity.

string	Description
Aborting	Abort in progress.
Completed	The request is completed. Data flow is idle.
Detaching	Detach in progress.
Dormant	Indicates that the data flow is inactive, suspended or quiesced.
FailingBack	Undoing the result of failover.
FailingOver	In the process of switching source and target.
Fracturing	Fracture in progress.
Initializing	In the process of establishing source/replica relationship and the data flow has not started.
Mixed	Applies to groups with element pairs with different statuses. Generally, the individual statuses need to be examined.
Pending	The flow of data has stopped momentarily due to limited bandwidth or a busy system.

string	Description
Preparing	Preparation in progress.
RequiresActivate	The requested operation has completed, however, the synchronization relationship needs to be activated before further copy operations can be issued.
RequiresDetach	The requested operation has completed, however, the synchronization relationship needs to be detached before further copy operations can be issued.
RequiresFracture	The requested operation has completed, however, the synchronization relationship needs to be fractured before further copy operations can be issued.
RequiresResume	The requested operation has completed, however, the synchronization relationship needs to be resumed before further copy operations can be issued.
RequiresResync	The requested operation has completed, however, the synchronization relationship needs to be resynced before further copy operations can be issued.
RequiresSplit	The requested operation has completed, however, the synchronization relationship needs to be split before further copy operations can be issued.
Restoring	Restore in progress.
Resyncing	Resync in progress.
Splitting	Split in progress.
Suspending	The copy operation is in the process of being suspended.
Synchronizing	Sync in progress.
Terminating	The relationship is in the process of terminating.

4.13.3.7 ReplicaReadOnlyAccess

This property specifies whether the source, the target, or both elements are read only to the host.

string	Description
Both	Both the source and the target elements are read only to the host.
ReplicaElement	The replica element.
SourceElement	The source element.

4.13.3.8 ReplicaRecoveryMode

Describes whether the copy operation continues after a broken link is restored.

string	Description
Automatic	Copy operation resumes automatically.
Manual	ReplicaState is set to Suspended after the link is restored. It is required to issue the Resume operation to continue.

4.13.3.9 ReplicaRole

The source or target role of this replica.

string	Description
Source	The source element.
Target	The target element.

4.13.3.10 ReplicaState

ReplicaState describes the state of the relationship with respect to Replication activity.

string	Description
Aborted	The copy operation is aborted with the Abort operation. Use the Resync Replica operation to restart the copy operation.
Broken	The relationship is non-functional due to errors in the source, the target, the path between the two or space constraints.
Failedover	Reads and writes are sent to the target element. Source element is not reachable.
Fractured	Target is split from the source.
Inactive	Data flow has stopped, writes to source element will not be sent to target element.
Initialized	The link to enable replication is established and source/replica elements are associated, but the data flow has not started.
Invalid	The array is unable to determine the state of the replication relationship, for example, after the connection is restored; however, either source or target elements have an unknown status.
Mixed	Applies to the ReplicaState of GroupSynchronized. It indicates the StorageSynchronized relationships of the elements in the groups have different ReplicaState values.
Partitioned	State of replication relationship can not be determined, for example, due to a connection problem.
Prepared	Initialization is completed, however, the data flow has not started.

string	Description
Restored	It indicates the source element was restored from the target element.
Skewed	The target has been modified and is no longer synchronized with the source element or the point-in-time view.
Split	The target element was gracefully (or systematically) split from its source element -- consistency is guaranteed.
Suspended	Data flow between the source and target elements has stopped. Writes to source element are held until the relationship is Resumed.
Synchronized	For the Mirror, Snapshot, or Clone replication, the target represents a copy of the source.
Unsynchronized	Not all the source element data has been copied to the target element.

4.13.3.11 ReplicaType

ReplicaType describes the intended outcome of the replication.

string	Description
Clone	Create a point in time, full copy the source.
Mirror	Create and maintain a copy of the source.
Snapshot	Create a point in time, virtual copy of the source.
TokenizedClone	Create a token based clone.

4.13.3.12 ReplicaUpdateMode

Describes whether the target elements will be updated synchronously or asynchronously.

string	Description
Active	Active-Active (i.e. bidirectional) synchronous updates.
Adaptive	Allows implementation to switch between synchronous and asynchronous modes.
Asynchronous	Asynchronous updates.
Synchronous	Synchronous updates.

4.13.3.13 RequestedReplicaState

The last requested or desired state for the relationship.

string	Description
Aborted	The copy operation is aborted with the Abort operation. Use the Resync Replica operation to restart the copy operation.
Broken	The relationship is non-functional due to errors in the source, the target, the path between the two or space constraints.
Failedover	Reads and writes are sent to the target element. Source element is not reachable.
Fractured	Target is split from the source.
Inactive	Data flow has stopped, writes to source element will not be sent to target element.
Initialized	The link to enable replication is established and source/replica elements are associated, but the data flow has not started.
Invalid	The array is unable to determine the state of the replication relationship, for example, after the connection is restored; however, either source or target elements have an unknown status.
Mixed	Applies to the ReplicaState of GroupSynchronized. It indicates the StorageSynchronized relationships of the elements in the groups have different ReplicaState values.
Partitioned	State of replication relationship can not be determined, for example, due to a connection problem.
Prepared	Initialization is completed, however, the data flow has not started.
Restored	It indicates the source element was restored from the target element.
Skewed	The target has been modified and is no longer synchronized with the source element or the point-in-time view.
Split	The target element was gracefully (or systematically) split from its source element -- consistency is guaranteed.
Suspended	Data flow between the source and target elements has stopped. Writes to source element are held until the relationship is Resumed.
Synchronized	For the Mirror, Snapshot, or Clone replication, the target represents a copy of the source.
Unsynchronized	Not all the source element data has been copied to the target element.

4.13.3.14 UndiscoveredElement

This property specifies whether the source, the target, or both elements involved in a copy operation are undiscovered.

string	Description
ReplicaElement	The replica element is undiscovered.
SourceElement	The source element is undiscovered.

4.14 ResolutionStep

4.14.1 Description

This type describes a recommended step of the service-defined resolution.

4.14.2 Properties

Property	Type	Attributes	Notes
ActionParameters [{	array		The parameters of the action URI for a resolution step.
@odata.id	string	*read-only*	Link to a Parameters resource. See the Links section and the *ActionInfo* schema for details.
}]			
ActionURI	string (URI)	*read-only*	The action URI for a resolution step.
Oem {}	object		See the Oem object definition in the Common properties section.
Priority	integer	*read-only (null)*	The priority in the set of resolution steps.
ResolutionType	string (enum)	*read-only required (null)*	The type of the resolution step. *For the possible property values, see ResolutionType in Property details.*
RetryCount	integer	*read-only (null)*	The number of retries for a resolution step.
RetryIntervalSeconds	integer (seconds)	*read-only (null)*	The interval between retries for a resolution step.
TargetComponentURI	string (URI)	*read-only (null)*	The target URI of the component for a resolution step.

4.14.3 Property details

4.14.3.1 ResolutionType

The type of the resolution step.

string	Description
CollectDiagnosticData	Collect diagnostic data.
ContactVendor	Contact vendor for service.
FirmwareUpdate	Perform a firmware update operation.
OEM	Perform an OEM-defined resolution step.
PowerCycle	Perform a power cycle operation.
ReplaceComponent	Replace a component.
Reset	Perform a reset operation.
ResetToDefaults	Reset the settings to factory defaults.

4.15 Schedule

4.15.1 Description

Schedule a series of occurrences.

4.15.2 Properties

Property	Type	Attributes	Notes
EnabledDaysOfMonth [ ]	array (integer, null)	*read-write*	Days of the month when scheduled occurrences are enabled. `0` indicates that every day of the month is enabled.
EnabledDaysOfWeek [ ]	array (string (enum))	*read-write (null)*	Days of the week when scheduled occurrences are enabled, for enabled days of the month and months of the year. If not present, all days of the week are enabled. *For the possible property values, see EnabledDaysOfWeek in Property details.*
EnabledIntervals *(v1.1+)* [ ]	array (string, null)	*read-write*	Intervals when scheduled occurrences are enabled.

Property	Type	Attributes	Notes
EnabledMonthsOfYear [ ]	array (string (enum))	*read-write (null)*	The months of the year when scheduled occurrences are enabled. If not present, all months of the year are enabled. *For the possible property values, see EnabledMonthsOfYear in Property details.*
InitialStartTime	string (date-time)	*read-write (null)*	The date and time when the initial occurrence is scheduled to occur.
Lifetime	string (duration)	*read-write (null)*	The time after provisioning when the schedule as a whole expires.
MaxOccurrences	integer	*read-write (null)*	The maximum number of scheduled occurrences.
Name	string	*read-write (null)*	The schedule name.
RecurrenceInterval	string (duration)	*read-write (null)*	The duration between consecutive occurrences.

4.15.3 Property details

4.15.3.1 EnabledDaysOfWeek

Days of the week when scheduled occurrences are enabled, for enabled days of the month and months of the year. If not present, all days of the week are enabled.

string	Description
Every	Every day of the week.
Friday	Friday.
Monday	Monday.
Saturday	Saturday.
Sunday	Sunday.
Thursday	Thursday.
Tuesday	Tuesday.
Wednesday	Wednesday.

4.15.3.2 EnabledMonthsOfYear

The months of the year when scheduled occurrences are enabled. If not present, all months of the year are enabled.

string	Description
April	April.
August	August.
December	December.
Every	Every month of the year.
February	February.
January	January.
July	July.
June	June.
March	March.
May	May.
November	November.
October	October.
September	September.

4.16 Status

4.16.1 Description

The status and health of a resource and its children.

4.16.2 Properties

Property	Type	Attributes	Notes
Conditions *(v1.11+)* [{	array		Conditions in this resource that require attention.

Property	Type	Attributes	Notes
ConditionType *(v1.22+)*	string (enum)	*read-only (null)*	The type of condition. *For the possible property values, see ConditionType in Property details.*
LogEntry {	object		The link to the log entry created for this condition. See the *LogEntry* schema for details on this property.
@odata.id	string	*read-only*	Link to a LogEntry resource. See the Links section and the *LogEntry* schema for details.
}			
Message	string	*read-only*	The human-readable message for this condition.
MessageArgs [ ]	array (string)	*read-only*	An array of message arguments that are substituted for the arguments in the message when looked up in the message registry.
MessageId	string	*read-only required*	The identifier for the message.
Oem *(v1.21+)* {	object		See the Oem object definition in the Common properties section.
(pattern) {}	object		Property names follow regular expression pattern "^[A-Za-z0-9_]+$"
}			
OriginOfCondition {	object		A link to the resource or object that originated the condition.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}			
Resolution *(v1.14+)*	string	*read-only*	Suggestions on how to resolve the condition.
ResolutionSteps *(v1.18+)* [{ }]	array (object)		The list of recommended steps to resolve the condition. For property details, see ResolutionStep.
Severity	string (enum)	*read-only*	The severity of the condition. *For the possible property values, see Severity in Property details.*
Timestamp	string (date-time)	*read-only*	The time the condition occurred.
UserAuthenticationSource *(v1.20+)*	string	*read-only (null)*	The source of authentication for the username property associated with the condition.
Username *(v1.20+)*	string	*read-only (null)*	The username of the account associated with the condition.
}]			

Property	Type	Attributes	Notes
Health	string (enum)	*read-only (null)*	The health state of this resource in the absence of its dependent resources. *For the possible property values, see Health in Property details.*
HealthRollup	string (enum)	*read-only (null)*	The overall health state from the view of this resource. *For the possible property values, see HealthRollup in Property details.*
Oem {	object		See the Oem object definition in the Common properties section.
(pattern) {}	object		Property names follow regular expression pattern "^[A-Za-z0-9_]+$"
}			
State	string (enum)	*read-only (null)*	The state of the resource. *For the possible property values, see State in Property details.*

4.16.3 Property details

4.16.3.1 ConditionType

The type of condition.

string	Description
Alert	The condition is an alert.
Informational	The condition is informational.
Subsystem	The condition is the health of a subsystem.

4.16.3.2 Health

The health state of this resource in the absence of its dependent resources.

string	Description
Critical	A critical condition requires immediate attention.
OK	Normal.
Warning	A condition requires attention.

4.16.3.3 HealthRollup

The overall health state from the view of this resource.

Methods used to determine the value of this property can vary between different architectures and requirements of the underlying product. This property does not necessarily surface the most degraded health from all subordinate resources. For example, if a `PowerSupply` resource contains `Critical` for its `Health` property, but belongs to a redundancy group that is still able to power the parent `Chassis` resource, the `Chassis` resource could report `Warning` for the `HealthRollup` property, depending on the redundancy policy for the `Chassis` resource. Using the same `PowerSupply` example, the `ComputerSystem` resource associated with this `Chassis` resource could degrade its `HealthRollup`, even though the `PowerSupply` resource is not subordinate to the `ComputerSystem` resource. In this case, the `ComputerSystem` resource is dependent on the `PowerSupply`, but are in two different resource hierarchies.

string	Description
Critical	A critical condition requires immediate attention.
OK	Normal.
Warning	A condition requires attention.

4.16.3.4 Severity

The severity of the condition.

string	Description
Critical	A critical condition requires immediate attention.
OK	Normal.
Warning	A condition requires attention.

4.16.3.5 State

The state of the resource.

string	Description
Absent	This function or device is not currently present or detected. This resource represents a capability or an available location where a device can be installed.

string	Description
Deferring *(v1.2+)*	The element does not process any commands but queues new requests.
Degraded *(v1.19+)*	The function or resource is degraded.
Disabled	This function or resource is disabled.
Enabled	This function or resource is enabled.
InTest	This function or resource is undergoing testing or is in the process of capturing information for debugging.
Qualified *(v1.9+, deprecated v1.19)*	The element quality is within the acceptable range of operation. *Deprecated in v1.19 and later. This value has been deprecated in favor of StandbySpare.*
Quiesced *(v1.2+)*	The element is enabled but only processes a restricted set of commands.
StandbyOffline	This function or resource is enabled but awaits an external action to activate it.
StandbySpare	This function or resource is part of a redundancy set and awaits a failover or other external action to activate it.
Starting	This function or resource is starting.
UnavailableOffline *(v1.1+)*	This function or resource is present but cannot be used.
Updating *(v1.2+)*	The element is updating and might be unavailable or degraded.

5 Resource collections

A resource collection is a core concept in Redfish. A resource collection is a group of like resources where the number of instances in the group can shrink or grow depending on the scope of the Redfish service or the configuration of the devices being managed. Every resource collection contains the same set of supported properties, and all contain `Collection` in the name of their schema. Every resource linked in the `Members` array within a resource collection will have the same resource type with the same major version, but can vary in minor or errata schema versions.

The properties of a resource collection are:

5.0.1 Properties

Property	Type	Attributes	Notes
@odata.context	string (URI)	*read-only*	The OData description of a payload.
@odata.id	string (URI)	*read-only* *required*	The unique identifier for a resource.
@odata.type	string	*read-only* *required*	The type of a resource.
Description	string	*read-only* *(null)*	The description of this resource. Used for commonality in the schema definitions.
Members [{	array	*required*	The members of this collection.
@odata.id	string (URI)	*read-only*	The link to a Resource instance, which is a member of this collection.
}]			
Members@odata.count	integer	*read-only*	The number of items in a collection.
Members@odata.nextLink	string (URI)	*read-only*	The URI to the resource containing the next set of partial members.
Name	string	*read-only* *required*	The name of the resource or array member.
Oem {}	object		The manufacturer- or provider-specific extension moniker that divides the `Oem` object into sections.

As shown in the following example, a Redfish service may provide management functionality for several

`ComputerSystem` resources, and therefore a `ComputerSystemCollection` resource is provided. This example shows a service with four `ComputerSystem` instances inside the `Members` array.

```
{
    "@odata.type": "#ComputerSystemCollection.ComputerSystemCollection",
    "Name": "Computer System Collection",
    "Members@odata.count": 4,
    "Members": [
        {
            "@odata.id": "/redfish/v1/Systems/529QB9450R6"
        },
        {
            "@odata.id": "/redfish/v1/Systems/529QB9451R6"
        },
        {
            "@odata.id": "/redfish/v1/Systems/529QB9452R6"
        },
        {
            "@odata.id": "/redfish/v1/Systems/529QB9453R6"
        }
    ],
    "@odata.id": "/redfish/v1/Systems"
}
```

5.1 Collection capabilities annotation (#CollectionCapabilities)

This annotation is used to inform the client how to form the request body for a create (`POST`) operation to a given collection based on a specified use case, which will result in a new member being added to the given collection.

5.1.1 Properties

Property	Type	Attributes	Notes
Capabilities [{	array		The list of capabilities supported by this resource.
CapabilitiesObject {	object	*required*	The link to the resource the client can issue a GET request against to understand how to form a POST request for a collection.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}			
Links {	object	*required*	The links to other resources that are related to this resource.
Oem {}	object		The OEM extension property. For property details, see Oem.

Property	Type	Attributes	Notes
RelatedItem [{	array		An array of links to resources associated with this capability.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
RelatedItem@odata.count	integer	*read-only*	The number of items in a collection.
TargetCollection {	object	*required*	The link to the collection that this capabilities structure is describing.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}			
}			
UseCase	string (enum)	*read-only* *required*	The use case in which a client can issue a POST request to the collection. *For the possible property values, see UseCase in Property details.*
}]			
MaxMembers *(v1.2+)*	integer	*read-only*	The maximum number of members allowed in this collection.

5.1.2 Property details

5.1.2.1 UseCase

The use case in which a client can issue a POST request to the collection.

string	Description
ComputerSystemComposition	This capability describes a client creating a new computer system resource from a set of disaggregated hardware.
ComputerSystemConstrainedComposition *(v1.1+)*	This capability describes a client creating a new computer system resource from a set of constraints.
ResourceBlockComposition *(v1.3+)*	This capability describes a client creating a new resource block from a set of other resource blocks.
ResourceBlockConstrainedComposition *(v1.3+)*	This capability describes a client creating a new resource block from a set of constraints.
VolumeCreation	This capability describes a client creating a new volume resource as part of an existing storage subsystem.

5.1.3 Example collection capabilities annotation

```
{
    "@Redfish.CollectionCapabilities": {
        "@odata.type": "#CollectionCapabilities.v1_1_0.CollectionCapabilities",
        "Capabilities": [
            {
                "CapabilitiesObject": {
                    "@odata.id": "/redfish/v1/Systems/Capabilities"
                },
                "UseCase": "ComputerSystemComposition",
                "Links": {
                    "TargetCollection": {
                        "@odata.id": "/redfish/v1/Systems"
                    }
                }
            },
            {
                "CapabilitiesObject": {
                    "@odata.id": "/redfish/v1/Systems/ConstrainedCompositionCapabilities"
                },
                "UseCase": "ComputerSystemConstrainedComposition",
                "Links": {
                    "TargetCollection": {
                        "@odata.id": "/redfish/v1/Systems"
                    }
                }
            }
        ]
    },
    ...
}
```

5.2 Resource collection URIs in Redfish v1.6 and later

The following table lists all Redfish-defined resource collections and the URIs where they can appear.

> **Note:** The URIs listed are valid for Redfish services that conform to the *Redfish Specification v1.6.0* or higher. Services built on earlier specification versions might use different URIs, which must be discovered by following the hyperlinks from the service root (`/redfish/v1/`).

Collection Type	URIs
AccelerationFunctionCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/AccelerationFunctions /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/AccelerationFunctions /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/AccelerationFunctions /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/AccelerationFunctions /redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/AccelerationFunctions
AddressPoolCollection	/redfish/v1/Fabrics/*{FabricId}*/AddressPools
AggregateCollection	/redfish/v1/AggregationService/Aggregates
AggregationSourceCollection	/redfish/v1/AggregationService/AggregationSources
AllowDenyCollection	/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/NetworkDeviceFunctions/*{NetworkDeviceFunctionId}*/AllowDeny /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkDeviceFunctions/*{NetworkDeviceFunctionId}*/AllowDeny /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkDeviceFunctions/*{NetworkDeviceFunctionId}*/AllowDeny /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkDeviceFunctions/*{NetworkDeviceFunctionId}*/AllowDeny /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkDeviceFunctions/*{NetworkDeviceFunctionId}*/AllowDeny /redfish/v1/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkDeviceFunctions/*{NetworkDeviceFunctionId}*/AllowDeny
ApplicationCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/OperatingSystem/Applications /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/OperatingSystem/Applications /redfish/v1/Systems/*{ComputerSystemId}*/OperatingSystem/Applications
AutomationNodeCollection	/redfish/v1/AutomationNodes
BatteryCollection	/redfish/v1/Chassis/*{ChassisId}*/PowerSubsystem/Batteries
BootOptionCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/BootOptions /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/BootOptions /redfish/v1/Systems/*{ComputerSystemId}*/BootOptions
CableCollection	/redfish/v1/Cables

Collection Type	URIs
CertificateCollection	/redfish/v1/AccountService/Accounts/*{ManagerAccountId}*/Certificates /redfish/v1/AccountService/ActiveDirectory/Certificates /redfish/v1/AccountService/ExternalAccountProviders/*{ExternalAccountProviderId}*/Certificates /redfish/v1/AccountService/LDAP/Certificates /redfish/v1/AccountService/MultiFactorAuth/ClientCertificate/Certificates /redfish/v1/AccountService/MultiFactorAuth/SecurID/Certificates /redfish/v1/AccountService/OutboundConnections/*{OutboundConnectionId}*/Certificates /redfish/v1/AccountService/OutboundConnections/*{OutboundConnectionId}*/ClientCertificates /redfish/v1/Chassis/*{ChassisId}*/Certificates /redfish/v1/Chassis/*{ChassisId}*/Drives/*{DriveId}*/Certificates /redfish/v1/Chassis/*{ChassisId}*/Memory/*{MemoryId}*/Certificates /redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Certificates /redfish/v1/Chassis/*{ChassisId}*/PowerSubsystem/PowerSupplies/*{PowerSupplyId}*/Certificates /redfish/v1/Chassis/*{ChassisId}*/TrustedComponents/*{TrustedComponentId}*/Certificates /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Drives/*{DriveId}*/Certificates /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*/Certificates /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/Certificates /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Certificates /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Drives/*{DriveId}*/Certificates (deprecated) /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Certificates /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Boot/Certificates /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Certificates /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/KeyManagement/KMIPCertificates /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Certificates /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/Certificates /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/SecureBoot/SecureBootDatabases/*{DatabaseId}*/Certificates /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Certificates /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Drives/*{DriveId}*/Certificates (deprecated) /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Certificates /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/VirtualMedia/*{VirtualMediaId}*/Certificates /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/VirtualMedia/*{VirtualMediaId}*/ClientCertificates /redfish/v1/EventService/Subscriptions/*{EventDestinationId}*/Certificates /redfish/v1/EventService/Subscriptions/*{EventDestinationId}*/ClientCertificates /redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Certificates

Collection Type	URIs
	/redfish/v1/Managers/*{ManagerId}*/Certificates /redfish/v1/Managers/*{ManagerId}*/NetworkProtocol/HTTPS/Certificates /redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/Accounts/*{ManagerAccountId}*/Certificates /redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/ActiveDirectory/Certificates /redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/ExternalAccountProviders/*{ExternalAccountProviderId}*/Certificates /redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/LDAP/Certificates /redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/MultiFactorAuth/ClientCertificate/Certificates /redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/MultiFactorAuth/SecurID/Certificates /redfish/v1/Managers/*{ManagerId}*/SecurityPolicy/SPDM/RevokedCertificates /redfish/v1/Managers/*{ManagerId}*/SecurityPolicy/SPDM/TrustedCertificates /redfish/v1/Managers/*{ManagerId}*/SecurityPolicy/TLS/Client/RevokedCertificates /redfish/v1/Managers/*{ManagerId}*/SecurityPolicy/TLS/Client/TrustedCertificates /redfish/v1/Managers/*{ManagerId}*/SecurityPolicy/TLS/Server/RevokedCertificates /redfish/v1/Managers/*{ManagerId}*/SecurityPolicy/TLS/Server/TrustedCertificates /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Drives/*{DriveId}*/Certificates /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*/Certificates /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/Certificates /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Certificates /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Drives/*{DriveId}*/Certificates (deprecated) /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Certificates /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Boot/Certificates /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Certificates /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/KeyManagement/KMIPCertificates /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Certificates /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/Certificates /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/SecureBoot/SecureBootDatabases/*{DatabaseId}*/Certificates /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Certificates /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Drives/*{DriveId}*/Certificates (deprecated) /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Certificates /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/VirtualMedia/*{VirtualMediaId}*/Certificates /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/VirtualMedia/*{VirtualMediaId}*/ClientCertificates /redfish/v1/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Certificates /redfish/v1/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Certificates /redfish/v1/Systems/*{ComputerSystemId}*/Boot/Certificates /redfish/v1/Systems/*{ComputerSystemId}*/Certificates /redfish/v1/Systems/*{ComputerSystemId}*/KeyManagement/KMIPCertificates

Collection Type	URIs
	/redfish/v1/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Certificates /redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/Certificates /redfish/v1/Systems/*{ComputerSystemId}*/SecureBoot/SecureBootDatabases/*{DatabaseId}*/Certificates /redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Certificates /redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Drives/*{DriveId}*/Certificates (deprecated) /redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Certificates /redfish/v1/Systems/*{ComputerSystemId}*/VirtualMedia/*{VirtualMediaId}*/Certificates /redfish/v1/Systems/*{ComputerSystemId}*/VirtualMedia/*{VirtualMediaId}*/ClientCertificates /redfish/v1/UpdateService/ClientCertificates /redfish/v1/UpdateService/RemoteServerCertificates
ChassisCollection	/redfish/v1/Chassis
CircuitCollection	/redfish/v1/PowerEquipment/ElectricalBuses/*{PowerDistributionId}*/Branches /redfish/v1/PowerEquipment/ElectricalBuses/*{PowerDistributionId}*/Mains /redfish/v1/PowerEquipment/FloorPDUs/*{PowerDistributionId}*/Branches /redfish/v1/PowerEquipment/FloorPDUs/*{PowerDistributionId}*/Mains /redfish/v1/PowerEquipment/FloorPDUs/*{PowerDistributionId}*/Subfeeds /redfish/v1/PowerEquipment/PowerShelves/*{PowerDistributionId}*/Branches /redfish/v1/PowerEquipment/PowerShelves/*{PowerDistributionId}*/Mains /redfish/v1/PowerEquipment/RackPDUs/*{PowerDistributionId}*/Branches /redfish/v1/PowerEquipment/RackPDUs/*{PowerDistributionId}*/Mains /redfish/v1/PowerEquipment/Switchgear/*{PowerDistributionId}*/Branches /redfish/v1/PowerEquipment/Switchgear/*{PowerDistributionId}*/Feeders /redfish/v1/PowerEquipment/Switchgear/*{PowerDistributionId}*/Mains /redfish/v1/PowerEquipment/Switchgear/*{PowerDistributionId}*/Subfeeds /redfish/v1/PowerEquipment/TransferSwitches/*{PowerDistributionId}*/Branches /redfish/v1/PowerEquipment/TransferSwitches/*{PowerDistributionId}*/Feeders /redfish/v1/PowerEquipment/TransferSwitches/*{PowerDistributionId}*/Mains
ComponentIntegrityCollection	/redfish/v1/ComponentIntegrity
CompositionReservationCollection	/redfish/v1/CompositionService/CompositionReservations
ComputerSystemCollection	/redfish/v1/Systems
ConnectionCollection	/redfish/v1/Fabrics/*{FabricId}*/Connections /redfish/v1/Storage/*{StorageId}*/Connections
ConnectionMethodCollection	/redfish/v1/AggregationService/ConnectionMethods
ContainerCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/OperatingSystem/Containers /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/OperatingSystem/Containers /redfish/v1/Systems/*{ComputerSystemId}*/OperatingSystem/Containers

Collection Type	URIs
ContainerImageCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/OperatingSystem/ContainerImages /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/OperatingSystem/ContainerImages /redfish/v1/Systems/*{ComputerSystemId}*/OperatingSystem/ContainerImages
ControlCollection	/redfish/v1/Chassis/*{ChassisId}*/Controls
CoolantConnectorCollection	/redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem/CoolantConnectors /redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/PrimaryCoolantConnectors /redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/SecondaryCoolantConnectors /redfish/v1/ThermalEquipment/CoolingLoops/*{CoolingUnitId}*/PrimaryCoolantConnectors /redfish/v1/ThermalEquipment/CoolingLoops/*{CoolingUnitId}*/SecondaryCoolantConnectors /redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/PrimaryCoolantConnectors /redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/SecondaryCoolantConnectors /redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/PrimaryCoolantConnectors /redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/SecondaryCoolantConnectors /redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/PrimaryCoolantConnectors
CoolingLoopCollection	/redfish/v1/ThermalEquipment/CoolingLoops
CoolingUnitCollection	/redfish/v1/ThermalEquipment/CDUs /redfish/v1/ThermalEquipment/HeatExchangers /redfish/v1/ThermalEquipment/ImmersionUnits /redfish/v1/ThermalEquipment/RPUs
CXLLogicalDeviceCollection	/redfish/v1/Chassis/*{ChassisId}*/PCIeDevices/*{PCIeDeviceId}*/CXLLogicalDevices
DriveCollection	/redfish/v1/Chassis/*{ChassisId}*/Drives /redfish/v1/Storage/*{StorageId}*/FileSystems/*{FileSystemId}*/CapacitySources/*{CapacitySourceId}*/ProvidingDrives /redfish/v1/Storage/*{StorageId}*/StoragePools/*{StoragePoolId}*/CapacitySources/*{CapacitySourceId}*/ProvidingDrives /redfish/v1/Storage/*{StorageId}*/Volumes/*{VolumeId}*/CapacitySources/*{CapacitySourceId}*/ProvidingDrives /redfish/v1/StorageServices/*{StorageServiceId}*/Drives /redfish/v1/StorageServices/*{StorageServiceId}*/FileSystems/*{FileSystemId}*/CapacitySources/*{CapacitySourceId}*/ProvidingDrives /redfish/v1/StorageServices/*{StorageServiceId}*/StoragePools/*{StoragePoolId}*/CapacitySources/*{CapacitySourceId}*/ProvidingDrives /redfish/v1/StorageServices/*{StorageServiceId}*/Volumes/*{VolumeId}*/CapacitySources/*{CapacitySourceId}*/ProvidingDrives /redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/FileSystems/*{FileSystemId}*/CapacitySources/*{CapacitySourceId}*/ProvidingDrives /redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StoragePools/*{StoragePoolId}*/CapacitySources/*{CapacitySourceId}*/ProvidingDrives /redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Volumes/*{VolumeId}*/CapacitySources/*{CapacitySourceId}*/ProvidingDrives

Collection Type	URIs
EndpointCollection	/redfish/v1/Fabrics/*{FabricId}*/Endpoints /redfish/v1/Storage/*{StorageId}*/Endpoints (deprecated) /redfish/v1/StorageServices/*{StorageServiceId}*/Endpoints
EndpointGroupCollection	/redfish/v1/Fabrics/*{FabricId}*/EndpointGroups /redfish/v1/Storage/*{StorageId}*/EndpointGroups /redfish/v1/StorageServices/*{StorageServiceId}*/EndpointGroups /redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/EndpointGroups
EthernetInterfaceCollection	/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/NetworkDeviceFunctions/*{NetworkDeviceFunctionId}*/EthernetInterfaces /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/EthernetInterfaces /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/OperatingSystem/Containers/EthernetInterfaces /redfish/v1/Managers/*{ManagerId}*/EthernetInterfaces /redfish/v1/Managers/*{ManagerId}*/HostInterfaces/*{HostInterfaceId}*/HostEthernetInterfaces /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/EthernetInterfaces /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/OperatingSystem/Containers/EthernetInterfaces /redfish/v1/Systems/*{ComputerSystemId}*/EthernetInterfaces /redfish/v1/Systems/*{ComputerSystemId}*/OperatingSystem/Containers/EthernetInterfaces
EventDestinationCollection	/redfish/v1/EventService/Subscriptions
ExternalAccountProviderCollection	/redfish/v1/AccountService/ExternalAccountProviders /redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/ExternalAccountProviders
FabricAdapterCollection	/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters /redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters
FabricCollection	/redfish/v1/Fabrics
FacilityCollection	/redfish/v1/Facilities
FanCollection	/redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem/Fans

Collection Type	URIs
FilterCollection	/redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem/Filters /redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem/Pumps/*{PumpId}*/Filters /redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/Filters /redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/Pumps/*{PumpId}*/Filters /redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*/Filters /redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/Filters /redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/Pumps/*{PumpId}*/Filters /redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*/Filters /redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/Filters /redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/Pumps/*{PumpId}*/Filters /redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*/Filters /redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/Filters /redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/Pumps/*{PumpId}*/Filters /redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*/Filters
GraphicsControllerCollection	/redfish/v1/Systems/*{ComputerSystemId}*/GraphicsControllers
HeaterCollection	/redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem/Heaters
HostInterfaceCollection	/redfish/v1/Managers/*{ManagerId}*/HostInterfaces
JobCollection	/redfish/v1/JobService/Jobs /redfish/v1/JobService/Jobs/*{JobId}*/Steps
JobDocumentCollection	/redfish/v1/JobService/Documents
JobExecutorCollection	/redfish/v1/JobService/Executors
JsonSchemaFileCollection	/redfish/v1/JsonSchemas
KeyCollection	/redfish/v1/AccountService/Accounts/*{ManagerAccountId}*/Keys /redfish/v1/AggregationService/AggregationSources/*{AggregationSourceId}*/TrustedPublicHostKeys /redfish/v1/KeyService/NVMeoFSecrets /redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/Accounts/*{ManagerAccountId}*/Keys /redfish/v1/UpdateService/RemoteServerSSHKeys
KeyPolicyCollection	/redfish/v1/KeyService/NVMeoFKeyPolicies
LeakDetectorCollection	/redfish/v1/Chassis/*{ChassisId}*/LeakDetectors /redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem/LeakDetection/LeakDetectors (deprecated) /redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/LeakDetection/LeakDetectors (deprecated) /redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/LeakDetection/LeakDetectors/ (deprecated) /redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/LeakDetection/LeakDetectors (deprecated)
LicenseCollection	/redfish/v1/LicenseService/Licenses

Collection Type	URIs
LogEntryCollection	/redfish/v1/Chassis/*{ChassisId}*/LogServices/*{LogServiceId}*/Entries /redfish/v1/Chassis/*{ChassisId}*/PCIeDevices/*{PCIeDeviceId}*/CXLLogicalDevices/*{CXLLogicalDeviceId}*/DeviceLog/Entries /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/LogServices/*{LogServiceId}*/Entries /redfish/v1/JobService/Log/Entries /redfish/v1/Managers/*{ManagerId}*/LogServices/*{LogServiceId}*/Entries /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/LogServices/*{LogServiceId}*/Entries /redfish/v1/Systems/*{ComputerSystemId}*/LogServices/*{LogServiceId}*/Entries /redfish/v1/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/DeviceLog/Entries /redfish/v1/TelemetryService/LogService/Entries
LogServiceCollection	/redfish/v1/Chassis/*{ChassisId}*/LogServices /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/LogServices /redfish/v1/Managers/*{ManagerId}*/LogServices /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/LogServices /redfish/v1/Systems/*{ComputerSystemId}*/LogServices
ManagerAccountCollection	/redfish/v1/AccountService/Accounts /redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/Accounts
ManagerCollection	/redfish/v1/Managers
MediaControllerCollection	/redfish/v1/Chassis/*{ChassisId}*/MediaControllers (deprecated)
MemoryChunksCollection	/redfish/v1/Chassis/*{ChassisId}*/MemoryDomains/*{MemoryDomainId}*/MemoryChunks /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/MemoryDomains/*{MemoryDomainId}*/MemoryChunks /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/MemoryDomains/*{MemoryDomainId}*/MemoryChunks /redfish/v1/Systems/*{ComputerSystemId}*/MemoryDomains/*{MemoryDomainId}*/MemoryChunks
MemoryCollection	/redfish/v1/Chassis/*{ChassisId}*/Memory /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory /redfish/v1/Systems/*{ComputerSystemId}*/Memory /redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/CacheMemory
MemoryDomainCollection	/redfish/v1/Chassis/*{ChassisId}*/MemoryDomains /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/MemoryDomains /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/MemoryDomains /redfish/v1/Systems/*{ComputerSystemId}*/MemoryDomains
MemoryRegionCollection	/redfish/v1/Chassis/*{ChassisId}*/PCIeDevices/*{PCIeDeviceId}*/CXLLogicalDevices/*{CXLLogicalDeviceId}*/MemoryRegions

Collection Type	URIs
MessageRegistryCollection	
MessageRegistryFileCollection	/redfish/v1/Registries
MetricDefinitionCollection	/redfish/v1/TelemetryService/MetricDefinitions
MetricReportCollection	/redfish/v1/TelemetryService/MetricReports
MetricReportDefinitionCollection	/redfish/v1/TelemetryService/MetricReportDefinitions
NetworkAdapterCollection	/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters
NetworkDeviceFunctionCollection	/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/NetworkDeviceFunctions /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkDeviceFunctions /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkDeviceFunctions /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkDeviceFunctions /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkDeviceFunctions /redfish/v1/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkDeviceFunctions
NetworkInterfaceCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/NetworkInterfaces /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/NetworkInterfaces /redfish/v1/Systems/*{ComputerSystemId}*/NetworkInterfaces
NetworkPortCollection	/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/NetworkPorts (deprecated) /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkPorts (deprecated) /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkPorts (deprecated) /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkPorts (deprecated) /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkPorts (deprecated) /redfish/v1/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkPorts (deprecated)
OperatingConfigCollection	/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/OperatingConfigs
OutboundConnectionCollection	/redfish/v1/AccountService/OutboundConnections
OutletCollection	/redfish/v1/PowerEquipment/ElectricalBuses/*{PowerDistributionId}*/Outlets /redfish/v1/PowerEquipment/PowerShelves/*{PowerDistributionId}*/Outlets /redfish/v1/PowerEquipment/RackPDUs/*{PowerDistributionId}*/Outlets /redfish/v1/PowerEquipment/TransferSwitches/*{PowerDistributionId}*/Outlets

Collection Type	URIs
OutletGroupCollection	/redfish/v1/PowerEquipment/ElectricalBuses/*{PowerDistributionId}*/OutletGroups /redfish/v1/PowerEquipment/PowerShelves/*{PowerDistributionId}*/OutletGroups /redfish/v1/PowerEquipment/RackPDUs/*{PowerDistributionId}*/OutletGroups /redfish/v1/PowerEquipment/TransferSwitches/*{PowerDistributionId}*/OutletGroups
PCIeDeviceCollection	/redfish/v1/Chassis/*{ChassisId}*/PCIeDevices /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/PCIeDevices /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/PCIeDevices /redfish/v1/Systems/*{ComputerSystemId}*/PCIeDevices
PCIeFunctionCollection	/redfish/v1/Chassis/*{ChassisId}*/PCIeDevices/*{PCIeDeviceId}*/PCIeFunctions /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/PCIeDevices/*{PCIeDeviceId}*/PCIeFunctions /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/PCIeDevices/*{PCIeDeviceId}*/PCIeFunctions /redfish/v1/Systems/*{ComputerSystemId}*/PCIeDevices/*{PCIeDeviceId}*/PCIeFunctions

Collection Type	URIs
PortCollection	/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports /redfish/v1/Chassis/*{ChassisId}*/MediaControllers/*{MediaControllerId}*/Ports /redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Ports /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/NetworkInterfaces/*{NetworkInterfaceId}*/Ports /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/Ports /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Ports /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/GraphicsControllers/*{GraphicsControllerId}*/Ports /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*/Ports /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/Ports /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Ports /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/USBControllers/*{USBControllerId}*/Ports /redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports /redfish/v1/Managers/*{ManagerId}*/DedicatedNetworkPorts /redfish/v1/Managers/*{ManagerId}*/SharedNetworkPorts /redfish/v1/Managers/*{ManagerId}*/USBPorts /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/NetworkInterfaces/*{NetworkInterfaceId}*/Ports /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/Ports /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Ports /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/GraphicsControllers/*{GraphicsControllerId}*/Ports /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*/Ports /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/Ports /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Ports /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/USBControllers/*{USBControllerId}*/Ports /redfish/v1/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Ports

Collection Type	URIs
	/redfish/v1/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports /redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports /redfish/v1/Systems/*{ComputerSystemId}*/GraphicsControllers/*{GraphicsControllerId}*/Ports /redfish/v1/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*/Ports /redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/Ports /redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Ports /redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports /redfish/v1/Systems/*{ComputerSystemId}*/USBControllers/*{USBControllerId}*/Ports
PowerDistributionCollection	/redfish/v1/PowerEquipment/ElectricalBuses /redfish/v1/PowerEquipment/FloorPDUs /redfish/v1/PowerEquipment/PowerShelves /redfish/v1/PowerEquipment/RackPDUs /redfish/v1/PowerEquipment/Switchgear /redfish/v1/PowerEquipment/TransferSwitches
PowerDomainCollection	/redfish/v1/Facilities/*{FacilityId}*/PowerDomains
PowerSupplyCollection	/redfish/v1/Chassis/*{ChassisId}*/PowerSubsystem/PowerSupplies /redfish/v1/PowerEquipment/PowerShelves/*{PowerDistributionId}*/PowerSupplies (deprecated)

Collection Type	URIs
ProcessorCollection	/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Processors /redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Processors/*{ProcessorId}*/SubProcessors /redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/SubProcessors /redfish/v1/Chassis/*{ChassisId}*/Processors /redfish/v1/Chassis/*{ChassisId}*/Processors/*{ProcessorId}*/SubProcessors /redfish/v1/Chassis/*{ChassisId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/SubProcessors /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/SubProcessors /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/SubProcessors /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/SubProcessors /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/SubProcessors /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/SubProcessors /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/SubProcessors /redfish/v1/Systems/*{ComputerSystemId}*/Processors /redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors /redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/SubProcessors
PumpCollection	/redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem/Pumps /redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/Pumps /redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/Pumps /redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/Pumps /redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/Pumps
RegisteredClientCollection	/redfish/v1/RegisteredClients
ReservoirCollection	/redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/Reservoirs /redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/Reservoirs /redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/Reservoirs /redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/Reservoirs
ResourceBlockCollection	/redfish/v1/CompositionService/ActivePool /redfish/v1/CompositionService/FreePool /redfish/v1/CompositionService/ResourceBlocks /redfish/v1/ResourceBlocks

Collection Type	URIs
RoleCollection	/redfish/v1/AccountService/Roles /redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/Roles

Collection Type	URIs
RouteEntryCollection	/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/MSDT /redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/SSDT /redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/MSDT (deprecated) /redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/GenZ/LPRT /redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/GenZ/MPRT /redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/LPRT (deprecated) /redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/MPRT (deprecated) /redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/SSDT (deprecated) /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/MSDT /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/SSDT /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/MSDT (deprecated) /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/GenZ/LPRT /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/GenZ/MPRT /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/LPRT (deprecated) /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/MPRT (deprecated) /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/SSDT (deprecated) /redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*/GenZ/LPRT /redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*/GenZ/MPRT /redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*/LPRT (deprecated) /redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*/MPRT (deprecated) /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/MSDT /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/SSDT /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/MSDT (deprecated) /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/GenZ/LPRT /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/GenZ/MPRT /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/LPRT (deprecated) /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/MPRT (deprecated) /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/SSDT (deprecated) /redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/MSDT /redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/SSDT /redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/MSDT (deprecated) /redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/GenZ/LPRT /redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/GenZ/MPRT

Collection Type	URIs
	/redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/LPRT (deprecated) /redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/MPRT (deprecated) /redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/SSDT (deprecated)
RouteSetEntryCollection	/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/MSDT/*{MSDTId}*/RouteSet /redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/LPRT/*{LPRTId}*/RouteSet /redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/MPRT/*{MPRTId}*/RouteSet /redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/SSDT/*{SSDTId}*/RouteSet /redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*/LPRT/*{LPRTId}*/RouteSet /redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*/MPRT/*{MPRTId}*/RouteSet /redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/MSDT/*{MSDTId}*/RouteSet /redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/LPRT/*{LPRTId}*/RouteSet /redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/MPRT/*{MPRTId}*/RouteSet /redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/SSDT/*{SSDTId}*/RouteSet
SecureBootDatabaseCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/SecureBoot/SecureBootDatabases /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/SecureBoot/SecureBootDatabases /redfish/v1/Systems/*{ComputerSystemId}*/SecureBoot/SecureBootDatabases
SensorCollection	/redfish/v1/Chassis/*{ChassisId}*/Sensors /redfish/v1/PowerEquipment/FloorPDUs/*{PowerDistributionId}*/Sensors (deprecated) /redfish/v1/PowerEquipment/PowerShelves/*{PowerDistributionId}*/Sensors (deprecated) /redfish/v1/PowerEquipment/RackPDUs/*{PowerDistributionId}*/Sensors (deprecated) /redfish/v1/PowerEquipment/Switchgear/*{PowerDistributionId}*/Sensors (deprecated) /redfish/v1/PowerEquipment/TransferSwitches/*{PowerDistributionId}*/Sensors (deprecated)
SerialInterfaceCollection	/redfish/v1/Managers/*{ManagerId}*/SerialInterfaces
SessionCollection	/redfish/v1/SessionService/Sessions
SignatureCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/SecureBoot/SecureBootDatabases/*{DatabaseId}*/Signatures /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/SecureBoot/SecureBootDatabases/*{DatabaseId}*/Signatures /redfish/v1/Systems/*{ComputerSystemId}*/SecureBoot/SecureBootDatabases/*{DatabaseId}*/Signatures
SimpleStorageCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/SimpleStorage /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/SimpleStorage /redfish/v1/Systems/*{ComputerSystemId}*/SimpleStorage

Collection Type	URIs
SoftwareInventoryCollection	/redfish/v1/UpdateService/FirmwareInventory /redfish/v1/UpdateService/SoftwareInventory
StorageCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Storage /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Storage /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage /redfish/v1/Storage /redfish/v1/Systems/*{ComputerSystemId}*/Storage
StorageControllerCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Controllers /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Controllers /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Controllers /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Controllers /redfish/v1/Storage/*{StorageId}*/Controllers /redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Controllers
SwitchCollection	/redfish/v1/Fabrics/*{FabricId}*/Switches
TaskCollection	/redfish/v1/TaskService/Tasks /redfish/v1/TaskService/Tasks/*{TaskId}*/SubTasks
TelemetryDataCollection	/redfish/v1/TelemetryService/TelemetryData
TriggersCollection	/redfish/v1/TelemetryService/Triggers
TrustedComponentCollection	/redfish/v1/Chassis/*{ChassisId}*/TrustedComponents
USBControllerCollection	/redfish/v1/Systems/*{ComputerSystemId}*/USBControllers

Collection Type	URIs
VCATEntryCollection	/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/REQ-VCAT /redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/RSP-VCAT /redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/GenZ/VCAT /redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/VCAT (deprecated) /redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/REQ-VCAT (deprecated) /redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/RSP-VCAT (deprecated) /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/REQ-VCAT /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/RSP-VCAT /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/GenZ/VCAT /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/VCAT (deprecated) /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/REQ-VCAT (deprecated) /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/RSP-VCAT (deprecated) /redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*/GenZ/VCAT /redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*/VCAT (deprecated) /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/REQ-VCAT /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/RSP-VCAT /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/GenZ/VCAT /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/VCAT (deprecated) /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/REQ-VCAT (deprecated) /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/RSP-VCAT (deprecated) /redfish/v1/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/REQ-VCAT /redfish/v1/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/RSP-VCAT /redfish/v1/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/GenZ/VCAT /redfish/v1/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/VCAT (deprecated) /redfish/v1/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/REQ-VCAT (deprecated) /redfish/v1/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/RSP-VCAT (deprecated)
VirtualCXLSwitchCollection	/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/VCSs
VirtualMediaCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/VirtualMedia /redfish/v1/Managers/*{ManagerId}*/VirtualMedia (deprecated) /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/VirtualMedia /redfish/v1/Systems/*{ComputerSystemId}*/VirtualMedia
VirtualPCI2PCIBridgeCollection	/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/VCSs/*{VirtualCXLSwitchId}*/VPPBs

Collection Type	URIs
VLanNetworkInterfaceCollection	/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/NetworkDeviceFunctions/*{NetworkDeviceFunctionId}*/Ethernet/VLANs (deprecated) /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/EthernetInterfaces/*{EthernetInterfaceId}*/VLANs (deprecated) /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/EthernetInterfaces/*{EthernetInterfaceId}*/VLANs (deprecated) /redfish/v1/Managers/*{ManagerId}*/EthernetInterfaces/*{EthernetInterfaceId}*/VLANs (deprecated) /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/EthernetInterfaces/*{EthernetInterfaceId}*/VLANs (deprecated) /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/EthernetInterfaces/*{EthernetInterfaceId}*/VLANs (deprecated) /redfish/v1/Systems/*{ComputerSystemId}*/EthernetInterfaces/*{EthernetInterfaceId}*/VLANs (deprecated)
VolumeCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Volumes /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Volumes /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Volumes /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Volumes /redfish/v1/Storage/*{StorageId}*/ConsistencyGroups/*{ConsistencyGroupId}*/Volumes /redfish/v1/Storage/*{StorageId}*/FileSystems/*{FileSystemId}*/CapacitySources/*{CapacitySourceId}*/ProvidingVolumes /redfish/v1/Storage/*{StorageId}*/StoragePools/*{StoragePoolId}*/AllocatedVolumes /redfish/v1/Storage/*{StorageId}*/StoragePools/*{StoragePoolId}*/CapacitySources/*{CapacitySourceId}*/ProvidingVolumes /redfish/v1/Storage/*{StorageId}*/Volumes /redfish/v1/StorageServices/*{StorageServiceId}*/ConsistencyGroups/*{ConsistencyGroupId}*/Volumes /redfish/v1/StorageServices/*{StorageServiceId}*/FileSystems/*{FileSystemId}*/CapacitySources/*{CapacitySourceId}*/ProvidingVolumes /redfish/v1/StorageServices/*{StorageServiceId}*/StoragePools/*{StoragePoolId}*/AllocatedVolumes /redfish/v1/StorageServices/*{StorageServiceId}*/StoragePools/*{StoragePoolId}*/CapacitySources/*{CapacitySourceId}*/ProvidingVolumes /redfish/v1/StorageServices/*{StorageServiceId}*/Volumes /redfish/v1/StorageServices/*{StorageServiceId}*/Volumes/*{VolumeId}*/CapacitySources/*{CapacitySourceId}*/ProvidingVolumes /redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/ConsistencyGroups/*{ConsistencyGroupId}*/Volumes /redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/FileSystems/*{FileSystemId}*/CapacitySources/*{CapacitySourceId}*/ProvidingVolumes /redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StoragePools/*{StoragePoolId}*/AllocatedVolumes /redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StoragePools/*{StoragePoolId}*/CapacitySources/*{CapacitySourceId}*/ProvidingVolumes /redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Volumes
ZoneCollection	/redfish/v1/CompositionService/ResourceZones /redfish/v1/Fabrics/*{FabricId}*/Zones

6 Reference Guide

To produce this guide, DMTF's Redfish Documentation Generator merges DMTF's Redfish Schema Bundle (DSP8010) contents with supplemental text.

6.1 AccelerationFunction 1.0.5

Version	*v1.0*
Release	2018.3

6.1.1 Description

The `AccelerationFunction` schema describes an acceleration function that a processor implements. This can include functions such as audio processing, compression, encryption, packet inspection, packet switching, scheduling, or video processing.

6.1.2 URIs

/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/AccelerationFunctions/*{AccelerationFunctionId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.1.3 Properties

Property	Type	Attributes	Notes
AccelerationFunctionType	string (enum)	*read-only (null)*	The acceleration function type. *For the possible property values, see AccelerationFunctionType in Property details.*
FpgaReconfigurationSlots [ ]	array (string)	*read-only*	An array of the reconfiguration slot identifiers of the FPGA that this acceleration function occupies.
Links {	object		The links to other resources that are related to this resource.
Endpoints [{	array		An array of links to the endpoints that connect to this acceleration function.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			

Property	Type	Attributes	Notes
Oem {}	object		See the Oem object definition in the Common properties section.
PCIeFunctions [{	array		An array of links to the PCIe functions associated with this acceleration function.
@odata.id	string	*read-only*	Link to a PCIeFunction resource. See the Links section and the *PCIeFunction* schema for details.
}]			
}			
Manufacturer	string	*read-only*	The acceleration function code manufacturer.
PowerWatts	integer (Watts)	*read-only*	The acceleration function power consumption, in watt units.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
UUID	string (uuid)	*read-only (null)*	The UUID for this acceleration function.
Version	string	*read-only*	The acceleration function version.

6.1.4 Property details

6.1.4.1 AccelerationFunctionType

The acceleration function type.

string	Description
AudioProcessing	An audio processing function.
Compression	A compression function.
Encryption	An encryption function.
OEM	An OEM-defined acceleration function.
PacketInspection	A packet inspection function.
PacketSwitch	A packet switch function.
Scheduler	A scheduler function.
VideoProcessing	A video processing function.

6.1.5 Example response


```
{
    "@odata.type": "#AccelerationFunction.v1_0_5.AccelerationFunction",
    "Id": "Compression",
    "Name": "Compression Accelerator",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "FpgaReconfigurationSlots": [
        "AFU0"
    ],
    "AccelerationFunctionType": "Compression",
    "Manufacturer": "Intel (R) Corporation",
    "Version": "Green Compression Type 1 v.1.00.86",
    "PowerWatts": 15,
    "Links": {
        "Endpoints": [],
        "PCIeFunctions": []
    },
    "@odata.id": "/redfish/v1/Systems/1/Processors/FPGA1/AccelerationFunctions/Compression"
}
```


6.2 AccountService 1.18.0

Version	*v1.18*	*v1.17*	*v1.16*	*v1.15*	*v1.14*	*v1.13*	*v1.12*	*v1.11*	*v1.10*	*v1.9*	*v1.8*	...
Release	2025.1	2024.4	2024.3	2023.3	2023.2	2023.1	2022.3	2022.1	2021.2	2021.1	2020.4	...

6.2.1 Description

The `AccountService` schema defines an account service. The properties are common to, and enable management of, all user accounts. The properties include the password requirements and control features, such as account lockout. Properties and actions in this service specify general behavior that should be followed for typical accounts, however implementations might override these behaviors for special accounts or situations to avoid denial of service or other deadlock situations.

6.2.2 URIs

/redfish/v1/AccountService
/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService

6.2.3 Properties

Property	Type	Attributes	Notes
AccountLockoutCounterResetAfter	integer (seconds)	*read-write*	The period of time, in seconds, between the last failed login attempt and the reset of the lockout threshold counter. This value must be less than or equal to the `AccountLockoutDuration` value. A reset sets the counter to `0`.
AccountLockoutCounterResetEnabled *(v1.5+)*	boolean	*read-write*	An indication of whether the threshold counter is reset after `AccountLockoutCounterResetAfter` expires. If `true`, it is reset. If `false`, only a successful login resets the threshold counter and if the user reaches the `AccountLockoutThreshold` limit, the account will be locked out indefinitely and only an administrator-issued reset clears the threshold counter. If this property is absent, the default is `true`.
AccountLockoutDuration	integer (seconds)	*read-write* *(null)*	The period of time, in seconds, that an account is locked after the number of failed login attempts reaches the account lockout threshold, within the period between the last failed login attempt and the reset of the lockout threshold counter. If this value is `0`, no lockout will occur. If the `AccountLockoutCounterResetEnabled` value is `false`, this property is ignored.
AccountLockoutThreshold	integer	*read-write* *(null)*	The number of allowed failed login attempts before a user account is locked for a specified duration. If `0`, the account is never locked.
Accounts {	object		The collection of manager accounts. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *ManagerAccount*. See the ManagerAccount schema for details.
}			
ActiveDirectory *(v1.3+)* {}	object		The first Active Directory external account provider that this account service supports. For more information about this property, see ExternalAccountProvider in Property Details.
AdditionalExternalAccountProviders *(v1.3+)* {	object		The additional external account providers that this account service uses. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *ExternalAccountProvider*. See the ExternalAccountProvider schema for details.
}			
AuthFailureLoggingThreshold	integer	*read-write*	The number of authorization failures per account that are allowed before the failed attempt is logged to the manager log.

Property	Type	Attributes	Notes
EnforcePasswordHistoryCount *(v1.17+)*	integer	*read-write*	The number of unique new passwords that need to be associated with a user account before a previous password is accepted when modifying the password. If `0`, a user does not need to provide a unique new password.
HTTPBasicAuth *(v1.15+)*	string (enum)	*read-write (null)*	Indicates if HTTP Basic authentication is enabled for this service. *For the possible property values, see HTTPBasicAuth in Property details.*
LDAP *(v1.3+)* {}	object		The first LDAP external account provider that this account service supports. For more information about this property, see ExternalAccountProvider in Property Details.
LocalAccountAuth *(v1.3+)*	string (enum)	*read-write*	An indication of how the service uses the accounts collection within this account service as part of authentication. The enumerated values describe the details for each mode. *For the possible property values, see LocalAccountAuth in Property details.*
MaxPasswordLength	integer	*read-write*	The maximum password length for this account service.
MinPasswordLength	integer	*read-write*	The minimum password length for this account service.
MultiFactorAuth *(v1.12+)* {	object	*(null)*	The multi-factor authentication settings that this account service supports.
ClientCertificate *(v1.12+)* {	object	*(null)*	The settings related to client certificate authentication schemes such as mTLS or CAC/PIV.
CertificateMappingAttribute *(v1.12+)*	string (enum)	*read-write (null)*	The client certificate attribute to map to a user. *For the possible property values, see CertificateMappingAttribute in Property details.*
Certificates *(v1.12+)* {	object		The link to a collection of CA certificates used to validate client certificates. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
Enabled *(v1.12+)*	boolean	*read-write (null)*	An indication of whether client certificate authentication is enabled.
RespondToUnauthenticatedClients *(v1.12+)*	boolean	*read-write (null)*	An indication of whether the service responds to clients that do not successfully authenticate.
}			
GoogleAuthenticator *(v1.12+)* {	object	*(null)*	The settings related to Google Authenticator multi-factor authentication. For generic Time-Based One-Time Password (TOTP) multi-factor authentication, use the `TimeBasedOneTimePassword` property.

Property	Type	Attributes	Notes
Enabled *(v1.12+)*	boolean	*read-write (null)*	An indication of whether multi-factor authentication with Google Authenticator is enabled.
SecretKey *(v1.12+)*	string	*read-write (null)*	The secret key to use when communicating with the Google Authenticator server. This property is `null` in responses.
SecretKeySet *(v1.12+)*	boolean	*read-only*	Indicates if the `SecretKey` property is set.
}			
MicrosoftAuthenticator *(v1.12+)* {	object	*(null)*	The settings related to Microsoft Authenticator multi-factor authentication. For generic Time-Based One-Time Password (TOTP) multi-factor authentication, use the `TimeBasedOneTimePassword` property.
Enabled *(v1.12+)*	boolean	*read-write (null)*	An indication of whether multi-factor authentication with Microsoft Authenticator is enabled.
SecretKey *(v1.12+)*	string	*read-write (null)*	The secret key to use when communicating with the Microsoft Authenticator server. This property is `null` in responses.
SecretKeySet *(v1.12+)*	boolean	*read-only*	Indicates if the `SecretKey` property is set.
}			
OneTimePasscode *(v1.14+)* {	object	*(null)*	The settings related to one-time passcode (OTP) multi-factor authentication.
Enabled *(v1.14+)*	boolean	*read-write (null)*	An indication of whether multi-factor authentication using a one-time passcode is enabled.
}			
SecurID *(v1.12+)* {	object	*(null)*	The settings related to RSA SecurID multi-factor authentication.
Certificates *(v1.12+)* {	object		The link to a collection of server certificates for the RSA SecurID server referenced by the `ServerURI` property. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
ClientId *(v1.12+)*	string	*read-write (null)*	The client ID to use when communicating with the RSA SecurID server.
ClientSecret *(v1.12+)*	string	*read-write (null)*	The client secret to use when communicating with the RSA SecurID server. This property is `null` in responses.

Property	Type	Attributes	Notes
ClientSecretSet *(v1.12+)*	boolean	*read-only*	Indicates if the `ClientSecret` property is set.
Enabled *(v1.12+)*	boolean	*read-write (null)*	An indication of whether multi-factor authentication with RSA SecurID is enabled.
ServerURI *(v1.12+)*	string (URI)	*read-write (null)*	The URI of the RSA SecurID server.
}			
TimeBasedOneTimePassword *(v1.16+)* {	object	*(null)*	The settings related to Time-based One-Time Password (TOTP) multi-factor authentication.
Enabled *(v1.16+)*	boolean	*read-write (null)*	An indication of whether multi-factor authentication with a Time-based One-Time Password (TOTP) is enabled.
TimeStepSeconds *(v1.16+)*	integer	*read-write (null)*	The time step, in seconds, for calculating the one-time password.
}			
}			
OAuth2 *(v1.10+)* {}	object	*(null)*	The first OAuth 2.0 external account provider that this account service supports. For more information about this property, see ExternalAccountProvider in Property Details.
OutboundConnections *(v1.14+)* {	object	*(null)*	The collection of outbound connection configurations. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *OutboundConnection*. See the OutboundConnection schema for details.
}			
PasswordExpirationDays *(v1.9+)*	integer	*read-write (null)*	The number of days before account passwords in this account service will expire.
PasswordGuidanceMessage *(v1.18+)*	string	*read-only*	Password creation guidance for manager accounts.
PasswordGuidanceMessageId *(v1.18+)*	string	*read-only (null)*	A `MessageId` that contains password creation guidance for manager accounts.
PrivilegeMap *(v1.1+)* {	object		The link to the mapping of the privileges required to complete a requested operation on a URI associated with this service. See the *PrivilegeRegistry* schema for details on this property.
@odata.id	string	*read-only*	Link to a PrivilegeRegistry resource. See the Links section and the *PrivilegeRegistry* schema for details.
}			

Property	Type	Attributes	Notes
RequireChangePasswordAction *(v1.14+)*	boolean	*read-write (null)*	An indication of whether clients are required to invoke the `ChangePassword` action to modify account passwords.
RestrictedOemPrivileges *(v1.8+)* [ ]	array (string)	*read-only*	The set of restricted OEM privileges.
RestrictedPrivileges *(v1.8+)* [ ]	array (string (enum))	*read-only*	The set of restricted Redfish privileges. *For the possible property values, see RestrictedPrivileges in Property details.*
Roles {	object		The collection of Redfish roles. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Role*. See the Role schema for details.
}			
ServiceEnabled	boolean	*read-write (null)*	An indication of whether the account service is enabled. If `true`, it is enabled. If `false`, it is disabled and users cannot be created, deleted, or modified, and new sessions cannot be started. However, established sessions might still continue to run. Any service, such as the session service, that attempts to access the disabled account service fails. However, this does not affect HTTP Basic Authentication connections.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
SupportedAccountTypes *(v1.8+)* [ ]	array (string (enum))	*read-only*	The account types supported by the service. *For the possible property values, see SupportedAccountTypes in Property details.*
SupportedOEMAccountTypes *(v1.8+)* [ ]	array (string)	*read-only*	The OEM account types supported by the service.
TACACSplus *(v1.8+)* {}	object	*(null)*	The first TACACS+ external account provider that this account service supports. For more information about this property, see ExternalAccountProvider in Property Details.

6.2.4 Property details

6.2.4.1 AccountProviderType

The type of external account provider to which this service connects.

string	Description
ActiveDirectoryService	An external Active Directory service.
LDAPService	A generic external LDAP service.
OAuth2 *(v1.10+)*	An external OAuth 2.0 service.
OEM	An OEM-specific external authentication or directory service.
RedfishService	An external Redfish service.
TACACSplus *(v1.8+)*	An external TACACS+ service.

6.2.4.2 Authentication

The information required to authenticate to the external service.

AuthenticationType *(v1.3+)*	string (enum)	*read-write (null)*	The type of authentication used to connect to the external account provider. *For the possible property values, see AuthenticationType in Property details.*
EncryptionKey *(v1.8+)*	string	*read-write (null)*	Specifies the encryption key.
EncryptionKeySet *(v1.8+)*	boolean	*read-only (null)*	Indicates if the `EncryptionKey` property is set.
KerberosKeytab *(v1.3+)*	string	*read-write (null)*	The Base64-encoded Kerberos keytab for this service. A `PATCH` or `PUT` operation writes the keytab. This property is `null` in responses.
Oem *(v1.3+)* {}	object		See the Oem object definition in the Common properties section.
Password *(v1.3+)*	string	*read-write (null)*	The password for this service. A `PATCH` or `PUT` request writes the password. This property is `null` in responses.
Token *(v1.3+)*	string	*read-write (null)*	The token for this service. A `PATCH` or `PUT` operation writes the token. This property is `null` in responses.
Username *(v1.3+)*	string	*read-write*	The username for the service.

6.2.4.3 AuthenticationType

The type of authentication used to connect to the external account provider.

string	Description
KerberosKeytab	A Kerberos keytab.
OEM	An OEM-specific authentication mechanism.
Token	An opaque authentication token.
UsernameAndPassword	A username and password combination.

6.2.4.4 BypassTypes

The types of multi-factor authentication this account or role mapping is allowed to bypass.

string	Description
All	Bypass all multi-factor authentication types.
ClientCertificate	Bypass client certificate authentication.
GoogleAuthenticator	Bypass Google Authenticator.
MicrosoftAuthenticator	Bypass Microsoft Authenticator.
OEM	Bypass OEM-defined multi-factor authentication.
OneTimePasscode	Bypass one-time passcode authentication.
SecurID	Bypass RSA SecurID.
TimeBasedOneTimePassword	Bypass Time-based One-Time Password (TOTP) authentication.

6.2.4.5 CertificateMappingAttribute

The client certificate attribute to map to a user.

string	Description
CommonName	Match the Common Name (CN) field in the provided certificate to the username.
UserPrincipalName	Match the User Principal Name (UPN) field in the provided certificate to the username.

string	Description
Whole	Match the whole certificate.

6.2.4.6 ExternalAccountProvider

The external account provider services that can provide accounts for this manager to use for authentication.

AccountProviderType *(v1.3+, deprecated v1.5)*	string (enum)	*read-only (null)*	The type of external account provider to which this service connects. *For the possible property values, see AccountProviderType in Property details. Deprecated in v1.5 and later. This property is deprecated because the account provider type is known when used in the* `LDAP` *and* `ActiveDirectory` *objects.*
Authentication *(v1.3+)* {}	object		The authentication information for the external account provider. For more information about this property, see Authentication in Property Details.
Certificates *(v1.4+)* {	object		The link to a collection of certificates that the external account provider uses. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
LDAPService *(v1.3+)* {}	object		The additional mapping information needed to parse a generic LDAP service. For more information about this property, see LDAPService in Property Details.
OAuth2Service *(v1.10+)* {}	object	*(null)*	The additional information needed to parse an OAuth 2.0 service. For more information about this property, see OAuth2Service in Property Details.
PasswordSet *(v1.7+)*	boolean	*read-only*	Indicates if the `Password` property is set.
Priority *(v1.8+)*	integer	*read-write (null)*	The authentication priority for the external account provider.
RemoteRoleMapping *(v1.3+)* [{	array		The mapping rules to convert the external account providers account information to the local Redfish role.
LocalAccountTypes *(v1.16+)* [ ]	array (string (enum))	*read-write (null)*	The list of local services in the manager that the remote user or group is allowed to access. *For the possible property values, see LocalAccountTypes in Property details.*
LocalOEMAccountTypes *(v1.16+)* [ ]	array (string, null)	*read-write*	The OEM account types for the remote user or group.

LocalRole *(v1.3+)*	string	*read-write (null)*	The name of the local Redfish role to which to map the remote user or group.
MFABypass *(v1.12+)* {	object	*(null)*	The multi-factor authentication bypass settings.
BypassTypes *(v1.12+)* [ ]	array (string (enum))	*read-write (null)*	The types of multi-factor authentication this account or role mapping is allowed to bypass. *For the possible property values, see BypassTypes in Property details.*
}			
Oem *(v1.3+)* {}	object		See the Oem object definition in the Common properties section.
RemoteGroup *(v1.3+)*	string	*read-write (null)*	The name of the remote group, or the remote role in the case of a Redfish service, that maps to the local Redfish role to which this entity links.
RemoteUser *(v1.3+)*	string	*read-write (null)*	The name of the remote user that maps to the local Redfish role to which this entity links.
}]			
Retries *(v1.13+)*	integer	*read-write (null)*	The number of times to retry connecting to an address in the `ServiceAddresses` property before attempting the next address in the array.
ServiceAddresses *(v1.3+)* [ ]	array (string, null)	*read-write*	The addresses of the user account providers to which this external account provider links. The format of this field depends on the type of external account provider.
ServiceEnabled *(v1.3+)*	boolean	*read-write (null)*	An indication of whether this service is enabled.
TACACSplusService *(v1.8+)* {}	object	*(null)*	The additional information needed to parse a TACACS+ services. For more information about this property, see TACACSplusService in Property Details.
TimeoutSeconds *(v1.13+)*	integer	*read-write (null)*	The period of time, in seconds, this account service will wait for a response from an address of a user account provider before timing out.

6.2.4.7 HTTPBasicAuth

Indicates if HTTP Basic authentication is enabled for this service.

string	Description
Disabled	HTTP Basic authentication is disabled.
Enabled	HTTP Basic authentication is enabled.
Unadvertised	HTTP Basic authentication is enabled, but is not advertised with the `WWW-Authenticate` response header.

6.2.4.8 LDAPService

The settings required to parse a generic LDAP service.

Oem *(v1.3+)* {}	object		See the Oem object definition in the Common properties section.
SearchSettings *(v1.3+)* {	object		The required settings to search an external LDAP service.
BaseDistinguishedNames *(v1.3+)* [ ]	array (string, null)	*read-write*	The base distinguished names to use to search an external LDAP service.
EmailAttribute *(v1.14+)*	string	*read-write (null)*	The attribute name that contains the LDAP user's email address.
GroupNameAttribute *(v1.3+)*	string	*read-write (null)*	The attribute name that contains the LDAP group name entry.
GroupsAttribute *(v1.3+)*	string	*read-write (null)*	The attribute name that contains the groups for a user on the LDAP user entry.
SSHKeyAttribute *(v1.11+)*	string	*read-write (null)*	The attribute name that contains the LDAP user's SSH public key entry.
UsernameAttribute *(v1.3+)*	string	*read-write (null)*	The attribute name that contains the LDAP username entry.
}			

6.2.4.9 LocalAccountAuth

An indication of how the service uses the accounts collection within this account service as part of authentication. The enumerated values describe the details for each mode.

string	Description
Disabled	The service never authenticates users based on the account service-defined accounts collection.
Enabled	The service authenticates users based on the account service-defined accounts collection.
Fallback	The service authenticates users based on the account service-defined accounts collection only if any external account providers are currently unreachable.
LocalFirst *(v1.6+)*	The service first authenticates users based on the account service-defined accounts collection. If authentication fails, the service authenticates by using external account providers.

6.2.4.10 LocalAccountTypes

The list of local services in the manager that the remote user or group is allowed to access.

string	Description
ControlPanel	Allow PIN-based access via an external control panel, such as a keypad, touchscreen, or other human interface.
HostConsole	Allow access to the host's console, which could be connected through Telnet, SSH, or another protocol.
IPMI	Allow access to the Intelligent Platform Management Interface service.
KVMIP	Allow access to a Keyboard-Video-Mouse over IP session.
ManagerConsole	Allow access to the manager's console, which could be connected through Telnet, SSH, SM CLP, or another protocol.
OEM	OEM account type. See the `OEMAccountTypes` property.
Redfish	Allow access to the Redfish service.
SNMP	Allow access to SNMP services.
VirtualMedia	Allow access to control virtual media.
WebUI	Allow access to a web user interface session, such as a graphical interface or another web-based protocol.

6.2.4.11 Mode

The mode of operation for token validation.

string	Description
Discovery	OAuth 2.0 service information for token validation is downloaded by the service.
Offline	OAuth 2.0 service information for token validation is configured by a client. Clients should configure the `Issuer` and `OAuthServiceSigningKeys` properties for this mode.

6.2.4.12 OAuth2Service

Various settings to parse an OAuth 2.0 service.

Audience *(v1.10+)* [ ]	array (string)	*read-only*	The allowable audience strings of the Redfish service.
Issuer *(v1.10+)*	string	*read-write (null)*	The issuer string of the OAuth 2.0 service. Clients should configure this property if `Mode` contains `Offline`.
Mode *(v1.10+)*	string (enum)	*read-write*	The mode of operation for token validation. *For the possible property values, see Mode in Property details.*
OAuthServiceSigningKeys *(v1.10+)*	string	*read-write (null)*	The Base64-encoded signing keys of the issuer of the OAuth 2.0 service. Clients should configure this property if `Mode` contains `Offline`.
Oem *(v1.13+)* {}	object		See the Oem object definition in the Common properties section.

6.2.4.13 PasswordExchangeProtocols

Indicates the allowed TACACS+ password exchange protocols.

string	Description
ASCII	The ASCII Login method.
CHAP	The CHAP Login method.
MSCHAPv1	The MS-CHAP v1 Login method.
MSCHAPv2	The MS-CHAP v2 Login method.
PAP	The PAP Login method.

6.2.4.14 RestrictedPrivileges

The set of restricted Redfish privileges.

string	Description
AdministrateStorage	Administrator for storage subsystems and storage systems found in the storage collection and storage system collection respectively.
AdministrateSystems	Administrator for systems found in the systems collection. Able to manage boot configuration, keys, and certificates for systems.
ConfigureComponents	Can configure components that this service manages.
ConfigureCompositionInfrastructure	Can view and configure composition service resources.
ConfigureManager	Can configure managers.
ConfigureSelf	Can change the password for the current user account, log out of their own sessions, and perform operations on resources they created. Services will need to be aware of resource ownership to map this privilege to an operation from a particular user.
ConfigureUsers	Can configure users and their accounts.
Login	Can log in to the service and read resources.
NoAuth	Authentication is not required.
OperateStorageBackup	Operator for storage backup functionality for storage subsystems and storage systems found in the storage collection and storage system collection respectively.
OperateSystems	Operator for systems found in the systems collection. Able to perform resets and configure interfaces.

6.2.4.15 SupportedAccountTypes

The account types supported by the service.

string	Description
ControlPanel	Allow PIN-based access via an external control panel, such as a keypad, touchscreen, or other human interface.
HostConsole	Allow access to the host's console, which could be connected through Telnet, SSH, or another protocol.
IPMI	Allow access to the Intelligent Platform Management Interface service.
KVMIP	Allow access to a Keyboard-Video-Mouse over IP session.

string	Description
ManagerConsole	Allow access to the manager's console, which could be connected through Telnet, SSH, SM CLP, or another protocol.
OEM	OEM account type. See the `OEMAccountTypes` property.
Redfish	Allow access to the Redfish service.
SNMP	Allow access to SNMP services.
VirtualMedia	Allow access to control virtual media.
WebUI	Allow access to a web user interface session, such as a graphical interface or another web-based protocol.

6.2.4.16 TACACSplusService

Various settings to parse a TACACS+ service.

AuthorizationService *(v1.13+)*	string	*read-write*	The TACACS+ service authorization argument.
Oem *(v1.13+)* {}	object		See the Oem object definition in the Common properties section.
PasswordExchangeProtocols *(v1.8+)* [ ]	array (string (enum))	*read-write (null)*	Indicates the allowed TACACS+ password exchange protocols. *For the possible property values, see PasswordExchangeProtocols in Property details.*
PrivilegeLevelArgument *(v1.8+)*	string	*read-write (null)*	Indicates the name of the TACACS+ argument name in an authorization request.

6.2.5 Example response

```
{
    "@odata.type": "#AccountService.v1_18_0.AccountService",
    "Id": "AccountService",
    "Name": "Account Service",
    "Description": "Local Manager Account Service",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "ServiceEnabled": true,
    "AuthFailureLoggingThreshold": 3,
```

```
"MinPasswordLength": 8,
"EnforcePasswordHistoryCount": 5,
"PasswordGuidanceMessageId": "ContosoService.1.2.PasswordComplexity",
"PasswordGuidanceMessage": "Password must contain at least three of the following: an uppercase
     character, a lowercase character, a numeric digit, or a punctuation character",
"AccountLockoutThreshold": 5,
"AccountLockoutDuration": 30,
"AccountLockoutCounterResetAfter": 30,
"AccountLockoutCounterResetEnabled": true,
"Accounts": {
    "@odata.id": "/redfish/v1/AccountService/Accounts"
},
"Roles": {
    "@odata.id": "/redfish/v1/AccountService/Roles"
},
"LocalAccountAuth": "Enabled",
"LDAP": {
    "AccountProviderType": "LDAPService",
    "ServiceEnabled": false,
    "ServiceAddresses": [
        "ldaps://ldap.example.org:636"
    ],
    "Authentication": {
        "AuthenticationType": "UsernameAndPassword",
        "Username": "cn=Manager,dc=example,dc=org",
        "Password": null
    },
    "LDAPService": {
        "SearchSettings": {
            "BaseDistinguishedNames": [
                "dc=example,dc=org"
            ],
            "UsernameAttribute": "uid",
            "GroupsAttribute": "memberof"
        }
    },
    "RemoteRoleMapping": [
        {
            "RemoteUser": "cn=Manager,dc=example,dc=org",
            "LocalRole": "Administrator"
        },
        {
            "RemoteGroup": "cn=Admins,ou=Groups,dc=example,dc=org",
            "LocalRole": "Administrator"
        },
        {
            "RemoteGroup": "cn=PowerUsers,ou=Groups,dc=example,dc=org",
            "LocalRole": "Operator"
        },
        {
            "RemoteGroup": "(cn=*)",
```

```
                "LocalRole": "ReadOnly"
            }
        ]
    },
    "ActiveDirectory": {
        "AccountProviderType": "ActiveDirectoryService",
        "ServiceEnabled": true,
        "ServiceAddresses": [
            "ad1.example.org",
            "ad2.example.org",
            null,
            null
        ],
        "Authentication": {
            "AuthenticationType": "KerberosKeytab",
            "KerberosKeytab": null
        },
        "RemoteRoleMapping": [
            {
                "RemoteGroup": "Administrators",
                "LocalRole": "Administrator"
            },
            {
                "RemoteUser": "DOMAIN\\Bob",
                "LocalRole": "Operator"
            },
            {
                "RemoteGroup": "PowerUsers",
                "LocalRole": "Operator"
            },
            {
                "RemoteGroup": "Everybody",
                "LocalRole": "ReadOnly"
            }
        ]
    },
    "AdditionalExternalAccountProviders": {
        "@odata.id": "/redfish/v1/AccountService/ExternalAccountProviders"
    },
    "RequireChangePasswordAction": false,
    "@odata.id": "/redfish/v1/AccountService"
}
```


6.3 ActionInfo 1.4.2

Version	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*

Release	2023.2	2022.2	2021.2	2018.2	2016.2

6.3.1 Description

The `ActionInfo` schema defines the supported parameters and other information for a Redfish action. Supported parameters can differ among vendors and even among resource instances. This data can ensure that action requests from applications contain supported parameters.

6.3.2 Properties

Property	Type	Attributes	Notes
Parameters [{	array		The list of parameters included in the specified Redfish action.
AllowableNumbers *(v1.3+)* [ ]	array (string, null)	*read-only*	The allowable numeric values or duration values, inclusive ranges of values, and incremental step values for this parameter as applied to this action target.
AllowablePattern *(v1.3+)*	string	*read-only* *(null)*	The allowable pattern for this parameter as applied to this action target.
AllowableValueDescriptions *(v1.4+)* [ ]	array (string, null)	*read-only*	Descriptions of allowable values for this parameter.
AllowableValues [ ]	array (string, null)	*read-only*	The allowable values for this parameter as applied to this action target.
ArraySizeMaximum *(v1.2+)*	integer	*read-only* *(null)*	The maximum number of array elements allowed for this parameter.
ArraySizeMinimum *(v1.2+)*	integer	*read-only* *(null)*	The minimum number of array elements required for this parameter.
DataType	string (enum)	*read-only* *(null)*	The JSON property type for this parameter. *For the possible property values, see DataType in Property details.*
MaximumValue *(v1.1+)*	number	*read-only* *(null)*	The maximum supported value for this parameter.
MinimumValue *(v1.1+)*	number	*read-only* *(null)*	The minimum supported value for this parameter.
Name	string	*read-only* *required*	The name of the parameter for this action.
ObjectDataType	string	*read-only* *(null)*	The data type of an object-based parameter.

Property	Type	Attributes	Notes
Required	boolean	*read-only*	An indication of whether the parameter is required to complete this action.
}]			

6.3.3 Property details

6.3.3.1 DataType

The JSON property type for this parameter.

string	Description
Boolean	A boolean.
Number	A number.
NumberArray	An array of numbers.
Object	An embedded JSON object.
ObjectArray	An array of JSON objects.
String	A string.
StringArray	An array of strings.

6.3.4 Example response

```
{
    "@odata.type": "#ActionInfo.v1_4_2.ActionInfo",
    "Id": "ResetActionInfo",
    "Name": "Reset Action Info",
    "Parameters": [
        {
            "Name": "ResetType",
            "Required": true,
            "DataType": "String",
            "AllowableValues": [
                "On",
                "ForceOff",
                "GracefulShutdown",
                "GracefulRestart",
                "ForceRestart",
```

```
                "Nmi",
                "ForceOn",
                "PushPowerButton"
            ]
        }
    ],
    "@odata.id": "/redfish/v1/Systems/1/ResetActionInfo"
}
```

6.4 AddressPool 1.3.0

Version	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2024.1	2021.2	2020.3	2019.4

6.4.1 Description

The `AddressPool` schema contains the definition of an address pool and its configuration.

6.4.2 URIs

/redfish/v1/Fabrics/*{FabricId}*/AddressPools/*{AddressPoolId}*

6.4.3 Properties

Property	Type	Attributes	Notes
Ethernet *(v1.1+)* {	object		The Ethernet-related properties for this address pool.
BFDSingleHopOnly *(v1.1+)* {	object		Bidirectional Forwarding Detection (BFD) related properties for this Ethernet fabric.
DemandModeEnabled *(v1.1+)*	boolean	*read-write (null)*	Bidirectional Forwarding Detection (BFD) Demand Mode status.
DesiredMinTxIntervalMilliseconds *(v1.1+)*	integer	*read-write (null)*	Desired Bidirectional Forwarding Detection (BFD) minimal transmit interval.
KeyChain *(v1.1+)*	string	*read-write (null)*	Bidirectional Forwarding Detection (BFD) Key Chain name.

Property	Type	Attributes	Notes
LocalMultiplier *(v1.1+)*	integer	*read-write (null)*	Bidirectional Forwarding Detection (BFD) multiplier value.
MeticulousModeEnabled *(v1.1+)*	boolean	*read-write (null)*	Meticulous MD5 authentication of the Bidirectional Forwarding Detection (BFD) session.
RequiredMinRxIntervalMilliseconds *(v1.1+)*	integer	*read-write (null)*	Bidirectional Forwarding Detection (BFD) receive value.
SourcePort *(v1.1+)*	integer	*read-write (null)*	Bidirectional Forwarding Detection (BFD) source port.
}			
BGPEvpn *(v1.1+)* {	object		BGP Ethernet Virtual Private Network (EVPN) related properties for this Ethernet fabric.
AnycastGatewayIPAddress *(v1.1+)*	string	*read-write (null)*	The anycast gateway IPv4 address.
AnycastGatewayMACAddress *(v1.1+)*	string	*read-write (null)*	The anycast gateway MAC address.
ARPProxyEnabled *(v1.1+)*	boolean	*read-write (null)*	Address Resolution Protocol (ARP) proxy status.
ARPSuppressionEnabled *(v1.3+)*	boolean	*read-write (null)*	Address Resolution Protocol (ARP) suppression status.
ARPSupressionEnabled *(v1.1+, deprecated v1.3)*	boolean	*read-write (null)*	Address Resolution Protocol (ARP) suppression status. *Deprecated in v1.3 and later. This property has been deprecated in favor of the* `ARPSuppressionEnabled` *property.*
ESINumberRange *(v1.1+)* {	object		The Ethernet Segment Identifier (ESI) number range for the fabric.
Lower *(v1.1+)*	integer	*read-write*	Lower Ethernet Segment Identifier (ESI) number.
Upper *(v1.1+)*	integer	*read-write*	Upper Ethernet Segment Identifier (ESI) number.
}			
EVINumberRange *(v1.1+)* {	object		The Ethernet Virtual Private Network (EVPN) Instance number (EVI) number range for the fabric.
Lower *(v1.1+)*	integer	*read-write*	Lower Ethernet Virtual Private Network (EVPN) Instance (EVI) number.
Upper *(v1.1+)*	integer	*read-write*	Upper Ethernet Virtual Private Network (EVPN) Instance (EVI) number.

Property	Type	Attributes	Notes
}			
GatewayIPAddress *(v1.1+)*	string	*read-write (null)*	The gateway IPv4 address.
GatewayIPAddressRange *(v1.2+)* {	object		The IPv4 address range for gateways.
Lower *(v1.2+)*	string	*read-write (null)*	The lower IPv4 address.
Upper *(v1.2+)*	string	*read-write (null)*	The upper IPv4 address.
}			
NDPProxyEnabled *(v1.1+)*	boolean	*read-write (null)*	Network Discovery Protocol (NDP) proxy status.
NDPSuppressionEnabled *(v1.3+)*	boolean	*read-write (null)*	Network Discovery Protocol (NDP) suppression status.
NDPSupressionEnabled *(v1.1+, deprecated v1.3)*	boolean	*read-write (null)*	Network Discovery Protocol (NDP) suppression status. *Deprecated in v1.3 and later. This property has been deprecated in favor of the* `NDPSuppressionEnabled` *property.*
RouteDistinguisherAdministratorSubfield *(v1.2+)*	string	*read-write (null)*	The Route Distinguisher (RD) Administrator subfield.
RouteDistinguisherRange *(v1.1+)* {	object		The Route Distinguisher (RD) number range for the fabric.
Lower *(v1.1+)*	integer	*read-write*	Lower Route Distinguisher (RD) number.
Upper *(v1.1+)*	integer	*read-write*	Upper Route Distinguisher (RD) number.
}			
RouteTargetAdministratorSubfield *(v1.2+)*	string	*read-write (null)*	The Route Target (RT) Administrator Subfield.
RouteTargetRange *(v1.1+)* {	object		The Route Target (RT) number range for the fabric.
Lower *(v1.1+)*	integer	*read-write (null)*	Lower Route Target (RT) number.
Upper *(v1.1+)*	integer	*read-write (null)*	Upper Route Target (RT) number.
}			
UnderlayMulticastEnabled *(v1.1+)*	boolean	*read-write (null)*	Underlay multicast status.

Property	Type	Attributes	Notes
UnknownUnicastSuppressionEnabled *(v1.1+)*	boolean	*read-write (null)*	Suppression of unknown unicast packets.
VLANIdentifierAddressRange *(v1.1+)* {	object		Virtual LAN (VLAN) tag related address range applicable to this Ethernet fabric or for end-host subnets.
Lower *(v1.1+)*	integer	*read-write (null)*	Virtual LAN (VLAN) tag lower value.
Upper *(v1.1+)*	integer	*read-write (null)*	Virtual LAN (VLAN) tag upper value.
}			
}			
EBGP *(v1.1+)* {	object		External BGP (eBGP) related properties for this Ethernet fabric.
AllowDuplicateASEnabled *(v1.1+)*	boolean	*read-write (null)*	Allow duplicate Autonomous System (AS) path.
AllowOverrideASEnabled *(v1.1+)*	boolean	*read-write (null)*	Option to override an Autonomous System (AS) number with the AS number of the sending peer.
AlwaysCompareMEDEnabled *(v1.1+)*	boolean	*read-write (null)*	Compare Multi Exit Discriminator (MED) status.
ASNumberRange *(v1.1+)* {	object		Autonomous System (AS) number range.
Lower *(v1.1+)*	integer	*read-write*	Lower Autonomous System (AS) number.
Upper *(v1.1+)*	integer	*read-write*	Upper Autonomous System (AS) number.
}			
BGPLocalPreference *(v1.1+)*	integer	*read-write (null)*	Local preference value.
BGPNeighbor *(v1.1+)* {	object		Border Gateway Protocol (BGP) neighbor related properties.
Address *(v1.1+)*	string	*read-write (null)*	Border Gateway Protocol (BGP) neighbor address.
AllowOwnASEnabled *(v1.1+)*	boolean	*read-write (null)*	Allow own Autonomous System (AS) status.
CIDR *(v1.2+)*	integer	*read-write*	The Classless Inter-Domain Routing (CIDR) value used for neighbor communication. This is the number of ones before the first zero in the subnet mask.

Property	Type	Attributes	Notes
ConnectRetrySeconds *(v1.1+)*	integer	*read-write (null)*	Border Gateway Protocol (BGP) retry timer in seconds.
Enabled *(v1.2+)*	boolean	*read-write*	An indication of whether BGP neighbor communication is enabled.
HoldTimeSeconds *(v1.1+)*	integer	*read-write (null)*	Border Gateway Protocol (BGP) hold timer in seconds.
KeepaliveIntervalSeconds *(v1.1+)*	integer	*read-write (null)*	Border Gateway Protocol (BGP) Keepalive timer in seconds.
LocalAS *(v1.1+)*	integer	*read-write (null)*	Local Autonomous System (AS) number.
LogStateChangesEnabled *(v1.1+)*	boolean	*read-write (null)*	Border Gateway Protocol (BGP) neighbor log state change status.
MaxPrefix *(v1.1+)* {	object		Border Gateway Protocol (BGP) max prefix properties.
MaxPrefixNumber *(v1.1+)*	integer	*read-write (null)*	Maximum prefix number.
RestartTimerSeconds *(v1.1+)*	integer	*read-write (null)*	Border Gateway Protocol (BGP) restart timer in seconds.
ShutdownThresholdPercentage *(v1.1+)*	number (%)	*read-write (null)*	Shutdown threshold status.
ThresholdWarningOnlyEnabled *(v1.1+)*	boolean	*read-write (null)*	Threshold warning only status.
}			
MinimumAdvertisementIntervalSeconds *(v1.1+)*	integer	*read-write (null)*	Minimum Border Gateway Protocol (BGP) advertisement interval in seconds.
PassiveModeEnabled *(v1.1+)*	boolean	*read-write (null)*	Border Gateway Protocol (BGP) passive mode status.
PathMTUDiscoveryEnabled *(v1.1+)*	boolean	*read-write (null)*	Path MTU discovery status.
PeerAS *(v1.1+)*	integer	*read-write (null)*	Peer Autonomous System (AS) number.
ReplacePeerASEnabled *(v1.1+)*	boolean	*read-write (null)*	Replace Border Gateway Protocol (BGP) peer Autonomous System (AS) status.
TCPMaxSegmentSizeBytes *(v1.1+)*	integer	*read-write (null)*	TCP max segment size in bytes.

Property	Type	Attributes	Notes
TreatAsWithdrawEnabled *(v1.1+)*	boolean	*read-write (null)*	Border Gateway Protocol (BGP) treat as withdraw status.
}			
BGPRoute *(v1.1+)* {	object		Border Gateway Protocol (BGP) route-related properties.
AdvertiseInactiveRoutesEnabled *(v1.1+)*	boolean	*read-write (null)*	Advertise inactive route status.
DistanceExternal *(v1.1+)*	integer	*read-write (null)*	Route distance for external routes.
DistanceInternal *(v1.1+)*	integer	*read-write (null)*	Route distance for internal routes.
DistanceLocal *(v1.1+)*	integer	*read-write (null)*	Route distance for local routes.
ExternalCompareRouterIdEnabled *(v1.1+)*	boolean	*read-write (null)*	Compare router identifier status.
FlapDampingEnabled *(v1.1+)*	boolean	*read-write (null)*	Route flap dampening status.
SendDefaultRouteEnabled *(v1.1+)*	boolean	*read-write (null)*	Send default route status.
}			
BGPWeight *(v1.1+)*	integer	*read-write (null)*	BGP weight attribute.
GracefulRestart *(v1.1+)* {	object		Graceful restart related properties.
GracefulRestartEnabled *(v1.1+)*	boolean	*read-write (null)*	Border Gateway Protocol (BGP) graceful restart status.
HelperModeEnabled *(v1.1+)*	boolean	*read-write (null)*	Graceful restart helper mode status.
StaleRoutesTimeSeconds *(v1.1+)*	integer	*read-write (null)*	Stale route timer in seconds.
TimeSeconds *(v1.1+)*	integer	*read-write (null)*	Graceful restart timer in seconds.
}			
MED *(v1.1+)*	integer	*read-write (null)*	BGP Multi Exit Discriminator (MED) value.

Property	Type	Attributes	Notes
MultihopEnabled *(v1.1+)*	boolean	*read-write (null)*	External BGP (eBGP) multihop status.
MultihopTTL *(v1.1+)*	integer	*read-write (null)*	External BGP (eBGP) multihop Time to Live (TTL) value.
MultiplePaths *(v1.1+)* {	object		Multiple path related properties.
MaximumPaths *(v1.1+)*	integer	*read-write (null)*	Maximum paths number.
UseMultiplePathsEnabled *(v1.1+)*	boolean	*read-write (null)*	Border Gateway Protocol (BGP) multiple paths status.
}			
SendCommunityEnabled *(v1.1+)*	boolean	*read-write (null)*	Indicates whether community attributes are sent.
}			
IPv4 *(v1.1+)* {	object		IPv4 and Virtual LAN (VLAN) related addressing for this Ethernet fabric.
AnycastGatewayIPAddress *(v1.1+)*	string	*read-write (null)*	The anycast gateway IPv4 address.
AnycastGatewayMACAddress *(v1.1+)*	string	*read-write (null)*	The anycast gateway MAC address.
DHCP *(v1.1+)* {	object		The Dynamic Host Configuration Protocol (DHCP) related addressing for this Ethernet fabric.
DHCPInterfaceMTUBytes *(v1.1+)*	integer	*read-write (null)*	Dynamic Host Configuration Protocol (DHCP) interface Maximum Transmission Unit (MTU).
DHCPRelayEnabled *(v1.1+)*	boolean	*read-write (null)*	Dynamic Host Configuration Protocol (DHCP) relay status.
DHCPServer *(v1.1+)* [ ]	array (string, null)	*read-write*	The Dynamic Host Configuration Protocol (DHCP) IPv4 addresses for this Ethernet fabric.
}			
DistributeIntoUnderlayEnabled *(v1.1+)*	boolean	*read-write (null)*	Indicates if host subnets should be distributed into the fabric underlay.
DNSDomainName *(v1.1+)*	string	*read-write (null)*	The Domain Name Service (DNS) domain name for this Ethernet fabric.

Property	Type	Attributes	Notes
DNSServer *(v1.1+)* [ ]	array (string, null)	*read-write*	The Domain Name Service (DNS) servers for this Ethernet fabric.
EBGPAddressRange *(v1.1+)* {}	object		External BGP (eBGP) related addressing for this Ethernet fabric. For more information about this property, see IPv4AddressRange in Property Details.
FabricLinkAddressRange *(v1.1+)* {}	object		Link-related IPv4 addressing for this Ethernet fabric typically applied to connections between spine and leaf Ethernet switches. For more information about this property, see IPv4AddressRange in Property Details.
GatewayIPAddress *(v1.1+)*	string	*read-write (null)*	The gateway IPv4 address.
HostAddressRange *(v1.1+)* {}	object		IPv4-related host subnet addressing for physical device endpoints that connect to this Ethernet fabric. For more information about this property, see IPv4AddressRange in Property Details.
IBGPAddressRange *(v1.1+)* {}	object		Internal BGP (iBGP) related addressing for this Ethernet fabric. For more information about this property, see IPv4AddressRange in Property Details.
LoopbackAddressRange *(v1.1+)* {}	object		Loopback-related IPv4 addressing for this Ethernet fabric. For more information about this property, see IPv4AddressRange in Property Details.
ManagementAddressRange *(v1.1+)* {}	object		Management-related addressing for this Ethernet fabric. For more information about this property, see IPv4AddressRange in Property Details.
NativeVLAN *(v1.1+)*	integer	*read-write (null)*	The untagged Virtual LAN (VLAN) ID value.
NTPOffsetHoursMinutes *(v1.1+)*	integer	*read-write (null)*	The Network Time Protocol (NTP) offset configuration.
NTPServer *(v1.1+)* [ ]	array (string, null)	*read-write*	The Network Time Protocol (NTP) servers for this Ethernet fabric.
NTPTimezone *(v1.1+)*	string	*read-write (null)*	The Network Time Protocol (NTP) time zone for this Ethernet fabric.
SystemMACRange *(v1.2+)* {	object		The MAC address range for systems in this subnet.
Lower *(v1.2+)*	string	*read-write (null)*	The lower system MAC address.

Property	Type	Attributes	Notes
Upper *(v1.2+)*	string	*read-write (null)*	The upper system MAC address.
}			
VLANIdentifierAddressRange *(v1.1+)* {	object		Virtual LAN (VLAN) tag related addressing for this Ethernet fabric or for end-host networks.
Lower *(v1.1+)*	integer	*read-write (null)*	Virtual LAN (VLAN) tag lower value.
Upper *(v1.1+)*	integer	*read-write (null)*	Virtual LAN (VLAN) tag upper value.
}			
}			
MultiProtocolEBGP *(v1.1+)* {	object		Multi Protocol eBGP (MP eBGP) related properties for this Ethernet fabric.
AllowDuplicateASEnabled *(v1.1+)*	boolean	*read-write (null)*	Allow duplicate Autonomous System (AS) path.
AllowOverrideASEnabled *(v1.1+)*	boolean	*read-write (null)*	Option to override an Autonomous System (AS) number with the AS number of the sending peer.
AlwaysCompareMEDEnabled *(v1.1+)*	boolean	*read-write (null)*	Compare Multi Exit Discriminator (MED) status.
ASNumberRange *(v1.1+)* {	object		Autonomous System (AS) number range.
Lower *(v1.1+)*	integer	*read-write*	Lower Autonomous System (AS) number.
Upper *(v1.1+)*	integer	*read-write*	Upper Autonomous System (AS) number.
}			
BGPLocalPreference *(v1.1+)*	integer	*read-write (null)*	Local preference value.
BGPNeighbor *(v1.1+)* {	object		Border Gateway Protocol (BGP) neighbor related properties.
Address *(v1.1+)*	string	*read-write (null)*	Border Gateway Protocol (BGP) neighbor address.
AllowOwnASEnabled *(v1.1+)*	boolean	*read-write (null)*	Allow own Autonomous System (AS) status.

Property	Type	Attributes	Notes
CIDR *(v1.2+)*	integer	*read-write*	The Classless Inter-Domain Routing (CIDR) value used for neighbor communication. This is the number of ones before the first zero in the subnet mask.
ConnectRetrySeconds *(v1.1+)*	integer	*read-write (null)*	Border Gateway Protocol (BGP) retry timer in seconds.
Enabled *(v1.2+)*	boolean	*read-write*	An indication of whether BGP neighbor communication is enabled.
HoldTimeSeconds *(v1.1+)*	integer	*read-write (null)*	Border Gateway Protocol (BGP) hold timer in seconds.
KeepaliveIntervalSeconds *(v1.1+)*	integer	*read-write (null)*	Border Gateway Protocol (BGP) Keepalive timer in seconds.
LocalAS *(v1.1+)*	integer	*read-write (null)*	Local Autonomous System (AS) number.
LogStateChangesEnabled *(v1.1+)*	boolean	*read-write (null)*	Border Gateway Protocol (BGP) neighbor log state change status.
MaxPrefix *(v1.1+)* {	object		Border Gateway Protocol (BGP) max prefix properties.
MaxPrefixNumber *(v1.1+)*	integer	*read-write (null)*	Maximum prefix number.
RestartTimerSeconds *(v1.1+)*	integer	*read-write (null)*	Border Gateway Protocol (BGP) restart timer in seconds.
ShutdownThresholdPercentage *(v1.1+)*	number (%)	*read-write (null)*	Shutdown threshold status.
ThresholdWarningOnlyEnabled *(v1.1+)*	boolean	*read-write (null)*	Threshold warning only status.
}			
MinimumAdvertisementIntervalSeconds *(v1.1+)*	integer	*read-write (null)*	Minimum Border Gateway Protocol (BGP) advertisement interval in seconds.
PassiveModeEnabled *(v1.1+)*	boolean	*read-write (null)*	Border Gateway Protocol (BGP) passive mode status.
PathMTUDiscoveryEnabled *(v1.1+)*	boolean	*read-write (null)*	Path MTU discovery status.
PeerAS *(v1.1+)*	integer	*read-write (null)*	Peer Autonomous System (AS) number.

Property	Type	Attributes	Notes
ReplacePeerASEnabled *(v1.1+)*	boolean	*read-write (null)*	Replace Border Gateway Protocol (BGP) peer Autonomous System (AS) status.
TCPMaxSegmentSizeBytes *(v1.1+)*	integer	*read-write (null)*	TCP max segment size in bytes.
TreatAsWithdrawEnabled *(v1.1+)*	boolean	*read-write (null)*	Border Gateway Protocol (BGP) treat as withdraw status.
}			
BGPRoute *(v1.1+)* {	object		Border Gateway Protocol (BGP) route-related properties.
AdvertiseInactiveRoutesEnabled *(v1.1+)*	boolean	*read-write (null)*	Advertise inactive route status.
DistanceExternal *(v1.1+)*	integer	*read-write (null)*	Route distance for external routes.
DistanceInternal *(v1.1+)*	integer	*read-write (null)*	Route distance for internal routes.
DistanceLocal *(v1.1+)*	integer	*read-write (null)*	Route distance for local routes.
ExternalCompareRouterIdEnabled *(v1.1+)*	boolean	*read-write (null)*	Compare router identifier status.
FlapDampingEnabled *(v1.1+)*	boolean	*read-write (null)*	Route flap dampening status.
SendDefaultRouteEnabled *(v1.1+)*	boolean	*read-write (null)*	Send default route status.
}			
BGPWeight *(v1.1+)*	integer	*read-write (null)*	BGP weight attribute.
GracefulRestart *(v1.1+)* {	object		Graceful restart related properties.
GracefulRestartEnabled *(v1.1+)*	boolean	*read-write (null)*	Border Gateway Protocol (BGP) graceful restart status.
HelperModeEnabled *(v1.1+)*	boolean	*read-write (null)*	Graceful restart helper mode status.
StaleRoutesTimeSeconds *(v1.1+)*	integer	*read-write (null)*	Stale route timer in seconds.

Property	Type	Attributes	Notes
TimeSeconds *(v1.1+)*	integer	*read-write (null)*	Graceful restart timer in seconds.
}			
MED *(v1.1+)*	integer	*read-write (null)*	BGP Multi Exit Discriminator (MED) value.
MultihopEnabled *(v1.1+)*	boolean	*read-write (null)*	External BGP (eBGP) multihop status.
MultihopTTL *(v1.1+)*	integer	*read-write (null)*	External BGP (eBGP) multihop Time to Live (TTL) value.
MultiplePaths *(v1.1+)* {	object		Multiple path related properties.
MaximumPaths *(v1.1+)*	integer	*read-write (null)*	Maximum paths number.
UseMultiplePathsEnabled *(v1.1+)*	boolean	*read-write (null)*	Border Gateway Protocol (BGP) multiple paths status.
}			
SendCommunityEnabled *(v1.1+)*	boolean	*read-write (null)*	Indicates whether community attributes are sent.
}			
MultiProtocolIBGP *(v1.1+)* {	object		Multi Protocol iBGP (MP iBGP) related properties for this Ethernet fabric.
ASNumberRange *(v1.1+)* {	object		Autonomous System (AS) number range.
Lower *(v1.1+)*	integer	*read-write*	Lower Autonomous System (AS) number.
Upper *(v1.1+)*	integer	*read-write*	Upper Autonomous System (AS) number.
}			
BGPNeighbor *(v1.1+)* {	object		Border Gateway Protocol (BGP) neighbor related properties.
Address *(v1.1+)*	string	*read-write (null)*	Border Gateway Protocol (BGP) neighbor address.
AllowOwnASEnabled *(v1.1+)*	boolean	*read-write (null)*	Allow own Autonomous System (AS) status.
CIDR *(v1.2+)*	integer	*read-write*	The Classless Inter-Domain Routing (CIDR) value used for neighbor communication. This is the number of ones before the first zero in the subnet mask.

Property	Type	Attributes	Notes
ConnectRetrySeconds *(v1.1+)*	integer	*read-write (null)*	Border Gateway Protocol (BGP) retry timer in seconds.
Enabled *(v1.2+)*	boolean	*read-write*	An indication of whether BGP neighbor communication is enabled.
HoldTimeSeconds *(v1.1+)*	integer	*read-write (null)*	Border Gateway Protocol (BGP) hold timer in seconds.
KeepaliveIntervalSeconds *(v1.1+)*	integer	*read-write (null)*	Border Gateway Protocol (BGP) Keepalive timer in seconds.
LocalAS *(v1.1+)*	integer	*read-write (null)*	Local Autonomous System (AS) number.
LogStateChangesEnabled *(v1.1+)*	boolean	*read-write (null)*	Border Gateway Protocol (BGP) neighbor log state change status.
MaxPrefix *(v1.1+)* {	object		Border Gateway Protocol (BGP) max prefix properties.
MaxPrefixNumber *(v1.1+)*	integer	*read-write (null)*	Maximum prefix number.
RestartTimerSeconds *(v1.1+)*	integer	*read-write (null)*	Border Gateway Protocol (BGP) restart timer in seconds.
ShutdownThresholdPercentage *(v1.1+)*	number (%)	*read-write (null)*	Shutdown threshold status.
ThresholdWarningOnlyEnabled *(v1.1+)*	boolean	*read-write (null)*	Threshold warning only status.
}			
MinimumAdvertisementIntervalSeconds *(v1.1+)*	integer	*read-write (null)*	Minimum Border Gateway Protocol (BGP) advertisement interval in seconds.
PassiveModeEnabled *(v1.1+)*	boolean	*read-write (null)*	Border Gateway Protocol (BGP) passive mode status.
PathMTUDiscoveryEnabled *(v1.1+)*	boolean	*read-write (null)*	Path MTU discovery status.
PeerAS *(v1.1+)*	integer	*read-write (null)*	Peer Autonomous System (AS) number.
ReplacePeerASEnabled *(v1.1+)*	boolean	*read-write (null)*	Replace Border Gateway Protocol (BGP) peer Autonomous System (AS) status.
TCPMaxSegmentSizeBytes *(v1.1+)*	integer	*read-write (null)*	TCP max segment size in bytes.

Property	Type	Attributes	Notes
TreatAsWithdrawEnabled *(v1.1+)*	boolean	*read-write (null)*	Border Gateway Protocol (BGP) treat as withdraw status.
}			
BGPRoute *(v1.1+)* {	object		Border Gateway Protocol (BGP) route-related properties.
AdvertiseInactiveRoutesEnabled *(v1.1+)*	boolean	*read-write (null)*	Advertise inactive route status.
DistanceExternal *(v1.1+)*	integer	*read-write (null)*	Route distance for external routes.
DistanceInternal *(v1.1+)*	integer	*read-write (null)*	Route distance for internal routes.
DistanceLocal *(v1.1+)*	integer	*read-write (null)*	Route distance for local routes.
ExternalCompareRouterIdEnabled *(v1.1+)*	boolean	*read-write (null)*	Compare router identifier status.
FlapDampingEnabled *(v1.1+)*	boolean	*read-write (null)*	Route flap dampening status.
SendDefaultRouteEnabled *(v1.1+)*	boolean	*read-write (null)*	Send default route status.
}			
GracefulRestart *(v1.1+)* {	object		Graceful restart related properties.
GracefulRestartEnabled *(v1.1+)*	boolean	*read-write (null)*	Border Gateway Protocol (BGP) graceful restart status.
HelperModeEnabled *(v1.1+)*	boolean	*read-write (null)*	Graceful restart helper mode status.
StaleRoutesTimeSeconds *(v1.1+)*	integer	*read-write (null)*	Stale route timer in seconds.
TimeSeconds *(v1.1+)*	integer	*read-write (null)*	Graceful restart timer in seconds.
}			
MultiplePaths *(v1.1+)* {	object		Multiple path related properties.
MaximumPaths *(v1.1+)*	integer	*read-write (null)*	Maximum paths number.

Property	Type	Attributes	Notes
UseMultiplePathsEnabled *(v1.1+)*	boolean	*read-write (null)*	Border Gateway Protocol (BGP) multiple paths status.
}			
SendCommunityEnabled *(v1.1+)*	boolean	*read-write (null)*	Indicates whether community attributes are sent.
}			
}			
GenZ {	object		The Gen-Z related properties for this address pool.
AccessKey	string	*read-write (null)*	The Access Key required for this address pool.
MaxCID	integer	*read-write (null)*	The maximum value for the Component Identifier (CID).
MaxSID	integer	*read-write (null)*	The maximum value for the Subnet Identifier (SID).
MinCID	integer	*read-write (null)*	The minimum value for the Component Identifier (CID).
MinSID	integer	*read-write (null)*	The minimum value for the Subnet Identifier (SID).
}			
Links {	object		The links to other resources that are related to this resource.
Endpoints [{	array		An array of links to the endpoints that this address pool contains.
@odata.id	string	*read-write*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
Zones [{	array		An array of links to the zones that this address pool contains.
@odata.id	string	*read-write*	Link to a Zone resource. See the Links section and the *Zone* schema for details.
}]			

Property	Type	Attributes	Notes
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.4.4 Property details

6.4.4.1 IPv4AddressRange

IPv4-related address range for an Ethernet fabric.

Lower *(v1.1+)*	string	*read-write (null)*	Lower IPv4 network address.
Upper *(v1.1+)*	string	*read-write (null)*	Upper IPv4 network address.

6.4.5 Example response


```
{
    "@odata.type": "#AddressPool.v1_3_0.AddressPool",
    "Id": "AP1",
    "Name": "Address Pool 1",
    "Description": "Address Pool 1",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "GenZ": {
        "MinCID": 1,
        "MaxCID": 4096,
        "MinSID": 100,
        "MaxSID": 8192,
        "AccessKey": "0x1A"
    },
    "Links": {
        "Endpoints": [
            {
                "@odata.id": "/redfish/v1/Fabrics/GenZ/Endpoints/1"
            }
        ]
```

```
    },
    "@odata.id": "/redfish/v1/Fabrics/GenZ/AddressPools/AP1"
}
```

6.5 Aggregate 1.0.3

Version	*v1.0*
Release	2020.2

6.5.1 Description

The `Aggregate` schema describes a grouping method for an aggregation service. Aggregates are formal groups of resources that are more persistent than ad hoc groupings.

6.5.2 URIs

/redfish/v1/AggregationService/Aggregates/*{AggregateId}*

6.5.3 Properties

Property	Type	Attributes	Notes
Elements [{	array	*required*	The elements of this aggregate.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
ElementsCount	integer	*read-only* *(null)*	The number of entries in the `Elements` array.

6.5.4 Actions

6.5.4.1 AddElements

Description

This action is used to add one or more resources to the aggregate.

Action URI

{Base URI of target resource}/Actions/Aggregate.AddElements

Action parameters

Parameter Name	Type	Attributes	Notes
Elements [{	array	*required*	An array of resource links to add to the `Elements` array.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			

Request Example

```
{
    "Elements": [
        {
            "@odata.id": "/redfish/v1/Systems/cluster-node7"
        },
        {
            "@odata.id": "node8.intranet.contoso.com/redfish/v1/Systems/1"
        }
    ]
}
```

6.5.4.2 RemoveElements

Description

This action is used to remove one or more resources from the aggregate.

Action URI

{Base URI of target resource}/Actions/Aggregate.RemoveElements

Action parameters

Parameter Name	Type	Attributes	Notes
Elements [{	array	*required*	An array of resource links to remove from the `Elements` array.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			

Request Example

```
{
    "Elements": [
        {
            "@odata.id": "node8.intranet.contoso.com/redfish/v1/Systems/1"
        }
    ]
}
```

6.5.4.3 Reset

Description

This action is used to reset a collection of resources. For example, this could be an aggregate or a list of computer systems.

Action URI

{Base URI of target resource}/Actions/Aggregate.Reset

Action parameters

Parameter Name	Type	Attributes	Notes
BatchSize	integer	*optional*	The number of elements in each batch being reset.
DelayBetweenBatchesInSeconds	integer (seconds)	*optional*	The delay of the batches of elements being reset in seconds.
ResetType	string (enum)	*optional*	The type of reset. *For the possible property values, see ResetType in Property details.*

Request Example

```
{
    "ResetType": "ForceRestart",
    "BatchSize": 5,
    "DelayBetweenBatchesInSeconds": 30
}
```

6.5.4.4 SetDefaultBootOrder

Description

This action is used to restore the boot order to the default state for the computer systems that are members of this aggregate.

Action URI

{Base URI of target resource}/Actions/Aggregate.SetDefaultBootOrder

Action parameters

This action takes no parameters.

6.5.5 Property details

6.5.5.1 ResetType

The type of reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the unit.
FullPowerCycle	Full power cycle the unit. Behaves like removing utility lines, followed by restoring utility lines to the resource.
GracefulRestart	Shut down gracefully and restart the unit.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.

string	Description
On	Turn on the unit.
Pause	Pause execution on the unit but do not remove power. This is typically a feature of virtual machine hypervisors.
PowerCycle	Power cycle the unit. Behaves like a power removal, followed by a power restore to the resource.
PushPowerButton	Simulate the pressing of the physical power button on this unit.
Resume	Resume execution on the paused unit. This is typically a feature of virtual machine hypervisors.
Suspend	Write the state of the unit to disk before powering off. This allows for the state to be restored when powered back on.

6.5.6 Example response


```
{
    "@odata.type": "#Aggregate.v1_0_3.Aggregate",
    "Id": "Aggregate1",
    "Name": "Aggregate One",
    "ElementsCount": 2,
    "Elements": [
        {
            "@odata.id": "/redfish/v1/Systems/cluster-node3"
        },
        {
            "@odata.id": "/redfish/v1/Systems/cluster-node4"
        }
    ],
    "Actions": {
        "#Aggregate.Reset": {
            "target": "/redfish/v1/AggregationService/Aggregates/Aggregate1/Actions/Aggregate.Reset",
            "@Redfish.ActionInfo": "/redfish/v1/AggregationService/Aggregates/Aggregate1/ResetActionInfo"
        },
        "#Aggregate.SetDefaultBootOrder": {
            "target": "/redfish/v1/AggregationService/Aggregates/Aggregate1/Actions/
         Aggregate.SetDefaultBootOrder",
            "@Redfish.ActionInfo": "/redfish/v1/AggregationService/Aggregates/Aggregate1/
         SetDefaultBootOrderActionInfo"
        },
        "#Aggregate.AddElements": {
            "target": "/redfish/v1/AggregationService/Aggregates/Aggregate1/Actions/
         Aggregate.AddElements",
            "@Redfish.ActionInfo": "/redfish/v1/AggregationService/Aggregates/Aggregate1/
         AddElementsActionInfo"
        },
        "#Aggregate.RemoveElements": {
```

```
            "target": "/redfish/v1/AggregationService/Aggregates/Aggregate1/Actions/
          Aggregate.RemoveElements",
            "@Redfish.ActionInfo": "/redfish/v1/AggregationService/Aggregates/Aggregate1/
          RemoveElementsActionInfo"
          }
      },
      "@odata.id": "/redfish/v1/AggregationService/Aggregates/Aggregate1"
  }
```


6.6 AggregationService 1.0.3

Version	*v1.0*
Release	2020.2

6.6.1 Description

The `AggregationService` schema contains properties for managing aggregation operations, either on ad hoc combinations of resources or on defined sets of resources called aggregates. Access points define the properties needed to access the entity being aggregated and connection methods describe the protocol or other semantics of the connection.

6.6.2 URIs

/redfish/v1/AggregationService

6.6.3 Properties

Property	Type	Attributes	Notes
Aggregates {	object		The link to the collection of aggregates associated with this service. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Aggregate*. See the Aggregate schema for details.
}			
AggregationSources {	object		The link to the collection of aggregation sources associated with this service. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *AggregationSource*. See the AggregationSource schema for details.

Property	Type	Attributes	Notes
}			
ConnectionMethods {	object		The link to the collection of connection methods associated with this service. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *ConnectionMethod*. See the ConnectionMethod schema for details.
}			
ServiceEnabled	boolean	*read-write (null)*	An indication of whether the aggregation service is enabled.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.6.4 Actions

6.6.4.1 Reset

Description

This action is used to reset a set of resources. For example this could be a list of computer systems.

Action URI

{Base URI of target resource}/Actions/AggregationService.Reset

Action parameters

Parameter Name	Type	Attributes	Notes
BatchSize	integer	*optional*	The number of elements in each batch being reset.
DelayBetweenBatchesInSeconds	integer (seconds)	*optional*	The delay of the batches of elements being reset in seconds.
ResetType	string (enum)	*optional*	The type of reset. *For the possible property values, see ResetType in Property details.*
TargetURIs [{	array	*required*	An array of links to the resources being reset.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.

Parameter Name	Type	Attributes	Notes
}]			

Request Example

```
{
    "ResetType": "ForceRestart",
    "BatchSize": 1,
    "DelayBetweenBatchesInSeconds": 30,
    "TargetURIs": [
        {
            "@odata.id": "/redfish/v1/Systems/cluster-node3"
        },
        {
            "@odata.id": "/redfish/v1/Systems/cluster-node4"
        },
        {
            "@odata.id": "node7.intranet.contoso.com/redfish/v1/Systems/1"
        }
    ]
}
```

6.6.4.2 SetDefaultBootOrder

Description

This action is used to restore the boot order to the default state for the specified computer systems.

Action URI

{Base URI of target resource}/Actions/AggregationService.SetDefaultBootOrder

Action parameters

Parameter Name	Type	Attributes	Notes
Systems [{	array	*required*	The computer systems to restore.
@odata.id	string	*read-only*	Link to a ComputerSystem resource. See the Links section and the *ComputerSystem* schema for details.
}]			

Request Example

```
{
    "Systems": [
        {
            "@odata.id": "/redfish/v1/Systems/cluster-node3"
        },
        {
            "@odata.id": "/redfish/v1/Systems/cluster-node4"
        },
        {
            "@odata.id": "node7.intranet.contoso.com/redfish/v1/Systems/1"
        }
    ]
}
```

6.6.5 Property details

6.6.5.1 ResetType

The type of reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the unit.
FullPowerCycle	Full power cycle the unit. Behaves like removing utility lines, followed by restoring utility lines to the resource.
GracefulRestart	Shut down gracefully and restart the unit.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
Pause	Pause execution on the unit but do not remove power. This is typically a feature of virtual machine hypervisors.
PowerCycle	Power cycle the unit. Behaves like a power removal, followed by a power restore to the resource.
PushPowerButton	Simulate the pressing of the physical power button on this unit.
Resume	Resume execution on the paused unit. This is typically a feature of virtual machine hypervisors.

string	Description
Suspend	Write the state of the unit to disk before powering off. This allows for the state to be restored when powered back on.

6.6.6 Example response


```
{
    "@odata.type": "#AggregationService.v1_0_3.AggregationService",
    "Id": "AggregationService",
    "Description": "Aggregation Service",
    "Name": "Aggregation Service",
    "ServiceEnabled": true,
    "Status": {
        "Health": "OK",
        "HealthRollup": "OK",
        "State": "Enabled"
    },
    "Aggregates": {
        "@odata.id": "/redfish/v1/AggregationService/Aggregates"
    },
    "AggregationSources": {
        "@odata.id": "/redfish/v1/AggregationService/AggregationSources"
    },
    "ConnectionMethods": {
        "@odata.id": "/redfish/v1/AggregationService/ConnectionMethods"
    },
    "Actions": {
        "#AggregationService.Reset": {
            "target": "/redfish/v1/AggregationService/Actions/AggregationService.Reset",
            "@Redfish.ActionInfo": "/redfish/v1/AggregationService/ResetActionInfo"
        },
        "#AggregationService.SetDefaultBootOrder": {
            "target": "/redfish/v1/AggregationService/Actions/AggregationService.SetDefaultBootOrder",
            "@Redfish.ActionInfo": "/redfish/v1/AggregationService/SetDefaultBootOrderActionInfo"
        }
    },
    "@odata.id": "/redfish/v1/AggregationService/"
}
```


6.7 AggregationSource 1.5.0

Version	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2025.2	2023.3	2022.3	2021.3	2020.4	2020.2

6.7.1 Description

The `AggregationSource` schema is used to represent the source of information for a subset of the resources provided by a Redfish service. It can be thought of as a provider of information. As such, most such interfaces have requirements to support the gathering of information like address and account used to access the information.

6.7.2 URIs

/redfish/v1/AggregationService/AggregationSources/*{AggregationSourceId}*

6.7.3 Properties

Property	Type	Attributes	Notes
AggregationType *(v1.2+)*	string (enum)	*read-write*	The type of aggregation used towards the aggregation source. *For the possible property values, see AggregationType in Property details.*
HostName	string (URI)	*read-write (null)*	The URI of the system to be accessed.
Links {	object		The links to other resources that are related to this resource.
ConnectionMethod {	object		A link to the connection method used to contact this aggregation source. See the *ConnectionMethod* schema for details on this property.
@odata.id	string	*read-only*	Link to a ConnectionMethod resource. See the Links section and the *ConnectionMethod* schema for details.
}			
Oem {}	object		See the Oem object definition in the Common properties section.
ResourcesAccessed [{	array		An array links to the resources added to the service through this aggregation source. It is recommended that this be the minimal number of properties needed to find the resources that would be lost when the aggregation source is deleted.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
}			
ModbusTargetServerId *(v1.5+)*	integer	*read-write (null)*	The Modbus identifier of this aggregation source.

Property	Type	Attributes	Notes
Password	string	*read-write (null)*	The password for accessing the aggregation source. The value is `null` in responses.
Port *(v1.5+)*	integer	*read-write (null)*	The network port.
SNMP *(v1.1+)* {	object		SNMP settings of the aggregation source.
AuthenticationKey *(v1.1+)*	string	*read-write (null)*	The secret authentication key for SNMPv3.
AuthenticationKeySet *(v1.1+)*	boolean	*read-only*	Indicates if the `AuthenticationKey` property is set.
AuthenticationProtocol *(v1.1+)*	string (enum)	*read-write (null)*	The authentication protocol for SNMPv3. *For the possible property values, see AuthenticationProtocol in Property details.*
EncryptionKey *(v1.1+)*	string	*read-write (null)*	The secret authentication key for SNMPv3.
EncryptionKeySet *(v1.1+)*	boolean	*read-only*	Indicates if the `EncryptionKey` property is set.
EncryptionProtocol *(v1.1+)*	string (enum)	*read-write (null)*	The encryption protocol for SNMPv3. *For the possible property values, see EncryptionProtocol in Property details.*
TrapCommunity *(v1.2+)*	string	*read-write (null)*	The SNMP trap community string.
}			
SSHSettings *(v1.3+)* {	object		Settings for an aggregation source using SSH as part of the associated connection method.
PresentedPublicHostKey *(v1.3+)* {	object		A link to the last public host key presented by the remote service corresponding to the aggregation source. A client that trusts this public host key can add the public host key to the TrustedPublicHostKeys collection to allow SSH communication with the aggregation source. See the *Key* schema for details on this property.
@odata.id	string	*read-only*	Link to a Key resource. See the Links section and the *Key* schema for details.
}			
PresentedPublicHostKeyTimestamp *(v1.3+)*	string (date-time)	*read-only (null)*	The date and time when the key referenced by the `PresentedPublicHostKey` property was last updated.
PublicIdentityKey *(v1.3+)* {	object		A link to the public key that is used with the aggregation source when the authentication method is configured to use a public key. The GenerateSSHIdentityKeyPair and RemoveSSHIdentityKeyPair are used to update the key for this aggregation source. See the *Key* schema for details on this property.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a Key resource. See the Links section and the *Key* schema for details.
}			
TrustedPublicHostKeys *(v1.3+)* {	object		A link to the trusted public host keys of the remote service corresponding to the aggregation source. These trusted public host keys are used for authentication of the remote service with SSH. An SSH public host key of the remote service can be added to this collection to allow for public key-based SSH authentication. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Key*. See the Key schema for details.
}			
UserAuthenticationMethod *(v1.3+)*	string (enum)	*read-write (null)*	The client user authentication method. *For the possible property values, see UserAuthenticationMethod in Property details.*
}			
Status *(v1.3+)* {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
UserName	string	*read-write (null)*	The username for accessing the aggregation source.

6.7.4 Actions

6.7.4.1 GenerateSSHIdentityKeyPair *(v1.3+)*

Description

This action generates a new SSH identity key-pair to be used with this aggregation source. The generated public key is stored in the `Key` resource referenced by the `PublicIdentityKey` property in `SSHSettings`. Any existing key-pair is deleted and replaced by the new key-pair.

Action URI

{Base URI of target resource}/Actions/AggregationSource.GenerateSSHIdentityKeyPair

Action parameters

Parameter Name	Type	Attributes	Notes
Curve	string (enum)	*optional*	The curve to use with the SSH key if the KeyType parameter contains `ECDSA`. *For the possible property values, see Curve in Property details.*
KeyLength	integer	*optional*	The length of the SSH key, in bits, if the KeyType parameter contains `RSA`.
KeyType	string (enum)	*required*	The type of SSH key. *For the possible property values, see KeyType in Property details.*

Request Example

```
{
    "KeyType": "Ed25519"
}
```

6.7.4.2 RemoveSSHIdentityKeyPair *(v1.3+)*

Description

This action removes the SSH identity key-pair used with this aggregation source.

Action URI

{Base URI of target resource}/Actions/AggregationSource.RemoveSSHIdentityKeyPair

Action parameters

This action takes no parameters.

6.7.5 Property details

6.7.5.1 AggregationType

The type of aggregation used towards the aggregation source.

string	Description
Full	Full aggregation according to connection method.
NotificationsOnly	Only notifications are aggregated.

6.7.5.2 AuthenticationProtocol

The authentication protocol for SNMPv3.

string	Description
CommunityString	Trap community string authentication.
HMAC128_SHA224	HMAC-128-SHA-224 authentication.
HMAC192_SHA256	HMAC-192-SHA-256 authentication.
HMAC256_SHA384	HMAC-256-SHA-384 authentication.
HMAC384_SHA512	HMAC-384-SHA-512 authentication.
HMAC_MD5	HMAC-MD5-96 authentication.
HMAC_SHA96	HMAC-SHA-96 authentication.
None	No authentication.

6.7.5.3 Curve

The curve to use with the SSH key if the KeyType parameter contains `ECDSA`.

string	Description
NISTB233	NIST B-233.
NISTB409	NIST B-409.
NISTK163	NIST K-163.
NISTK233	NIST K-233.
NISTK283	NIST K-283.
NISTK409	NIST K-409.
NISTP192	NIST P-192.
NISTP224	NIST P-224.
NISTP256	NIST P-256.
NISTP384	NIST P-384.

string	Description
NISTP521	NIST P-521.
NISTT571	NIST T-571.

6.7.5.4 EncryptionProtocol

The encryption protocol for SNMPv3.

string	Description
CBC_DES	CBC-DES encryption.
CFB128_AES128	CFB128-AES-128 encryption.
CFB128_AES192 *(v1.4+)*	CFB128-AES-192 encryption.
CFB128_AES256 *(v1.4+)*	CFB128-AES-256 encryption.
None	No encryption.

6.7.5.5 KeyType

The type of SSH key.

string	Description
DSA	DSA.
ECDSA	ECDSA.
Ed25519	Ed25519.
RSA	RSA.

6.7.5.6 UserAuthenticationMethod

The client user authentication method.

string	Description
Password	SSH user authentication with a password.

string	Description
PublicKey	SSH user authentication with a public key.

6.7.6 Example response

```
{
    "@odata.type": "#AggregationSource.v1_5_0.AggregationSource",
    "Id": "AggregationSource1",
    "Name": "AggregationSource One",
    "HostName": "https://Someserver.Contoso.com/redfish/v1",
    "UserName": "root",
    "Password": null,
    "Links": {
        "ConnectionMethod": {
            "@odata.id": "/redfish/v1/AggregationService/ConnectionMethods/ConnectionMethod1"
        },
        "ResourcesAccessed": [
            {
                "@odata.id": "/redfish/v1/Managers/1"
            }
        ]
    },
    "@odata.id": "/redfish/v1/AggregationService/AggregationSources/AggregationSource1"
}
```

6.8 AllowDeny 1.0.3

Version	*v1.0*
Release	2021.2

6.8.1 Description

The `AllowDeny` schema represents a set of allow or deny configurations.

6.8.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/NetworkDeviceFunctions/*{NetworkDeviceFunctionId}*/AllowDeny/*{AllowDenyId}*
/redfish/v1/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkDeviceFunctions/

{NetworkDeviceFunctionId}/AllowDeny/*{AllowDenyId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.8.3 Properties

Property	Type	Attributes	Notes
AllowType	string (enum)	*read-write (null)*	Indicates the type of permission. *For the possible property values, see AllowType in Property details.*
DestinationPortLower	integer	*read-write (null)*	The TCP, UDP, or other destination port to which this rule begins application, inclusive.
DestinationPortUpper	integer	*read-write (null)*	The TCP, UDP, or other destination port to which this rule ends application, inclusive.
Direction	string (enum)	*read-write (null)*	Indicates the direction of the data to which this permission applies. *For the possible property values, see Direction in Property details.*
IANAProtocolNumber	integer	*read-write (null)*	The IANA protocol number to which this permission applies. For TCP, this is `6`. For UDP, this is `17`.
IPAddressLower	string	*read-write (null)*	The lower IP address to which this permission applies.
IPAddressType	string (enum)	*read-write (null)*	The type of IP address populated in the `IPAddressLower` and `IPAddressUpper` properties. *For the possible property values, see IPAddressType in Property details.*
IPAddressUpper	string	*read-write (null)*	The upper IP address to which this permission applies.
SourcePortLower	integer	*read-write (null)*	The TCP, UDP, or other source port to which this rule begins application, inclusive.
SourcePortUpper	integer	*read-write (null)*	The TCP, UDP or other source port to which this rule ends application, inclusive.
StatefulSession	boolean	*read-write (null)*	Indicates if this is a permission that only applies to stateful connections.

6.8.4 Property details

6.8.4.1 AllowType

Indicates the type of permission.

string	Description
Allow	Indicates that traffic that matches the criteria in this resource is permitted.
Deny	Indicates that traffic that matches the criteria in this resource is not permitted.

6.8.4.2 Direction

Indicates the direction of the data to which this permission applies.

string	Description
Egress	Indicates that this limit is enforced on packets and bytes transmitted by the network device function.
Ingress	Indicates that this limit is enforced on packets and bytes received by the network device function.

6.8.4.3 IPAddressType

The type of IP address populated in the `IPAddressLower` and `IPAddressUpper` properties.

string	Description
IPv4	IPv4 addressing is used for all IP-fields in this object.
IPv6	IPv6 addressing is used for all IP-fields in this object.

6.8.5 Example response


```
{
    "@odata.type": "#AllowDeny.v1_0_3.AllowDeny",
    "Id": "AllowDeny Rule 1",
    "Name": "Allow Rule 1",
    "Direction": "Ingress",
    "AllowType": "Allow",
    "StatefulSession": true,
    "IPAddressType": "IPv4",
    "IPAddressLower": "192.168.1.1",
    "IPAddressUpper": "192.168.1.100",
    "IANAProtocolNumber": 6,
    "SourcePortLower": 5,
    "SourcePortUpper": 65535,
    "DestinationPortLower": 5,
    "DestinationPortUpper": 65535,
```

```
    "@odata.id": "/redfish/v1/Chassis/Card1/NetworkAdapters/Slot1/NetworkDeviceFunctions/SC2KP1F0/
        AllowDeny/Rule1"
}
```

6.9 Application 1.0.1

Version	*v1.0*
Release	2023.2

6.9.1 Description

The `Application` schema represents an application or service running on a computer system.

6.9.2 URIs

/redfish/v1/Systems/*{ComputerSystemId}*/OperatingSystem/Applications/*{ApplicationId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.9.3 Properties

Property	Type	Attributes	Notes
DestinationURIs [ ]	array (URI) (string, null)	*read-only*	The URIs to which this application pushes data.
Links {	object		The links to other resources that are related to this resource.
Oem {}	object		See the Oem object definition in the Common properties section.
SoftwareImage {	object		The link to the software image for this application. See the *SoftwareInventory* schema for details on this property.
@odata.id	string	*read-only*	Link to a SoftwareInventory resource. See the Links section and the *SoftwareInventory* schema for details.
}			
}			

Property	Type	Attributes	Notes
MetricsURIs [ ]	array (URI) (string, null)	*read-only*	The URIs that provide access to data or other information in this application.
StartTime	string (date-time)	*read-only* *(null)*	The date and time when the application started running.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
Vendor	string	*read-only* *(null)*	The vendor of this application.
Version	string	*read-only* *(null)*	The version of this application.

6.9.4 Actions

6.9.4.1 Reset

Description

This action resets the application.

Action URI

{Base URI of target resource}/Actions/Application.Reset

Action parameters

Parameter Name	Type	Attributes	Notes
ResetType	string (enum)	*optional*	The type of reset. *For the possible property values, see ResetType in Property details.*

Request Example

```
{
    "ResetType": "GracefulRestart"
}
```

6.9.5 Property details

6.9.5.1 ResetType

The type of reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the unit.
FullPowerCycle	Full power cycle the unit. Behaves like removing utility lines, followed by restoring utility lines to the resource.
GracefulRestart	Shut down gracefully and restart the unit.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
Pause	Pause execution on the unit but do not remove power. This is typically a feature of virtual machine hypervisors.
PowerCycle	Power cycle the unit. Behaves like a power removal, followed by a power restore to the resource.
PushPowerButton	Simulate the pressing of the physical power button on this unit.
Resume	Resume execution on the paused unit. This is typically a feature of virtual machine hypervisors.
Suspend	Write the state of the unit to disk before powering off. This allows for the state to be restored when powered back on.

6.9.6 Example response


```
{
    "@odata.type": "#Application.v1_0_1.Application",
    "Id": "Logger",
    "Name": "Logging Agent",
    "Version": "1.5.1",
    "Vendor": "Contoso",
    "StartTime": "2021-10-29T10:42:38+06:00",
```

```
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "DestinationURIs": [
        "https://listeners.contoso.org:8000/handler"
    ],
    "MetricsURIs": [
        "https://192.168.0.12:7000"
    ],
    "Actions": {
        "#Application.Reset": {
            "target": "/redfish/v1/Systems/VM1/OperatingSystem/Applications/Logger/Actions/
             Application.Reset",
            "ResetType@Redfish.AllowableValues": [
                "On",
                "ForceOff",
                "GracefulShutdown",
                "GracefulRestart",
                "ForceRestart",
                "ForceOn"
            ]
        }
    },
    "@odata.id": "/redfish/v1/Systems/VM1/OperatingSystem/Applications/Logger"
}
```

6.10 Assembly 1.5.1

Version	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2022.3	2022.2	2020.3	2018.2	2018.1	2017.3

6.10.1 Description

The `Assembly` schema defines an assembly. Assembly information contains details about a device, such as part number, serial number, manufacturer, and production date. It also provides access to the original data for the assembly.

6.10.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/Assembly
/redfish/v1/Chassis/*{ChassisId}*/Drives/*{DriveId}*/Assembly
/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Assembly

/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Processors/*{ProcessorId}*/Assembly
/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/Assembly
/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/SubProcessors/*{ProcessorId3}*/Assembly
/redfish/v1/Chassis/*{ChassisId}*/PCIeDevices/*{PCIeDeviceId}*/Assembly
/redfish/v1/Chassis/*{ChassisId}*/Power/PowerSupplies/*{PowerSupplyId}*/Assembly
/redfish/v1/Chassis/*{ChassisId}*/PowerSubsystem/Batteries/*{BatteryId}*/Assembly
/redfish/v1/Chassis/*{ChassisId}*/PowerSubsystem/PowerSupplies/*{PowerSupplyId}*/Assembly
/redfish/v1/Chassis/*{ChassisId}*/Thermal/Fans/*{FanId}*/Assembly
/redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem/Fans/*{FanId}*/Assembly
/redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem/Heaters/*{HeaderId}*/Assembly
/redfish/v1/PowerEquipment/PowerShelves/*{PowerDistributionId}*/PowerSupplies/*{PowerSupplyId}*/Assembly
/redfish/v1/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Assembly
/redfish/v1/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Assembly
/redfish/v1/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Assembly
/redfish/v1/Systems/*{ComputerSystemId}*/PCIeDevices/*{PCIeDeviceId}*/Assembly
/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/Assembly
/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/Assembly
/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/SubProcessors/*{ProcessorId3}*/Assembly
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Assembly
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Drives/*{DriveId}*/Assembly (deprecated)
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Assembly
/redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/Assembly
/redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/Filters/*{FilterId}*/Assembly
/redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/Pumps/*{PumpId}*/Assembly
/redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/Pumps/*{PumpId}*/Filters/*{FilterId}*/Assembly
/redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*/Assembly
/redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*/Filters/*{FilterId}*/Assembly
/redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/Assembly
/redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/Filters/*{FilterId}*/Assembly
/redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/Pumps/*{PumpId}*/Assembly
/redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/Pumps/*{PumpId}*/Filters/*{FilterId}*/Assembly
/redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*/Assembly
/redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*/Filters/*{FilterId}*/Assembly
/redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/Assembly
/redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/Filters/*{FilterId}*/Assembly
/redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/Pumps/*{PumpId}*/Assembly
/redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/Pumps/*{PumpId}*/Filters/*{FilterId}*/Assembly
/redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*/Assembly
/redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*/Filters/*{FilterId}*/Assembly
/redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/Assembly
/redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/Filters/*{FilterId}*/Assembly

/redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/Pumps/*{PumpId}*/Assembly
/redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/Pumps/*{PumpId}*/Filters/*{FilterId}*/Assembly
/redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*/Assembly
/redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*/Filters/*{FilterId}*/Assembly
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.10.3 Properties

Property	Type	Attributes	Notes
Assemblies [{	array		The assembly records.
@odata.id	string (URI)	*read-only required*	The unique identifier for a resource.
Actions {}	object		The available actions for this resource.
BinaryDataURI	string (URI)	*read-only (null)*	The URI at which to access an image of the assembly information.
Description	string	*read-only (null)*	The description of the assembly.
EngineeringChangeLevel	string	*read-only (null)*	The engineering change level of the assembly.
ISOCountryCodeOfOrigin *(v1.5+)*	string	*read-only (null)*	The manufacturing country of origin, using the ISO 3166-1 country code.
Location *(v1.3+)* {}	object		The location of the assembly. For property details, see Location.
LocationIndicatorActive *(v1.3+)*	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
MemberId	string	*read-only required*	The unique identifier for the member within an array.
Model	string	*read-only (null)*	The model number of the assembly.
Name	string	*read-only (null)*	The name of the assembly.
Oem {}	object		See the Oem object definition in the Common properties section.
PartNumber	string	*read-only (null)*	The part number of the assembly.
PhysicalContext *(v1.2+)*	string (enum)	*read-only*	The area or device to which the assembly data applies. *For the possible property values, see PhysicalContext in Property details.*

Property	Type	Attributes	Notes
Producer	string	*read-only (null)*	The producer or manufacturer of the assembly.
ProductionDate	string (date-time)	*read-only (null)*	The production date of the assembly.
Replaceable *(v1.4+)*	boolean	*read-only (null)*	An indication of whether the component associated this assembly can be independently replaced as allowed by the vendor's replacement policy.
SerialNumber *(v1.2+)*	string	*read-only (null)*	The serial number of the assembly.
SKU	string	*read-only (null)*	The SKU of the assembly.
SparePartNumber	string	*read-only (null)*	The spare part number of the assembly.
Status *(v1.1+)* {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
Vendor	string	*read-only (null)*	The vendor of the assembly.
Version	string	*read-only (null)*	The hardware version of the assembly.
}]			

6.10.4 Property details

6.10.4.1 PhysicalContext

The area or device to which the assembly data applies.

string	Description
Accelerator	An accelerator.
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.
ACOutput	An AC electrical output or output-related circuit.
ACStaticBypassInput	An AC electrical static bypass input.

string	Description
ACUtilityInput	An AC electrical utility input.
ASIC	An ASIC device, such as a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.
Chassis	The entire chassis.
ComputeBay	A compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Manager	A management controller, such as a BMC (baseboard management controller).

string	Description
Memory	A memory device.
MemorySubsystem	The entire memory subsystem.
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	A power supply bay.
Pump	A pump.
Rectifier	A rectifier device.
Reservoir	A reservoir.
Room	The room.
StorageBay	A storage bay.
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

6.10.5 Example response

```
{
```

```
    "@odata.type": "#Assembly.v1_5_1.Assembly",
    "Id": "Assembly",
    "Name": "System-related Assembly data",
    "Assemblies": [
        {
            "@odata.id": "/redfish/v1/Chassis/1/Assembly#/Assemblies/0",
            "MemberId": "0",
            "Name": "System Board",
            "Description": "PCA System Board",
            "Model": "345TTT",
            "PartNumber": "923943",
            "SparePartNumber": "55-434",
            "SKU": "55ZZATR",
            "SerialNumber": "345394834",
            "Vendor": "Contoso",
            "ProductionDate": "2017-04-01T14:55:33+03:00",
            "Producer": "Contoso Supply Co.",
            "Version": "1.44B",
            "EngineeringChangeLevel": "9",
            "BinaryDataURI": "/dumpster/434",
            "Oem": {
                "Contoso": {
                    "Region": "C",
                    "Packaging": "Retail"
                }
            }
        },
        {
            "@odata.id": "/redfish/v1/Chassis/1/Assembly#/Assemblies/1",
            "MemberId": "1",
            "Name": "Fan Controller",
            "Description": "PCA Fan Controller",
            "Model": "F58AS",
            "PartNumber": "3434-149",
            "Vendor": "Contoso",
            "Version": "2.4.481",
            "BinaryDataURI": "/dumpster/422",
            "Status": {
                "State": "Enabled",
                "Health": "Warning"
            }
        }
    ],
    "@odata.id": "/redfish/v1/Chassis/1/Assembly"
}
```

6.11 AttributeRegistry 1.3.9

Version	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2018.3	2018.1	2017.1	2016.1

6.11.1 Description

The `AttributeRegistry` schema contains a set of key-value pairs that represent the structure of an attribute registry. It includes mechanisms for building user interfaces, or menus, allowing consistent navigation of the contents. The attribute registry is specific to an implementation or product. The attributes and property names are not standardized.

6.11.2 Properties

Property	Type	Attributes	Notes
Language	string	*read-only required*	The RFC5646-conformant language code for the attribute registry.
OwningEntity	string	*read-only required*	The organization or company that publishes this attribute registry.
RegistryEntries {	object		The list of all attributes and their metadata for this component.
Attributes [{	array		An array of attributes and their possible values in the attribute registry.
AttributeName	string	*read-only required*	The unique name for the attribute.
CurrentValue	string, boolean, number	*read-only (null)*	The placeholder of the current value for the attribute.
DefaultValue	string, boolean, number	*read-only (null)*	The default value for the attribute.
DisplayName	string	*read-only (null)*	The user-readable display string for the attribute in the defined language.
DisplayOrder	integer	*read-only (null)*	The ascending order, as a number, in which this attribute appears relative to other attributes.

Property	Type	Attributes	Notes
GrayOut	boolean	*read-only (null)*	An indication of whether this attribute is grayed out. A grayed-out attribute is not active and is grayed out in user interfaces but the attribute value can be modified.
HelpText	string	*read-only (null)*	The help text for the attribute.
Hidden	boolean	*read-only (null)*	An indication of whether this attribute is hidden in user interfaces.
Immutable	boolean	*read-only (null)*	An indication of whether this attribute is immutable. Immutable attributes cannot be modified and typically reflect a hardware state.
IsSystemUniqueProperty	boolean	*read-only (null)*	An indication of whether this attribute is unique for this system and should not be replicated.
LowerBound	integer	*read-only (null)*	The lower limit for an integer attribute.
MaxLength	integer	*read-only (null)*	The maximum character length of a string attribute.
MenuPath	string	*read-only (null)*	The path that describes the menu hierarchy of this attribute.
MinLength	integer	*read-only (null)*	The minimum character length of the string attribute.
Oem *(v1.3+)* {}	object		See the Oem object definition in the Common properties section.
ReadOnly	boolean	*read-only (null)*	An indication of whether this attribute is read-only. A read-only attribute cannot be modified, and should be grayed out in user interfaces.
ResetRequired *(v1.2+)*	boolean	*read-only (null)*	An indication of whether a system or device reset is required for this attribute value change to take effect.
ScalarIncrement	integer	*read-only (null)*	The amount to increment or decrement an integer attribute each time a user requests a value change. The `0` value indicates a free-form numeric user-input attribute.
Type	string (enum)	*read-only*	The attribute type. *For the possible property values, see Type in Property details.*
UefiDevicePath *(v1.2+)*	string	*read-only (null)*	The UEFI device path that qualifies this attribute.
UefiKeywordName *(v1.2+)*	string	*read-only*	The UEFI keyword string for this attribute.
UefiNamespaceId *(v1.2+)*	string	*read-only*	The UEFI namespace ID for the attribute.

Property	Type	Attributes	Notes
UpperBound	integer	*read-only (null)*	The upper limit for an integer attribute.
Value [{	array		An array of the possible values for enumerated attribute values.
ValueDisplayName	string	*read-only (null)*	A user-readable display string of the value for the attribute in the defined language.
ValueName	string	*read-only required*	The unique value name for the attribute.
}]			
ValueExpression	string	*read-only (null)*	A valid regular expression, according to the Perl regular expression dialect, that validates the attribute value. Applies to only string and integer attributes.
WarningText	string	*read-only (null)*	The warning text for the attribute.
WriteOnly	boolean	*read-only (null)*	An indication of whether this attribute is write-only. A write-only attribute reverts to its initial value after settings are applied.
}]			
Dependencies [{	array		An array of dependencies of attributes on this component.
Dependency {	object		The dependency expression for one or more attributes in this attribute registry.
MapFrom [{	array		An array of the map-from conditions for a mapping dependency.
MapFromAttribute	string	*read-only*	The attribute to use to evaluate this dependency expression.
MapFromCondition	string (enum)	*read-only*	The condition to use to evaluate this dependency expression. *For the possible property values, see MapFromCondition in Property details.*
MapFromProperty	string (enum)	*read-only*	The metadata property for the attribute that the `MapFromAttribute` property specifies to use to evaluate this dependency expression. *For the possible property values, see MapFromProperty in Property details.*
MapFromValue	string, boolean, number	*read-only (null)*	The value to use to evaluate this dependency expression.
MapTerms	string (enum)	*read-only*	The logical term that combines two or more map-from conditions in this dependency expression. For example, `AND` for logical AND, or `OR` for logical OR. *For the possible property values, see MapTerms in Property details.*
}]			

Property	Type	Attributes	Notes
MapToAttribute	string	*read-only*	The `AttributeName` of the attribute that is affected by this dependency expression.
MapToProperty	string (enum)	*read-only*	The metadata property for the attribute that contains the map-from condition that evaluates this dependency expression. *For the possible property values, see MapToProperty in Property details.*
MapToValue	string, boolean, number	*read-only (null)*	The value that the map-to property changes to if the dependency expression evaluates to `true`.
}			
DependencyFor	string	*read-only*	The `AttributeName` of the attribute whose change triggers the evaluation of this dependency expression.
Type	string (enum)	*read-only*	The type of the dependency structure. *For the possible property values, see Type in Property details.*
}]			
Menus [{	array		An array for the attributes menus and their hierarchy in the attribute registry.
DisplayName	string	*read-only (null)*	The user-readable display string of this menu in the defined language.
DisplayOrder	integer	*read-only (null)*	The ascending order, as a number, in which this menu appears relative to other menus.
GrayOut	boolean	*read-only (null)*	An indication of whether this menu is grayed out. A grayed-only menu is not accessible in user interfaces.
Hidden *(v1.3+)*	boolean	*read-only (null)*	An indication of whether this menu is hidden in user interfaces.
MenuName	string	*read-only*	The unique name string of this menu.
MenuPath	string	*read-only (null)*	The path to the menu names that describes this menu hierarchy relative to other menus.
Oem *(v1.3+)* {}	object		See the Oem object definition in the Common properties section.
ReadOnly	boolean	*read-only (null)*	An indication of whether this menu is read-only. A read-only menu, its properties, and sub-menus are not accessible in user interfaces.
}]			
}			

Property	Type	Attributes	Notes
RegistryVersion	string	*read-only required*	The attribute registry version.
SupportedSystems [{	array		An array of systems that this attribute registry supports.
FirmwareVersion *(v1.1+)*	string	*read-only (null)*	Firmware version.
ProductName	string	*read-only (null)*	The product name of the computer system to which this attribute registry applies.
SystemId	string	*read-only (null)*	The ID of the systems to which this attribute registry applies.
}]			

6.11.3 Property details

6.11.3.1 MapFromCondition

The condition to use to evaluate this dependency expression.

string	Description
EQU	The logical operation for 'Equal'.
GEQ	The logical operation for 'Greater than or Equal'.
GTR	The logical operation for 'Greater than'.
LEQ	The logical operation for 'Less than or Equal'.
LSS	The logical operation for 'Less than'.
NEQ	The logical operation for 'Not Equal'.

6.11.3.2 MapFromProperty

The metadata property for the attribute that the `MapFromAttribute` property specifies to use to evaluate this dependency expression.

string	Description
CurrentValue	The dependency on an attribute's `CurrentValue`.
DefaultValue	The dependency on an attribute's `DefaultValue`.
GrayOut	The dependency on an attribute's `GrayOut` state.
Hidden	The dependency on an attribute's `Hidden` state.
LowerBound	The dependency on an attribute's `LowerBound`.
MaxLength	The dependency on an attribute's `MaxLength`.
MinLength	The dependency on an attribute's `MinLength`.
ReadOnly	The dependency on an attribute's `ReadOnly` state.
ScalarIncrement	The dependency on an attribute's `ScalarIncrement`.
UpperBound	The dependency on an attribute's `UpperBound`.
WriteOnly	The dependency on an attribute's `WriteOnly` state.

6.11.3.3 MapTerms

The logical term that combines two or more map-from conditions in this dependency expression. For example, `AND` for logical AND, or `OR` for logical OR.

string	Description
AND	The operation used for logical 'AND' of dependency terms.
OR	The operation used for logical 'OR' of dependency terms.

6.11.3.4 MapToProperty

The metadata property for the attribute that contains the map-from condition that evaluates this dependency expression.

string	Description
CurrentValue	The dependency that affects an attribute's `CurrentValue`.
DefaultValue	The dependency that affects an attribute's `DefaultValue`.

string	Description
DisplayName	The dependency that affects an attribute's `DisplayName`.
DisplayOrder	The dependency that affects an attribute's `DisplayName`.
GrayOut	The dependency that affects an attribute's `GrayOut` state.
HelpText	The dependency that affects an attribute's `HelpText`.
Hidden	The dependency that affects an attribute's `Hidden` state.
Immutable	The dependency that affects an attribute's `Immutable` state.
LowerBound	The dependency that affects an attribute's `LowerBound`.
MaxLength	The dependency that affects an attribute's `MaxLength`.
MinLength	The dependency that affects an attribute's `MinLength`.
ReadOnly	The dependency that affects an attribute's `ReadOnly` state.
ScalarIncrement	The dependency that affects an attribute's `ScalarIncrement`.
UpperBound	The dependency that affects an attribute's `UpperBound`.
ValueExpression	The dependency that affects an attribute's `ValueExpression`.
WarningText	The dependency that affects an attribute's `WarningText`.
WriteOnly	The dependency that affects an attribute's `WriteOnly` state.

6.11.3.5 Type

6.11.3.5.1 In RegistryEntries: Attributes:

The attribute type.

string	Description
Boolean	A flag with a `true` or `false` value.
Enumeration	A list of the known possible enumerated values.
Integer	An integer value.
Password	Password values that do not appear as plain text. The value is `null` in responses.
String	Free-form text in their values.

6.11.3.5.2 In RegistryEntries: Dependencies:

The type of the dependency structure.

string	Description
Map	A simple mapping dependency. If the condition evaluates to `true`, the attribute or state changes to the mapped value.

6.11.4 Example response


```
{
    "@odata.type": "#AttributeRegistry.v1_3_9.AttributeRegistry",
    "Description": "This registry defines a representation of BIOS Attribute instances",
    "Id": "BiosAttributeRegistryG9000.v1_0_0",
    "Language": "en",
    "Name": "G9000 BIOS Attribute Registry",
    "OwningEntity": "Contoso",
    "RegistryVersion": "1.0.0",
    "SupportedSystems": [
        {
            "ProductName": "Contoso Server GLH9000",
            "SystemId": "G9000",
            "FirmwareVersion": "v1.00 (06/02/2014)"
        }
    ],
    "RegistryEntries": {
        "Attributes": [
            {
                "CurrentValue": null,
                "DisplayName": "Embedded NIC 1 Boot",
                "DisplayOrder": 5,
                "HelpText": "Select this option to enable network boot (PXE, iSCSI, or FCoE) for the
     selected NIC. You may need to configure the NIC firmware for the boot option to be active.",
                "MenuPath": "./SystemOptions/NetworkBootOptions",
                "AttributeName": "NicBoot1",
                "ReadOnly": false,
                "Hidden": false,
                "Type": "Enumeration",
                "Value": [
                    {
                        "ValueDisplayName": "Network Boot",
                        "ValueName": "NetworkBoot"
                    },
                    {
                        "ValueDisplayName": "Disabled",
                        "ValueName": "Disabled"
```

```
            }
        ],
        "WarningText": "Important: When enabling network boot support for an embedded NIC, the
    NIC boot option does not appear in the UEFI Boot Order or Legacy IPL lists until the next system
    reboot."
    },
    {
        "CurrentValue": null,
        "DisplayName": "Embedded SATA Configuration",
        "DisplayOrder": 74,
        "HelpText": "Important: Select this option to configure the embedded chipset SATA
    controller.",
        "MenuPath": "./SystemOptions/SataOptions",
        "AttributeName": "EmbeddedSata",
        "ReadOnly": false,
        "Hidden": false,
        "Type": "Enumeration",
        "Value": [
            {
                "ValueDisplayName": "Enable SATA AHCI Support",
                "ValueName": "Ahci"
            },
            {
                "ValueDisplayName": "Enable Software RAID Support",
                "ValueName": "Raid"
            }
        ],
        "WarningText": "Important: Software RAID is not supported when the Boot Mode is
    configured in Legacy BIOS Mode."
    }
],
"Dependencies": [
    {
        "Dependency": {
            "MapFrom": [
                {
                    "MapFromAttribute": "BootMode",
                    "MapFromCondition": "EQU",
                    "MapFromProperty": "CurrentValue",
                    "MapFromValue": "LegacyBios"
                }
            ],
            "MapToAttribute": "EmbeddedSata",
            "MapToProperty": "ReadOnly",
            "MapToValue": true
        },
        "DependencyFor": "EmbeddedSata",
        "Type": "Map"
    }
],
"Menus": [
```

```
            {
                "DisplayName": "BIOS Configuration",
                "DisplayOrder": 1,
                "MenuPath": "./",
                "MenuName": "BiosMainMenu",
                "Hidden": false,
                "ReadOnly": false
            },
            {
                "DisplayName": "System Options",
                "DisplayOrder": 2,
                "MenuPath": "./SystemOptions",
                "MenuName": "SystemOptions",
                "Hidden": false,
                "ReadOnly": false
            }
        ]
    }
}
```

6.12 AutomationInstrumentation 1.0.0

Version	*v1.0*
Release	2025.2

6.12.1 Description

The `AutomationInstrumentation` schema contains measurements and set points for an automation node.

6.12.2 URIs

/redfish/v1/AutomationNodes/*{AutomationNodeId}*/AutomationInstrumentation

6.12.3 Properties

Property	Type	Attributes	Notes
CurrentAmps {	object (excerpt)		The current (A) for this node. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.

Property	Type	Attributes	Notes
CrestFactor *(v1.1+)*	number	*read-only (null)*	The crest factor for this sensor.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
THDPercent *(v1.1+)*	number (%)	*read-only (null)*	The total harmonic distortion percent (% THD).
}			
NodeControl {	object (excerpt)		The control for this node. This object is an excerpt of the *Control* resource located at the URI shown in DataSourceUri.
AllowableMax	number	*read-only (null)*	The maximum possible setting for this control.
AllowableMin	number	*read-only (null)*	The minimum possible setting for this control.
ControlMode	string (enum)	*read-write (null)*	The current operating mode of the control. *For the possible property values, see ControlMode in Property details.*
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this control.
Reading	number	*read-only (null)*	The reading of the sensor associated with this control.
ReadingUnits	string	*read-only (null)*	The units of the sensor reading associated with this control.
SetPoint	number	*read-write (null)*	The desired set point of the control.
SetPointUnits	string	*read-only (null)*	The units of the set point and related properties in UCUM c/s format.
}			
NodeState	string (enum)	*read-only*	The current state of the node. *For the possible property values, see NodeState in Property details.*
PID {	object (excerpt)		A PID control loop. This object is an excerpt of the *Control* resource located at the URI shown in DataSourceUri.
AllowableMax	number	*read-only (null)*	The maximum possible setting for this control.

Property	Type	Attributes	Notes
AllowableMin	number	*read-only (null)*	The minimum possible setting for this control.
ControlLoop {	object		The control loop details.
CoefficientUpdateTime	string (date-time)	*read-only (null)*	The date and time that the control loop coefficients were changed.
Differential	number	*read-write (null)*	The differential coefficient.
Integral	number	*read-write (null)*	The integral coefficient.
Proportional	number	*read-write (null)*	The proportional coefficient.
}			
ControlMode	string (enum)	*read-write (null)*	The current operating mode of the control. *For the possible property values, see ControlMode in Property details.*
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this control.
Reading	number	*read-only (null)*	The reading of the sensor associated with this control.
SetPoint	number	*read-write (null)*	The desired set point of the control.
}			
Status {}	object		The status and health of a resource and its children. For property details, see Status.
TemperatureCelsius {	object (excerpt)		Temperature (Celsius). This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
}			
Voltage {	object (excerpt)		The voltage (V) for this node. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.

Property	Type	Attributes	Notes
CrestFactor *(v1.1+)*	number	*read-only (null)*	The crest factor for this sensor.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
THDPercent *(v1.1+)*	number (%)	*read-only (null)*	The total harmonic distortion percent (% THD).
}			

6.12.4 Property details

6.12.4.1 ControlMode

The current operating mode of the control.

string	Description
Automatic	Automatically adjust control to meet the set point.
Disabled	The control has been disabled.
Manual	No automatic adjustments are made to the control.
Override	User override of the automatic set point value.

6.12.4.2 NodeState

The current state of the node.

string	Description
ConditionStop	The node's controller has stopped due to a condition fault.
Done	The node's controller has reached its destination position.
ErrorStop	The node's controller has stopped due to an error.
Idle	The node's controller is idle.

string	Description
Running	The node's controller is running.
Waiting	The node's controller is waiting to start.

6.12.5 Example response


```
{
    "@odata.type": "#AutomationInstrumentation.v1_0_0.AutomationInstrumentation",
    "Id": "Instrumentation",
    "Name": "Instrumentation for X-Axis Motion Controller",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "Conditions": []
    },
    "NodeState": "Running",
    "NodeControl": {
        "DataSourceUri": "/redfish/v1/Chassis/Node1/Controls/XOutput",
        "SetPoint": 0.75,
        "Reading": 0.51
    },
    "Voltage": {
        "DataSourceUri": "/redfish/v1/Chassis/Node1/Sensors/Voltage",
        "Reading": 24.3
    },
    "TemperatureCelsius": {
        "DataSourceUri": "/redfish/v1/Chassis/Node1/Sensors/Temperature",
        "Reading": 39.8
    },
    "@odata.id": "/redfish/v1/AutomationNodes/XAxisMover/AutomationInstrumentation"
}
```


6.13 AutomationNode 1.0.0

Version	*v1.0*
Release	2025.2

6.13.1 Description

The `AutomationNode` schema describes a node that carries out instructions in industrial automation environments.

6.13.2 URIs

/redfish/v1/AutomationNodes/*{AutomationNodeId}*

6.13.3 Properties

Property	Type	Attributes	Notes
Instrumentation {	object		A link to the instrumentation for this node. See the *AutomationInstrumentation* schema for details on this property.
@odata.id	string	*read-only*	Link to a AutomationInstrumentation resource. See the Links section and the *AutomationInstrumentation* schema for details.
}			
Links {	object		The links to other resources that are related to this resource.
AutomationNodeGroup [{	array		An array of links to the automation nodes that are included in an automation node group.
@odata.id	string	*read-only*	Link to another AutomationNode resource.
}]			
Chassis [{	array		An array of links to the chassis that contain this equipment.
@odata.id	string	*read-only*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
OutputControl {	object		A link to the output control. See the *Control* schema for details on this property.
@odata.id	string	*read-only*	Link to a Control resource. See the Links section and the *Control* schema for details.
}			
PidFeedbackSensor {	object		A link to the PID feedback sensor. See the *Sensor* schema for details on this property.
@odata.id	string	*read-only*	Link to a Sensor resource. See the Links section and the *Sensor* schema for details.
}			
PositionSensor {	object		A link to the position sensor. See the *Sensor* schema for details on this property.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a Sensor resource. See the Links section and the *Sensor* schema for details.
}			
VelocitySensor {	object		A link to the velocity sensor. See the *Sensor* schema for details on this property.
@odata.id	string	*read-only*	Link to a Sensor resource. See the Links section and the *Sensor* schema for details.
}			
}			
MotionAxis	string (enum)	*read-write (null)*	The primary axis of motion for this motion-related node. *For the possible property values, see MotionAxis in Property details.*
MotionProfile	string (enum)	*read-write (null)*	The motion profile type used for this node. *For the possible property values, see MotionProfile in Property details.*
NodeState	string (enum)	*read-only*	The current state of the node. *For the possible property values, see NodeState in Property details.*
NodeType	string (enum)	*read-only*	The type of automation node. *For the possible property values, see NodeType in Property details.*
Status {}	object		The status and health of a resource and its children. For property details, see Status.

6.13.4 Actions

6.13.4.1 Reset

Description

Resets the node.

Action URI

{Base URI of target resource}/Actions/AutomationNode.Reset

Action parameters

This action takes no parameters.

6.13.4.2 SendTrigger

Description

Sends a trigger to the node.

Action URI

{Base URI of target resource}/Actions/AutomationNode.SendTrigger

Action parameters

This action takes no parameters.

6.13.4.3 Start

Description

Starts the node.

Action URI

{Base URI of target resource}/Actions/AutomationNode.Start

Action parameters

This action takes no parameters.

6.13.4.4 Stop

Description

Stops the node.

Action URI

{Base URI of target resource}/Actions/AutomationNode.Stop

Action parameters

This action takes no parameters.

6.13.4.5 Wait

Description

Signals the node to wait for the next instruction.

Action URI

{Base URI of target resource}/Actions/AutomationNode.Wait

Action parameters

This action takes no parameters.

6.13.5 Property details

6.13.5.1 MotionAxis

The primary axis of motion for this motion-related node.

string	Description
ThreeAxis	3-axis.
TwoAxis	2-axis.
X	X axis.
Y	Y axis.
Z	Z axis.

6.13.5.2 MotionProfile

The motion profile type used for this node.

string	Description
None	No profile specified.
SCurve	S-curve profile.
Trapezoidal	Trapezoidal profile.

6.13.5.3 NodeState

The current state of the node.

string	Description
ConditionStop	The node's controller has stopped due to a condition fault.
Done	The node's controller has reached its destination position.
ErrorStop	The node's controller has stopped due to an error.
Idle	The node's controller is idle.
Running	The node's controller is running.
Waiting	The node's controller is waiting to start.

6.13.5.4 NodeType

The type of automation node.

string	Description
MotionPosition	A position-based profiled motion node where position, velocity, and acceleration are all controlled.
MotionPositionGroup	A multi-axis position-based profiled motion node where position, velocity and acceleration are all controlled.
MotionVelocity	A velocity-based profiled motion node where position, velocity and acceleration are all controlled.
PID	A node that attempts to match a set point using a PID control algorithm.
Simple	A simple node that incorporates no automated control function.

6.13.6 Example response


```
{
    "@odata.type": "#AutomationNode.v1_0_0.AutomationNode",
    "Id": "XAxisMover",
    "Name": "X-Axis positioner",
    "Description": "The X axis automation node for the machine.",
    "Status": {
        "State": "Enabled",
```

```
        "Health": "OK",
        "Conditions": []
    },
    "NodeState": "Running",
    "NodeType": "MotionPosition",
    "MotionProfile": "Trapezoidal",
    "MotionAxis": "X",
    "Instrumentation": {
        "@odata.id": "/redfish/v1/AutomationNodes/XAxisMover/AutomationInstrumentation"
    },
    "Links": {
        "Chassis": [
            {
                "@odata.id": "/redfish/v1/Chassis/3AxisMotion"
            }
        ]
    },
    "Actions": {
        "#AutomationNode.Reset": {
            "target": "/redfish/v1/AutomationNodes/XAxisMover/Actions/AutomationNode.Reset"
        },
        "#AutomationNode.SendTrigger": {
            "target": "/redfish/v1/AutomationNodes/XAxisMover/Actions/AutomationNode.SendTrigger"
        },
        "#AutomationNode.Start": {
            "target": "/redfish/v1/AutomationNodes/XAxisMover/Actions/AutomationNode.Start"
        },
        "#AutomationNode.Stop": {
            "target": "/redfish/v1/AutomationNodes/XAxisMover/Actions/AutomationNode.Stop"
        },
        "#AutomationNode.Wait": {
            "target": "/redfish/v1/AutomationNodes/XAxisMover/Actions/AutomationNode.Wait"
        }
    },
    "@odata.id": "/redfish/v1/AutomationNodes/XAxisMover"
}
```


6.14 Battery 1.4.0

Version	*v1.4*	*v1.3*	*v1.2*	*v1.1*
Release	2025.2	2024.1	2022.2	2021.2

6.14.1 Description

The `Battery` schema describes a unit of energy storage, including batteries and supercapacitors, used to provide

systems or components within a system with power during a power-loss event or to store energy for later use. It also describes the location, such as a slot, socket, or bay, where a unit can be installed by populating a resource instance with an absent state if a unit is not present.

6.14.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/PowerSubsystem/Batteries/*{BatteryId}*

6.14.3 Properties

Property	Type	Attributes	Notes
Assembly {	object		The link to the assembly associated with this battery. See the *Assembly* schema for details on this property.
@odata.id	string	*read-only*	Link to a Assembly resource. See the Links section and the *Assembly* schema for details.
}			
BatteryChemistryType *(v1.4+)*	string (enum)	*read-only* *(null)*	The chemistry of the battery. *For the possible property values, see BatteryChemistryType in Property details.*
CapacityActualAmpHours	number (A.h)	*read-only* *(null)*	The actual maximum capacity of this battery in amp-hour units.
CapacityActualWattHours	number (W.h)	*read-only* *(null)*	The actual maximum capacity of this battery in watt-hour units.
CapacityRatedAmpHours	number (A.h)	*read-only* *(null)*	The rated maximum capacity of this battery in amp-hour units.
CapacityRatedWattHours	number (W.h)	*read-only* *(null)*	The rated maximum capacity of this battery in watt-hour units.
ChargeState	string (enum)	*read-only* *(null)*	The charge state of this battery. *For the possible property values, see ChargeState in Property details.*
EnergyStorageType *(v1.4+)*	string (enum)	*read-only* *(null)*	The type of energy storage technology used in the battery. *For the possible property values, see EnergyStorageType in Property details.*
FirmwareVersion	string	*read-only* *(null)*	The firmware version for this battery.
HotPluggable	boolean	*read-only* *(null)*	An indication of whether this device can be inserted or removed while the equipment is in operation.
Links *(v1.1+)* {	object		The links to other resources that are related to this resource.

Property	Type	Attributes	Notes
Memory *(v1.1+)* [{	array		An array of links to the memory devices to which this battery provides power during a power-loss event.
@odata.id	string	*read-only*	Link to a Memory resource. See the Links section and the *Memory* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
StorageControllers *(v1.1+)* [{	array		An array of links to the storage controllers to which this battery provides power during a power-loss event.
@odata.id	string	*read-only*	Link to a StorageController resource. See the Links section and the *StorageController* schema for details.
}]			
}			
Location {}	object		The location of the battery. For property details, see Location.
LocationIndicatorActive	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
Manufacturer	string	*read-only (null)*	The manufacturer of this battery.
MaxChargeRateAmps	number (A)	*read-only (null)*	The maximum charge rate at the input of this battery in amp units.
MaxChargeVoltage	number (Volts)	*read-only (null)*	The maximum charge voltage across the cell pack of this battery when it is fully charged.
MaxDischargeRateAmps	number (A)	*read-only (null)*	The maximum discharge rate at the output of this battery in amp units.
Metrics {	object		The link to the battery metrics resource associated with this battery. See the *BatteryMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a BatteryMetrics resource. See the Links section and the *BatteryMetrics* schema for details.
}			
Model	string	*read-only (null)*	The model number for this battery.
NominalOutputVoltage *(v1.3+)*	number (Volts)	*read-only (null)*	The nominal output voltage of this battery.

Property	Type	Attributes	Notes
PartNumber	string	*read-only (null)*	The part number for this battery.
ProductionDate	string (date-time)	*read-only (null)*	The production or manufacturing date of this battery.
Replaceable *(v1.2+)*	boolean	*read-only (null)*	An indication of whether this component can be independently replaced as allowed by the vendor's replacement policy.
SerialNumber	string	*read-only (null)*	The serial number for this battery.
SparePartNumber	string	*read-only (null)*	The spare part number for this battery.
StateOfHealthPercent {	object (excerpt)		The state of health (percent) of this battery. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
Version	string	*read-only (null)*	The hardware version of this battery.

6.14.4 Actions

6.14.4.1 Calibrate

Description

This action performs a self-calibration, or learn cycle, of the battery.

Action URI

{Base URI of target resource}/Actions/Battery.Calibrate

Action parameters

This action takes no parameters.

6.14.4.2 Reset

Description

This action resets the battery.

Action URI

{Base URI of target resource}/Actions/Battery.Reset

Action parameters

Parameter Name	Type	Attributes	Notes
ResetType	string (enum)	*optional*	The type of reset. *For the possible property values, see ResetType in Property details.*

Request Example

```
{
    "ResetType": "PowerCycle"
}
```

6.14.4.3 SelfTest

Description

This action performs a self-test of the battery.

Action URI

{Base URI of target resource}/Actions/Battery.SelfTest

Action parameters

This action takes no parameters.

6.14.5 Property details

6.14.5.1 BatteryChemistryType

The chemistry of the battery.

string	Description
LeadAcid	Chemical energy stored through lead and acid electrochemical reactions.
LithiumIon	Chemical energy stored through lithium ion intercalation reactions.
NickelCadmium	Chemical energy stored through nickel and cadmium electrochemical reactions.

6.14.5.2 ChargeState

The charge state of this battery.

string	Description
Charging	The battery is charging.
Discharging	The battery is discharging.
Idle	The battery is idle.

6.14.5.3 EnergyStorageType

The type of energy storage technology used in the battery.

string	Description
Battery	Energy stored through one or more electrochemical cells.
Supercapacitor	Energy stored through electrostatic double-layer capacitors or electrodes with electrochemical pseudocapacitance.

6.14.5.4 ResetType

The type of reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the unit.
FullPowerCycle	Full power cycle the unit. Behaves like removing utility lines, followed by restoring utility lines to the resource.
GracefulRestart	Shut down gracefully and restart the unit.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
Pause	Pause execution on the unit but do not remove power. This is typically a feature of virtual machine hypervisors.
PowerCycle	Power cycle the unit. Behaves like a power removal, followed by a power restore to the resource.
PushPowerButton	Simulate the pressing of the physical power button on this unit.
Resume	Resume execution on the paused unit. This is typically a feature of virtual machine hypervisors.
Suspend	Write the state of the unit to disk before powering off. This allows for the state to be restored when powered back on.

6.14.6 Example response


```
{
    "@odata.type": "#Battery.v1_4_0.Battery",
    "Id": "Module1",
    "Name": "Battery 1",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Actions": {
        "#Battery.SelfTest": {
            "target": "/redfish/v1/Chassis/1U/PowerSubsystem/Batteries/Module1/Actions/Battery.SelfTest"
        },
        "#Battery.Calibrate": {
            "target": "/redfish/v1/Chassis/1U/PowerSubsystem/Batteries/Module1/Actions/Battery.Calibrate"
        }
    },
```

```
    "Location": {
        "PartLocation": {
            "ServiceLabel": "Battery 1",
            "LocationType": "Bay",
            "LocationOrdinalValue": 0
        }
    },
    "Model": "RKS-440DC",
    "Manufacturer": "Contoso Power",
    "FirmwareVersion": "1.00",
    "Version": "A05",
    "ProductionDate": "2019-10-01T06:00:00Z",
    "SerialNumber": "3488247",
    "PartNumber": "23456-133",
    "SparePartNumber": "93284-133",
    "LocationIndicatorActive": false,
    "HotPluggable": true,
    "CapacityRatedWattHours": 20,
    "CapacityActualWattHours": 19.41,
    "MaxDischargeRateAmps": 10,
    "StateOfHealthPercent": {
        "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/Battery1StateOfHealth",
        "Reading": 91
    },
    "ChargeState": "Idle",
    "Metrics": {
        "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem/Batteries/Module1/Metrics"
    },
    "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem/Batteries/Module1"
}
```


6.15 BatteryMetrics 1.0.4

Version	*v1.0*
Release	2021.2

6.15.1 Description

The `BatteryMetrics` schema contains definitions for the metrics of a battery unit.

6.15.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/PowerSubsystem/Batteries/*{BatteryId}*/Metrics

6.15.3 Properties

Property	Type	Attributes	Notes
CellVoltages [{	array (excerpt)		The cell voltages (V) for this battery. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
CrestFactor *(v1.1+)*	number	*read-only (null)*	The crest factor for this sensor.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
THDPercent *(v1.1+)*	number (%)	*read-only (null)*	The total harmonic distortion percent (% THD).
}]			
ChargePercent {}	object		The amount of charge available (percent) in this battery. For more information about this property, see SensorExcerpt in Property Details.
DischargeCycles	number	*read-only (null)*	The number of discharges this battery has sustained.
InputCurrentAmps {	object (excerpt)		The input current (A) for this battery. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
CrestFactor *(v1.1+)*	number	*read-only (null)*	The crest factor for this sensor.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
THDPercent *(v1.1+)*	number (%)	*read-only (null)*	The total harmonic distortion percent (% THD).
}			
InputVoltage {	object (excerpt)		The input voltage (V) for this battery. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
CrestFactor *(v1.1+)*	number	*read-only (null)*	The crest factor for this sensor.

Property	Type	Attributes	Notes
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
THDPercent *(v1.1+)*	number (%)	*read-only (null)*	The total harmonic distortion percent (% THD).
}			
OutputCurrentAmps [{	array (excerpt)		The output currents (A) for this battery. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
CrestFactor *(v1.1+)*	number	*read-only (null)*	The crest factor for this sensor.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
THDPercent *(v1.1+)*	number (%)	*read-only (null)*	The total harmonic distortion percent (% THD).
}]			
OutputVoltages [{	array (excerpt)		The output voltages (V) for this battery. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
CrestFactor *(v1.1+)*	number	*read-only (null)*	The crest factor for this sensor.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
THDPercent *(v1.1+)*	number (%)	*read-only (null)*	The total harmonic distortion percent (% THD).
}]			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
StoredChargeAmpHours {}	object		The charge (Ah) stored in this battery. For more information about this property, see SensorExcerpt in Property Details.

Property	Type	Attributes	Notes
StoredEnergyWattHours {}	object		The energy (Wh) stored in this battery. For more information about this property, see SensorExcerpt in Property Details.
TemperatureCelsius {}	object		The temperature (C) for this battery. For more information about this property, see SensorExcerpt in Property Details.

6.15.4 Property details

6.15.4.1 SensorExcerpt

The `Sensor` schema describes a sensor and its properties. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.

DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.

6.15.5 Example response

```
{
    "@odata.type": "#BatteryMetrics.v1_0_4.BatteryMetrics",
    "Id": "Metrics",
    "Name": "Metrics for Battery 1",
    "DischargeCycles": 8.67,
    "InputVoltage": {
        "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/Battery1InputVoltage",
        "Reading": 12.22
    },
    "InputCurrentAmps": {
        "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/Battery1InputCurrent",
        "Reading": 0
    },
    "OutputVoltages": [
        {
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/Battery1OutputVoltage",
            "Reading": 12.22
        }
    ],
```

```
    "OutputCurrentAmps": [
        {
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/Battery1OutputCurrent",
            "Reading": 0
        }
    ],
    "StoredEnergyWattHours": {
        "Reading": 19.41
    },
    "TemperatureCelsius": {
        "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/Battery1Temp",
        "Reading": 33
    },
    "ChargePercent": {
        "Reading": 100
    },
    "CellVoltages": [
        {
            "Reading": 3.44
        },
        {
            "Reading": 3.45
        },
        {
            "Reading": 3.43
        },
        {
            "Reading": 3.43
        },
        {
            "Reading": 3.45
        },
        {
            "Reading": 3.44
        },
        {
            "Reading": 3.43
        },
        {
            "Reading": 3.44
        }
    ],
    "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem/Batteries/Module1/Metrics"
}
```

6.16 Bios 1.2.3

Version	*v1.2*	*v1.1*	*v1.0*
Release	2021.1	2019.2	2016.1

6.16.1 Description

The `Bios` schema contains properties related to the BIOS attribute registry. The attribute registry describes the system-specific BIOS attributes and actions for changing to BIOS settings. Changes to the BIOS typically require a system reset before they take effect. It is likely that a client finds the `@Redfish.Settings` term in this resource, and if it is found, the client makes requests to change BIOS settings by modifying the resource identified by the `@Redfish.Settings` term.

6.16.2 URIs

/redfish/v1/Systems/*{ComputerSystemId}*/Bios
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.16.3 Properties

Property	Type	Attributes	Notes
AttributeRegistry	string	*read-only (null)*	The resource ID of the attribute registry that has the system-specific information about a BIOS resource.
Attributes {	object		The list of BIOS attributes specific to the manufacturer or provider.
(pattern)	string, boolean, number	*read-write (null)*	Property names follow regular expression pattern "^[A-Za-z][A-Za-z0-9_]+$"
}			
Links *(v1.1+)* {	object		The links to other resources that are related to this resource.
ActiveSoftwareImage *(v1.1+)* {	object		The link to the software inventory that represents the active BIOS firmware image. See the *SoftwareInventory* schema for details on this property.
@odata.id	string	*read-write*	Link to a SoftwareInventory resource. See the Links section and the *SoftwareInventory* schema for details.
}			

Property	Type	Attributes	Notes
Oem {}	object		See the Oem object definition in the Common properties section.
SoftwareImages *(v1.1+)* [{	array		The images that are associated with this BIOS.
@odata.id	string	*read-only*	Link to a SoftwareInventory resource. See the Links section and the *SoftwareInventory* schema for details.
}]			
}			
ResetBiosToDefaultsPending *(v1.2+)*	boolean	*read-only* *(null)*	An indication of whether there is a pending request to reset the BIOS attributes to default values.

6.16.4 Actions

6.16.4.1 ChangePassword

Description

This action changes a BIOS password.

Action URI

{Base URI of target resource}/Actions/Bios.ChangePassword

Action parameters

Parameter Name	Type	Attributes	Notes
NewPassword	string	*required*	The new BIOS password.
OldPassword	string	*required*	The existing BIOS password.
PasswordName	string	*required*	The name of the BIOS password to change.

Request Example

```
{
    "OldPassword": "secret123",
    "NewPassword": "B3tterS3cur1tY!",
    "PasswordName": "Admin"
}
```

6.16.4.2 ResetBios

Description

This action resets the BIOS attributes to default.

Action URI

{Base URI of target resource}/Actions/Bios.ResetBios

Action parameters

This action takes no parameters.

6.16.5 Example response


```
{
    "@odata.type": "#Bios.v1_2_3.Bios",
    "Id": "BIOS",
    "Name": "BIOS Configuration Current Settings",
    "AttributeRegistry": "BiosAttributeRegistryP89.v1_0_0",
    "Attributes": {
        "AdminPhone": "",
        "BootMode": "Uefi",
        "EmbeddedSata": "Raid",
        "NicBoot1": "NetworkBoot",
        "NicBoot2": "Disabled",
        "PowerProfile": "MaxPerf",
        "ProcCoreDisable": 0,
        "ProcHyperthreading": "Enabled",
        "ProcTurboMode": "Enabled",
        "UsbControl": "UsbEnabled"
    },
    "@Redfish.Settings": {
        "@odata.type": "#Settings.v1_4_0.Settings",
        "ETag": "9234ac83b9700123cc32",
        "Messages": [
            {
                "MessageId": "Base.1.0.SettingsFailed",
                "RelatedProperties": [
                    "/Attributes/ProcTurboMode"
                ]
            }
        ],
        "SettingsObject": {
            "@odata.id": "/redfish/v1/Systems/437XR1138R2/Bios/Settings"
        },
```

```
        "Time": "2016-03-07T14:44.30-05:00"
    },
    "Actions": {
        "#Bios.ResetBios": {
            "target": "/redfish/v1/Systems/437XR1138R2/Bios/Actions/Bios.ResetBios"
        },
        "#Bios.ChangePassword": {
            "target": "/redfish/v1/Systems/437XR1138R2/Bios/Actions/Bios.ChangePassword"
        }
    },
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/Bios"
}
```


6.17 BootOption 1.0.6

Version	*v1.0*
Release	2017.3

6.17.1 Description

The `BootOption` schema reports information about a single boot option in a system. It represents the properties of a bootable device available in the system.

6.17.2 URIs

/redfish/v1/Systems/*{ComputerSystemId}*/BootOptions/*{BootOptionId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.17.3 Properties

Property	Type	Attributes	Notes
Alias	string (enum)	*read-only (null)*	The alias of this boot source. *For the possible property values, see Alias in Property details.*
BootOptionEnabled	boolean	*read-write (null)*	An indication of whether the boot option is enabled. If `true`, it is enabled. If `false`, the boot option that the boot order array on the computer system contains is skipped. In the UEFI context, this property influences the load option active flag for the boot option.

Property	Type	Attributes	Notes
BootOptionReference	string	*read-only required (null)*	The unique boot option.
DisplayName	string	*read-only (null)*	The user-readable display name of the boot option that appears in the boot order list in the user interface.
RelatedItem [{	array		An array of links to resources or objects associated with this boot option.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
UefiDevicePath	string	*read-only (null)*	The UEFI device path to access this UEFI boot option.

6.17.4 Property details

6.17.4.1 Alias

The alias of this boot source.

string	Description
BiosSetup	Boot to the BIOS setup utility.
Cd	Boot from the CD or DVD.
Diags	Boot to the manufacturer's diagnostics program.
Floppy	Boot from the floppy disk drive.
Hdd	Boot from a hard drive.
None	Boot from the normal boot device.
Pxe	Boot from the Pre-boot eXecution Environment (PXE).
Recovery	Boot to a system-designated recovery process or image.
RemoteDrive	Boot from a remote drive, such as an iSCSI target.
SDCard	Boot from an SD card.
UefiBootNext	Boot to the UEFI device that the `BootNext` property specifies.

string	Description
UefiHttp	Boot from a UEFI HTTP network location.
UefiShell	Boot to the UEFI Shell.
UefiTarget	Boot to the UEFI device specified in the `UefiTargetBootSourceOverride` property.
Usb	Boot from a system BIOS-specified USB device.
Utilities	Boot to the manufacturer's utilities program or programs.

6.17.5 Example response


```
{
    "@odata.type": "#BootOption.v1_0_6.BootOption",
    "Id": "1",
    "Name": "Boot Option",
    "Description": "UEFI Boot Option",
    "BootOptionReference": "Boot0000",
    "DisplayName": "Windows Boot Manager",
    "UefiDevicePath":
         "PciRoot(0x0)/Pci(0x1,0x0)/Pci(0x0,0x0)/Scsi(0x0,0x0)/HD(2,GPT,B02BF459-8975-4222-A1C4-17915C29E5E5,0x96800,0x31800)/
    "Alias": "Hdd",
    "RelatedItem": [
        {
            "@odata.id": "/redfish/v1/Systems/1/SimpleStorage/1"
        }
    ],
    "@odata.id": "/redfish/v1/Systems/1/BootOptions/1"
}
```


6.18 Cable 1.2.4

Version	*v1.2*	*v1.1*	*v1.0*
Release	2021.4	2021.3	2021.2

6.18.1 Description

The `Cable` schema contains properties that describe a cable connecting endpoints of a chassis, port, or any other cable-compatible endpoint.

6.18.2 URIs

/redfish/v1/Cables/*{CableId}*

6.18.3 Properties

Property	Type	Attributes	Notes
Assembly {	object		The link to the assembly associated with this cable. See the *Assembly* schema for details on this property.
@odata.id	string	*read-only*	Link to a Assembly resource. See the Links section and the *Assembly* schema for details.
}			
AssetTag	string	*read-write (null)*	The user-assigned asset tag for this cable.
CableClass	string (enum)	*read-write (null)*	The identifier for the downstream resource. *For the possible property values, see CableClass in Property details.*
CableStatus	string (enum)	*read-write*	The user-reported status of this resource. *For the possible property values, see CableStatus in Property details.*
CableType	string	*read-write (null)*	The type of this cable.
DownstreamConnectorTypes [ ]	array (string (enum))	*read-write*	The connector types this cable supports. *For the possible property values, see DownstreamConnectorTypes in Property details.*
DownstreamName	string	*read-write (null)*	The identifier for the downstream resource.
LengthMeters	number	*read-write (null)*	The length of the cable in meters.
Links {	object		The links to other resources that are related to this resource.
DownstreamChassis [{	array		An array of links to the downstream chassis connected to this cable.
@odata.id	string	*read-write*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}]			
DownstreamPorts [{	array		An array of links to the downstream ports connected to this cable.
@odata.id	string	*read-write*	Link to a Port resource. See the Links section and the *Port* schema for details.

Property	Type	Attributes	Notes
}]			
DownstreamResources [{	array		An array of links to the downstream resources connected to this cable.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
UpstreamChassis [{	array		An array of links to the upstream chassis connected to this cable.
@odata.id	string	*read-write*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}]			
UpstreamPorts [{	array		An array of links to the upstream ports connected to this cable.
@odata.id	string	*read-write*	Link to a Port resource. See the Links section and the *Port* schema for details.
}]			
UpstreamResources [{	array		An array of links to the upstream resources connected to this cable.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
}			
Location {}	object		The location of the assembly. For property details, see Location.
Manufacturer	string	*read-write (null)*	The manufacturer of this cable.
Model	string	*read-write (null)*	The model number of the cable.
PartNumber	string	*read-write (null)*	The part number for this cable.
SerialNumber	string	*read-write (null)*	The serial number for this cable.
SKU	string	*read-write (null)*	The SKU for this cable.

Property	Type	Attributes	Notes
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
UpstreamConnectorTypes [ ]	array (string (enum))	*read-write*	The connector types this cable supports. *For the possible property values, see UpstreamConnectorTypes in Property details.*
UpstreamName	string	*read-write (null)*	The identifier for the downstream resource.
UserDescription	string	*read-write (null)*	The description of this cable.
UserLabel *(v1.1+)*	string	*read-write*	A user-assigned label.
Vendor	string	*read-write (null)*	The manufacturer of this cable.

6.18.4 Property details

6.18.4.1 CableClass

The identifier for the downstream resource.

string	Description
Fabric	This cable is used for connecting to a fabric.
Fan	This cable is used for connecting to a fan system.
General	This cable is used for providing general connectivity.
Network	This cable is used for connecting to a networking system.
PCIe	This cable is used for connecting to a PCIe endpoint.
Power	This cable is used for connecting to a power system.
Serial	This cable is used for connecting to a serial endpoint.
Storage	This cable is used for connecting to a storage system.
USB	This cable is used for connecting to a USB endpoint.
Video	This cable is used for connecting to a video system.

6.18.4.2 CableStatus

The user-reported status of this resource.

string	Description
Degraded	The cable is degraded.
Disabled	The cable is disabled.
Failed	The cable has failed.
Normal	The cable is operating normally.
SetByService	The cable status is set by the service.
Testing	The cable is under test.

6.18.4.3 DownstreamConnectorTypes

The connector types this cable supports.

string	Description
ACPower	This cable connects to an AC power connector.
CDFP	This cable connects to a CDFP connector.
DB9	This cable connects to a DB9 connector.
DCPower	This cable connects to a DC power connector.
DisplayPort	This cable connects to a DisplayPort power connector.
HDMI	This cable connects to an HDMI connector.
ICI	This cable connects to an ICI connector.
IPASS	This cable connects to an IPASS connector.
OSFP	This cable connects to an OSFP connector.
PCIe	This cable connects to a PCIe connector.
Proprietary	This cable connects to a proprietary connector.
QSFP	This cable connects to a QSFP connector.

string	Description
RJ45	This cable connects to an RJ45 connector.
SATA	This cable connects to a SATA connector.
SCSI	This cable connects to a SCSI connector.
SFP	This cable connects to an SFP connector.
SFPPlus	This cable connects to an SFPPlus connector.
SlimSAS	This cable connects to a SlimSAS connector.
USBA	This cable connects to a USB-A connector.
USBC	This cable connects to a USB-C connector.

6.18.4.4 UpstreamConnectorTypes

The connector types this cable supports.

string	Description
ACPower	This cable connects to an AC power connector.
CDFP	This cable connects to a CDFP connector.
DB9	This cable connects to a DB9 connector.
DCPower	This cable connects to a DC power connector.
DisplayPort	This cable connects to a DisplayPort power connector.
HDMI	This cable connects to an HDMI connector.
ICI	This cable connects to an ICI connector.
IPASS	This cable connects to an IPASS connector.
OSFP	This cable connects to an OSFP connector.
PCIe	This cable connects to a PCIe connector.
Proprietary	This cable connects to a proprietary connector.
QSFP	This cable connects to a QSFP connector.
RJ45	This cable connects to an RJ45 connector.
SATA	This cable connects to a SATA connector.

string	Description
SCSI	This cable connects to a SCSI connector.
SFP	This cable connects to an SFP connector.
SFPPlus	This cable connects to an SFPPlus connector.
SlimSAS	This cable connects to a SlimSAS connector.
USBA	This cable connects to a USB-A connector.
USBC	This cable connects to a USB-C connector.

6.18.5 Example response


```
{
    "@odata.type": "#Cable.v1_2_4.Cable",
    "Id": "hdmi_dp",
    "Name": "HDMI to DP Cable",
    "UserDescription": "HDMI to DisplayPort Cable",
    "UpstreamName": "HDMI0",
    "DownstreamName": "Video Out",
    "CableType": "HDMI",
    "LengthMeters": 0.1,
    "CableClass": "Video",
    "UpstreamConnectorTypes": [
        "HDMI"
    ],
    "DownstreamConnectorTypes": [
        "DisplayPort"
    ],
    "Links": {
        "UpstreamChassis": [
            {
                "@odata.id": "/redfish/v1/Chassis/bmc"
            }
        ]
    },
    "PartNumber": "934AMS02X",
    "Manufacturer": "Cable Co.",
    "SerialNumber": "2345791",
    "Vendor": "Cablestore",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "CableStatus": "Normal",
    "@odata.id": "/redfish/v1/Cables/hdmi_dp"
```

```
}
```

6.19 Certificate 1.10.0

Version	*v1.10*	*v1.9*	*v1.8*	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2025.2	2024.3	2023.2	2023.1	2022.1	2021.3	2021.2	2021.1	2020.1	2019.1	2018.3

6.19.1 Description

The `Certificate` schema describes a certificate that proves the identity of a component, account, or service.

6.19.2 URIs

/redfish/v1/AccountService/Accounts/*{ManagerAccountId}*/Certificates/*{CertificateId}*
/redfish/v1/AccountService/ActiveDirectory/Certificates/*{CertificateId}*
/redfish/v1/AccountService/ExternalAccountProviders/*{ExternalAccountProviderId}*/Certificates/*{CertificateId}*
/redfish/v1/AccountService/LDAP/Certificates/*{CertificateId}*
/redfish/v1/AccountService/MultiFactorAuth/ClientCertificate/Certificates/*{CertificateId}*
/redfish/v1/AccountService/MultiFactorAuth/SecurID/Certificates/*{CertificateId}*
/redfish/v1/AccountService/OutboundConnections/*{OutboundConnectionId}*/Certificates/*{CertificateId}*
/redfish/v1/AccountService/OutboundConnections/*{OutboundConnectionId}*/ClientCertificates/*{CertificateId}*
/redfish/v1/Chassis/*{ChassisId}*/Certificates/*{CertificateId}*
/redfish/v1/Chassis/*{ChassisId}*/Drives/*{DriveId}*/Certificates/*{CertificateId}*
/redfish/v1/Chassis/*{ChassisId}*/Memory/*{MemoryId}*/Certificates/*{CertificateId}*
/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Certificates/*{CertificateId}*
/redfish/v1/Chassis/*{ChassisId}*/PowerSubsystem/PowerSupplies/*{PowerSupplyId}*/Certificates/*{CertificateId}*
/redfish/v1/Chassis/*{ChassisId}*/TrustedComponents/*{TrustedComponentId}*/Certificates/*{CertificateId}*
/redfish/v1/EventService/Subscriptions/*{EventDestinationId}*/Certificates/*{CertificateId}*
/redfish/v1/EventService/Subscriptions/*{EventDestinationId}*/ClientCertificates/*{CertificateId}*
/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Certificates/*{CertificateId}*
/redfish/v1/Managers/*{ManagerId}*/Certificates/*{CertificateId}*
/redfish/v1/Managers/*{ManagerId}*/NetworkProtocol/HTTPS/Certificates/*{CertificateId}*
/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/Accounts/*{ManagerAccountId}*/Certificates/*{CertificateId}*
/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/ActiveDirectory/Certificates/*{CertificateId}*
/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/ExternalAccountProviders/*{ExternalAccountProviderId}*/
Certificates/*{CertificateId}*
/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/LDAP/Certificates/*{CertificateId}*
/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/MultiFactorAuth/ClientCertificate/Certificates/

{CertificateId}
/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/MultiFactorAuth/SecurID/Certificates/*{CertificateId}*
/redfish/v1/Managers/*{ManagerId}*/SecurityPolicy/SPDM/RevokedCertificates/*{CertificateId}*
/redfish/v1/Managers/*{ManagerId}*/SecurityPolicy/SPDM/TrustedCertificates/*{CertificateId}*
/redfish/v1/Managers/*{ManagerId}*/SecurityPolicy/TLS/Client/RevokedCertificates/*{CertificateId}*
/redfish/v1/Managers/*{ManagerId}*/SecurityPolicy/TLS/Client/TrustedCertificates/*{CertificateId}*
/redfish/v1/Managers/*{ManagerId}*/SecurityPolicy/TLS/Server/RevokedCertificates/*{CertificateId}*
/redfish/v1/Managers/*{ManagerId}*/SecurityPolicy/TLS/Server/TrustedCertificates/*{CertificateId}*
/redfish/v1/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Certificates/*{CertificateId}*
/redfish/v1/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Certificates/*{CertificateId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Boot/Certificates/*{CertificateId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Certificates/*{CertificateId}*
/redfish/v1/Systems/*{ComputerSystemId}*/KeyManagement/KMIPCertificates/*{CertificateId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Certificates/*{CertificateId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/Certificates/*{CertificateId}*
/redfish/v1/Systems/*{ComputerSystemId}*/SecureBoot/SecureBootDatabases/*{DatabaseId}*/Certificates/*{CertificateId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Certificates/
{CertificateId}
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Drives/*{DriveId}*/Certificates/*{CertificateId}*
(deprecated)
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Certificates/
{CertificateId}
/redfish/v1/Systems/*{ComputerSystemId}*/VirtualMedia/*{VirtualMediaId}*/Certificates/*{CertificateId}*
/redfish/v1/Systems/*{ComputerSystemId}*/VirtualMedia/*{VirtualMediaId}*/ClientCertificates/*{CertificateId}*
/redfish/v1/UpdateService/ClientCertificates/*{CertificateId}*
/redfish/v1/UpdateService/RemoteServerCertificates/*{CertificateId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.19.3 Properties

Property	Type	Attributes	Notes
CertificateString	string	*read-only required on create (null)*	The string for the certificate.
CertificateType	string (enum)	*read-only required on create (null)*	The format of the certificate. *For the possible property values, see CertificateType in Property details.*
CertificateUsageTypes *(v1.4+)* [ ]	array (string (enum))	*read-only (null)*	The types or purposes for this certificate. *For the possible property values, see CertificateUsageTypes in Property details.*

Property	Type	Attributes	Notes
Fingerprint *(v1.3+)*	string	*read-only*	The fingerprint of the certificate.
FingerprintHashAlgorithm *(v1.3+)*	string	*read-only*	The hash algorithm for the fingerprint of the certificate.
Issuer {	object		The issuer of the certificate.
AdditionalCommonNames *(v1.6+)* [ ]	array (string, null)	*read-only*	Additional common names of the entity.
AdditionalOrganizationalUnits *(v1.6+)* [ ]	array (string, null)	*read-only*	Additional organizational units of the entity.
AlternativeNames *(v1.7+)* [ ]	array (string, null)	*read-only*	The additional host names of the entity.
City	string	*read-only*	The city or locality of the organization of the entity.
CommonName	string	*read-only*	The common name of the entity.
Country	string	*read-only*	The country of the organization of the entity.
DisplayString *(v1.6+)*	string	*read-only* *(null)*	A human-readable string for this identifier.
DomainComponents *(v1.6+)* [ ]	array (string, null)	*read-only*	The domain components of the entity.
Email	string	*read-only* *(null)*	The email address of the contact within the organization of the entity.
Organization	string	*read-only*	The name of the organization of the entity.
OrganizationalUnit	string	*read-only*	The name of the unit or division of the organization of the entity.
State	string	*read-only*	The state, province, or region of the organization of the entity.
}			
KeyUsage [ ]	array (string (enum))	*read-only* *(null)*	The key usage extension, which defines the purpose of the public keys in this certificate. *For the possible property values, see KeyUsage in Property details.*
Links *(v1.4+)* {	object		The links to other resources that are related to this resource.
Issuer *(v1.4+)* {	object	*(null)*	A link to the certificate of the CA that issued this certificate.
@odata.id	string	*read-write*	Link to another Certificate resource.
}			
Oem {}	object		See the Oem object definition in the Common properties section.

Property	Type	Attributes	Notes
Subjects *(v1.4+)* [{	array		An array of links to certificates that were issued by the CA that is represented by this certificate.
@odata.id	string	*read-write*	Link to another Certificate resource.
}]			
}			
Password *(v1.10+)*	string	*read-write (null)*	The password for the certificate.
SerialNumber *(v1.3+)*	string	*read-only*	The serial number of the certificate.
SignatureAlgorithm *(v1.3+)*	string	*read-only*	The algorithm used for creating the signature of the certificate.
SPDM *(v1.5+)* {	object		SPDM-related information for the certificate.
SlotId *(v1.5+)*	integer	*read-only (null)*	Slot identifier of the certificate.
}			
Status *(v1.10+)* {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
Subject {	object		The subject of the certificate.
AdditionalCommonNames *(v1.6+)* [ ]	array (string, null)	*read-only*	Additional common names of the entity.
AdditionalOrganizationalUnits *(v1.6+)* [ ]	array (string, null)	*read-only*	Additional organizational units of the entity.
AlternativeNames *(v1.7+)* [ ]	array (string, null)	*read-only*	The additional host names of the entity.
City	string	*read-only*	The city or locality of the organization of the entity.
CommonName	string	*read-only*	The common name of the entity.
Country	string	*read-only*	The country of the organization of the entity.
DisplayString *(v1.6+)*	string	*read-only (null)*	A human-readable string for this identifier.
DomainComponents *(v1.6+)* [ ]	array (string, null)	*read-only*	The domain components of the entity.
Email	string	*read-only (null)*	The email address of the contact within the organization of the entity.

Property	Type	Attributes	Notes
Organization	string	*read-only*	The name of the organization of the entity.
OrganizationalUnit	string	*read-only*	The name of the unit or division of the organization of the entity.
State	string	*read-only*	The state, province, or region of the organization of the entity.
}			
UefiSignatureOwner *(v1.2+)*	string (uuid)	*read-only (null)*	The UEFI signature owner for this certificate.
ValidNotAfter	string (date-time)	*read-only*	The date when the certificate is no longer valid.
ValidNotBefore	string (date-time)	*read-only*	The date when the certificate becomes valid.

6.19.4 Actions

6.19.4.1 Rekey *(v1.1+)*

Description

This action generates a new key-pair for a certificate and produces a certificate signing request.

Action URI

{Base URI of target resource}/Actions/Certificate.Rekey

Action parameters

Parameter Name	Type	Attributes	Notes
ChallengePassword	string	*optional*	The challenge password to apply to the certificate for revocation requests.
KeyBitLength	integer	*optional*	The length of the key, in bits, if needed based on the `KeyPairAlgorithm` parameter value.
KeyCurveId	string	*optional*	The curve ID to use with the key, if needed based on the `KeyPairAlgorithm` parameter value.
KeyPairAlgorithm	string	*optional*	The type of key-pair for use with signing algorithms.

Response Payload

{			
Certificate *(v1.1+)* {	object	*required*	The link to the certificate being rekeyed.
@odata.id	string	*read-only*	Link to another Certificate resource.
}			
CSRString *(v1.1+)*	string	*read-only required*	The string for the certificate signing request.
}			

Request Example

```
{
    "KeyPairAlgorithm": "TPM_ALG_RSA",
    "KeyBitLength": 4096
}
```

Response Example

```
{
    "CSRString": "-----BEGIN CERTIFICATE REQUEST-----..-----END CERTIFICATE REQUEST-----",
    "Certificate": {
        "@odata.id": "/redfish/v1/Managers/BMC/NetworkProtocol/HTTPS/Certificates/1"
    }
}
```

6.19.4.2 Renew *(v1.1+)*

Description

This action generates a certificate signing request by using the existing information and key-pair of the certificate.

Action URI

{Base URI of target resource}/Actions/Certificate.Renew

Action parameters

Parameter Name	Type	Attributes	Notes
ChallengePassword	string	*optional*	The challenge password to apply to the certificate for revocation requests.

Response Payload

{			
Certificate *(v1.1+)* {	object	*required*	The link to the certificate being renewed.
@odata.id	string	*read-only*	Link to another Certificate resource.
}			
CSRString *(v1.1+)*	string	*read-only required*	The string for the certificate signing request.
}			

Request Example

```
{
    "ChallengePassword": "p4ssw0rd"
}
```

Response Example

```
{
    "CSRString": "-----BEGIN CERTIFICATE REQUEST-----...-----END CERTIFICATE REQUEST-----",
    "Certificate": {
        "@odata.id": "/redfish/v1/Managers/BMC/NetworkProtocol/HTTPS/Certificates/1"
    }
}
```

6.19.5 Property details

6.19.5.1 CertificateType

The format of the certificate.

string	Description
PEM	A Privacy Enhanced Mail (PEM)-encoded single certificate.
PEMchain *(v1.4+)*	A Privacy Enhanced Mail (PEM)-encoded certificate chain.
PKCS12 *(v1.10+)*	A Base64-encoded PKCS12 certificate bundle.
PKCS7	A Privacy Enhanced Mail (PEM)-encoded PKCS7 certificate.

6.19.5.2 CertificateUsageTypes

The types or purposes for this certificate.

string	Description
BIOS	This certificate is a BIOS certificate like those associated with UEFI.
Device	This certificate is a device type certificate like those associated with SPDM and other standards.
EK	This certificate is an EK certificate like those associated with TCG TPMs.
IAK	This certificate is an IAK certificate like those associated with TCG TPMs.
IDevID	This certificate is an IDevID certificate like those associated with TCG TPMs.
LAK	This certificate is an LAK certificate like those associated with TCG TPMs.
LDevID	This certificate is an LDevID certificate like those associated with TCG TPMs.
Platform	This certificate is a platform type certificate like those associated with SPDM and other standards.
SSH	This certificate is used for SSH.
User	This certificate is a user certificate like those associated with a manager account.
Web	This certificate is a web or HTTPS certificate like those used for event destinations.

6.19.5.3 KeyUsage

The key usage extension, which defines the purpose of the public keys in this certificate.

string	Description
ClientAuthentication	TLS WWW client authentication.
CodeSigning	Signs downloadable executable code.

string	Description
CRLSigning	Verifies signatures on certificate revocation lists (CRLs).
DataEncipherment	Directly enciphers raw user data without an intermediate symmetric cipher.
DecipherOnly	Deciphers data while performing a key agreement.
DigitalSignature	Verifies digital signatures, other than signatures on certificates and CRLs.
EmailProtection	Email protection.
EncipherOnly	Enciphers data while performing a key agreement.
KeyAgreement	Key agreement.
KeyCertSign	Verifies signatures on public key certificates.
KeyEncipherment	Enciphers private or secret keys.
NonRepudiation	Verifies digital signatures, other than signatures on certificates and CRLs, and provides a non-repudiation service that protects against the signing entity falsely denying some action.
OCSPSigning	Signs OCSP responses.
ServerAuthentication	TLS WWW server authentication.
Timestamping	Binds the hash of an object to a time.

6.19.6 Example response


```
{
    "@odata.type": "#Certificate.v1_10_0.Certificate",
    "Id": "1",
    "Name": "HTTPS Certificate",
    "CertificateString": "-----BEGIN CERTIFICATE-----\nMIIFsTCC [*truncated*] GXG5zljlu\n-----END
         CERTIFICATE-----",
    "CertificateType": "PEM",
    "Issuer": {
        "Country": "US",
        "State": "Oregon",
        "City": "Portland",
        "Organization": "Contoso",
        "OrganizationalUnit": "ABC",
        "CommonName": "manager.contoso.org"
    },
    "Subject": {
        "Country": "US",
        "State": "Oregon",
        "City": "Portland",
```

```
            "Organization": "Contoso",
            "OrganizationalUnit": "ABC",
            "CommonName": "manager.contoso.org"
        },
        "ValidNotBefore": "2018-09-07T13:22:05Z",
        "ValidNotAfter": "2019-09-07T13:22:05Z",
        "KeyUsage": [
            "KeyEncipherment",
            "ServerAuthentication"
        ],
        "SerialNumber": "5d:7a:d8:df:f6:fc:c1:b3:ca:fe:fb:cc:38:f3:01:64:51:ea:05:cb",
        "Fingerprint": "A6:E9:D2:5C:DC:52:DA:4B:3B:14:97:F3:A4:53:D9:99:A1:0B:56:41",
        "FingerprintHashAlgorithm": "TPM_ALG_SHA1",
        "SignatureAlgorithm": "sha256WithRSAEncryption",
        "@odata.id": "/redfish/v1/Managers/BMC/NetworkProtocol/HTTPS/Certificates/1"
    }
```


6.20 CertificateLocations 1.0.4

Version	*v1.0*
Release	2018.3

6.20.1 Description

The `CertificateLocations` schema describes a resource that an administrator can use in order to locate all certificates installed on a given service.

6.20.2 URIs

/redfish/v1/CertificateService/CertificateLocations

6.20.3 Properties

Property	Type	Attributes	Notes
Links {	object		The links to other resources that are related to this resource.
Certificates [{	array		An array of links to the certificates installed on this service.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a Certificate resource. See the Links section and the *Certificate* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
}			

6.20.4 Example response

```
{
    "@odata.type": "#CertificateLocations.v1_0_4.CertificateLocations",
    "Id": "CertificateLocations",
    "Name": "Certificate Locations",
    "Links": {
        "Certificates": [
            {
                "@odata.id": "/redfish/v1/Managers/BMC/NetworkProtocol/HTTPS/Certificates/1"
            }
        ]
    },
    "@odata.id": "/redfish/v1/CertificateService/CertificateLocations"
}
```

6.21 CertificateService 1.1.0

Version	*v1.1*	*v1.0*
Release	2025.1	2018.3

6.21.1 Description

The `CertificateService` schema describes a certificate service that represents the actions available to manage certificates and links to the certificates.

6.21.2 URIs

/redfish/v1/CertificateService

6.21.3 Properties

Property	Type	Attributes	Notes
CertificateLocations {	object		The information about the location of certificates. See the *CertificateLocations* schema for details on this property.
@odata.id	string	*read-only*	Link to a CertificateLocations resource. See the Links section and the *CertificateLocations* schema for details.
}			

6.21.4 Actions

6.21.4.1 GenerateCSR

Description

This action makes a certificate signing request.

Action URI

{Base URI of target resource}/Actions/CertificateService.GenerateCSR

Action parameters

Parameter Name	Type	Attributes	Notes
AlternativeNames [ ]	array (string)	*optional*	The additional host names of the component to secure.
CertificateCollection {	object	*required*	The link to the certificate collection where the certificate is installed after the certificate authority (CA) signs the certificate. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
ChallengePassword	string	*optional*	The challenge password to apply to the certificate for revocation requests.
City	string	*optional*	The city or locality of the organization making the request.
CommonName	string	*required*	The fully qualified domain name of the component to secure.
ContactPerson	string	*optional*	The name of the user making the request.

Parameter Name	Type	Attributes	Notes
Country	string	*optional*	The two-letter country code of the organization making the request.
Email	string	*optional*	The email address of the contact within the organization making the request.
GivenName	string	*optional*	The given name of the user making the request.
Initials	string	*optional*	The initials of the user making the request.
KeyBitLength	integer	*optional*	The length of the key, in bits, if needed based on the `KeyPairAlgorithm` parameter value.
KeyCurveId	string	*optional*	The curve ID to use with the key, if needed based on the `KeyPairAlgorithm` parameter value.
KeyPairAlgorithm	string	*optional*	The type of key-pair for use with signing algorithms.
KeyUsage [ ]	array (string (enum))	*read-write*	The usage of the key contained in the certificate. *For the possible property values, see KeyUsage in Property details.*
Organization	string	*optional*	The name of the organization making the request.
OrganizationalUnit	string	*optional*	The name of the unit or division of the organization making the request.
State	string	*optional*	The state, province, or region of the organization making the request.
Surname	string	*optional*	The surname of the user making the request.
UnstructuredName	string	*optional*	The unstructured name of the subject.

Response Payload

{			
CertificateCollection {	object	*required*	The link to the certificate collection where the certificate is installed. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
CSRString	string	*read-only required*	The string for the certificate signing request.
}			

Request Example

```
{
    "Country": "US",
    "State": "Oregon",
    "City": "Portland",
    "Organization": "Contoso",
    "OrganizationalUnit": "ABC",
    "CommonName": "manager.contoso.org",
    "AlternativeNames": [
        "manager.contoso.org",
        "manager.contoso.com",
        "manager.contoso.us"
    ],
    "Email": "admin@contoso.org",
    "KeyPairAlgorithm": "TPM_ALG_RSA",
    "KeyBitLength": 4096,
    "KeyUsage": [
        "KeyEncipherment",
        "ServerAuthentication"
    ],
    "CertificateCollection": {
        "@odata.id": "/redfish/v1/Managers/BMC/NetworkProtocol/HTTPS/Certificates"
    }
}
```

Response Example

```
{
    "CSRString": "-----BEGIN CERTIFICATE REQUEST-----...-----END CERTIFICATE REQUEST-----",
    "CertificateCollection": {
        "@odata.id": "/redfish/v1/Managers/BMC/NetworkProtocol/HTTPS/Certificates"
    }
}
```

6.21.4.2 ReplaceCertificate

Description

This action replaces a certificate.

Action URI

{Base URI of target resource}/Actions/CertificateService.ReplaceCertificate

Action parameters

Parameter Name	Type	Attributes	Notes
CertificateString	string	*required*	The string for the certificate.
CertificateType	string (enum)	*required*	The format of the certificate. *For the possible property values, see CertificateType in Property details.*
CertificateUri {	object	*required*	The link to the certificate that is being replaced. See the *Certificate* schema for details on this property.
@odata.id	string	*read-only*	Link to a Certificate resource. See the Links section and the *Certificate* schema for details.
}			
Password *(v1.1+)*	string	*optional*	The password for the certificate.

Request Example

```
{
    "CertificateUri": {
        "@odata.id": "/redfish/v1/Managers/BMC/NetworkProtocol/HTTPS/Certificates/1"
    },
    "CertificateString": "-----BEGIN CERTIFICATE-----\n...\n-----END CERTIFICATE-----",
    "CertificateType": "PEM"
}
```

6.21.5 Property details

6.21.5.1 CertificateType

The format of the certificate.

string	Description
PEM	A Privacy Enhanced Mail (PEM)-encoded single certificate.
PEMchain	A Privacy Enhanced Mail (PEM)-encoded certificate chain.
PKCS12	A Base64-encoded PKCS12 certificate bundle.
PKCS7	A Privacy Enhanced Mail (PEM)-encoded PKCS7 certificate.

6.21.5.2 KeyUsage

The usage of the key contained in the certificate.

string	Description
ClientAuthentication	TLS WWW client authentication.
CodeSigning	Signs downloadable executable code.
CRLSigning	Verifies signatures on certificate revocation lists (CRLs).
DataEncipherment	Directly enciphers raw user data without an intermediate symmetric cipher.
DecipherOnly	Deciphers data while performing a key agreement.
DigitalSignature	Verifies digital signatures, other than signatures on certificates and CRLs.
EmailProtection	Email protection.
EncipherOnly	Enciphers data while performing a key agreement.
KeyAgreement	Key agreement.
KeyCertSign	Verifies signatures on public key certificates.
KeyEncipherment	Enciphers private or secret keys.
NonRepudiation	Verifies digital signatures, other than signatures on certificates and CRLs, and provides a non-repudiation service that protects against the signing entity falsely denying some action.
OCSPSigning	Signs OCSP responses.
ServerAuthentication	TLS WWW server authentication.
Timestamping	Binds the hash of an object to a time.

6.21.6 Example response

```
{
    "@odata.type": "#CertificateService.v1_1_0.CertificateService",
    "Id": "CertificateService",
    "Name": "Certificate Service",
    "Actions": {
        "#CertificateService.GenerateCSR": {
            "target": "/redfish/v1/CertificateService/Actions/CertificateService.GenerateCSR",
            "@Redfish.ActionInfo": "/redfish/v1/CertificateService/GenerateCSRActionInfo"
        },
```

```
        "#CertificateService.ReplaceCertificate": {
            "target": "/redfish/v1/CertificateService/Actions/CertificateService.ReplaceCertificate",
            "@Redfish.ActionInfo": "/redfish/v1/CertificateService/ReplaceCertificateActionInfo"
        }
    },
    "CertificateLocations": {
        "@odata.id": "/redfish/v1/CertificateService/CertificateLocations"
    },
    "@odata.id": "/redfish/v1/CertificateService"
}
```


6.22 Chassis 1.27.0

Version	*v1.27*	*v1.26*	*v1.25*	*v1.24*	*v1.23*	*v1.22*	*v1.21*	*v1.20*	*v1.19*	*v1.18*	*v1.17*	...
Release	2025.2	2024.4	2023.3	2023.2	2023.1	2022.3	2022.2	2022.1	2021.4	2021.3	2021.2	...

6.22.1 Description

The `Chassis` schema represents the physical components of a system. This resource represents the sheet-metal confined spaces and logical zones such as racks, enclosures, chassis and all other containers. Subsystems, such as sensors, that operate outside of a system's data plane are linked either directly or indirectly through this resource. A subsystem that operates outside of a system's data plane are not accessible to software that runs on the system. It also describes the location, such as a slot, socket, or bay, where a unit can be installed, by populating a resource instance with an absent state if a unit is not present.

6.22.2 URIs

/redfish/v1/Chassis/*{ChassisId}*

6.22.3 Properties

Property	Type	Attributes	Notes
Assembly *(v1.6+)* {	object		The link to the assembly associated with this chassis. See the *Assembly* schema for details on this property.
@odata.id	string	*read-only*	Link to a Assembly resource. See the Links section and the *Assembly* schema for details.
}			

Property	Type	Attributes	Notes
AssetTag	string	*read-write (null)*	The user-assigned asset tag of this chassis.
Certificates *(v1.15+)* {	object		The link to a collection of certificates for device identity and attestation. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
ChassisType	string (enum)	*read-only required*	The type of physical form factor of the chassis. *For the possible property values, see ChassisType in Property details.*
Controls *(v1.17+)* {	object		The link to the collection of controls located in this chassis. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Control*. See the Control schema for details.
}			
DepthMm *(v1.4+)*	number (mm)	*read-only (null)*	The depth of the chassis.
Doors *(v1.24+)* {	object		The doors or access panels of the chassis.
Front *(v1.24+)* {	object	*(null)*	The front door of the chassis.
DoorState *(v1.24+)*	string (enum)	*read-only (null)*	The state of the door. *For the possible property values, see DoorState in Property details.*
Locked *(v1.24+)*	boolean	*read-write (null)*	Indicates if the door is locked.
UserLabel *(v1.24+)*	string	*read-write*	A user-assigned label.
}			
Rear *(v1.24+)* {	object	*(null)*	The rear door of the chassis.
DoorState *(v1.24+)*	string (enum)	*read-only (null)*	The state of the door. *For the possible property values, see DoorState in Property details.*
Locked *(v1.24+)*	boolean	*read-write (null)*	Indicates if the door is locked.
UserLabel *(v1.24+)*	string	*read-write*	A user-assigned label.
}			

Property	Type	Attributes	Notes
}			
Drives *(v1.14+)* {	object		The link to the collection of drives within this chassis. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Drive*. See the Drive schema for details.
}			
ElectricalSourceManagerURIs *(v1.18+)* [ ]	array (URI) (string, null)	*read-write*	The URIs of the management interfaces for the external electrical source connections for this chassis.
ElectricalSourceNames *(v1.18+)* [ ]	array (string, null)	*read-write*	The names of the external electrical sources, such as circuits or outlets, connected to this chassis.
EnvironmentalClass *(v1.9+)*	string (enum)	*read-write (null)*	The ASHRAE Environmental Class for this chassis. *For the possible property values, see EnvironmentalClass in Property details.*
EnvironmentMetrics *(v1.15+)* {	object		The link to the environment metrics for this chassis. See the *EnvironmentMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a EnvironmentMetrics resource. See the Links section and the *EnvironmentMetrics* schema for details.
}			
FabricAdapters *(v1.20+)* {	object		The link to the collection of fabric adapters located in this chassis that provide access to fabric-related resource pools. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *FabricAdapter*. See the FabricAdapter schema for details.
}			
HeatingCoolingEquipmentNames *(v1.25+)* [ ]	array (string, null)	*read-write*	The names of the external heating or cooling equipment, such as coolant distribution units, connected to this chassis.
HeatingCoolingManagerURIs *(v1.25+)* [ ]	array (URI) (string, null)	*read-write*	The URIs of the management interfaces for the external heating or cooling equipment for this chassis.
HeightMm *(v1.4+)*	number (mm)	*read-only (null)*	The height of the chassis.
HotPluggable *(v1.21+)*	boolean	*read-only (null)*	An indication of whether this component can be inserted or removed while the equipment is in operation.

Property	Type	Attributes	Notes
IndicatorLED *(deprecated v1.14)*	string (enum)	*read-write (null)*	The state of the indicator LED, which identifies the chassis. *For the possible property values, see IndicatorLED in Property details. Deprecated in v1.14 and later. This property has been deprecated in favor of the* `LocationIndicatorActive` *property.*
LeakDetectors *(v1.26+)* {	object		The link to the collection of leak detectors located in this chassis. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *LeakDetector*. See the LeakDetector schema for details.
}			
Links {	object		The links to other resources that are related to this resource.
AutomationNodes *(v1.27+)* [{	array		An array of links to the automation nodes contained in this chassis.
@odata.id	string	*read-only*	Link to a AutomationNode resource. See the Links section and the *AutomationNode* schema for details.
}]			
Cables *(v1.17+)* [{	array		An array of links to the cables connected to this chassis.
@odata.id	string	*read-only*	Link to a Cable resource. See the Links section and the *Cable* schema for details.
}]			
ComputerSystems [{	array		An array of links to the computer systems that this chassis directly and wholly contains.
@odata.id	string	*read-only*	Link to a ComputerSystem resource. See the Links section and the *ComputerSystem* schema for details.
}]			
ConnectedCoolingLoops *(v1.23+)* [{	array		An array of links to cooling loops connected to this chassis.
@odata.id	string	*read-write*	Link to a CoolingLoop resource. See the Links section and the *CoolingLoop* schema for details.
}]			
ContainedBy {	object		The link to the chassis that contains this chassis.
@odata.id	string	*read-write*	Link to another Chassis resource.
}			

Property	Type	Attributes	Notes
Contains [{	array		An array of links to any other chassis that this chassis has in it.
@odata.id	string	*read-write*	Link to another Chassis resource.
}]			
CooledBy *(deprecated v1.20)* [{	array		An array of links to resources or objects that cool this chassis. Normally, the link is for either a chassis or a specific set of fans. *Deprecated in v1.20 and later. This property has been deprecated in favor of the* `Fans` *link property, and details provided in the* `ThermalSubsystem` *resource.*
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
CoolingUnits *(v1.23+)* [{	array		An array of links to cooling unit functionality contained in this chassis.
@odata.id	string	*read-write*	Link to a CoolingUnit resource. See the Links section and the *CoolingUnit* schema for details.
}]			
Drives *(v1.2+)* [{	array		An array of links to the drives located in this chassis.
@odata.id	string	*read-only*	Link to a Drive resource. See the Links section and the *Drive* schema for details.
}]			
Facility *(v1.11+)* {	object		The link to the facility that contains this chassis. See the *Facility* schema for details on this property.
@odata.id	string	*read-write*	Link to a Facility resource. See the Links section and the *Facility* schema for details.
}			
Fans *(v1.20+)* [{	array		An array of links to the fans that cool this chassis.
@odata.id	string	*read-only*	Link to a Fan resource. See the Links section and the *Fan* schema for details.
}]			
ManagedBy [{	array		An array of links to the managers responsible for managing this chassis.
@odata.id	string	*read-only*	Link to a Manager resource. See the Links section and the *Manager* schema for details.
}]			

Property	Type	Attributes	Notes
ManagersInChassis *(v1.2+)* [{	array		An array of links to the managers located in this chassis.
@odata.id	string	*read-only*	Link to a Manager resource. See the Links section and the *Manager* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
PCIeDevices *(v1.4+, deprecated v1.10)* [{	array		An array of links to the PCIe devices located in this chassis. *Deprecated in v1.10 and later. This property has been deprecated in favor of the* `PCIeDevices` *resource collection in the root of this resource.*
@odata.id	string	*read-only*	Link to a PCIeDevice resource. See the Links section and the *PCIeDevice* schema for details.
}]			
PowerDistribution *(v1.20+)* {	object	*(null)*	A link to power distribution functionality contained in this chassis. See the *PowerDistribution* schema for details on this property.
@odata.id	string	*read-only*	Link to a PowerDistribution resource. See the Links section and the *PowerDistribution* schema for details.
}			
PoweredBy *(deprecated v1.20)* [{	array		An array of links to resources or objects that power this chassis. Normally, the link is for either a chassis or a specific set of power supplies. *Deprecated in v1.20 and later. This property has been deprecated in favor of the* `PowerOutlets` *and* `PowerSupplies` *link properties, and details provided in the* `PowerSubsystem` *resource.*
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
PowerOutlets *(v1.18+)* [{	array		An array of links to the outlets that provide power to this chassis.
@odata.id	string	*read-write*	Link to a Outlet resource. See the Links section and the *Outlet* schema for details.
}]			
PowerSupplies *(v1.20+)* [{	array		An array of links to the power supplies that provide power to this chassis.
@odata.id	string	*read-only*	Link to a PowerSupply resource. See the Links section and the *PowerSupply* schema for details.
}]			

Property	Type	Attributes	Notes
Processors *(v1.9+)* [{	array		An array of links to the processors located in this chassis.
@odata.id	string	*read-only*	Link to a Processor resource. See the Links section and the *Processor* schema for details.
}]			
ResourceBlocks *(v1.5+)* [{	array		An array of links to the resource blocks located in this chassis.
@odata.id	string	*read-only*	Link to a ResourceBlock resource. See the Links section and the *ResourceBlock* schema for details.
}]			
Storage *(v1.2+)* [{	array		An array of links to the storage subsystems connected to or inside this chassis.
@odata.id	string	*read-only*	Link to a Storage resource. See the Links section and the *Storage* schema for details.
}]			
Switches *(v1.7+)* [{	array		An array of links to the switches located in this chassis.
@odata.id	string	*read-only*	Link to a Switch resource. See the Links section and the *Switch* schema for details.
}]			
}			
Location *(v1.2+)* {}	object		The location of the chassis. For property details, see Location.
LocationIndicatorActive *(v1.14+)*	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
LogServices {	object		The link to the logs for this chassis. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *LogService*. See the LogService schema for details.
}			
Manufacturer	string	*read-only (null)*	The manufacturer of this chassis.
MaxPowerWatts *(v1.12+)*	number (Watts)	*read-only (null)*	The upper bound of the total power consumed by the chassis.
Measurements *(v1.15+, deprecated v1.19)* [{	array		An array of DSP0274-defined measurement blocks. *Deprecated in v1.19 and later. This property has been deprecated in favor of the* `ComponentIntegrity` *resource.*

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a MeasurementBlock resource. See the Links section and the *SoftwareInventory* schema for details.
}]			
MediaControllers *(v1.11+, deprecated v1.20)* {	object		The link to the collection of media controllers located in this chassis. Contains a link to a resource. *Deprecated in v1.20 and later. This property has been deprecated in favor of* `FabricAdapters`.
@odata.id	string	*read-only*	Link to Collection of *MediaController*. See the MediaController schema for details.
}			
Memory *(v1.11+)* {	object		The link to the collection of memory located in this chassis that belong to fabric-related resource pools. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Memory*. See the Memory schema for details.
}			
MemoryDomains *(v1.11+)* {	object		The link to the collection of memory domains located in this chassis that belong to fabric-related resource pools. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *MemoryDomain*. See the MemoryDomain schema for details.
}			
MinPowerWatts *(v1.12+)*	number (Watts)	*read-only (null)*	The lower bound of the total power consumed by the chassis.
Model	string	*read-only (null)*	The model number of the chassis.
NetworkAdapters *(v1.4+)* {	object		The link to the collection of network adapters associated with this chassis. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *NetworkAdapter*. See the NetworkAdapter schema for details.
}			
PartNumber	string	*read-only (null)*	The part number of the chassis.
PCIeDevices *(v1.10+)* {	object		The link to the collection of PCIe devices located in this chassis. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *PCIeDevice*. See the PCIeDevice schema for details.

Property	Type	Attributes	Notes
}			
PCIeSlots *(v1.8+, deprecated v1.24)* {	object		The link to the PCIe slot properties for this chassis. See the *PCIeSlots* schema for details on this property. *Deprecated in v1.24 and later. This property has been deprecated in favor of the* `PCIeDevices` *property. The* `PCIeSlots` *schema has been deprecated in favor of the* `PCIeDevice` *schema. Empty PCIe slots are represented by* `PCIeDevice` *resources using the* `Absent` *value of the* `State` *property within* `Status`*.*
@odata.id	string	*read-only*	Link to a PCIeSlots resource. See the Links section and the *PCIeSlots* schema for details.
}			
PhysicalSecurity *(v1.1+)* {	object		The physical security state of the chassis.
IntrusionSensor *(v1.1+)*	string (enum)	*read-write (null)*	The physical security state of the chassis, such as if hardware intrusion is detected. *For the possible property values, see IntrusionSensor in Property details.*
IntrusionSensorNumber *(v1.1+, deprecated v1.22)*	integer	*read-only (null)*	A numerical identifier to represent the physical security sensor. *Deprecated in v1.22 and later. This property has been deprecated in order to allow for multiple physical sensors to construct this object.*
IntrusionSensorReArm *(v1.1+)*	string (enum)	*read-write (null)*	The policy that describes how the physical security state of the chassis returns to a normal state. *For the possible property values, see IntrusionSensorReArm in Property details.*
}			
Power *(deprecated v1.15)* {	object		The link to the power properties, or power supplies, power policies, and sensors, for this chassis. See the *Power* schema for details on this property. *Deprecated in v1.15 and later. This link has been deprecated in favor of the* `PowerSubsystem` *link property.*
@odata.id	string	*read-only*	Link to a Power resource. See the Links section and the *Power* schema for details.
}			
PoweredByParent *(v1.20+)*	boolean	*read-only (null)*	Indicates that the chassis receives power from the containing chassis.
PowerState *(v1.0.1+)*	string (enum)	*read-only (null)*	The current power state of the chassis. *For the possible property values, see PowerState in Property details.*
PowerSubsystem *(v1.15+)* {	object		The link to the power subsystem properties for this chassis. See the *PowerSubsystem* schema for details on this property.
@odata.id	string	*read-only*	Link to a PowerSubsystem resource. See the Links section and the *PowerSubsystem* schema for details.

Property	Type	Attributes	Notes
}			
Processors *(v1.22+)* {	object		The link to the collection of processors located in this chassis that belong to fabric-related resource pools. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Processor*. See the Processor schema for details.
}			
Replaceable *(v1.21+)*	boolean	*read-only (null)*	An indication of whether this component can be independently replaced as allowed by the vendor's replacement policy.
Sensors *(v1.9+)* {	object		The link to the collection of sensors located in the equipment and sub-components. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Sensor*. See the Sensor schema for details.
}			
SerialNumber	string	*read-only (null)*	The serial number of the chassis.
SKU	string	*read-only (null)*	The SKU of the chassis.
SparePartNumber *(v1.16+)*	string	*read-only (null)*	The spare part number of the chassis.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
Thermal *(deprecated v1.15)* {	object		The link to the thermal properties, such as fans, cooling, and sensors, for this chassis. See the *Thermal* schema for details on this property. *Deprecated in v1.15 and later. This link has been deprecated in favor of the* `ThermalSubsystem` *link property.*
@odata.id	string	*read-only*	Link to a Thermal resource. See the Links section and the *Thermal* schema for details.
}			
ThermalDirection *(v1.20+)*	string (enum)	*read-only (null)*	Indicates the thermal management path through the chassis. *For the possible property values, see ThermalDirection in Property details.*
ThermalManagedByParent *(v1.20+)*	boolean	*read-only (null)*	Indicates that the chassis is thermally managed by the parent chassis.
ThermalSubsystem *(v1.15+)* {	object		The link to the thermal subsystem properties for this chassis. See the *ThermalSubsystem* schema for details on this property.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a ThermalSubsystem resource. See the Links section and the *ThermalSubsystem* schema for details.
}			
TrustedComponents *(v1.21+)* {	object		The link to the trusted components in this chassis. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *TrustedComponent*. See the TrustedComponent schema for details.
}			
UUID *(v1.7+)*	string (uuid)	*read-only (null)*	The UUID for this chassis.
Version *(v1.21+)*	string	*read-only (null)*	The hardware version of this chassis.
WeightKg *(v1.4+)*	number (kg)	*read-only (null)*	The weight of the chassis.
WidthMm *(v1.4+)*	number (mm)	*read-only (null)*	The width of the chassis.

6.22.4 Actions

6.22.4.1 Reset

Description

This action resets the chassis. Additionally, it could reset systems or other contained resources depending on the `ResetType` used to invoke this action.

Action URI

{Base URI of target resource}/Actions/Chassis.Reset

Action parameters

Parameter Name	Type	Attributes	Notes
ResetType	string (enum)	*optional*	The type of reset. *For the possible property values, see ResetType in Property details.*

Request Example

```
{
    "ResetType": "ForceRestart"
}
```

6.22.5 Property details

6.22.5.1 ChassisType

The type of physical form factor of the chassis.

string	Description
Blade	An enclosed or semi-enclosed, typically vertically-oriented, system chassis that must be plugged into a multi-system chassis to function normally.
Card	A loose device or circuit board intended to be installed in a system or other enclosure.
Cartridge	A small self-contained system intended to be plugged into a multi-system chassis.
Component	A small chassis, card, or device that contains devices for a particular subsystem or function.
Drawer	An enclosed or semi-enclosed, typically horizontally-oriented, system chassis that can be slid into a multi-system chassis.
Enclosure	A generic term for a chassis that does not fit any other description.
Expansion	A chassis that expands the capabilities or capacity of another chassis.
HeatExchanger *(v1.23+)*	A heat exchanger.
ImmersionTank *(v1.23+)*	An immersion cooling tank.
IPBasedDrive *(v1.3+)*	A chassis in a drive form factor with IP-based network connections.
Module	A small, typically removable, chassis or card that contains devices for a particular subsystem or function.
Other	A chassis that does not fit any of these definitions.
Pod	A collection of equipment racks in a large, likely transportable, container.
PowerStrip *(v1.25+)*	A power strip, typically placed in the zero-U space of a rack.
Rack	An equipment rack, typically a 19-inch wide freestanding unit.
RackGroup *(v1.4+)*	A group of racks that form a single entity or share infrastructure.
RackMount	A single-system chassis designed specifically for mounting in an equipment rack.

string	Description
Row	A collection of equipment racks.
Shelf	An enclosed or semi-enclosed, typically horizontally-oriented, system chassis that must be plugged into a multi-system chassis to function normally.
Sidecar	A chassis that mates mechanically with another chassis to expand its capabilities or capacity.
Sled	An enclosed or semi-enclosed, system chassis that must be plugged into a multi-system chassis to function normally similar to a blade type chassis.
StandAlone	A single, free-standing system, commonly called a tower or desktop chassis.
StorageEnclosure *(v1.6+)*	A chassis that encloses storage.
Zone	A logical division or portion of a physical chassis that contains multiple devices or systems that cannot be physically separated.

6.22.5.2 DoorState

The state of the door.

string	Description
Closed	Door is closed.
Locked	Door is closed and locked.
LockedAndOpen	Door is open and locked.
Open	Door is open.

6.22.5.3 EnvironmentalClass

The ASHRAE Environmental Class for this chassis.

string	Description
A1	ASHRAE Environmental Class 'A1'.
A2	ASHRAE Environmental Class 'A2'.
A3	ASHRAE Environmental Class 'A3'.
A4	ASHRAE Environmental Class 'A4'.

6.22.5.4 IndicatorLED

The state of the indicator LED, which identifies the chassis.

string	Description
Blinking	The indicator LED is blinking.
Lit	The indicator LED is lit.
Off	The indicator LED is off.
Unknown *(deprecated v1.2)*	The state of the indicator LED cannot be determined. *Deprecated in v1.2 and later. This value has been deprecated in favor of returning* `null` *if the state is unknown.*

6.22.5.5 IntrusionSensor

The physical security state of the chassis, such as if hardware intrusion is detected.

string	Description
HardwareIntrusion	A door, lock, or other mechanism protecting the internal system hardware from being accessed is detected to be in an insecure state.
Normal	No physical security condition is detected at this time.
TamperingDetected	Physical tampering of the monitored entity is detected.

6.22.5.6 IntrusionSensorReArm

The policy that describes how the physical security state of the chassis returns to a normal state.

string	Description
Automatic	The sensor is automatically restored to the normal state when no security condition is detected.
Manual	A user is required to clear the sensor to restore it to the normal state.

6.22.5.7 PowerState

The current power state of the chassis.

string	Description
Off	The resource is powered off. The components within the resource might continue to have AUX power.
On	The resource is powered on.
Paused	The resource is paused.
PoweringOff	A temporary state between on and off. The components within the resource can take time to process the power off action.
PoweringOn	A temporary state between off and on. The components within the resource can take time to process the power on action.

6.22.5.8 ResetType

The type of reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the unit.
FullPowerCycle	Full power cycle the unit. Behaves like removing utility lines, followed by restoring utility lines to the resource.
GracefulRestart	Shut down gracefully and restart the unit.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
Pause	Pause execution on the unit but do not remove power. This is typically a feature of virtual machine hypervisors.
PowerCycle	Power cycle the unit. Behaves like a power removal, followed by a power restore to the resource.
PushPowerButton	Simulate the pressing of the physical power button on this unit.
Resume	Resume execution on the paused unit. This is typically a feature of virtual machine hypervisors.
Suspend	Write the state of the unit to disk before powering off. This allows for the state to be restored when powered back on.

6.22.5.9 ThermalDirection

Indicates the thermal management path through the chassis.

string	Description
BackToFront	A chassis with the air intake in the back and exhaust out the front.
FrontToBack	A chassis with the air intake in the front and exhaust out the back.
Sealed	A sealed chassis with no air pathway.
TopExhaust	A chassis with air exhaust on the top.

6.22.6 Example response


```
{
    "@odata.type": "#Chassis.v1_27_0.Chassis",
    "Id": "1U",
    "Name": "Computer System Chassis",
    "ChassisType": "RackMount",
    "AssetTag": "Chicago-45Z-2381",
    "Manufacturer": "Contoso",
    "Model": "3500RX",
    "SKU": "8675309",
    "SerialNumber": "437XR1138R2",
    "PartNumber": "224071-J23",
    "PowerState": "On",
    "LocationIndicatorActive": true,
    "Location": {
        "Placement": {
            "Row": "North",
            "Rack": "WEB43",
            "RackOffsetUnits": "EIA_310",
            "RackOffset": 12
        }
    },
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "HeightMm": 44.45,
    "WidthMm": 431.8,
    "DepthMm": 711,
    "WeightKg": 15.31,
    "EnvironmentalClass": "A3",
    "Sensors": {
```

```
        "@odata.id": "/redfish/v1/Chassis/1U/Sensors"
    },
    "PowerSubsystem": {
        "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem"
    },
    "ThermalSubsystem": {
        "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem"
    },
    "EnvironmentMetrics": {
        "@odata.id": "/redfish/v1/Chassis/1U/EnvironmentMetrics"
    },
    "Links": {
        "ComputerSystems": [
            {
                "@odata.id": "/redfish/v1/Systems/437XR1138R2"
            }
        ],
        "ManagedBy": [
            {
                "@odata.id": "/redfish/v1/Managers/BMC"
            }
        ],
        "ManagersInChassis": [
            {
                "@odata.id": "/redfish/v1/Managers/BMC"
            }
        ]
    },
    "@odata.id": "/redfish/v1/Chassis/1U"
}
```


6.23 Circuit 1.8.1

Version	*v1.8*	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2024.1	2022.2	2022.1	2021.4	2021.3	2021.2	2020.4	2020.3	2019.4

6.23.1 Description

This `Circuit` schema contains the definition for an electrical circuit.

6.23.2 URIs

/redfish/v1/PowerEquipment/ElectricalBuses/*{PowerDistributionId}*/Branches/*{CircuitId}*

/redfish/v1/PowerEquipment/ElectricalBuses/*{PowerDistributionId}*/Mains/*{CircuitId}*
/redfish/v1/PowerEquipment/FloorPDUs/*{PowerDistributionId}*/Branches/*{CircuitId}*
/redfish/v1/PowerEquipment/FloorPDUs/*{PowerDistributionId}*/Mains/*{CircuitId}*
/redfish/v1/PowerEquipment/FloorPDUs/*{PowerDistributionId}*/Subfeeds/*{CircuitId}*
/redfish/v1/PowerEquipment/PowerShelves/*{PowerDistributionId}*/Branches/*{CircuitId}*
/redfish/v1/PowerEquipment/PowerShelves/*{PowerDistributionId}*/Mains/*{CircuitId}*
/redfish/v1/PowerEquipment/RackPDUs/*{PowerDistributionId}*/Branches/*{CircuitId}*
/redfish/v1/PowerEquipment/RackPDUs/*{PowerDistributionId}*/Mains/*{CircuitId}*
/redfish/v1/PowerEquipment/Switchgear/*{PowerDistributionId}*/Branches/*{CircuitId}*
/redfish/v1/PowerEquipment/Switchgear/*{PowerDistributionId}*/Feeders/*{CircuitId}*
/redfish/v1/PowerEquipment/Switchgear/*{PowerDistributionId}*/Mains/*{CircuitId}*
/redfish/v1/PowerEquipment/Switchgear/*{PowerDistributionId}*/Subfeeds/*{CircuitId}*
/redfish/v1/PowerEquipment/TransferSwitches/*{PowerDistributionId}*/Branches/*{CircuitId}*
/redfish/v1/PowerEquipment/TransferSwitches/*{PowerDistributionId}*/Feeders/*{CircuitId}*
/redfish/v1/PowerEquipment/TransferSwitches/*{PowerDistributionId}*/Mains/*{CircuitId}*

6.23.3 Properties

Property	Type	Attributes	Notes
BreakerState	string (enum)	*read-only (null)*	The state of the overcurrent protection device. *For the possible property values, see BreakerState in Property details.*
CircuitType	string (enum)	*read-only (null)*	The type of circuit. *For the possible property values, see CircuitType in Property details.*
ConfigurationLocked *(v1.5+)*	boolean	*read-write*	Indicates whether the configuration is locked.
CriticalCircuit	boolean	*read-write (null)*	Designates if this is a critical circuit.
CurrentAmps {}	object		The current (A) for this circuit. For more information about this property, see SensorCurrentExcerpt in Property Details.
ElectricalConsumerNames *(v1.4+)* [ ]	array (string, null)	*read-write*	An array of names of downstream devices that are powered by this circuit.
ElectricalContext	string (enum)	*read-only (null)*	The combination of current-carrying conductors. *For the possible property values, see ElectricalContext in Property details.*
ElectricalSourceManagerURI *(v1.4+)*	string (URI)	*read-write*	The URI of the management interface for the upstream electrical source connection for this circuit.
ElectricalSourceName *(v1.4+)*	string	*read-write*	The name of the upstream electrical source, such as a circuit or outlet, connected to this circuit.
EnergykWh {}	object		The energy (kWh) for this circuit. For more information about this property, see SensorEnergykWhExcerpt in Property Details.

Property	Type	Attributes	Notes
FrequencyHz {}	object		The frequency (Hz) for this circuit. For more information about this property, see SensorExcerpt in Property Details.
IndicatorLED *(deprecated v1.1)*	string (enum)	*read-write (null)*	The state of the indicator LED, which identifies the circuit. *For the possible property values, see IndicatorLED in Property details. Deprecated in v1.1 and later. This property has been deprecated in favor of the* `LocationIndicatorActive` *property.*
Links {	object		The links to other resources that are related to this resource.
BranchCircuit {	object	*(null)*	A reference to the branch circuit related to this circuit.
@odata.id	string	*read-only*	Link to another Circuit resource.
}			
DistributionCircuits *(v1.4+)* [{	array		An array of links to the circuits powered by this circuit.
@odata.id	string	*read-write*	Link to another Circuit resource.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
Outlets [{	array		An array of references to the outlets contained by this circuit.
@odata.id	string	*read-only*	Link to a Outlet resource. See the Links section and the *Outlet* schema for details.
}]			
PowerOutlet *(v1.4+)* {	object	*(null)*	A link to the power outlet that provides power to this circuit. See the *Outlet* schema for details on this property.
@odata.id	string	*read-write*	Link to a Outlet resource. See the Links section and the *Outlet* schema for details.
}			
SourceCircuit *(v1.4+)* {	object	*(null)*	A link to the circuit that provides power to this circuit.
@odata.id	string	*read-write*	Link to another Circuit resource.
}			
}			

Property	Type	Attributes	Notes
LocationIndicatorActive *(v1.1+)*	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
NominalFrequencyHz *(v1.8+)*	number	*read-only (null)*	The nominal frequency (Hz) for this circuit.
NominalVoltage	string (enum)	*read-only (null)*	The nominal voltage for this circuit. *For the possible property values, see NominalVoltage in Property details.*
PhaseWiringType	string (enum)	*read-only (null)*	The number of ungrounded current-carrying conductors (phases) and the total number of conductors (wires). *For the possible property values, see PhaseWiringType in Property details.*
PlugType	string (enum)	*read-only (null)*	The type of plug according to NEMA, IEC, or regional standards. *For the possible property values, see PlugType in Property details.*
PolyPhaseCurrentAmps {	object	*(null)*	The current readings for this circuit.
Line1 {}	object		Line 1 current (A). For more information about this property, see SensorCurrentExcerpt in Property Details.
Line2 {}	object		Line 2 current (A). For more information about this property, see SensorCurrentExcerpt in Property Details.
Line3 {}	object		Line 3 current (A). For more information about this property, see SensorCurrentExcerpt in Property Details.
Neutral {}	object		Neutral line current (A). For more information about this property, see SensorCurrentExcerpt in Property Details.
}			
PolyPhaseEnergykWh {	object	*(null)*	The energy readings for this circuit.
Line1ToLine2 {}	object		The Line 1 to Line 2 energy (kWh) for this circuit. For more information about this property, see SensorEnergykWhExcerpt in Property Details.
Line1ToNeutral {}	object		The Line 1 to Neutral energy (kWh) for this circuit. For more information about this property, see SensorEnergykWhExcerpt in Property Details.
Line2ToLine3 {}	object		The Line 2 to Line 3 energy (kWh) for this circuit. For more information about this property, see SensorEnergykWhExcerpt in Property Details.
Line2ToNeutral {}	object		The Line 2 to Neutral energy (kWh) for this circuit. For more information about this property, see SensorEnergykWhExcerpt in Property Details.
Line3ToLine1 {}	object		The Line 3 to Line 1 energy (kWh) for this circuit. For more information about this property, see SensorEnergykWhExcerpt in Property Details.

Property	Type	Attributes	Notes
Line3ToNeutral {}	object		The Line 3 to Neutral energy (kWh) for this circuit. For more information about this property, see SensorEnergykWhExcerpt in Property Details.
}			
PolyPhasePowerWatts {	object	*(null)*	The power readings for this circuit.
Line1ToLine2 {}	object		The Line 1 to Line 2 power (W) for this circuit. For more information about this property, see SensorPowerExcerpt in Property Details.
Line1ToNeutral {}	object		The Line 1 to Neutral power (W) for this circuit. For more information about this property, see SensorPowerExcerpt in Property Details.
Line2ToLine3 {}	object		The Line 2 to Line 3 power (W) for this circuit. For more information about this property, see SensorPowerExcerpt in Property Details.
Line2ToNeutral {}	object		The Line 2 to Neutral power (W) for this circuit. For more information about this property, see SensorPowerExcerpt in Property Details.
Line3ToLine1 {}	object		The Line 3 to Line 1 power (W) for this circuit. For more information about this property, see SensorPowerExcerpt in Property Details.
Line3ToNeutral {}	object		The Line 3 to Neutral power (W) for this circuit. For more information about this property, see SensorPowerExcerpt in Property Details.
}			
PolyPhaseVoltage {	object	*(null)*	The voltage readings for this circuit.
Line1ToLine2 {}	object		The Line 1 to Line 2 voltage (V) for this circuit. For more information about this property, see SensorVoltageExcerpt in Property Details.
Line1ToNeutral {}	object		The Line 1 to Neutral voltage (V) for this circuit. For more information about this property, see SensorVoltageExcerpt in Property Details.
Line2ToLine3 {}	object		The Line 2 to Line 3 voltage (V) for this circuit. For more information about this property, see SensorVoltageExcerpt in Property Details.
Line2ToNeutral {}	object		The Line 2 to Neutral voltage (V) for this circuit. For more information about this property, see SensorVoltageExcerpt in Property Details.
Line3ToLine1 {}	object		The Line 3 to Line 1 voltage (V) for this circuit. For more information about this property, see SensorVoltageExcerpt in Property Details.
Line3ToNeutral {}	object		The Line 3 to Neutral voltage (V) for this circuit. For more information about this property, see SensorVoltageExcerpt in Property Details.
}			

Property	Type	Attributes	Notes
PowerControlLocked *(v1.5+)*	boolean	*read-write*	Indicates whether power control requests are locked.
PowerCycleDelaySeconds	number	*read-write (null)*	The number of seconds to delay power on after a `PowerControl` action to cycle power. Zero seconds indicates no delay.
PowerEnabled	boolean	*read-only (null)*	Indicates if the circuit can be powered.
PowerLoadPercent *(v1.3+)* {}	object		The power load (percent) for this circuit. For more information about this property, see SensorExcerpt in Property Details.
PowerOffDelaySeconds	number	*read-write (null)*	The number of seconds to delay power off after a `PowerControl` action. Zero seconds indicates no delay to power off.
PowerOnDelaySeconds	number	*read-write (null)*	The number of seconds to delay power up after a power cycle or a `PowerControl` action. Zero seconds indicates no delay to power up.
PowerRestoreDelaySeconds	number	*read-write (null)*	The number of seconds to delay power on after power has been restored. Zero seconds indicates no delay.
PowerRestorePolicy	string (enum)	*read-write*	The desired power state of the circuit when power is restored after a power loss. *For the possible property values, see PowerRestorePolicy in Property details.*
PowerState	string (enum)	*read-only (null)*	The power state of the circuit. *For the possible property values, see PowerState in Property details.*
PowerStateInTransition *(v1.5+)*	boolean	*read-only*	Indicates whether the power state is undergoing a delayed transition.
PowerWatts {}	object		The power (W) for this circuit. For more information about this property, see SensorPowerExcerpt in Property Details.
RatedCurrentAmps	number (A)	*read-only (null)*	The rated maximum current allowed for this circuit.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
UnbalancedCurrentPercent *(v1.5+)* {}	object		The current imbalance (percent) between phases. For more information about this property, see SensorExcerpt in Property Details.
UnbalancedVoltagePercent *(v1.5+)* {}	object		The voltage imbalance (percent) between phases. For more information about this property, see SensorExcerpt in Property Details.
UserLabel *(v1.4+)*	string	*read-write*	A user-assigned label.
Voltage {}	object		The voltage (V) for this circuit. For more information about this property, see SensorVoltageExcerpt in Property Details.

Property	Type	Attributes	Notes
VoltageType	string (enum)	*read-only (null)*	The type of voltage applied to the circuit. *For the possible property values, see VoltageType in Property details.*

6.23.4 Actions

6.23.4.1 BreakerControl

Description

This action attempts to reset the circuit breaker.

Action URI

{Base URI of target resource}/Actions/Circuit.BreakerControl

Action parameters

Parameter Name	Type	Attributes	Notes
PowerState	string (enum)	*optional*	The desired power state of the circuit if the breaker is reset successfully. *For the possible property values, see PowerState in Property details.*

Request Example

```
{
    "PowerState": "On"
}
```

6.23.4.2 PowerControl

Description

This action turns the circuit on or off.

Action URI

{Base URI of target resource}/Actions/Circuit.PowerControl

Action parameters

Parameter Name	Type	Attributes	Notes
PowerState	string (enum)	*optional*	The desired power state of the circuit. *For the possible property values, see PowerState in Property details.*

Request Example

```
{
    "PowerState": "Off"
}
```

6.23.4.3 ResetMetrics

Description

This action resets metrics related to this circuit.

Action URI

{Base URI of target resource}/Actions/Circuit.ResetMetrics

Action parameters

This action takes no parameters.

6.23.5 Property details

6.23.5.1 BreakerState

The state of the overcurrent protection device.

string	Description
Normal	The breaker is powered on.
Off	The breaker is off.
Tripped	The breaker has been tripped.

6.23.5.2 CircuitType

The type of circuit.

string	Description
Branch	A branch (output) circuit.
Bus *(v1.3+)*	An electrical bus circuit.
Feeder	A feeder (output) circuit.
Mains	A mains input or utility circuit.
Subfeed	A subfeed (output) circuit.

6.23.5.3 ElectricalContext

The combination of current-carrying conductors.

string	Description
Line1	The circuits that share the L1 current-carrying conductor.
Line1ToLine2	The circuit formed by L1 and L2 current-carrying conductors.
Line1ToNeutral	The circuit formed by L1 and neutral current-carrying conductors.
Line1ToNeutralAndL1L2	The circuit formed by L1, L2, and neutral current-carrying conductors.
Line2	The circuits that share the L2 current-carrying conductor.
Line2ToLine3	The circuit formed by L2 and L3 current-carrying conductors.
Line2ToNeutral	The circuit formed by L2 and neutral current-carrying conductors.
Line2ToNeutralAndL1L2	The circuit formed by L1, L2, and Neutral current-carrying conductors.
Line2ToNeutralAndL2L3	The circuits formed by L2, L3, and neutral current-carrying conductors.
Line3	The circuits that share the L3 current-carrying conductor.
Line3ToLine1	The circuit formed by L3 and L1 current-carrying conductors.
Line3ToNeutral	The circuit formed by L3 and neutral current-carrying conductors.
Line3ToNeutralAndL3L1	The circuit formed by L3, L1, and neutral current-carrying conductors.

string	Description
LineToLine	The circuit formed by two current-carrying conductors.
LineToNeutral	The circuit formed by a line and neutral current-carrying conductor.
Neutral	The grounded current-carrying return circuit of current-carrying conductors.
Total	The circuit formed by all current-carrying conductors.

6.23.5.4 IndicatorLED

The state of the indicator LED, which identifies the circuit.

string	Description
Blinking	The indicator LED is blinking.
Lit	The indicator LED is lit.
Off	The indicator LED is off.

6.23.5.5 NominalVoltage

The nominal voltage for this circuit.

string	Description
AC100To127V *(v1.6+)*	AC 100-127V nominal.
AC100To240V	AC 100-240V nominal.
AC100To277V	AC 100-277V nominal.
AC120V	AC 120V nominal.
AC200To240V	AC 200-240V nominal.
AC200To277V	AC 200-277V nominal.
AC208V	AC 208V nominal.
AC230V	AC 230V nominal.
AC240AndDC380V	AC 200-240V and DC 380V.
AC240V	AC 240V nominal.

string	Description
AC277AndDC380V	AC 200-277V and DC 380V.
AC277V	AC 277V nominal.
AC400V	AC 400V or 415V nominal.
AC480V	AC 480V nominal.
DC12V *(v1.7+)*	DC 12V nominal.
DC16V *(v1.7+)*	DC 16V nominal.
DC1_8V *(v1.7+)*	DC 1.8V nominal.
DC240V	DC 240V nominal.
DC380V	High-voltage DC (380V).
DC3_3V *(v1.7+)*	DC 3.3V nominal.
DC48V *(v1.2+)*	DC 48V nominal.
DC5V *(v1.7+)*	DC 5V nominal.
DC9V *(v1.7+)*	DC 9V nominal.
DCNeg48V	-48V DC.

6.23.5.6 PhaseWiringType

The number of ungrounded current-carrying conductors (phases) and the total number of conductors (wires).

string	Description
OneOrTwoPhase3Wire	Single or two-phase / 3-wire (Line1, Line2 or Neutral, Protective Earth).
OnePhase3Wire	Single-phase / 3-wire (Line1, Neutral, Protective Earth).
ThreePhase4Wire	Three-phase / 4-wire (Line1, Line2, Line3, Protective Earth).
ThreePhase5Wire	Three-phase / 5-wire (Line1, Line2, Line3, Neutral, Protective Earth).
TwoPhase3Wire	Two-phase / 3-wire (Line1, Line2, Protective Earth).
TwoPhase4Wire	Two-phase / 4-wire (Line1, Line2, Neutral, Protective Earth).

6.23.5.7 PlugType

The type of plug according to NEMA, IEC, or regional standards.

string	Description
California_CS8265	California Standard CS8265 (Single-phase 250V; 50A; 2P3W).
California_CS8365	California Standard CS8365 (Three-phase 250V; 50A; 3P4W).
Field_208V_3P4W_60A	Field-wired; Three-phase 200-250V; 60A; 3P4W.
Field_400V_3P5W_32A	Field-wired; Three-phase 200-240/346-415V; 32A; 3P5W.
IEC_60309_316P6	IEC 60309 316P6 (Single-phase 200-250V; 16A; 1P3W; Blue, 6-hour).
IEC_60309_332P6	IEC 60309 332P6 (Single-phase 200-250V; 32A; 1P3W; Blue, 6-hour).
IEC_60309_363P6	IEC 60309 363P6 (Single-phase 200-250V; 63A; 1P3W; Blue, 6-hour).
IEC_60309_460P9	IEC 60309 460P9 (Three-phase 200-250V; 60A; 3P4W; Blue; 9-hour).
IEC_60309_516P6	IEC 60309 516P6 (Three-phase 200-240/346-415V; 16A; 3P5W; Red; 6-hour).
IEC_60309_532P6	IEC 60309 532P6 (Three-phase 200-240/346-415V; 32A; 3P5W; Red; 6-hour).
IEC_60309_560P9	IEC 60309 560P9 (Three-phase 120-144/208-250V; 60A; 3P5W; Blue; 9-hour).
IEC_60309_563P6	IEC 60309 563P6 (Three-phase 200-240/346-415V; 63A; 3P5W; Red; 6-hour).
IEC_60320_C14	IEC C14 (Single-phase 250V; 10A; 1P3W).
IEC_60320_C20	IEC C20 (Single-phase 250V; 16A; 1P3W).
NEMA_5_15P	NEMA 5-15P (Single-phase 125V; 15A; 1P3W).
NEMA_5_20P	NEMA 5-20P (Single-phase 125V; 20A; 1P3W).
NEMA_6_15P	NEMA 6-15P (Single-phase 250V; 15A; 2P3W).
NEMA_6_20P	NEMA 6-20P (Single-phase 250V; 20A; 2P3W).
NEMA_L14_20P	NEMA L14-20P (Split-phase 125/250V; 20A; 2P4W).
NEMA_L14_30P	NEMA L14-30P (Split-phase 125/250V; 30A; 2P4W).
NEMA_L15_20P	NEMA L15-20P (Three-phase 250V; 20A; 3P4W).
NEMA_L15_30P	NEMA L15-30P (Three-phase 250V; 30A; 3P4W).
NEMA_L21_20P	NEMA L21-20P (Three-phase 120/208V; 20A; 3P5W).

string	Description
NEMA_L21_30P	NEMA L21-30P (Three-phase 120/208V; 30A; 3P5W).
NEMA_L22_20P	NEMA L22-20P (Three-phase 277/480V; 20A; 3P5W).
NEMA_L22_30P	NEMA L22-30P (Three-phase 277/480V; 30A; 3P5W).
NEMA_L5_15P	NEMA L5-15P (Single-phase 125V; 15A; 1P3W).
NEMA_L5_20P	NEMA L5-20P (Single-phase 125V; 20A; 1P3W).
NEMA_L5_30P	NEMA L5-30P (Single-phase 125V; 30A; 1P3W).
NEMA_L6_15P	NEMA L6-15P (Single-phase 250V; 15A; 2P3W).
NEMA_L6_20P	NEMA L6-20P (Single-phase 250V; 20A; 2P3W).
NEMA_L6_30P	NEMA L6-30P (Single-phase 250V; 30A; 2P3W).

6.23.5.8 PowerRestorePolicy

The desired power state of the circuit when power is restored after a power loss.

string	Description
AlwaysOff	Always remain powered off when external power is applied.
AlwaysOn	Always power on when external power is applied.
LastState	Return to the last power state (on or off) when external power is applied.

6.23.5.9 PowerState

6.23.5.9.1 In top level:

The power state of the circuit.

string	Description
Off	The resource is powered off. The components within the resource might continue to have AUX power.
On	The resource is powered on.
Paused	The resource is paused.

string	Description
PoweringOff	A temporary state between on and off. The components within the resource can take time to process the power off action.
PoweringOn	A temporary state between off and on. The components within the resource can take time to process the power on action.

6.23.5.9.2 In Actions: BreakerControl, Actions: PowerControl:

The desired power state of the circuit if the breaker is reset successfully.

string	Description
Off	Power off.
On	Power on.
PowerCycle *(v1.5+)*	Power cycle.

6.23.5.10 SensorCurrentExcerpt

The `Sensor` schema describes a sensor and its properties. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.

CrestFactor *(v1.1+)*	number	*read-only (null)*	The crest factor for this sensor.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
THDPercent *(v1.1+)*	number (%)	*read-only (null)*	The total harmonic distortion percent (% THD).

6.23.5.11 SensorEnergykWhExcerpt

The `Sensor` schema describes a sensor and its properties. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.

ApparentkVAh *(v1.5+)*	number (kV.A.h)	*read-only (null)*	Apparent energy (kVAh).
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
LifetimeReading *(v1.1+)*	number	*read-only (null)*	The total accumulation value for this sensor.
ReactivekVARh *(v1.5+)*	number (kV.A.h)	*read-only (null)*	Reactive energy (kVARh).
Reading	number	*read-only (null)*	The sensor value.
SensorResetTime	string (date-time)	*read-only (null)*	The date and time when the time-based properties were last reset.

6.23.5.12 SensorExcerpt

The `Sensor` schema describes a sensor and its properties. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.

DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.

6.23.5.13 SensorPowerExcerpt

The `Sensor` schema describes a sensor and its properties. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.

ApparentVA	number (V.A)	*read-only (null)*	The product of voltage and current for an AC circuit, in volt-ampere units.

DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
PhaseAngleDegrees *(v1.5+)*	number	*read-only (null)*	The phase angle (degrees) between the current and voltage waveforms.
PowerFactor	number	*read-only (null)*	The power factor for this sensor.
ReactiveVAR	number (V.A)	*read-only (null)*	The square root of the difference term of squared apparent VA and squared power (Reading) for a circuit, in VAR units.
Reading	number	*read-only (null)*	The sensor value.

6.23.5.14 SensorVoltageExcerpt

The `Sensor` schema describes a sensor and its properties. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.

CrestFactor *(v1.1+)*	number	*read-only (null)*	The crest factor for this sensor.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
THDPercent *(v1.1+)*	number (%)	*read-only (null)*	The total harmonic distortion percent (% THD).

6.23.5.15 VoltageType

The type of voltage applied to the circuit.

string	Description
AC	Alternating Current (AC) circuit.
DC	Direct Current (DC) circuit.

6.23.6 Example response


```
{
    "@odata.type": "#Circuit.v1_8_1.Circuit",
    "Id": "A",
    "Name": "Branch Circuit A",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "CircuitType": "Branch",
    "PhaseWiringType": "TwoPhase3Wire",
    "NominalVoltage": "AC200To240V",
    "RatedCurrentAmps": 16,
    "BreakerState": "Normal",
    "PolyPhaseVoltage": {
        "Line1ToNeutral": {
            "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/VoltageAL1N",
            "Reading": 118.2
        },
        "Line1ToLine2": {
            "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/VoltageAL1L2",
            "Reading": 203.5
        }
    },
    "CurrentAmps": {
        "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/CurrentA",
        "Reading": 5.19
    },
    "PolyPhaseCurrentAmps": {
        "Line1": {
            "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/CurrentA",
            "Reading": 5.19
        }
    },
    "PowerWatts": {
        "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/PowerA",
        "Reading": 937.4,
        "ApparentVA": 937.4,
        "ReactiveVAR": 0,
        "PowerFactor": 1
    },
```

```
    "PolyPhasePowerWatts": {
        "Line1ToNeutral": {
            "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/PowerA1",
            "Reading": 937.4,
            "PeakReading": 1000.5,
            "ApparentVA": 937.4,
            "ReactiveVAR": 0,
            "PowerFactor": 1
        }
    },
    "FrequencyHz": {
        "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/FrequencyA",
        "Reading": 60
    },
    "EnergykWh": {
        "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/EnergyA",
        "Reading": 325675
    },
    "Links": {
        "Outlets": [
            {
                "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs/1/Outlets/A1"
            },
            {
                "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs/1/Outlets/A2"
            },
            {
                "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs/1/Outlets/A3"
            }
        ]
    },
    "Actions": {
        "#Circuit.BreakerControl": {
            "target": "/redfish/v1/PowerEquipment/RackPDUs/1/Branches/A/Circuit.BreakerControl"
        },
        "#Circuit.ResetMetrics": {
            "target": "/redfish/v1/PowerEquipment/RackPDUs/1/Branches/A/Circuit.ResetMetrics"
        }
    },
    "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs/1/Branches/A"
}
```


6.24 ComponentIntegrity 1.3.1

Version	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2024.3	2022.2	2022.1	2021.4

6.24.1 Description

The `ComponentIntegrity` resource provides critical and pertinent security information about a specific device, system, software element, or other managed entity.

6.24.2 URIs

/redfish/v1/ComponentIntegrity/*{ComponentIntegrityId}*

6.24.3 Properties

Property	Type	Attributes	Notes
ComponentIntegrityEnabled	boolean	*read-write*	An indication of whether security protocols are enabled for the component.
ComponentIntegrityType	string (enum)	*read-only required*	The type of security technology for the component. *For the possible property values, see ComponentIntegrityType in Property details.*
ComponentIntegrityTypeVersion	string	*read-only required*	The version of the security technology.
LastUpdated	string (date-time)	*read-only (null)*	The date and time when information for the component was last updated.
Links {	object		The links to other resources that are related to this resource.
ComponentsProtected [{	array		An array of links to resources that the target component protects.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
}			
SPDM {	object		Integrity information about the SPDM Responder as reported by an SPDM Requester.
ComponentCommunication {	object	*(null)*	Information about communication between the SPDM Requester and SPDM Responder.
Sessions [{	array		The active sessions or communication channels between two components.

Property	Type	Attributes	Notes
SessionId	integer	*read-only (null)*	The identifier for an active session or communication channel between two components.
SessionType	string (enum)	*read-only (null)*	The type of session or communication channel between two components. *For the possible property values, see SessionType in Property details.*
}]			
}			
IdentityAuthentication {	object	*(null)*	Identity authentication information about the SPDM Requester and SPDM Responder.
RequesterAuthentication {	object	*(null)*	Authentication information of the identity of the SPDM Requester.
ProvidedCertificate {	object		A link to the certificate that represents the identity of the SPDM Requester provided in mutual authentication. See the *Certificate* schema for details on this property.
@odata.id	string	*read-only*	Link to a Certificate resource. See the Links section and the *Certificate* schema for details.
}			
}			
ResponderAuthentication {	object	*(null)*	Authentication information of the identity of the SPDM Responder.
ComponentCertificate {	object		A link to the certificate that represents the identity of the component. See the *Certificate* schema for details on this property.
@odata.id	string	*read-only*	Link to a Certificate resource. See the Links section and the *Certificate* schema for details.
}			
VerificationStatus	string (enum)	*read-only (null)*	The status of the verification of the identity of the component. *For the possible property values, see VerificationStatus in Property details.*
}			
}			
MeasurementSet {	object	*(null)*	Measurement information about the SPDM Responder.

Property	Type	Attributes	Notes
Measurements [{	array		Measurements from an SPDM Responder.
LastUpdated	string (date-time)	*read-only (null)*	The date and time when information for the measurement was last updated.
Measurement	string	*read-only (null)*	The measurement data.
MeasurementHashAlgorithm	string	*read-only (null)*	The hash algorithm used to compute the measurement.
MeasurementIndex	integer	*read-only (null)*	The index of the measurement.
MeasurementType	string (enum)	*read-only (null)*	The type or characteristics of the data that this measurement represents. *For the possible property values, see MeasurementType in Property details.*
Oem {}	object		See the Oem object definition in the Common properties section.
PartofSummaryHash	boolean	*read-only (null)*	Indicates whether this measurement is part of the measurement summary.
SecurityVersionNumber *(v1.1+)*	string	*read-only (null)*	The security version number the measurement represents.
}]			
MeasurementSpecification	string (enum)	*read-only (null)*	The measurement specification negotiated between the SPDM Requester and SPDM Responder. *For the possible property values, see MeasurementSpecification in Property details.*
MeasurementSummary	string	*read-only (null)*	The measurement summary data.
MeasurementSummaryHashAlgorithm	string	*read-only (null)*	The hash algorithm used to compute the measurement summary.
MeasurementSummaryType	string (enum)	*read-only (null)*	The type of measurement summary. *For the possible property values, see MeasurementSummaryType in Property details.*
Oem {}	object		See the Oem object definition in the Common properties section.
}			
Requester {	object	*required*	The link to the component that is reporting the integrity information of the target component.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.

Property	Type	Attributes	Notes
}			
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
TargetComponentURI	string (URI)	*read-only required*	The link to the component whose integrity that this resource reports.
TPM {	object		Integrity information about the Trusted Platform Module (TPM).
ComponentCommunication {	object	*(null)*	Information about communication with the TPM.
Sessions [{	array		The active sessions or communication channels between two components.
SessionId	integer	*read-only (null)*	The identifier for an active session or communication channel between two components.
SessionType	string (enum)	*read-only (null)*	The type of session or communication channel between two components. *For the possible property values, see SessionType in Property details.*
}]			
}			
IdentityAuthentication {	object	*(null)*	Identity authentication information about the TPM.
ComponentCertificate {	object		A link to the certificate that represents the identity of the component. See the *Certificate* schema for details on this property.
@odata.id	string	*read-only*	Link to a Certificate resource. See the Links section and the *Certificate* schema for details.
}			
VerificationStatus	string (enum)	*read-only (null)*	The status of the verification of the identity of the component. *For the possible property values, see VerificationStatus in Property details.*
}			
MeasurementSet {	object	*(null)*	Measurement information from the TPM.
Measurements [{	array		Measurements from a TPM.

Property	Type	Attributes	Notes
LastUpdated	string (date-time)	*read-only (null)*	The date and time when information for the measurement was last updated.
Measurement	string	*read-only (null)*	The measurement data.
MeasurementHashAlgorithm	string	*read-only (null)*	The hash algorithm used to compute the measurement.
PCR	integer	*read-only (null)*	The Platform Configuration Register (PCR) bank of the measurement.
}]			
}			
NonceSizeBytesMaximum *(v1.2+)*	integer	*read-only (null)*	The maximum number of bytes that can be specified in the `Nonce` parameter of the `TPMGetSignedMeasurements` action.
}			

6.24.4 Actions

6.24.4.1 SPDMGetSignedMeasurements

Description

This action generates an SPDM cryptographic signed statement over the given nonce and measurements of the SPDM Responder.

Action URI

{Base URI of target resource}/Actions/ComponentIntegrity.SPDMGetSignedMeasurements

Action parameters

Parameter Name	Type	Attributes	Notes
MeasurementIndices [ ]	array (integer)	*optional*	An array of indices that identify the measurement blocks to sign.
Nonce	string	*optional*	A 32-byte hex-encoded string that is signed with the measurements. The value should be unique.

Parameter Name	Type	Attributes	Notes
SlotId	integer	*optional*	The slot identifier for the certificate containing the private key to generate the signature over the measurements.

Response Payload

{			
Certificate {	object		A link to the certificate corresponding to the SPDM slot identifier that can be used to validate the signature. See the *Certificate* schema for details on this property.
@odata.id	string	*read-only*	Link to a Certificate resource. See the Links section and the *Certificate* schema for details.
}			
HashingAlgorithm	string	*read-only required*	The hashing algorithm used for generating the cryptographic signed statement.
Oem {}	object		See the Oem object definition in the Common properties section.
PublicKey	string	*read-only*	A Privacy Enhanced Mail (PEM)-encoded public key that can be used to validate the signature.
SignedMeasurements	string	*read-only required*	Base64-encoded cryptographic signed statement generated by the signer.
SigningAlgorithm	string	*read-only required*	The asymmetric signing algorithm used for generating the cryptographic signed statement.
Version	string	*read-only required*	The SPDM version used by the SPDM Responder to generate the cryptographic signed statement.
}			

Request Example

```
{
    "Nonce": "4f2359ee609824d33d35c2968b6c56b702a692ab0d8a441f25c7d81fbe833a78",
    "SlotId": 0,
    "MeasurementIndices": [
        0,
```

```
        1,
        2
    ]
}
```

Response Example

```
{
    "@odata.type": "#ComponentIntegrity.v1_0_0.SPDMGetSignedMeasurementsResponse",
    "Version": "1.1",
    "HashingAlgorithm": "SHA256",
    "SigningAlgorithm": "TPM_ALG_RSAPSS_3072",
    "SignedMeasurements": "EeAQx8PJWv9CbeGdmlPaARrrMw... TRUNCATED (TYPICALLY KB or MB)",
    "Certificate": {
        "@odata.id": "/redfish/v1/Systems/437XR1138R2/Certificates/SScert"
    }
}
```

6.24.4.2 TPMGetSignedMeasurements *(v1.2+)*

Description

This action generates a TPM cryptographic signed statement over the given nonce and PCRs of the TPM for TPM 2.0 devices.

Action URI

{Base URI of target resource}/Actions/ComponentIntegrity.TPMGetSignedMeasurements

Action parameters

Parameter Name	Type	Attributes	Notes
Certificate {	object	*required*	The URI for the certificate that represents the TPM attestation key. See the *Certificate* schema for details on this property.
@odata.id	string	*read-only*	Link to a Certificate resource. See the Links section and the *Certificate* schema for details.
}			
Nonce	string	*optional*	A set of bytes as a hex-encoded string that is signed with the measurements. The value should be unique.

Parameter Name	Type	Attributes	Notes
PCRSelection	string	*required*	An object that identifies the PCRs to sign.
Scheme	string	*required*	The signing scheme to use for the TPM attestation key.

Response Payload

{			
Oem *(v1.2+)* {}	object		See the Oem object definition in the Common properties section.
SignedMeasurements *(v1.2+)*	string	*read-only required*	The Base64-encoded cryptographic signed statement generated by the signer.
}			

Request Example

```
{
    "Nonce": "4f2359ee609824d33d35c2968b6c56b702a692ab0d8a441f25c7d81fbe833a78",
    "Certificate": {
        "@odata.id": "/redfish/v1/Chassis/1/TrustedComponents/TPM1/Certificates/1"
    },
    "Scheme": "MzI5NDg=",
    "PCRSelection": "MjM3NDA4MjM5ODQ="
}
```

Response Example

```
{
    "SignedMeasurements": "EeAQx8PJWv9CbeGdmlPaARrrMw... TRUNCATED (TYPICALLY KB or MB)"
}
```

6.24.5 Property details

6.24.5.1 ComponentIntegrityType

The type of security technology for the component.

string	Description
OEM	OEM-specific.
SPDM	Security Protocol and Data Model (SPDM) protocol.
TCM *(v1.3+)*	Trusted Cryptography Module (TCM).
TPCM *(v1.3+)*	Trusted Platform Control Module (TPCM).
TPM	Trusted Platform Module (TPM).

6.24.5.2 MeasurementSpecification

The measurement specification negotiated between the SPDM Requester and SPDM Responder.

string	Description
DMTF	DMTF.

6.24.5.3 MeasurementSummaryType

The type of measurement summary.

string	Description
All	The measurement summary covers all measurements in SPDM.
TCB	The measurement summary covers the TCB.

6.24.5.4 MeasurementType

The type or characteristics of the data that this measurement represents.

string	Description
FirmwareConfiguration	Firmware configuration, such as configurable firmware policy.
HardwareConfiguration	Hardware configuration, such as straps.
ImmutableROM	Immutable ROM.
MeasurementManifest	Measurement Manifest.

string	Description
MutableFirmware	Mutable firmware or any mutable code.
MutableFirmwareSecurityVersionNumber	Mutable firmware security version number.
MutableFirmwareVersion	Mutable firmware version.

6.24.5.5 SessionType

The type of session or communication channel between two components.

string	Description
AuthenticatedOnly	An established session where only authentication is protecting the communication.
EncryptedAuthenticated	An established session where both encryption and authentication are protecting the communication.
Plain	A plain text session without any protection.

6.24.5.6 VerificationStatus

The status of the verification of the identity of the component.

string	Description
Failed	Unsuccessful verification.
Success	Successful verification.

6.24.6 Example response


```
{
    "@odata.type": "#ComponentIntegrity.v1_3_1.ComponentIntegrity",
    "Id": "TPM-0",
    "Description": "TPM physically attached to a GPU.",
    "Status": {
        "Health": "OK",
        "State": "Enabled"
    },
    "ComponentIntegrityType": "TPM",
    "ComponentIntegrityTypeVersion": "1.2.0",
    "ComponentIntegrityEnabled": true,
```

```
    "LastUpdated": "2021-11-02T14:09:54-07:00",
    "TargetComponentURI": "/redfish/v1/Systems/437XR1138R2#/TrustedModules/0",
    "Links": {
        "ComponentsProtected": [
            {
                "@odata.id": "/redfish/v1/Systems/437XR1138R2/GraphicsControllers/GPU1"
            }
        ]
    },
    "TPM": {
        "MeasurementSet": {
            "Measurements": [
                {
                    "PCR": 1,
                    "Measurement": "h6spEuxbyOtGhP35UoGhTcVX3iRaZQGDw4Yk5oQcabw=",
                    "LastUpdated": "2021-10-31T20:14:27-07:00",
                    "MeasurementHashAlgorithm": "TPM_ALG_SHA256"
                },
                {
                    "PCR": 3,
                    "Measurement": "GnbzS4ToNQb+Y7SxXw4AvRDTf4SzO5eeAlAlDca28AA=",
                    "LastUpdated": "2021-10-31T20:14:27-07:00",
                    "MeasurementHashAlgorithm": "TPM_ALG_SHA256"
                },
                {
                    "PCR": 1,
                    "Measurement":
         "pLJa5Dyh8CDYFZ1WNOrsiSG1eyCPBlre42CD7CTywg7VkcC4afw4ZG3gQxi2XEFCt5jxz6tN1/cbx/DNx2/tOg==",
                    "LastUpdated": "2021-10-31T20:14:27-07:00",
                    "MeasurementHashAlgorithm": "TPM_ALG_SHA512"
                },
                {
                    "PCR": 3,
                    "Measurement":
         "GBgEucATV8omirTmYqY+vvbbisHR1jBKfVAEK1XSifBHnnIYXopsc0NExURDSSyPjO21NrPqnwiq5LhI1p6rzQ==",
                    "LastUpdated": "2021-10-31T20:14:27-07:00",
                    "MeasurementHashAlgorithm": "TPM_ALG_SHA512"
                }
            ]
        },
        "IdentityAuthentication": {
            "VerificationStatus": "Success",
            "ComponentCertificate": {
                "@odata.id": "/redfish/v1/Systems/437XR1138R2/Certificates/TPMcert"
            }
        },
        "ComponentCommunication": {
            "Sessions": [
                {
                    "SessionId": 4556,
                    "SessionType": "Plain"
```

```
                }
            ]
        }
    },
    "@odata.id": "/redfish/v1/ComponentIntegrity/TPM-0"
}
```


6.25 CompositionReservation 1.0.2

Version	*v1.0*
Release	2021.1

6.25.1 Description

The `CompositionReservation` schema contains reservation information related to the `Compose` action defined in the `CompositionService` resource when the `RequestType` parameter contains the value `PreviewReserve`.

6.25.2 URIs

/redfish/v1/CompositionService/CompositionReservations/*{CompositionReservationId}*

6.25.3 Properties

Property	Type	Attributes	Notes
Client	string	*read-only*	The client that owns the reservation.
Manifest {	object		The manifest document processed by the service that resulted in this reservation.
Description	string	*read-write (null)*	The description of this manifest.
Expand	string (enum)	*read-write (null)*	The expansion control for references in manifest responses, similar to the `$expand=.` query parameter. *For the possible property values, see Expand in Property details.*
Stanzas [{	array		An array of stanzas that describe the requests specified by this manifest.
OEMStanzaType	string	*read-write (null)*	The OEM-defined type of stanza.

Property	Type	Attributes	Notes
Request {}	object	*(null)*	The request details for the stanza.
Response {}	object	*(null)*	The response details for the stanza.
StanzaId	string	*read-write (null)*	The identifier of the stanza. This is a unique identifier specified by the client and is not used by the service.
StanzaType	string (enum)	*read-write (null)*	The type of stanza. *For the possible property values, see StanzaType in Property details.*
}]			
Timestamp	string (date-time)	*read-write (null)*	The date and time when the manifest was created.
}			
ReservationTime	string (date-time)	*read-only*	The date and time the service created the reservation.
ReservedResourceBlocks [{	array		The array of links to the reserved resource blocks.
@odata.id	string	*read-only*	Link to a ResourceBlock resource. See the Links section and the *ResourceBlock* schema for details.
}]			

6.25.4 Property details

6.25.4.1 Expand

The expansion control for references in manifest responses, similar to the `$expand=.` query parameter.

string	Description
All	Expand all subordinate references.
None	Do not expand any references.
Relevant	Expand relevant subordinate references. Relevant references are those that are tied to a constrained composition request, such as a request for a quantity of processors.

6.25.4.2 StanzaType

The type of stanza.

string	Description
ComposeResource	A stanza that describes the desired end state for a composed resource block. The resources consumed by the composed resource block are moved to the active pool.
ComposeSystem	A stanza that describes the desired end state for computer system composition operation. The resources consumed by the composed computer system are moved to the active pool.
DecomposeResource	A stanza that references a composed resource block to decompose and return resources to the free pool.
DecomposeSystem	A stanza that references a computer system to decompose and return resources to the free pool.
OEM	A stanza that describes an OEM-specific request.
RegisterResourceBlock *(v1.1+)*	A stanza that references a resource, such as a computer system, in order to create a resource block that references the resource and add it to the free pool.

6.25.5 Example response


```
{
    "@odata.type": "#CompositionReservation.v1_0_2.CompositionReservation",
    "Id": "1",
    "Name": "Composition Reservation 1",
    "ReservationTime": "2019-08-22T10:35:16+06:00",
    "Client": "VCF1001",
    "ReservedResourceBlocks": [
        {
            "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/BladeServer-2"
        }
    ],
    "Manifest": {
        "Description": "Description for this Manifest document.",
        "Timestamp": "2019-08-22T10:35:16+06:00",
        "Expand": "None",
        "Stanzas": [
            {
                "StanzaType": "ComposeSystem",
                "StanzaId": "Compute1",
                "Request": {
                    "Links": {
                        "ResourceBlocks": [
                            {
```

```
                            "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/
        BladeServer-2"
                        }
                    ]
                }
            }
        }
    ]
  },
  "@odata.id": "/redfish/v1/CompositionService/CompositionReservations/1"
}
```


6.26 CompositionService 1.2.3

Version	*v1.2*	*v1.1*	*v1.0*
Release	2021.1	2018.2	2017.1

6.26.1 Description

The `CompositionService` schema describes a composition service and its properties and links to the resources available for composition.

6.26.2 URIs

/redfish/v1/CompositionService

6.26.3 Properties

Property	Type	Attributes	Notes
ActivePool *(v1.2+)* {	object		The link to the collection of resource blocks within the active pool. Resource blocks in the active pool are contributing to at least one composed resource as a result of a composition request. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *ResourceBlock*. See the ResourceBlock schema for details.
}			
AllowOverprovisioning *(v1.1+)*	boolean	*read-write (null)*	An indication of whether this service is allowed to overprovision a composition relative to the composition request.

Property	Type	Attributes	Notes
AllowZoneAffinity *(v1.1+)*	boolean	*read-only (null)*	An indication of whether a client can request that a specific resource zone fulfill a composition request.
CompositionReservations *(v1.2+)* {	object		The link to the collection of reservations with the composition reservation collection. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *CompositionReservation*. See the CompositionReservation schema for details.
}			
FreePool *(v1.2+)* {	object		The link to the collection of resource blocks within the free pool. Resource blocks in the free pool are not contributing to any composed resources. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *ResourceBlock*. See the ResourceBlock schema for details.
}			
ReservationDuration *(v1.2+)*	string (duration)	*read-write (null)*	The length of time a composition reservation is held before the service deletes the reservation and marks any related resource blocks as no longer reserved.
ResourceBlocks {	object		The resource blocks available on the service. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *ResourceBlock*. See the ResourceBlock schema for details.
}			
ResourceZones {	object		The resource zones available on the service. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Zone*. See the Zone schema for details.
}			
ServiceEnabled	boolean	*read-write (null)*	An indication of whether this service is enabled.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.26.4 Actions

6.26.4.1 Compose *(v1.2+)*

Description

This action performs a set of operations specified by a manifest.

Action URI

{Base URI of target resource}/Actions/CompositionService.Compose

Action parameters

Parameter Name	Type	Attributes	Notes
Manifest {	object	*optional*	The manifest containing the compose operation request.
Description	string	*read-write (null)*	The description of this manifest.
Expand	string (enum)	*read-write (null)*	The expansion control for references in manifest responses, similar to the `$expand=.` query parameter. *For the possible property values, see Expand in Property details.*
Stanzas [{	array		An array of stanzas that describe the requests specified by this manifest.
OEMStanzaType	string	*read-write (null)*	The OEM-defined type of stanza.
Request {}	object	*(null)*	The request details for the stanza.
Response {}	object	*(null)*	The response details for the stanza.
StanzaId	string	*read-write (null)*	The identifier of the stanza. This is a unique identifier specified by the client and is not used by the service.
StanzaType	string (enum)	*read-write (null)*	The type of stanza. *For the possible property values, see StanzaType in Property details.*
}]			
Timestamp	string (date-time)	*read-write (null)*	The date and time when the manifest was created.
}			
RequestFormat	string (enum)	*required*	The format of the request. *For the possible property values, see RequestFormat in Property details.*
RequestType	string (enum)	*required*	The type of request. *For the possible property values, see RequestType in Property details.*
ReservationId	string	*optional*	The identifier of the composition reservation if applying a reservation. The value for this parameter is obtained from the response of a `Compose` action where the RequestType parameter contains the value `PreviewReserve`.

Response Payload

{			
Manifest *(v1.2+)* {	object		The manifest containing the compose operation response.
Description	string	*read-write (null)*	The description of this manifest.
Expand	string (enum)	*read-write (null)*	The expansion control for references in manifest responses, similar to the `$expand=.` query parameter. *For the possible property values, see Expand in Property details.*
Stanzas [{	array		An array of stanzas that describe the requests specified by this manifest.
OEMStanzaType	string	*read-write (null)*	The OEM-defined type of stanza.
Request {}	object	*(null)*	The request details for the stanza.
Response {}	object	*(null)*	The response details for the stanza.
StanzaId	string	*read-write (null)*	The identifier of the stanza. This is a unique identifier specified by the client and is not used by the service.
StanzaType	string (enum)	*read-write (null)*	The type of stanza. *For the possible property values, see StanzaType in Property details.*
}]			
Timestamp	string (date-time)	*read-write (null)*	The date and time when the manifest was created.
}			
RequestFormat *(v1.2+)*	string (enum)	*read-only required*	The format of the request. *For the possible property values, see RequestFormat in Property details.*
RequestType *(v1.2+)*	string (enum)	*read-only required*	The type of request. *For the possible property values, see RequestType in Property details.*
ReservationId *(v1.2+)*	string	*read-only*	The identifier of the composition reservation that was created.
}			

Request Example

```
{
    "RequestFormat": "Manifest",
    "RequestType": "Apply",
    "Manifest": {
        "Description": "Specific composition example",
        "Timestamp": "2019-08-22T10:35:16+06:00",
        "Expand": "None",
        "Stanzas": [
            {
                "StanzaType": "ComposeSystem",
                "StanzaId": "Compute1",
                "Request": {
                    "Links": {
                        "ResourceBlocks": [
                            {
                                "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/
     BladeServer-1"
                            },
                            {
                                "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/NVMe-
     TargetsAppliance-1"
                            },
                            {
                                "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/NetworkCard1"
                            }
                        ]
                    }
                }
            }
        ]
    }
}
```

Response Example

```
{
    "RequestFormat": "Manifest",
    "RequestType": "Apply",
    "Manifest": {
        "Description": "Specific composition example",
        "Timestamp": "2019-08-22T10:35:16+06:00",
        "Expand": "None",
        "Stanzas": [
            {
                "StanzaType": "ComposeSystem",
                "StanzaId": "Compute1",
                "Request": {
```

```
            "Links": {
                "ResourceBlocks": [
                    {
                        "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/
BladeServer-1"
                    },
                    {
                        "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/NVMe-
TargetsAppliance-1"
                    },
                    {
                        "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/NetworkCard1"
                    }
                ]
            }
        },
        "Response": {
            "@odata.id": "/redfish/v1/Systems/ComposedCompute1",
            "@odata.type": "#ComputerSystem.v1_14_0.ComputerSystem",
            "Id": "ComposedCompute1",
            "Name": "Computer system composed from Compute1",
            "Processors": {
                "@odata.id": "/redfish/v1/Systems/ComposedCompute1/Processors"
            },
            "Memory": {
                "@odata.id": "/redfish/v1/Systems/ComposedCompute1/Memory"
            },
            "NetworkInterfaces": {
                "@odata.id": "/redfish/v1/Systems/ComposedCompute1/NetworkInterfaces"
            },
            "Storage": {
                "@odata.id": "/redfish/v1/Systems/ComposedCompute1/Storage"
            },
            "Links": {
                "ResourceBlocks": [
                    {
                        "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/
BladeServer-1"
                    },
                    {
                        "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/NVMe-
TargetsAppliance-1"
                    },
                    {
                        "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/NetworkCard1"
                    }
                ]
            }
        }
    }
]
```

```
    }
}
```

6.26.5 Property details

6.26.5.1 Expand

The expansion control for references in manifest responses, similar to the `$expand=.` query parameter.

string	Description
All	Expand all subordinate references.
None	Do not expand any references.
Relevant	Expand relevant subordinate references. Relevant references are those that are tied to a constrained composition request, such as a request for a quantity of processors.

6.26.5.2 RequestFormat

The format of the request.

string	Description
Manifest	The request body contains a manifest.

6.26.5.3 RequestType

The type of request.

string	Description
Apply	Perform the requested operations specified by the manifest and modify resources as needed.
Preview	Preview the outcome of the operations specified by the manifest.
PreviewReserve	Preview the outcome of the operations specified by the manifest and reserve resources.

6.26.5.4 StanzaType

The type of stanza.

string	Description
ComposeResource	A stanza that describes the desired end state for a composed resource block. The resources consumed by the composed resource block are moved to the active pool.
ComposeSystem	A stanza that describes the desired end state for computer system composition operation. The resources consumed by the composed computer system are moved to the active pool.
DecomposeResource	A stanza that references a composed resource block to decompose and return resources to the free pool.
DecomposeSystem	A stanza that references a computer system to decompose and return resources to the free pool.
OEM	A stanza that describes an OEM-specific request.
RegisterResourceBlock *(v1.1+)*	A stanza that references a resource, such as a computer system, in order to create a resource block that references the resource and add it to the free pool.

6.26.6 Example response


```
{
    "@odata.type": "#CompositionService.v1_2_3.CompositionService",
    "Id": "CompositionService",
    "Name": "Composition Service",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "ServiceEnabled": true,
    "AllowOverprovisioning": true,
    "AllowZoneAffinity": true,
    "ResourceBlocks": {
        "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks"
    },
    "ResourceZones": {
        "@odata.id": "/redfish/v1/CompositionService/ResourceZones"
    },
    "@odata.id": "/redfish/v1/CompositionService"
}
```

6.27 ComputerSystem 1.25.0

Version	*v1.25*	*v1.24*	*v1.23*	*v1.22*	*v1.21*	*v1.20*	*v1.19*	*v1.18*	*v1.17*	*v1.16*	*v1.15*	...
Release	2025.2	2025.1	2024.3	2023.3	2023.2	2022.3	2022.2	2022.1	2021.4	2021.2	2021.1	...

6.27.1 Description

The `ComputerSystem` schema represents a computer or system instance and the software-visible resources, or items within the data plane, such as memory, CPU, and other devices that it can access. Details of those resources or subsystems are also linked through this resource.

6.27.2 URIs

/redfish/v1/Systems/*{ComputerSystemId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.27.3 Properties

Property	Type	Attributes	Notes
AssetTag	string	*read-write (null)*	The user-definable tag that can track this computer system for inventory or other client purposes.
Bios *(v1.1+)* {	object		The link to the BIOS settings associated with this system. See the *Bios* schema for details on this property.
@odata.id	string	*read-only*	Link to a Bios resource. See the Links section and the *Bios* schema for details.
}			
BiosVersion	string	*read-only (null)*	The version of the system BIOS or primary system firmware.
Boot {	object		The boot settings for this system.
AliasBootOrder *(v1.6+)* [ ]	array (string (enum))	*read-write (null)*	Ordered array of boot source aliases representing the persistent boot order associated with this computer system. *For the possible property values, see AliasBootOrder in Property details.*
AutomaticRetryAttempts *(v1.11+)*	integer	*read-write (null)*	The number of attempts the system will automatically retry booting.

Property	Type	Attributes	Notes
AutomaticRetryConfig *(v1.11+)*	string (enum)	*read-write (null)*	The configuration of how the system retries booting automatically. *For the possible property values, see AutomaticRetryConfig in Property details.*
BootNext *(v1.5+)*	string	*read-write (null)*	The `BootOptionReference` of the Boot Option to perform a one-time boot from when `BootSourceOverrideTarget` is `UefiBootNext`.
BootOptions *(v1.5+)* {	object		The link to the collection of the UEFI boot options associated with this computer system. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *BootOption*. See the BootOption schema for details.
}			
BootOrder *(v1.5+)* [ ]	array (string, null)	*read-write*	An array of `BootOptionReference` strings that represent the persistent boot order for with this computer system. Changes to the boot order typically require a system reset before they take effect. It is likely that a client finds the `@Redfish.Settings` term in this resource, and if it is found, the client makes requests to change boot order settings by modifying the resource identified by the `@Redfish.Settings` term.
BootOrderPropertySelection *(v1.6+)*	string (enum)	*read-write (null)*	The name of the boot order property that the system uses for the persistent boot order. *For the possible property values, see BootOrderPropertySelection in Property details.*
BootSourceOverrideEnabled	string (enum)	*read-write (null)*	The state of the boot source override feature. *For the possible property values, see BootSourceOverrideEnabled in Property details.*
BootSourceOverrideMode *(v1.1+)*	string (enum)	*read-write (null)*	The BIOS boot mode to use when the system boots from the `BootSourceOverrideTarget` boot source. *For the possible property values, see BootSourceOverrideMode in Property details.*
BootSourceOverrideTarget	string (enum)	*read-write (null)*	The current boot source to use at the next boot instead of the normal boot device, if `BootSourceOverrideEnabled` does not contain `Disabled`. *For the possible property values, see BootSourceOverrideTarget in Property details.*
Certificates *(v1.7+)* {	object		The link to a collection of certificates used for booting through HTTPS by this computer system. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
HttpBootUri *(v1.9+)*	string (URI)	*read-write (null)*	The URI to boot from when `BootSourceOverrideTarget` is set to `UefiHttp`.
RemainingAutomaticRetryAttempts *(v1.11+)*	integer	*read-only (null)*	The number of remaining automatic retry boots.

Property	Type	Attributes	Notes
StopBootOnFault *(v1.15+)*	string (enum)	*read-write (null)*	If the boot should stop on a fault. *For the possible property values, see StopBootOnFault in Property details.*
TrustedModuleRequiredToBoot *(v1.14+)*	string (enum)	*read-write (null)*	The Trusted Module boot requirement. *For the possible property values, see TrustedModuleRequiredToBoot in Property details.*
UefiTargetBootSourceOverride	string	*read-write (null)*	The UEFI device path of the device from which to boot when `BootSourceOverrideTarget` is `UefiTarget`.
}			
BootProgress *(v1.13+)* {	object	*(null)*	This object describes the last boot progress state.
LastBootTimeSeconds *(v1.18+)*	number	*read-only (null)*	The number of seconds the system spent booting to the operating system during the last boot.
LastState *(v1.13+)*	string (enum)	*read-only (null)*	The last boot progress state. *For the possible property values, see LastState in Property details.*
LastStateTime *(v1.13+)*	string (date-time)	*read-only (null)*	The date and time when the last boot state was updated.
Oem *(v1.13+)* {}	object		See the Oem object definition in the Common properties section.
OemLastState *(v1.13+)*	string	*read-only (null)*	The OEM-specific last state, if the LastState type is `OEM`.
}			
Certificates *(v1.14+)* {	object		The link to a collection of certificates for device identity and attestation. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
Composition *(v1.18+)* {	object	*(null)*	Information about the composition capabilities and state of the computer system.
UseCases *(v1.18+)* [ ]	array (string (enum))	*read-only (null)*	The composition use cases in which this computer system can participate. *For the possible property values, see UseCases in Property details.*
}			
EthernetInterfaces {	object		The link to the collection of Ethernet interfaces associated with this system. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *EthernetInterface*. See the EthernetInterface schema for details.

Property	Type	Attributes	Notes
}			
FabricAdapters *(v1.10+)* {	object		The link to the collection of fabric adapters associated with this system. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *FabricAdapter*. See the FabricAdapter schema for details.
}			
GraphicalConsole *(v1.13+)* {	object		The information about the graphical console (KVM-IP) service of this system.
ConnectTypesSupported *(v1.13+)* [ ]	array (string (enum))	*read-only*	This property enumerates the graphical console connection types that the implementation allows. *For the possible property values, see ConnectTypesSupported in Property details.*
MaxConcurrentSessions *(v1.13+)*	integer	*read-only*	The maximum number of service sessions, regardless of protocol, that this system can support.
Port *(v1.13+)*	integer	*read-write (null)*	The protocol port.
ServiceEnabled *(v1.13+)*	boolean	*read-write*	An indication of whether the service is enabled for this system.
}			
GraphicsControllers *(v1.15+)* {	object		The link to a collection of graphics controllers that can output video for this system. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *GraphicsController*. See the GraphicsController schema for details.
}			
HostedServices *(v1.2+)* {	object		The services that this computer system supports.
Oem *(v1.2+)* {}	object		See the Oem object definition in the Common properties section.
StorageServices *(v1.2+)* {	object		The link to a collection of storage services that this computer system supports.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}			
}			

Property	Type	Attributes	Notes
HostingRoles *(v1.2+)* [ ]	array (string (enum))	*read-only*	The hosting roles that this computer system supports. *For the possible property values, see HostingRoles in Property details.*
HostName	string	*read-write (null)*	The DNS host name, without any domain information.
HostWatchdogTimer *(v1.5+)* {	object		The host watchdog timer functionality for this system.
FunctionEnabled *(v1.5+)*	boolean	*read-write required (null)*	An indication of whether a user has enabled the host watchdog timer functionality. This property indicates only that a user has enabled the timer. To activate the timer, installation of additional host-based software is necessary; an update to this property does not initiate the timer.
Oem *(v1.5+)* {}	object		See the Oem object definition in the Common properties section.
Status *(v1.5+)* {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
TimeoutAction *(v1.5+)*	string (enum)	*read-write required (null)*	The action to perform when the watchdog timer reaches its timeout value. *For the possible property values, see TimeoutAction in Property details.*
WarningAction *(v1.5+)*	string (enum)	*read-write (null)*	The action to perform when the watchdog timer is close to reaching its timeout value. This action typically occurs from three to ten seconds before to the timeout value, but the exact timing is dependent on the implementation. *For the possible property values, see WarningAction in Property details.*
}			
IdlePowerSaver *(v1.16+)* {	object	*(null)*	The idle power saver settings of the computer system.
Enabled *(v1.16+)*	boolean	*read-write*	An indication of whether idle power saver is enabled.
EnterDwellTimeSeconds *(v1.16+)*	integer (seconds)	*read-write (null)*	The duration in seconds the computer system is below the `EnterUtilizationPercent` value before the idle power save is activated.
EnterUtilizationPercent *(v1.16+)*	number (%)	*read-write (null)*	The percentage of utilization when the computer system enters idle power save. If the computer system's utilization goes below this value, it enters idle power save.
ExitDwellTimeSeconds *(v1.16+)*	integer (seconds)	*read-write (null)*	The duration in seconds the computer system is above the `ExitUtilizationPercent` value before the idle power save is stopped.
ExitUtilizationPercent *(v1.16+)*	number (%)	*read-write (null)*	The percentage of utilization when the computer system exits idle power save. If the computer system's utilization goes above this value, it exits idle power save.

Property	Type	Attributes	Notes
}			
IndicatorLED *(deprecated v1.13)*	string (enum)	*read-write (null)*	The state of the indicator LED, which identifies the system. *For the possible property values, see IndicatorLED in Property details. Deprecated in v1.13 and later. This property has been deprecated in favor of the* `LocationIndicatorActive` *property.*
IPMIHostInterface *(v1.25+)* {	object		The information about the in-band IPMI service of this system.
ServiceEnabled *(v1.25+)*	boolean	*read-write*	An indication of whether the service is enabled for this system.
}			
KeyManagement *(v1.16+)* {	object	*(null)*	The key management settings of the computer system.
KMIPCertificates *(v1.16+)* {	object		The link to a collection of server certificates for the servers referenced by the `KMIPServers` property. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
KMIPServers *(v1.16+)* [{	array		The KMIP servers to which this computer system is subscribed.
Address *(v1.16+)*	string	*read-write (null)*	The KMIP server address.
CacheDuration *(v1.20+)*	string (duration)	*read-write (null)*	The duration the system caches KMIP data.
CachePolicy *(v1.20+)*	string (enum)	*read-write (null)*	The cache policy to control how KMIP data is cached. *For the possible property values, see CachePolicy in Property details.*
Password *(v1.16+)*	string	*read-write (null)*	The password to access the KMIP server. The value is `null` in responses.
Port *(v1.16+)*	integer	*read-write (null)*	The KMIP server port.
Username *(v1.16+)*	string	*read-write (null)*	The username to access the KMIP server.
}]			
}			
LastResetCause *(v1.23+)*	string (enum)	*read-only*	The last reset cause of the system. *For the possible property values, see LastResetCause in Property details.*

Property	Type	Attributes	Notes
LastResetTime *(v1.12+)*	string (date-time)	*read-only*	The date and time when the system was last reset or rebooted.
Links {	object		The links to other resources that are related to this resource.
Chassis [{	array		An array of links to the chassis that contains this system.
@odata.id	string	*read-only*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}]			
ConsumingComputerSystems *(v1.5+)* [{	array		An array of links to computer systems that are realized, in whole or in part, from this computer system.
@odata.id	string	*read-only*	Link to another ComputerSystem resource.
}]			
CooledBy [{	array		An array of links to resources or objects that cool this computer system. Normally, the link is for either a chassis or a specific set of fans.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
Endpoints *(v1.2+)* [{	array		An array of links to the endpoints that connect to this system.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
HostingComputerSystem *(v1.21+)* {	object	*(null)*	The link to the system that is hosting this virtual machine.
@odata.id	string	*read-only*	Link to another ComputerSystem resource.
}			
ManagedBy [{	array		An array of links to the managers responsible for this system.
@odata.id	string	*read-only*	Link to a Manager resource. See the Links section and the *Manager* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.

Property	Type	Attributes	Notes
OffloadedNetworkDeviceFunctions *(v1.17+)* [{	array		The network device functions to which this system performs offload computation, such as with a SmartNIC.
@odata.id	string	*read-only*	Link to a NetworkDeviceFunction resource. See the Links section and the *NetworkDeviceFunction* schema for details.
}]			
PoweredBy [{	array		An array of links to resources or objects that power this computer system. Normally, the link is for either a chassis or a specific set of power supplies.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
ResourceBlocks *(v1.4+)* [{	array		An array of links to the resource blocks that are used in this computer system.
@odata.id	string	*read-write*	Link to a ResourceBlock resource. See the Links section and the *ResourceBlock* schema for details.
}]			
SupplyingComputerSystems *(v1.5+)* [{	array		An array of links to computer systems that contribute, in whole or in part, to the implementation of this computer system.
@odata.id	string	*read-only*	Link to another ComputerSystem resource.
}]			
TrustedComponents *(v1.19+)* [{	array		An array of links to the trusted components for this system.
@odata.id	string	*read-only*	Link to a TrustedComponent resource. See the Links section and the *TrustedComponent* schema for details.
}]			
VirtualMachines *(v1.21+)* [{	array		An array of links to the virtual machines this system is hosting.
@odata.id	string	*read-only*	Link to another ComputerSystem resource.
}]			
}			
LocationIndicatorActive *(v1.13+)*	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.

Property	Type	Attributes	Notes
LogServices {	object		The link to the collection of log services associated with this system. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *LogService*. See the LogService schema for details.
}			
Manufacturer	string	*read-only (null)*	The manufacturer or OEM of this system.
ManufacturingMode *(v1.18+)*	boolean	*read-only (null)*	An indication of whether the system is in manufacturing mode. Manufacturing mode is a special boot mode, not normally available to end users, that modifies features and settings for use while the system is being manufactured and tested.
Measurements *(v1.14+, deprecated v1.17)* [{	array		An array of DSP0274-defined measurement blocks. *Deprecated in v1.17 and later. This property has been deprecated in favor of the* `ComponentIntegrity` *resource.*
@odata.id	string	*read-only*	Link to a MeasurementBlock resource. See the Links section and the *SoftwareInventory* schema for details.
}]			
Memory *(v1.1+)* {	object		The link to the collection of memory associated with this system. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Memory*. See the Memory schema for details.
}			
MemoryDomains *(v1.2+)* {	object		The link to the collection of memory domains associated with this system. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *MemoryDomain*. See the MemoryDomain schema for details.
}			
MemorySummary {	object		The central memory of the system in general detail.
MemoryMirroring *(v1.1+)*	string (enum)	*read-only (null)*	The ability and type of memory mirroring that this computer system supports. *For the possible property values, see MemoryMirroring in Property details.*
Metrics *(v1.8+)* {	object		The link to the metrics associated with all memory in this system. See the *MemoryMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a MemoryMetrics resource. See the Links section and the *MemoryMetrics* schema for details.

Property	Type	Attributes	Notes
}			
Status *(deprecated v1.16)* {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status. *Deprecated in v1.16 and later. This property has been deprecated in favor of the* `Conditions` *property within* `Status` *in the root of this resource.*
TotalSystemMemoryGiB	number (GiBy)	*read-only (null)*	The total configured operating system-accessible memory (RAM), measured in GiB.
TotalSystemPersistentMemoryGiB *(v1.4+)*	number (GiBy)	*read-only (null)*	The total configured, system-accessible persistent memory, measured in GiB.
}			
Model	string	*read-only (null)*	The product name for this system, without the manufacturer name.
NetworkInterfaces *(v1.3+)* {	object		The link to the collection of Network Interfaces associated with this system. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *NetworkInterface*. See the NetworkInterface schema for details.
}			
OperatingSystem *(v1.21+)* {	object		The link to the operating system information associated with this system. See the *OperatingSystem* schema for details on this property.
@odata.id	string	*read-only*	Link to a OperatingSystem resource. See the Links section and the *OperatingSystem* schema for details.
}			
PartNumber	string	*read-only (null)*	The part number for this system.
PCIeDevices *(v1.2+)* [{	array		The link to a collection of PCIe devices that this computer system uses.
@odata.id	string	*read-only*	Link to a PCIeDevice resource. See the Links section and the *PCIeDevice* schema for details.
}]			
PCIeFunctions *(v1.2+)* [{	array		The link to a collection of PCIe functions that this computer system uses.
@odata.id	string	*read-only*	Link to a PCIeFunction resource. See the Links section and the *PCIeFunction* schema for details.
}]			

Property	Type	Attributes	Notes
PowerCycleDelaySeconds *(v1.13+)*	number	*read-write (null)*	The number of seconds to delay power on after a `Reset` action requesting `PowerCycle` or `FullPowerCycle`. Zero seconds indicates no delay.
PowerMode *(v1.15+)*	string (enum)	*read-write (null)*	The power mode setting of the computer system. *For the possible property values, see PowerMode in Property details.*
PowerOffDelaySeconds *(v1.13+)*	number	*read-write (null)*	The number of seconds to delay power off during a reset. Zero seconds indicates no delay to power off.
PowerOnDelaySeconds *(v1.13+)*	number	*read-write (null)*	The number of seconds to delay power on after an externally performed power cycle or during a reset. Zero seconds indicates no delay to power up.
PowerRestorePolicy *(v1.6+)*	string (enum)	*read-write*	The desired power state of the system when power is restored after a power loss. *For the possible property values, see PowerRestorePolicy in Property details.*
PowerState	string (enum)	*read-only (null)*	The current power state of the system. *For the possible property values, see PowerState in Property details.*
Processors {	object		The link to the collection of processors associated with this system. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Processor*. See the Processor schema for details.
}			
ProcessorSummary {	object		The central processors of the system in general detail.
CoreCount *(v1.14+)*	integer	*read-only (null)*	The number of processor cores in the system.
Count	integer	*read-only (null)*	The number of physical processors in the system.
LogicalProcessorCount *(v1.5+)*	integer	*read-only (null)*	The number of logical processors in the system.
Metrics *(v1.7+)* {	object		The link to the metrics associated with all processors in this system. See the *ProcessorMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a ProcessorMetrics resource. See the Links section and the *ProcessorMetrics* schema for details.
}			
Model	string	*read-only (null)*	The processor model for the primary or majority of processors in this system.

Property	Type	Attributes	Notes
Status *(deprecated v1.16)* {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status. *Deprecated in v1.16 and later. This property has been deprecated in favor of the* `Conditions` *property within* `Status` *in the root of this resource.*
ThreadingEnabled *(v1.15+)*	boolean	*read-write*	An indication of whether threading is enabled on all processors in this system.
}			
Redundancy *(v1.5+)* [{ }]	array (object)		The link to a collection of redundancy entities. Each entity specifies a kind and level of redundancy and a collection, or redundancy set, of other computer systems that provide the specified redundancy to this computer system. For property details, see Redundancy.
SecureBoot *(v1.1+)* {	object		The link to the UEFI Secure Boot associated with this system. See the *SecureBoot* schema for details on this property.
@odata.id	string	*read-only*	Link to a SecureBoot resource. See the Links section and the *SecureBoot* schema for details.
}			
SerialConsole *(v1.13+)* {	object		The serial console services that this system provides.
IPMI *(v1.13+)* {}	object		The connection details for an IPMI Serial-over-LAN service. For more information about this property, see SerialConsoleProtocol in Property Details.
MaxConcurrentSessions *(v1.13+)*	integer	*read-only*	The maximum number of service sessions, regardless of protocol, that this system can support.
SSH *(v1.13+)* {}	object		The connection details for an SSH serial console service. For more information about this property, see SerialConsoleProtocol in Property Details.
Telnet *(v1.13+)* {}	object		The connection details for a Telnet serial console service. For more information about this property, see SerialConsoleProtocol in Property Details.
}			
SerialNumber	string	*read-only* *(null)*	The serial number for this system.
SimpleStorage {	object		The link to the collection of storage devices associated with this system. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *SimpleStorage*. See the SimpleStorage schema for details.

Property	Type	Attributes	Notes
}			
SKU	string	*read-only (null)*	The manufacturer SKU for this system.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
Storage *(v1.1+)* {	object		The link to the collection of storage devices associated with this system. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Storage*. See the Storage schema for details.
}			
SubModel *(v1.5+)*	string	*read-only (null)*	The sub-model for this system.
SystemType	string (enum)	*read-only*	The type of computer system that this resource represents. *For the possible property values, see SystemType in Property details.*
TrustedModules *(v1.1+, deprecated v1.19)* [{	array		An array of trusted modules in the system. *Deprecated in v1.19 and later. This property has been deprecated in favor of the* `TrustedComponents` *property in* `Links`.
FirmwareVersion *(v1.1+)*	string	*read-only (null)*	The firmware version of this Trusted Module.
FirmwareVersion2 *(v1.3+)*	string	*read-only (null)*	The second firmware version of this Trusted Module, if applicable.
InterfaceType *(v1.1+)*	string (enum)	*read-only (null)*	The interface type of the Trusted Module. *For the possible property values, see InterfaceType in Property details.*
InterfaceTypeSelection *(v1.3+)*	string (enum)	*read-only (null)*	The interface type selection supported by this Trusted Module. *For the possible property values, see InterfaceTypeSelection in Property details.*
Oem *(v1.1+)* {}	object		See the Oem object definition in the Common properties section.
Status *(v1.1+)* {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
}]			
USBControllers *(v1.15+)* {	object		The link to a collection of USB controllers for this system. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *USBController*. See the USBController schema for details.

Property	Type	Attributes	Notes
}			
UUID	string (uuid)	*read-only (null)*	The UUID for this system. *For more information about this property, see Property details.*
VirtualMedia *(v1.13+)* {	object		The link to the virtual media services for this system. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *VirtualMedia*. See the VirtualMedia schema for details.
}			
VirtualMediaConfig *(v1.13+)* {	object		The information about the virtual media service of this system.
Port *(v1.13+)*	integer	*read-write (null)*	The protocol port.
ServiceEnabled *(v1.13+)*	boolean	*read-write*	An indication of whether the service is enabled for this system.
}			

6.27.4 Actions

6.27.4.1 AddResourceBlock *(v1.6+)*

Description

This action adds a resource block to a system.

Action URI

{Base URI of target resource}/Actions/ComputerSystem.AddResourceBlock

Action parameters

Parameter Name	Type	Attributes	Notes
ComputerSystemETag	string	*optional*	The current ETag of the system.
ResourceBlock {	object	*required*	The resource block to add to the system. See the *ResourceBlock* schema for details on this property.
@odata.id	string	*read-only*	Link to a ResourceBlock resource. See the Links section and the *ResourceBlock* schema for details.

Parameter Name	Type	Attributes	Notes
}			
ResourceBlockETag	string	*optional*	The current ETag of the resource block to add to the system.

Request Example

```
{
    "ResourceBlock": {
        "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/Offload-GPU1"
    },
    "ResourceBlockETag": "W/\"19472363938\"",
    "ComputerSystemETag": "W/\"99374369273\""
}
```

6.27.4.2 Decommission *(v1.21+)*

Description

This action decommissions a system.

Action URI

{Base URI of target resource}/Actions/ComputerSystem.Decommission

Action parameters

Parameter Name	Type	Attributes	Notes
ComputerSystemETag	string	*optional*	The current ETag of the system.
DecommissionTypes [ ]	array (string (enum))	*read-write*	The types of data to remove from the system. *For the possible property values, see DecommissionTypes in Property details.*
OEMDecommissionTypes [ ]	array (string)	*optional*	The OEM-specific types of data to remove from the system.
RequireSecureErase	boolean	*optional*	Ensure secure erasure of all devices and fail the request if not possible.

Request Example

```
{
```

```
    "DecommissionTypes": [
        "All"
    ],
    "RequireSecureErase": false
}
```

6.27.4.3 RemoveResourceBlock *(v1.6+)*

Description

This action removes a resource block from a system.

Action URI

{Base URI of target resource}/Actions/ComputerSystem.RemoveResourceBlock

Action parameters

Parameter Name	Type	Attributes	Notes
ComputerSystemETag	string	*optional*	The current ETag of the system.
ResourceBlock {	object	*required*	The resource block to remove from the system. See the *ResourceBlock* schema for details on this property.
@odata.id	string	*read-only*	Link to a ResourceBlock resource. See the Links section and the *ResourceBlock* schema for details.
}			
ResourceBlockETag	string	*optional*	The current ETag of the resource block to remove from the system.

Request Example

```
{
    "ResourceBlock": {
        "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/Offload-GPU1"
    },
    "ResourceBlockETag": "W/\"19472363938\"",
    "ComputerSystemETag": "W/\"99374369273\""
}
```

6.27.4.4 Reset

Description

This action resets the system.

Action URI

{Base URI of target resource}/Actions/ComputerSystem.Reset

Action parameters

Parameter Name	Type	Attributes	Notes
ResetType	string (enum)	*optional*	The type of reset. *For the possible property values, see ResetType in Property details.*

Request Example

```
{
    "ResetType": "ForceRestart"
}
```

6.27.4.5 SetDefaultBootOrder *(v1.5+)*

Description

This action sets the `BootOrder` property to the default settings.

Action URI

{Base URI of target resource}/Actions/ComputerSystem.SetDefaultBootOrder

Action parameters

This action takes no parameters.

6.27.5 Property details

6.27.5.1 AliasBootOrder

Ordered array of boot source aliases representing the persistent boot order associated with this computer system.

string	Description
BiosSetup	Boot to the BIOS setup utility.
Cd	Boot from the CD or DVD.
Diags	Boot to the manufacturer's diagnostics program.
Floppy	Boot from the floppy disk drive.
Hdd	Boot from a hard drive.
None	Boot from the normal boot device.
Pxe	Boot from the Pre-boot eXecution Environment (PXE).
Recovery	Boot to a system-designated recovery process or image.
RemoteDrive	Boot from a remote drive, such as an iSCSI target.
SDCard	Boot from an SD card.
UefiBootNext	Boot to the UEFI device that the `BootNext` property specifies.
UefiHttp	Boot from a UEFI HTTP network location.
UefiShell	Boot to the UEFI Shell.
UefiTarget	Boot to the UEFI device specified in the `UefiTargetBootSourceOverride` property.
Usb	Boot from a system BIOS-specified USB device.
Utilities	Boot to the manufacturer's utilities program or programs.

6.27.5.2 AutomaticRetryConfig

The configuration of how the system retries booting automatically.

string	Description
Disabled	Disable automatic retrying of booting.

string	Description
RetryAlways	Always automatically retry booting.
RetryAttempts	Automatic retrying of booting is based on a specified retry count.

6.27.5.3 BootOrderPropertySelection

The name of the boot order property that the system uses for the persistent boot order.

string	Description
AliasBootOrder	The system uses the `AliasBootOrder` property to specify the persistent boot order.
BootOrder	The system uses the `BootOrder` property to specify the persistent boot order.

6.27.5.4 BootSourceOverrideEnabled

The state of the boot source override feature.

string	Description
Continuous	The system boots to the target specified in the `BootSourceOverrideTarget` property until this property is `Disabled`.
Disabled	The system boots normally.
Once	On its next boot cycle, the system boots one time to the boot source override target. Then, the `BootSourceOverrideEnabled` value is reset to `Disabled`.

6.27.5.5 BootSourceOverrideMode

The BIOS boot mode to use when the system boots from the `BootSourceOverrideTarget` boot source.

string	Description
Legacy	The system boots in non-UEFI boot mode to the boot source override target.
UEFI	The system boots in UEFI boot mode to the boot source override target.

6.27.5.6 BootSourceOverrideTarget

The current boot source to use at the next boot instead of the normal boot device, if `BootSourceOverrideEnabled` does not contain `Disabled`.

string	Description
BiosSetup	Boot to the BIOS setup utility.
Cd	Boot from the CD or DVD.
Diags	Boot to the manufacturer's diagnostics program.
Floppy	Boot from the floppy disk drive.
Hdd	Boot from a hard drive.
None	Boot from the normal boot device.
Pxe	Boot from the Pre-boot eXecution Environment (PXE).
Recovery *(v1.19+)*	Boot to a system-designated recovery process or image.
RemoteDrive *(v1.2+)*	Boot from a remote drive, such as an iSCSI target.
SDCard *(v1.1+)*	Boot from an SD card.
UefiBootNext *(v1.5+)*	Boot to the UEFI device that the `BootNext` property specifies.
UefiHttp *(v1.1+)*	Boot from a UEFI HTTP network location.
UefiShell	Boot to the UEFI Shell.
UefiTarget	Boot to the UEFI device specified in the `UefiTargetBootSourceOverride` property.
Usb	Boot from a system BIOS-specified USB device.
Utilities	Boot to the manufacturer's utilities program or programs.

6.27.5.7 CachePolicy

The cache policy to control how KMIP data is cached.

string	Description
AfterFirstUse	The system caches KMIP data after first use for the duration specified by the `CacheDuration` property.
None	The system does not cache KMIP data.

6.27.5.8 ConnectTypesSupported

This property enumerates the graphical console connection types that the implementation allows.

string	Description
KVMIP	The controller supports a graphical console connection through a KVM-IP (redirection of Keyboard, Video, Mouse over IP) protocol.
OEM	The controller supports a graphical console connection through an OEM-specific protocol.

6.27.5.9 DecommissionTypes

The types of data to remove from the system.

string	Description
All	Remove all possible data from the server.
BIOSConfig	Reset all BIOS settings to factory defaults.
Logs	Clear all logs.
ManagerConfig	Reset all manager settings to factory defaults.
NetworkConfig	Reset all network settings to factory defaults.
StorageConfig	Reset all storage controller settings to factory defaults. This will leave the user data intact unless that is also specified.
TPM	Reset all user-accessible TPM settings to factory defaults.
UserData	Remove all possible data from block devices and other user or operating system accessible storage attached to the system.

6.27.5.10 HostingRoles

The hosting roles that this computer system supports.

string	Description
Appliance	The system hosts functionality that supports the system acting as an appliance.
ApplicationServer	The system hosts functionality that supports general purpose applications.

string	Description
BareMetalServer	The system hosts functionality that supports the system acting as a bare-metal server.
ContainerServer	The system hosts functionality that supports the system acting as a container server.
StorageServer	The system hosts functionality that supports the system acting as a storage server.
Switch	The system hosts functionality that supports the system acting as a switch.
VirtualMachineServer	The system hosts functionality that supports the system acting as a virtual machine server.

6.27.5.11 IndicatorLED

The state of the indicator LED, which identifies the system.

string	Description
Blinking	The indicator LED is blinking.
Lit	The indicator LED is lit.
Off	The indicator LED is off.
Unknown *(deprecated v1.1)*	The state of the indicator LED cannot be determined. *Deprecated in v1.1 and later. This value has been deprecated in favor of returning* `null` *if the state is unknown.*

6.27.5.12 InterfaceType

The interface type of the Trusted Module.

string	Description
TCM1_0	Trusted Cryptography Module (TCM) 1.0.
TPM1_2	Trusted Platform Module (TPM) 1.2.
TPM2_0	Trusted Platform Module (TPM) 2.0.

6.27.5.13 InterfaceTypeSelection

The interface type selection supported by this Trusted Module.

string	Description
BiosSetting	The TrustedModule supports switching InterfaceType through platform software, such as a BIOS configuration attribute.
FirmwareUpdate	The TrustedModule supports switching InterfaceType through a firmware update.
None	The TrustedModule does not support switching the InterfaceType.
OemMethod	The TrustedModule supports switching InterfaceType through an OEM proprietary mechanism.

6.27.5.14 LastResetCause

The last reset cause of the system.

string	Description
ManagementCommand	System start or restart via an external command to the management controller or BMC.
OSSoftRestart	System start or restart via an OS soft restart.
PowerButtonPress	System start or restart via a power button press.
PowerEvent	System start or restart caused by a power event triggering a system shutdown.
PowerRestorePolicy	System start or restart due to the power restore policy.
RTCWakeup	System power-up via an RTC (system real time clock) wakeup.
SystemCrash	System start or restart caused by a system crash.
ThermalEvent	System start or restart caused by a thermal event triggering a system shutdown.
Unknown	System start or restart detected, but the cause is unknown.
WatchdogExpiration	System start or restart caused by a watchdog expiration.

6.27.5.15 LastState

The last boot progress state.

string	Description
BusInitializationStarted	The system has started initializing the buses.
MemoryInitializationStarted	The system has started initializing the memory.

string	Description
None	The system is not booting.
OEM	A boot progress state in an OEM-defined format.
OSBootStarted	The operating system has started booting.
OSRunning	The operating system is running.
PCIResourceConfigStarted	The system has started initializing the PCI resources.
PrimaryProcessorInitializationStarted	The system has started initializing the primary processor.
SecondaryProcessorInitializationStarted	The system has started initializing the remaining processors.
SetupEntered *(v1.15+)*	The system has entered the setup utility.
SystemHardwareInitializationComplete	The system has completed initializing all hardware.

6.27.5.16 MemoryMirroring

The ability and type of memory mirroring that this computer system supports.

string	Description
DIMM	The system supports DIMM mirroring at the DIMM level. Individual DIMMs can be mirrored.
Hybrid	The system supports a hybrid mirroring at the system and DIMM levels. Individual DIMMs can be mirrored.
None	The system does not support DIMM mirroring.
System	The system supports DIMM mirroring at the system level. Individual DIMMs are not paired for mirroring in this mode.

6.27.5.17 PowerMode

The power mode setting of the computer system.

string	Description
BalancedPerformance	The system performs at the highest speeds while utilization is high and performs at reduced speeds when the utilization is low.
EfficiencyFavorPerformance *(v1.22+)*	The system performs at reduced speeds at all utilizations to save power while attempting to maintain performance. This mode differs from `EfficiencyFavorPower` in that more performance is retained but less power is saved.

string	Description
EfficiencyFavorPower *(v1.22+)*	The system performs at reduced speeds at all utilizations to save power at the cost of performance. This mode differs from `PowerSaving` in that more performance is retained and less power is saved. This mode differs from `EfficiencyFavorPerformance` in that less performance is retained but more power is saved.
MaximumPerformance	The system performs at the highest speeds possible.
OEM	The system power mode is OEM-defined.
OSControlled	The system power mode is controlled by the operating system.
PowerSaving	The system performs at reduced speeds to save power.
Static	The system power mode is static.

6.27.5.18 PowerRestorePolicy

The desired power state of the system when power is restored after a power loss.

string	Description
AlwaysOff	The system always remains powered off when power is applied.
AlwaysOn	The system always powers on when power is applied.
LastState	The system returns to its last on or off power state when power is applied.

6.27.5.19 PowerState

The current power state of the system.

string	Description
Off	The resource is powered off. The components within the resource might continue to have AUX power.
On	The resource is powered on.
Paused	The resource is paused.
PoweringOff	A temporary state between on and off. The components within the resource can take time to process the power off action.
PoweringOn	A temporary state between off and on. The components within the resource can take time to process the power on action.

6.27.5.20 ResetType

The type of reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the unit.
FullPowerCycle	Full power cycle the unit. Behaves like removing utility lines, followed by restoring utility lines to the resource.
GracefulRestart	Shut down gracefully and restart the unit.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
Pause	Pause execution on the unit but do not remove power. This is typically a feature of virtual machine hypervisors.
PowerCycle	Power cycle the unit. Behaves like a power removal, followed by a power restore to the resource.
PushPowerButton	Simulate the pressing of the physical power button on this unit.
Resume	Resume execution on the paused unit. This is typically a feature of virtual machine hypervisors.
Suspend	Write the state of the unit to disk before powering off. This allows for the state to be restored when powered back on.

6.27.5.21 SerialConsoleProtocol

The information about a serial console service that this system provides.

ConsoleEntryCommand *(v1.13+)*	string	*read-only (null)*	The command string passed to the service to select or enter the system's serial console.
HotKeySequenceDisplay *(v1.13+)*	string	*read-only (null)*	The hotkey sequence available for the user to exit the serial console session.

Port *(v1.13+)*	integer	*read-write (null)*	The protocol port.
ServiceEnabled *(v1.13+)*	boolean	*read-write*	An indication of whether the service is enabled for this system.
SharedWithManagerCLI *(v1.13+)*	boolean	*read-only*	Indicates whether the serial console service is shared with access to the manager's command-line interface (CLI).

6.27.5.22 StopBootOnFault

If the boot should stop on a fault.

string	Description
AnyFault	The system should stop the boot on any fault.
Never	The system performs any normal recovery actions during boot if a fault occurs.

6.27.5.23 SystemType

The type of computer system that this resource represents.

string	Description
Composed *(v1.4+)*	A computer system constructed by binding resource blocks together.
DPU *(v1.16+)*	A computer system that performs the functions of a data processing unit, such as a SmartNIC.
OS *(deprecated v1.21)*	An operating system instance. *Deprecated in v1.21 and later. This value has been deprecated in favor of representing operating systems with the* `OperatingSystem` *resource.*
Physical	A computer system.
PhysicallyPartitioned	A hardware-based partition of a computer system.
Virtual	A virtual machine instance running on this system.
VirtuallyPartitioned	A virtual or software-based partition of a computer system.

6.27.5.24 TimeoutAction

The action to perform when the watchdog timer reaches its timeout value.

string	Description
None	No action taken.
OEM	Perform an OEM-defined action.
PowerCycle	Power cycle the system.
PowerDown	Power down the system.
ResetSystem	Reset the system.

6.27.5.25 TrustedModuleRequiredToBoot

The Trusted Module boot requirement.

string	Description
Disabled	No Trusted Module requirement to boot.
Required	A functional Trusted Module is required to boot.

6.27.5.26 UseCases

The composition use cases in which this computer system can participate.

string	Description
ExpandableSystem	This computer system supports expandable system composition and is associated with a resource block.
ResourceBlockCapable	This computer system supports being registered as a resource block in order for it to participate in composition requests.

6.27.5.27 UUID

The UUID for this system.

The UUID property contains a value that represents the universal unique identifier number (UUID) of a system.

The UUID property is a string data type. The format of the string is the 36-character string format specified in RFC4122: "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx". Each x represents a hexadecimal digit (0-f).

Regarding the case of the hex values, RFC4122 specifies that the hex values should be lowercase characters. Most

modern scripting languages typically also represent hex values in lowercase characters following the RFC. However, dmidecode, WMI and some Redfish implementations currently use uppercase characters for UUID on output.

6.27.5.28 WarningAction

The action to perform when the watchdog timer is close to reaching its timeout value. This action typically occurs from three to ten seconds before to the timeout value, but the exact timing is dependent on the implementation.

string	Description
DiagnosticInterrupt	Raise a (typically non-maskable) Diagnostic Interrupt.
MessagingInterrupt	Raise a legacy IPMI messaging interrupt.
None	No action taken.
OEM	Perform an OEM-defined action.
SCI	Raise an interrupt using the ACPI System Control Interrupt (SCI).
SMI	Raise a Systems Management Interrupt (SMI).

6.27.6 Example response


```
{
    "@odata.type": "#ComputerSystem.v1_25_0.ComputerSystem",
    "Id": "437XR1138R2",
    "Name": "WebFrontEnd483",
    "SystemType": "Physical",
    "AssetTag": "Chicago-45Z-2381",
    "Manufacturer": "Contoso",
    "Model": "3500RX",
    "SKU": "8675309",
    "SerialNumber": "437XR1138R2",
    "PartNumber": "224071-J23",
    "Description": "Web Front End node",
    "UUID": "38947555-7742-3448-3784-823347823834",
    "HostName": "web483",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollup": "OK"
    },
    "HostingRoles": [
        "ApplicationServer"
    ],
    "LocationIndicatorActive": false,
```

```
    "PowerState": "On",
    "Boot": {
        "BootSourceOverrideEnabled": "Once",
        "BootSourceOverrideTarget": "Pxe",
        "BootSourceOverrideTarget@Redfish.AllowableValues": [
            "None",
            "Pxe",
            "Cd",
            "Usb",
            "Hdd",
            "BiosSetup",
            "Utilities",
            "Diags",
            "SDCard",
            "UefiTarget"
        ],
        "BootSourceOverrideMode": "UEFI",
        "UefiTargetBootSourceOverride": "/0x31/0x33/0x01/0x01"
    },
    "TrustedModules": [
        {
            "FirmwareVersion": "1.13b",
            "InterfaceType": "TPM1_2",
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            }
        }
    ],
    "Oem": {
        "Contoso": {
            "@odata.type": "#Contoso.ComputerSystem",
            "ProductionLocation": {
                "FacilityName": "PacWest Production Facility",
                "Country": "USA"
            }
        },
        "Chipwise": {
            "@odata.type": "#Chipwise.ComputerSystem",
            "Style": "Executive"
        }
    },
    "BiosVersion": "P79 v1.33 (02/28/2015)",
    "ProcessorSummary": {
        "Count": 2,
        "Model": "Multi-Core Intel(R) Xeon(R) processor 7xxx Series"
    },
    "MemorySummary": {
        "TotalSystemMemoryGiB": 96,
        "TotalSystemPersistentMemoryGiB": 0,
```

```
        "MemoryMirroring": "None"
    },
    "Bios": {
        "@odata.id": "/redfish/v1/Systems/437XR1138R2/BIOS"
    },
    "Processors": {
        "@odata.id": "/redfish/v1/Systems/437XR1138R2/Processors"
    },
    "Memory": {
        "@odata.id": "/redfish/v1/Systems/437XR1138R2/Memory"
    },
    "EthernetInterfaces": {
        "@odata.id": "/redfish/v1/Systems/437XR1138R2/EthernetInterfaces"
    },
    "SimpleStorage": {
        "@odata.id": "/redfish/v1/Systems/437XR1138R2/SimpleStorage"
    },
    "LogServices": {
        "@odata.id": "/redfish/v1/Systems/437XR1138R2/LogServices"
    },
    "Links": {
        "Chassis": [
            {
                "@odata.id": "/redfish/v1/Chassis/1U"
            }
        ],
        "ManagedBy": [
            {
                "@odata.id": "/redfish/v1/Managers/BMC"
            }
        ]
    },
    "Actions": {
        "#ComputerSystem.Reset": {
            "target": "/redfish/v1/Systems/437XR1138R2/Actions/ComputerSystem.Reset",
            "ResetType@Redfish.AllowableValues": [
                "On",
                "ForceOff",
                "GracefulShutdown",
                "GracefulRestart",
                "ForceRestart",
                "Nmi",
                "ForceOn",
                "PushPowerButton"
            ]
        },
        "Oem": {
            "#Contoso.Reset": {
                "target": "/redfish/v1/Systems/437XR1138R2/Oem/Contoso/Actions/Contoso.Reset"
            }
```

```
        }
    },
    "@odata.id": "/redfish/v1/Systems/437XR1138R2"
}
```

6.28 Connection 1.4.0

Version	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2024.4	2023.2	2023.1	2021.1	2020.3

6.28.1 Description

The `Connection` schema describes the access permissions that endpoints, or groups of endpoints, have with other resources in the service.

6.28.2 URIs

/redfish/v1/Fabrics/*{FabricId}*/Connections/*{ConnectionId}*

6.28.3 Properties

Property	Type	Attributes	Notes
ConnectionKeys *(v1.1+)* {	object		The permission keys required to access the specified resources for this connection.
CHAP *(v1.2+)* {	object	*(null)*	The CHAP-specific permission key information for this connection.
CHAPPassword *(v1.2+)*	string	*read-write (null)*	The password for CHAP authentication. The value is `null` in responses.
CHAPUsername *(v1.2+)*	string	*read-write (null)*	The username for CHAP authentication.
InitiatorCHAPPassword *(v1.2+)*	string	*read-write (null)*	The initiator shared secret for mutual (2-way) CHAP authentication. The value is `null` in responses.
InitiatorCHAPUsername *(v1.2+)*	string	*read-write (null)*	The initiator username for mutual (2-way) CHAP authentication.

Property	Type	Attributes	Notes
TargetCHAPPassword *(v1.2+)*	string	*read-write (null)*	The target shared secret for mutual (2-way) CHAP authentication. The value is `null` in responses.
}			
DHCHAP *(v1.2+)* {	object	*(null)*	The DHCHAP-specific permission key information for this connection.
LocalDHCHAPAuthSecret *(v1.2+)*	string	*read-write (null)*	The local DHCHAP authentication secret. The value is `null` in responses.
PeerDHCHAPAuthSecret *(v1.2+)*	string	*read-write (null)*	The peer DHCHAP authentication secret. The value is `null` in responses.
}			
GenZ *(v1.1+)* {	object	*(null)*	The Gen-Z-specific permission key information for this connection.
AccessKey *(v1.1+)*	string	*read-write*	The Access Key for this connection.
RKeyDomainCheckingEnabled *(v1.1+)*	boolean	*read-write*	Indicates whether Region Key domain checking is enabled for this connection.
RKeyReadOnlyKey *(v1.1+)*	string	*read-write*	The read-only Region Key for this connection.
RKeyReadWriteKey *(v1.1+)*	string	*read-write*	The read-write Region Key for this connection.
}			
}			
ConnectionType	string (enum)	*read-only (null)*	The type of resources this connection specifies. *For the possible property values, see ConnectionType in Property details.*
Links {	object		The links to other resources that are related to this resource.
InitiatorEndpointGroups [{	array		An array of links to the initiator endpoint groups that are associated with this connection.
@odata.id	string	*read-write*	Link to a EndpointGroup resource. See the Links section and the *EndpointGroup* schema for details.
}]			
InitiatorEndpoints [{	array		An array of links to the initiator endpoints that are associated with this connection.
@odata.id	string	*read-write*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.

Property	Type	Attributes	Notes
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
TargetEndpointGroups [{	array		An array of links to the target endpoint groups that are associated with this connection.
@odata.id	string	*read-write*	Link to a EndpointGroup resource. See the Links section and the *EndpointGroup* schema for details.
}]			
TargetEndpoints [{	array		An array of links to the target endpoints that are associated with this connection.
@odata.id	string	*read-write*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
}			
MemoryChunkInfo *(v1.1+)* [{	array		The set of memory chunks and access capabilities specified for this connection.
AccessCapabilities *(v1.1+)* [ ]	array (string (enum))	*read-write (null)*	Supported I/O access capabilities. *For the possible property values, see AccessCapabilities in Property details.*
AccessState *(v1.1+)*	string (enum)	*read-write (null)*	The access state for this connection. *For the possible property values, see AccessState in Property details.*
MemoryChunk *(v1.1+)* {	object	*(null)*	The specified memory chunk. See the *MemoryChunks* schema for details on this property.
@odata.id	string	*read-write*	Link to a MemoryChunks resource. See the Links section and the *MemoryChunks* schema for details.
}			
}]			
MemoryRegionInfo *(v1.3+)* [{	array		The set of memory regions and access capabilities specified for this connection.
AccessCapabilities *(v1.3+)* [ ]	array (string (enum))	*read-write (null)*	Supported I/O access capabilities. *For the possible property values, see AccessCapabilities in Property details.*
AccessState *(v1.3+)*	string (enum)	*read-write (null)*	The access state for this connection. *For the possible property values, see AccessState in Property details.*

Property	Type	Attributes	Notes
MemoryRegion *(v1.3+)* {	object	*(null)*	The specified memory region. See the *MemoryRegion* schema for details on this property.
@odata.id	string	*read-write*	Link to a MemoryRegion resource. See the Links section and the *MemoryRegion* schema for details.
}			
}]			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
VolumeInfo [{	array		The set of volumes and access capabilities specified for this connection.
AccessCapabilities [ ]	array (string (enum))	*read-write (null)*	Supported I/O access capabilities. *For the possible property values, see AccessCapabilities in Property details.*
AccessState	string (enum)	*read-write (null)*	The access state for this connection. *For the possible property values, see AccessState in Property details.*
LUN *(v1.2+)*	integer	*read-write (null)*	The initiator-visible logical unit number (LUN) assigned to this volume.
Volume {	object		The specified volume.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}			
}]			

6.28.4 Actions

6.28.4.1 AddVolumeInfo *(v1.4+)*

Description

This action adds a volume to the connection. Volumes are added to the `VolumeInfo` property.

Action URI

{Base URI of target resource}/Actions/Connection.AddVolumeInfo

Action parameters

Parameter Name	Type	Attributes	Notes
AccessCapabilities [ ]	array (string (enum))	*read-write*	The supported I/O access capabilities to assign to the volume. Clients are required to provide either `LUN`, `AccessCapabilities`, or both. *For the possible property values, see AccessCapabilities in Property details.*
LUN	integer	*optional*	The initiator-visible logical unit number (LUN) to assign to the volume. Clients are required to provide either `LUN`, `AccessCapabilities`, or both.
Volume {	object	*required*	The volume to add.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}			

Request Example

```
{
    "Volume": {
        "@odata.id": "/redfish/v1/Storage/NVMeoF/Volumes/1"
    },
    "LUN": 1
}
```

6.28.4.2 RemoveVolumeInfo *(v1.4+)*

Description

This action removes a volume from the connection. Volumes are removed from the `VolumeInfo` property.

Action URI

{Base URI of target resource}/Actions/Connection.RemoveVolumeInfo

Action parameters

Parameter Name	Type	Attributes	Notes
LUN	integer	*optional*	The initiator-visible logical unit number (LUN) assigned to the volume to remove.
Volume {	object	*required*	The volume to remove.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.

Parameter Name	Type	Attributes	Notes
}			

Request Example

```
{
    "Volume": {
        "@odata.id": "/redfish/v1/Storage/NVMeoF/Volumes/1"
    }
}
```

6.28.5 Property details

6.28.5.1 AccessCapabilities

The supported I/O access capabilities to assign to the volume. Clients are required to provide either `LUN`, `AccessCapabilities`, or both.

string	Description
Read	Endpoints are allowed to perform reads from the specified resource.
Write	Endpoints are allowed to perform writes to the specified resource.

6.28.5.2 AccessState

The access state for this connection.

string	Description
NonOptimized	The resource is in an active and non-optimized state.
Optimized	The resource is in an active and optimized state.
Standby	The resource is in a standby state.
Transitioning	The resource is transitioning to a new state.
Unavailable	The resource is in an unavailable state.

6.28.5.3 ConnectionType

The type of resources this connection specifies.

string	Description
Memory	A connection to memory-related resources.
Storage	A connection to storage-related resources, such as volumes.

6.28.6 Example response

```
{
    "@odata.type": "#Connection.v1_4_0.Connection",
    "Id": "1",
    "Name": "Connection info for host 1",
    "ConnectionType": "Storage",
    "VolumeInfo": [
        {
            "AccessCapabilities": [
                "Read",
                "Write"
            ],
            "Volume": {
                "@odata.id": "/redfish/v1/Storage/NVMeoF/Volumes/1"
            }
        },
        {
            "AccessCapabilities": [
                "Read",
                "Write"
            ],
            "Volume": {
                "@odata.id": "/redfish/v1/Storage/NVMeoF/Volumes/3"
            }
        }
    ],
    "Links": {
        "InitiatorEndpoints": [
            {
                "@odata.id": "/redfish/v1/Fabrics/NVMeoF/Endpoints/Initiator1"
            }
        ]
    },
    "@odata.id": "/redfish/v1/Fabrics/NVMeoF/Connections/1"
}
```

6.29 ConnectionMethod 1.2.0

Version	*v1.2*	*v1.1*	*v1.0*
Release	2025.2	2022.3	2020.2

6.29.1 Description

The `ConnectionMethod` schema describes the protocol, provider, or other method used to communicate to a given access point for a Redfish aggregation service.

6.29.2 URIs

/redfish/v1/AggregationService/ConnectionMethods/*{ConnectionMethodId}*

6.29.3 Properties

Property	Type	Attributes	Notes
ConnectionMethodType	string (enum)	*read-only (null)*	The type of connection method. *For the possible property values, see ConnectionMethodType in Property details.*
ConnectionMethodVariant	string	*read-only (null)*	The variant of connection method.
Links {	object		The links to other resources that are related to this resource.
AggregationSources [{	array		An array of links to the access points using this connection method.
@odata.id	string	*read-only*	Link to a AggregationSource resource. See the Links section and the *AggregationSource* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
SerialInterface *(v1.2+)* {	object		The link to the serial interface for this connection method. See the *SerialInterface* schema for details on this property.
@odata.id	string	*read-only*	Link to a SerialInterface resource. See the Links section and the *SerialInterface* schema for details.
}			

Property	Type	Attributes	Notes
}			
TunnelingProtocol *(v1.1+)*	string (enum)	*read-only (null)*	The tunneling protocol used for this connection method. *For the possible property values, see TunnelingProtocol in Property details.*

6.29.4 Property details

6.29.4.1 ConnectionMethodType

The type of connection method.

string	Description
IPMI15	IPMI 1.5 connection method.
IPMI20	IPMI 2.0 connection method.
ModbusSerial *(v1.2+)*	Modbus serial connection method.
ModbusTCP *(v1.2+)*	Modbus TCP connection method.
NETCONF	NETCONF connection method.
OEM	OEM connection method.
Redfish	Redfish connection method.
SNMP	SNMP connection method.

6.29.4.2 TunnelingProtocol

The tunneling protocol used for this connection method.

string	Description
OEM	OEM tunneling.
SSH	SSH tunneling.

6.29.5 Example response


```
{
    "@odata.type": "#ConnectionMethod.v1_2_0.ConnectionMethod",
    "Id": "ConnectionMethod1",
    "Name": "ConnectionMethod One",
    "ConnectionMethodType": "Redfish",
    "ConnectionMethodVariant": "Contoso",
    "Links": {
        "AggregationSources": [
            {
                "@odata.id": "/redfish/v1/AggregationService/AggregationSources/AggregationSource1"
            }
        ]
    },
    "@odata.id": "/redfish/v1/AggregationService/ConnectionMethods/ConnectionMethod1"
}
```


6.30 Container 1.0.1

Version	*v1.0*
Release	2023.2

6.30.1 Description

The `Container` schema represents an instance of a container that is running on a computer system.

6.30.2 URIs

/redfish/v1/Systems/*{ComputerSystemId}*/OperatingSystem/Containers/*{ContainerId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.30.3 Properties

Property	Type	Attributes	Notes
EthernetInterfaces {	object		The link to the collection of Ethernet interfaces associated with this container. Contains a link to a resource.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to Collection of *EthernetInterface*. See the EthernetInterface schema for details.
}			
Limits {	object		The resource limits allocated to this container.
CPUCount	number	*read-only* *(null)*	The number of processors available to this container.
MemoryBytes	integer (bytes)	*read-only* *(null)*	The amount of memory available to this container in bytes.
}			
Links {	object		The links to other resources that are related to this resource.
ContainerImage {	object		The link to the container image for this container. See the *ContainerImage* schema for details on this property.
@odata.id	string	*read-only*	Link to a ContainerImage resource. See the Links section and the *ContainerImage* schema for details.
}			
Oem {}	object		See the Oem object definition in the Common properties section.
}			
MountPoints [{	array		The file system mount points configured for this container.
Destination	string	*read-only* *(null)*	The file system path in the container that is provided as the mount point to access the files and folders contained in the source path.
Source	string	*read-only* *(null)*	The file system path from the hosting system that is provided to this container.
}]			
ProgrammaticId	string	*read-only* *(null)*	The programmatic identifier for this container.
StartTime	string (date-time)	*read-only* *(null)*	The date and time when the container started running.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.30.4 Actions

6.30.4.1 Reset

Description

This action resets the container.

Action URI

{Base URI of target resource}/Actions/Container.Reset

Action parameters

Parameter Name	Type	Attributes	Notes
ResetType	string (enum)	*optional*	The type of reset. *For the possible property values, see ResetType in Property details.*

Request Example

```
{
    "ResetType": "GracefulRestart"
}
```

6.30.5 Property details

6.30.5.1 ResetType

The type of reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the unit.

string	Description
FullPowerCycle	Full power cycle the unit. Behaves like removing utility lines, followed by restoring utility lines to the resource.
GracefulRestart	Shut down gracefully and restart the unit.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
Pause	Pause execution on the unit but do not remove power. This is typically a feature of virtual machine hypervisors.
PowerCycle	Power cycle the unit. Behaves like a power removal, followed by a power restore to the resource.
PushPowerButton	Simulate the pressing of the physical power button on this unit.
Resume	Resume execution on the paused unit. This is typically a feature of virtual machine hypervisors.
Suspend	Write the state of the unit to disk before powering off. This allows for the state to be restored when powered back on.

6.30.6 Example response


```
{
    "@odata.type": "#Container.v1_0_1.Container",
    "Id": "WebBusinessLogic",
    "Name": "Internal Web Business Logic",
    "StartTime": "2021-02-06T22:49:02Z",
    "Limits": {
        "MemoryBytes": 4294967296,
        "CPUCount": 1.5
    },
    "Status": {
        "State": "Enabled"
    },
    "MountPoints": [
        {
            "Source": "/opt/MyContainerStorage/WebConfig",
            "Destination": "/config"
        }
    ],
    "ProgrammaticId": "5584c257aba833892e1841cb77d898edc1f942f3bf901e7e0c390a504b9897a0",
    "EthernetInterfaces": {
```

```
            "@odata.id": "/redfish/v1/Systems/VM1/OperatingSystem/Containers/WebBusinessLogic/
             EthernetInterfaces"
        },
        "Links": {
            "ContainerImage": {
                "@odata.id": "/redfish/v1/Systems/VM1/OperatingSystem/ContainerImages/WebLogic"
            }
        },
        "@odata.id": "/redfish/v1/Systems/VM1/OperatingSystem/Containers/WebBusinessLogic"
    }
```

6.31 ContainerImage 1.0.1

Version	*v1.0*
Release	2023.2

6.31.1 Description

The `ContainerImage` schema represents a container image available to a computer system.

6.31.2 URIs

/redfish/v1/Systems/*{ComputerSystemId}*/OperatingSystem/ContainerImages/*{ContainerImageId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.31.3 Properties

Property	Type	Attributes	Notes
CreateTime	string (date-time)	*read-only (null)*	The date and time when the container image was created.
Links {	object		The links to other resources that are related to this resource.
Containers [{	array		The array of links to the containers running from this container image.
@odata.id	string	*read-only*	Link to a Container resource. See the Links section and the *Container* schema for details.
}]			

Property	Type	Attributes	Notes
Oem {}	object		See the Oem object definition in the Common properties section.
SoftwareImage {	object		The link to the software image for this container image. See the *SoftwareInventory* schema for details on this property.
@odata.id	string	*read-only*	Link to a SoftwareInventory resource. See the Links section and the *SoftwareInventory* schema for details.
}			
}			
ProgrammaticId	string	*read-only* *(null)*	The programmatic identifier for this container image.
SizeBytes	integer (bytes)	*read-only* *(null)*	The size of this container image in bytes.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
Type	string (enum)	*read-only* *(null)*	The image type of this container image. *For the possible property values, see Type in Property details.*
Version	string	*read-only* *(null)*	The version of this application.

6.31.4 Property details

6.31.4.1 Type

The image type of this container image.

string	Description
DockerV1	Docker V1.
DockerV2	Docker V2.
OCI	OCI (Open Container Initiative).

6.31.5 Example response

```
{
```

```
    "@odata.type": "#ContainerImage.v1_0_1.ContainerImage",
    "Id": "WebLogic",
    "Name": "Contoso Internal Web Business Logic 1.0",
    "CreateTime": "2021-02-06T22:49:02Z",
    "Type": "OCI",
    "Version": "1.0.0",
    "Status": {
        "State": "Enabled"
    },
    "ProgrammaticId": "2fbd319a987e5265aae45b7e786dead51d1aae48b7bea42bcfc91a62934ca37f",
    "SizeBytes": 373293056,
    "Links": {
        "Containers": [
            {
                "@odata.id": "/redfish/v1/Systems/VM1/OperatingSystem/Containers/WebBusinessLogic"
            }
        ]
    },
    "@odata.id": "/redfish/v1/Systems/VM1/OperatingSystem/ContainerImages/WebLogic"
}
```


6.32 Control 1.7.0

Version	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2025.2	2024.4	2023.3	2023.2	2023.1	2022.2	2021.4	2021.2

6.32.1 Description

The `Control` schema describes a control point and its properties.

6.32.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/Controls/*{ControlId}*

6.32.3 Properties

Property	Type	Attributes	Notes
Accuracy *(deprecated v1.4)*	number (%)	*read-only (null)*	The estimated percent error of measured versus actual values. *Deprecated in v1.4 and later. This property has been deprecated in favor of* `SetPointAccuracy` *to provide a range instead of a percentage.*
AllowableMax	number	*read-only (null)*	The maximum possible setting for this control.
AllowableMin	number	*read-only (null)*	The minimum possible setting for this control.
AllowableNumericValues [ ]	array (number, null)	*read-only*	The supported values for the set point.
AssociatedSensors [{	array		An array of links to the sensors associated with this control.
@odata.id	string	*read-only*	Link to a Sensor resource. See the Links section and the *Sensor* schema for details.
}]			
ControlDelaySeconds	number	*read-write (null)*	The time delay in seconds before the control will activate once the value has deviated from the set point.
ControlLoop {	object		The control loop details.
CoefficientUpdateTime	string (date-time)	*read-only (null)*	The date and time that the control loop coefficients were changed.
Differential	number	*read-write (null)*	The differential coefficient.
Integral	number	*read-write (null)*	The integral coefficient.
Proportional	number	*read-write (null)*	The proportional coefficient.
}			
ControlMode	string (enum)	*read-write (null)*	The current operating mode of the control. *For the possible property values, see ControlMode in Property details.*
ControlType	string (enum)	*read-only (null)*	The type of control. *For the possible property values, see ControlType in Property details.*

Property	Type	Attributes	Notes
DeadBand	number	*read-write (null)*	The maximum deviation from the set point allowed before the control will activate.
DefaultSetPoint *(v1.3+)*	number	*read-only (null)*	The default set point of the control.
Implementation	string (enum)	*read-only (null)*	The implementation of the control. *For the possible property values, see Implementation in Property details.*
Increment	number	*read-only (null)*	The smallest increment supported for the set point.
Location {}	object		The location information for this control. For property details, see Location.
PhysicalContext	string (enum)	*read-only (null)*	The area or device to which this control applies. *For the possible property values, see PhysicalContext in Property details.*
PhysicalSubContext	string (enum)	*read-only (null)*	The usage or location within a device to which this control applies. *For the possible property values, see PhysicalSubContext in Property details.*
RelatedItem [{	array		An array of links to resources that this control services.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
Sensor {	object (excerpt)		The sensor reading associated with this control. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
}			
SetPoint	number	*read-write (null)*	The desired set point of the control.
SetPointAccuracy *(v1.4+)*	number	*read-only (null)*	Accuracy (+/-) of the set point.
SetPointError *(v1.7+)*	number	*read-only (null)*	The error (difference) from the desired set point of the control.
SetPointType	string (enum)	*read-only (null)*	The set point type used to operate the control. *For the possible property values, see SetPointType in Property details.*

Property	Type	Attributes	Notes
SetPointUnits	string	*read-only (null)*	The units of the set point and related properties in UCUM c/s format.
SetPointUpdateTime	string (date-time)	*read-only (null)*	The date and time that the set point was changed.
SettingMax	number	*read-write (null)*	The maximum set point in the allowed range.
SettingMin	number	*read-write (null)*	The minimum set point in the allowed range.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.32.4 Actions

6.32.4.1 ResetToDefaults *(v1.2+)*

Description

The action resets the values of writable properties to factory defaults.

Action URI

{Base URI of target resource}/Actions/Control.ResetToDefaults

Action parameters

This action takes no parameters.

6.32.5 Property details

6.32.5.1 ControlMode

The current operating mode of the control.

string	Description
Automatic	Automatically adjust control to meet the set point.
Disabled	The control has been disabled.

string	Description
Manual	No automatic adjustments are made to the control.
Override	User override of the automatic set point value.

6.32.5.2 ControlType

The type of control.

string	Description
DutyCycle *(v1.5+)*	Duty cycle (%) control.
Frequency	Frequency (Hz) control.
FrequencyMHz *(v1.1+)*	Frequency (MHz) control.
LinearAcceleration *(v1.6+)*	Linear acceleration (m/s^2) control.
LinearPosition *(v1.6+)*	Linear position or distance (m) control.
LinearVelocity *(v1.6+)*	Linear velocity (m/s) control.
LiquidFlowLPM *(v1.6+)*	Liquid flow (L/min) control.
Percent *(v1.5+)*	Percent-based control.
Power	Power (W) control or power limit.
Pressure *(v1.1+, deprecated v1.3)*	Pressure (kPa) control. *Deprecated in v1.3 and later. This value has been deprecated in favor of* `PressurekPa` *for units consistency with the equivalent* `Sensor` *resource* `ReadingType` *value.*
PressurekPa *(v1.3+)*	Pressure (kPa) control.
RotationalAcceleration *(v1.6+)*	Rotational acceleration (rad/s^2) control.
RotationalPosition *(v1.6+)*	Rotational position (rad) control.
RotationalVelocity *(v1.6+)*	Rotational velocity (rad/s) control.
Temperature	Temperature (C) control or thermostat.
Valve *(v1.3+)*	Valve (% open) control.

6.32.5.3 Implementation

The implementation of the control.

string	Description
Direct	The set point directly affects the control value.
Monitored	A physical control that cannot be adjusted through this interface.
Programmable	The set point can be adjusted through this interface.

6.32.5.4 PhysicalContext

The area or device to which this control applies.

string	Description
Accelerator	An accelerator.
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.
ACOutput	An AC electrical output or output-related circuit.
ACStaticBypassInput	An AC electrical static bypass input.
ACUtilityInput	An AC electrical utility input.
ASIC	An ASIC device, such as a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.
Chassis	The entire chassis.
ComputeBay	A compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.

string	Description
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Manager	A management controller, such as a BMC (baseboard management controller).
Memory	A memory device.
MemorySubsystem	The entire memory subsystem.
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	A power supply bay.
Pump	A pump.
Rectifier	A rectifier device.
Reservoir	A reservoir.
Room	The room.
StorageBay	A storage bay.

string	Description
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

6.32.5.5 PhysicalSubContext

The usage or location within a device to which this control applies.

string	Description
Input	The input.
Output	The output.

6.32.5.6 SetPointType

The set point type used to operate the control.

string	Description
Monitor *(v1.6+)*	Control only monitors a reading.
Range	Control uses a range of values.
Single	Control uses a single set point.

6.32.6 Example response


```
{
    "@odata.type": "#Control.v1_7_0.Control",
    "Id": "PowerLimit",
    "Name": "System Power Limit",
    "PhysicalContext": "Chassis",
    "ControlType": "Power",
    "ControlMode": "Automatic",
    "SetPoint": 500,
    "SetPointUnits": "W",
    "AllowableMax": 1000,
    "AllowableMin": 150,
    "Sensor": {
        "Reading": 374,
        "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/TotalPower"
    },
    "Status": {
        "Health": "OK",
        "State": "Enabled"
    },
    "@odata.id": "/redfish/v1/Chassis/1U/Controls/PowerLimit"
}
```


6.33 CoolantConnector 1.2.0

Version	*v1.2*	*v1.1*	*v1.0*
Release	2025.2	2024.4	2023.1

6.33.1 Description

The `CoolantConnector` schema describes a liquid coolant connector, including any associated instrumentation.

6.33.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem/CoolantConnectors/*{CoolantConnectorId}*
/redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/PrimaryCoolantConnectors/*{CoolantConnectorId}*
/redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/SecondaryCoolantConnectors/*{CoolantConnectorId}*
/redfish/v1/ThermalEquipment/CoolingLoops/*{CoolingUnitId}*/PrimaryCoolantConnectors/*{CoolantConnectorId}*
/redfish/v1/ThermalEquipment/CoolingLoops/*{CoolingUnitId}*/SecondaryCoolantConnectors/*{CoolantConnectorId}*
/redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/PrimaryCoolantConnectors/*{CoolantConnectorId}*

/redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/SecondaryCoolantConnectors/*{CoolantConnectorId}*
/redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/PrimaryCoolantConnectors/*{CoolantConnectorId}*
/redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/SecondaryCoolantConnectors/*{CoolantConnectorId}*
/redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/PrimaryCoolantConnectors/*{CoolantConnectorId}*

6.33.3 Properties

Property	Type	Attributes	Notes
Coolant {	object		Details about the coolant used in this unit. See the *CoolingLoop* schema for details on this property.
@odata.id	string	*read-only*	Link to a Coolant resource. See the Links section and the *CoolingLoop* schema for details.
}			
CoolantConnectorType	string (enum)	*read-only (null)*	The type of coolant connector. *For the possible property values, see CoolantConnectorType in Property details.*
CoolingLoopName	string	*read-write (null)*	The name of the cooling loop attached to this interface.
CoolingManagerURI	string (URI)	*read-write (null)*	The link to the application that manages the cooling loop.
DeltaPressureControlkPa *(v1.1+)* {}	object		The desired differential pressure (kPa). For more information about this property, see ControlSingleLoopExcerpt in Property Details.
DeltaPressurekPa {}	object		The differential pressure (kPa). For more information about this property, see SensorExcerpt in Property Details.
DeltaTemperatureCelsius {}	object		The differential temperature (C). For more information about this property, see SensorExcerpt in Property Details.
DeltaTemperatureControlCelsius *(v1.1+)* {}	object		The desired differential temperature (C). For more information about this property, see ControlSingleLoopExcerpt in Property Details.
FlowControlLitersPerMinute *(v1.1+)* {}	object		The desired liquid flow rate (L/min). For more information about this property, see ControlSingleLoopExcerpt in Property Details.
FlowLitersPerMinute {}	object		The liquid flow (L/min). For more information about this property, see SensorExcerpt in Property Details.
HeatRemovedkW {}	object		The heat removed (kW) through this connector. For more information about this property, see SensorExcerpt in Property Details.
Links {	object		The links to other resources that are related to this resource.
ConnectedChassis [{	array		Any array of links to chassis at the other end of the connection.

Property	Type	Attributes	Notes
@odata.id	string	*read-write*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}]			
ConnectedCoolingLoop {	object	*(null)*	A link to the cooling loop at the other end of the connection. See the *CoolingLoop* schema for details on this property.
@odata.id	string	*read-write*	Link to a CoolingLoop resource. See the Links section and the *CoolingLoop* schema for details.
}			
ConnectedCoolingUnit {	object	*(null)*	A link to the cooling unit at the other end of the connection. See the *CoolingUnit* schema for details on this property.
@odata.id	string	*read-write*	Link to a CoolingUnit resource. See the Links section and the *CoolingUnit* schema for details.
}			
Oem {}	object		See the Oem object definition in the Common properties section.
}			
LocationIndicatorActive	boolean	*read-write* *(null)*	An indicator allowing an operator to physically locate this resource.
RatedFlowLitersPerMinute	number (L/min)	*read-only* *(null)*	The rated liquid flow (L/min) for this loop interface.
RatedFlowPressurekPa	number (kPa)	*read-only* *(null)*	The pressure (kPa) at which the rated liquid flow is valid.
RatedPressurekPa	number (kPa)	*read-only* *(null)*	The rated pressure (kPa) for this connector.
ReturnPressurekPa {}	object		The return pressure (kPa). For more information about this property, see SensorExcerpt in Property Details.
ReturnTemperatureCelsius {}	object		The return temperature (C). For more information about this property, see SensorExcerpt in Property Details.
ReturnTemperatureControlCelsius *(v1.1+)* {}	object		The desired return temperature (C). For more information about this property, see ControlSingleLoopExcerpt in Property Details.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
SupplyPressurekPa {}	object		The supply pressure (kPa). For more information about this property, see SensorExcerpt in Property Details.

Property	Type	Attributes	Notes
SupplyTemperatureCelsius {}	object		The supply temperature (C). For more information about this property, see SensorExcerpt in Property Details.
SupplyTemperatureControlCelsius *(v1.1+)* {}	object		The desired supply temperature (C). For more information about this property, see ControlSingleLoopExcerpt in Property Details.
ValvePositionControlPercent *(v1.2+)* {}	object		The desired valve position (% open). For more information about this property, see ControlSingleLoopExcerpt in Property Details.
ValvePositionPercent *(v1.2+)* {}	object		The valve position (% open) of this connector. For more information about this property, see SensorExcerpt in Property Details.

6.33.4 Property details

6.33.4.1 ControlMode

The current operating mode of the control.

string	Description
Automatic	Automatically adjust control to meet the set point.
Disabled	The control has been disabled.
Manual	No automatic adjustments are made to the control.
Override	User override of the automatic set point value.

6.33.4.2 ControlSingleLoopExcerpt

The `Control` schema describes a control point and its properties. This object is an excerpt of the *Control* resource located at the URI shown in DataSourceUri.

AllowableMax	number	*read-only (null)*	The maximum possible setting for this control.
AllowableMin	number	*read-only (null)*	The minimum possible setting for this control.
ControlLoop {	object		The control loop details.

CoefficientUpdateTime	string (date-time)	*read-only (null)*	The date and time that the control loop coefficients were changed.
Differential	number	*read-write (null)*	The differential coefficient.
Integral	number	*read-write (null)*	The integral coefficient.
Proportional	number	*read-write (null)*	The proportional coefficient.
}			
ControlMode	string (enum)	*read-write (null)*	The current operating mode of the control. *For the possible property values, see ControlMode in Property details.*
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this control.
Reading	number	*read-only (null)*	The reading of the sensor associated with this control.
SetPoint	number	*read-write (null)*	The desired set point of the control.

6.33.4.3 CoolantConnectorType

The type of coolant connector.

string	Description
Closed	A closed or self-contained loop.
Inline	An inline connection or measurement point.
Pair	A connection pair.
Return	A return or outflow connection.
Supply	A supply or intake connection.

6.33.4.4 SensorExcerpt

The `Sensor` schema describes a sensor and its properties. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.

DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.

6.33.5 Example response

```
{
    "@odata.type": "#CoolantConnector.v1_2_0.CoolantConnector",
    "Id": "A",
    "Name": "Rack Cooling Loop A",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "CoolantConnectorType": "Pair",
    "RatedFlowLitersPerMinute": 30,
    "FlowLitersPerMinute": {
        "Reading": 24.3
    },
    "SupplyTemperatureCelsius": {
        "Reading": 14.8
    },
    "ReturnTemperatureCelsius": {
        "Reading": 38.2
    },
    "DeltaTemperatureCelsius": {
        "Reading": 23.4
    },
    "SupplyPressurekPa": {
        "Reading": 426.6
    },
    "ReturnPressurekPa": {
        "Reading": 409.9
    },
    "DeltaPressurekPa": {
        "Reading": 31.7
    },
```

```
    "Links": {
        "ConnectedCoolingLoop": {
            "@odata.id": "/redfish/v1/ThermalEquipment/CoolingLoops/Rack4"
        }
    },
    "@odata.id": "/redfish/v1/ThermalEquipment/CDUs/1/SecondaryCoolantConnectors/A"
}
```

6.34 CoolingLoop 1.0.3

Version	*v1.0*
Release	2023.1

6.34.1 Description

The `CoolingLoop` schema describes a cooling loop. A cooling loop might be any coolant-carrying vessel, such as facility-level pipework, an immersion cooling tank, or a manifold. A loop might describe its connectors and instrumentation but does not generally include active cooling components or subsystems.

6.34.2 URIs

/redfish/v1/ThermalEquipment/CoolingLoops/*{CoolingLoopId}*

6.34.3 Properties

Property	Type	Attributes	Notes
ConsumingEquipmentNames [ ]	array (string, null)	*read-write*	An array of names of downstream devices that receive coolant from this cooling loop.
Coolant {	object		The coolant details for this cooling loop.
AdditiveName	string	*read-write (null)*	The name of the additive.
AdditivePercent	number (%)	*read-write (null)*	The percent additives contained in the coolant.
CoolantType	string (enum)	*read-write (null)*	The type of coolant. *For the possible property values, see CoolantType in Property details.*

Property	Type	Attributes	Notes
DensityKgPerCubicMeter	number (kg/m3)	*read-write (null)*	The density (kg/m^3) of the coolant.
RatedServiceHours	number	*read-write (null)*	The rated hours of service life for this coolant.
ServicedDate	string (date-time)	*read-write (null)*	The date the coolant was last serviced.
ServiceHours	number	*read-write (null)*	The hours of service this coolant has provided.
SpecificHeatkJoulesPerKgK	number (kJ/kg/K)	*read-write (null)*	The specific heat capacity (kJ/(kg*K)) of the coolant.
}			
CoolantLevelPercent {	object (excerpt)		The coolant capacity filled (percent). This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
}			
CoolantLevelStatus	string (enum)	*read-only (null)*	The status of the coolant level in this cooling loop. *For the possible property values, see CoolantLevelStatus in Property details.*
CoolantQuality	string (enum)	*read-only (null)*	The quality of the coolant. *For the possible property values, see CoolantQuality in Property details.*
CoolingManagerURI	string (URI)	*read-write (null)*	The link to the application that manages the cooling loop.
Links {	object		The links to other resources that are related to this resource.
Chassis {	object	*(null)*	A link to the chassis that contains this equipment. See the *Chassis* schema for details on this property.
@odata.id	string	*read-only*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}			
Facility {	object		A link to the facility that contains this equipment. See the *Facility* schema for details on this property.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a Facility resource. See the Links section and the *Facility* schema for details.
}			
ManagedBy [{	array		An array of links to the managers responsible for managing this equipment.
@odata.id	string	*read-only*	Link to a Manager resource. See the Links section and the *Manager* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
}			
LocationIndicatorActive	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
PrimaryCoolantConnectors {	object		A link to the primary coolant connectors for this equipment. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *CoolantConnector*. See the CoolantConnector schema for details.
}			
RatedFlowLitersPerMinute	number (L/min)	*read-only (null)*	The rated liquid flow (L/min) for this cooling loop.
RatedPressurekPa	number (kPa)	*read-only (null)*	The rated pressure (kPa) for this cooling loop.
SecondaryCoolantConnectors {	object		A link to the secondary coolant connectors for this equipment. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *CoolantConnector*. See the CoolantConnector schema for details.
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
SupplyEquipmentNames [ ]	array (string, null)	*read-write*	An array of names of upstream devices that supply coolant to this cooling loop.
UserLabel	string	*read-write*	A user-assigned label.

6.34.4 Property details

6.34.4.1 CoolantLevelStatus

The status of the coolant level in this cooling loop.

string	Description
Critical	A critical condition requires immediate attention.
OK	Normal.
Warning	A condition requires attention.

6.34.4.2 CoolantQuality

The quality of the coolant.

string	Description
Critical	A critical condition requires immediate attention.
OK	Normal.
Warning	A condition requires attention.

6.34.4.3 CoolantType

The type of coolant.

string	Description
Dielectric	Dielectric fluid.
Fluorocarbon	Fluorocarbon-based.
Hydrocarbon	Hydrocarbon-based.
Water	Water or glycol mixture, including additives.

6.34.5 Example response


```
{
    "@odata.type": "#CoolingLoop.v1_0_3.CoolingLoop",
    "Id": "BuildingChiller",
    "Name": "Feed from building chiller",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "UserLabel": "Building Chiller",
    "Coolant": {
        "CoolantType": "Water",
        "AdditiveName": "Generic cooling water biocide",
        "AdditivePercent": 0
    },
    "CoolantLevelStatus": "OK",
    "CoolantQuality": "OK",
    "CoolantLevelPercent": {
        "Reading": 95
    },
    "SupplyEquipmentNames": [
        "Chiller"
    ],
    "ConsumingEquipmentNames": [
        "Rack #1 CDU",
        "Rack #2 CDU",
        "Rack #3 CDU",
        "Rack #4 CDU"
    ],
    "@odata.id": "/redfish/v1/ThermalEquipment/CoolingLoops/BuildingChiller"
}
```


6.35 CoolingUnit 1.3.0

Version	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2025.2	2024.4	2023.2	2023.1

6.35.1 Description

The `CoolingUnit` schema contains the definition for a cooling system component or unit, such as a coolant distribution unit (CDU) or a heat exchanger.

6.35.2 URIs

/redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*
/redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*
/redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*
/redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*

6.35.3 Properties

Property	Type	Attributes	Notes
Assembly {	object		The link to the assembly associated with this cooling unit. See the *Assembly* schema for details on this property.
@odata.id	string	*read-only*	Link to a Assembly resource. See the Links section and the *Assembly* schema for details.
}			
AssetTag	string	*read-write (null)*	The user-assigned asset tag for this equipment.
Coolant {	object		Details about the coolant used in this unit. See the *CoolingLoop* schema for details on this property.
@odata.id	string	*read-only*	Link to a Coolant resource. See the Links section and the *CoolingLoop* schema for details.
}			
CoolantConnectorRedundancy *(v1.1+)* [{ }]	array (object)		The redundancy information for the coolant connectors in this cooling unit. For property details, see RedundantGroup.
CoolingCapacityWatts	integer	*read-only (null)*	The cooling capacity (W) of this equipment.
EnvironmentMetrics {	object		The link to the environment metrics for this equipment. See the *EnvironmentMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a EnvironmentMetrics resource. See the Links section and the *EnvironmentMetrics* schema for details.
}			
EquipmentType	string (enum)	*read-only required*	The type of equipment this resource represents. *For the possible property values, see EquipmentType in Property details.*
FilterRedundancy [{ }]	array (object)		The redundancy information for the groups of filters in this unit. For property details, see RedundantGroup.

Property	Type	Attributes	Notes
Filters {	object		A link to the filters for this equipment. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Filter*. See the Filter schema for details.
}			
FirmwareVersion	string	*read-only*	The firmware version of this equipment.
LeakDetection {	object		A link to the leak detection components associated with this equipment. See the *LeakDetection* schema for details on this property.
@odata.id	string	*read-only*	Link to a LeakDetection resource. See the Links section and the *LeakDetection* schema for details.
}			
Links {	object		The links to other resources that are related to this resource.
Chassis [{	array		An array of links to the chassis that contain this equipment.
@odata.id	string	*read-only*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}]			
Facility {	object		A link to the facility that contains this equipment. See the *Facility* schema for details on this property.
@odata.id	string	*read-only*	Link to a Facility resource. See the Links section and the *Facility* schema for details.
}			
ManagedBy [{	array		An array of links to the managers responsible for managing this equipment.
@odata.id	string	*read-only*	Link to a Manager resource. See the Links section and the *Manager* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
}			
Location {}	object		The location of the equipment. For property details, see Location.
Manufacturer	string	*read-only* *(null)*	The manufacturer of this equipment.
Model	string	*read-only* *(null)*	The product model number of this equipment.

Property	Type	Attributes	Notes
PartNumber	string	*read-only* *(null)*	The part number for this equipment.
PrimaryCoolantConnectors {	object		A link to the primary coolant connectors for this equipment. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *CoolantConnector*. See the CoolantConnector schema for details.
}			
ProductionDate	string (date-time)	*read-only* *(null)*	The production or manufacturing date of this equipment.
PumpRedundancy [{ }]	array (object)		The redundancy information for the groups of pumps in this unit. For property details, see RedundantGroup.
Pumps {	object		A link to the pumps for this equipment. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Pump*. See the Pump schema for details.
}			
Reservoirs {	object		A link to the reservoirs for this equipment. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Reservoir*. See the Reservoir schema for details.
}			
SecondaryCoolantConnectors {	object		A link to the secondary coolant connectors for this equipment. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *CoolantConnector*. See the CoolantConnector schema for details.
}			
SerialNumber	string	*read-only* *(null)*	The serial number for this equipment.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
UserLabel	string	*read-write*	A user-assigned label.
Version	string	*read-only* *(null)*	The hardware version of this equipment.

6.35.4 Actions

6.35.4.1 SetMode *(v1.2+)*

Description

This action sets the operating mode of the cooling unit.

Action URI

{Base URI of target resource}/Actions/CoolingUnit.SetMode

Action parameters

Parameter Name	Type	Attributes	Notes
Mode	string (enum)	*optional*	The desired operating mode of the cooling unit. *For the possible property values, see Mode in Property details.*

Request Example

```
{
    "Mode": "Disabled"
}
```

6.35.5 Property details

6.35.5.1 EquipmentType

The type of equipment this resource represents.

string	Description
CDU	A coolant distribution unit (CDU).
HeatExchanger	A heat exchanger.
ImmersionUnit	An immersion cooling unit.
RPU *(v1.3+)*	A reservoir and pumping unit (RPU).

6.35.5.2 Mode

The desired operating mode of the cooling unit.

string	Description
Disabled	Disable the cooling unit.
Enabled	Enable the cooling unit.

6.35.6 Example response


```
{
    "@odata.type": "#CoolingUnit.v1_3_0.CoolingUnit",
    "Id": "1",
    "EquipmentType": "CDU",
    "Name": "Rack #4 Cooling Distribution Unit",
    "FirmwareVersion": "3.2.0",
    "Version": "1.03b",
    "ProductionDate": "2020-12-24T08:00:00Z",
    "Manufacturer": "Contoso",
    "Model": "BRRR4000",
    "SerialNumber": "29347ZT536",
    "PartNumber": "ICE-9",
    "AssetTag": "PDX5-92381",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Location": {
        "Placement": {
            "Row": "North 1"
        }
    },
    "PrimaryCoolantConnectors": {
        "@odata.id": "/redfish/v1/ThermalEquipment/CDUs/1/PrimaryCoolantConnectors"
    },
    "SecondaryCoolantConnectors": {
        "@odata.id": "/redfish/v1/ThermalEquipment/CDUs/1/SecondaryCoolantConnectors"
    },
    "Pumps": {
        "@odata.id": "/redfish/v1/ThermalEquipment/CDUs/1/Pumps"
    },
    "Filters": {
        "@odata.id": "/redfish/v1/ThermalEquipment/CDUs/1/Filters"
    },
```

```
    "EnvironmentMetrics": {
        "@odata.id": "/redfish/v1/ThermalEquipment/CDUs/1/EnvironmentMetrics"
    },
    "LeakDetection": {
        "@odata.id": "/redfish/v1/ThermalEquipment/CDUs/1/LeakDetection"
    },
    "Links": {
        "Facility": {
            "@odata.id": "/redfish/v1/Facilities/Room237"
        }
    },
    "@odata.id": "/redfish/v1/ThermalEquipment/CDUs/1"
}
```


6.36 CXLLogicalDevice 1.2.1

Version	*v1.2*	*v1.1*	*v1.0*
Release	2024.1	2023.2	2022.3

6.36.1 Description

The `CXLLogicalDevice` schema contains the properties of a CXL logical device within a PCIe device.

6.36.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/PCIeDevices/*{PCIeDeviceId}*/CXLLogicalDevices/*{CXLLogicalDeviceId}*

6.36.3 Properties

Property	Type	Attributes	Notes
Identifiers [{ }]	array (object)		The durable names for the CXL logical device. For property details, see Identifier.
Links {	object		The links to other resources that are related to this resource.
Endpoints [{	array		An array of links to the endpoints associated with this CXL logical device.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.

Property	Type	Attributes	Notes
}]			
MemoryChunks [{	array		An array of links to the memory chunks owned by this CXL logical device.
@odata.id	string	*read-only*	Link to a MemoryChunks resource. See the Links section and the *MemoryChunks* schema for details.
}]			
MemoryDomains [{	array		An array of links to the memory domains associated with this CXL logical device.
@odata.id	string	*read-only*	Link to a MemoryDomain resource. See the Links section and the *MemoryDomain* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
PCIeFunctions [{	array		An array of links to the PCIe functions assigned to this CXL logical device.
@odata.id	string	*read-only*	Link to a PCIeFunction resource. See the Links section and the *PCIeFunction* schema for details.
}]			
}			
Log {	object		The link to the log service associated with this CXL logical device. See the *LogService* schema for details on this property.
@odata.id	string	*read-only*	Link to a LogService resource. See the Links section and the *LogService* schema for details.
}			
MemoryRegions *(v1.1+)* {	object		The link to the collection of memory regions associated with this CXL logical device. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *MemoryRegion*. See the MemoryRegion schema for details.
}			
MemorySizeMiB	integer (mebibytes)	*read-only*	The total memory capacity currently available in this CXL logical device.

Property	Type	Attributes	Notes
QoS {	object		The quality of service configuration for this CXL logical device.
AllocatedBandwidth	integer (%)	*read-write (null)*	The bandwidth allocated to this CXL logical device as a percentage.
LimitPercent	integer (%)	*read-write (null)*	The bandwidth limit to this CXL logical device as a percentage.
}			
QoSTelemetryCapabilities {	object		The quality of service telemetry capabilities for this CXL logical device.
EgressPortBackpressureSupported	boolean	*read-only (null)*	Indicates whether the device supports the CXL Specification-defined 'Egress Port Backpressure' mechanism.
TemporaryThroughputReductionSupported *(deprecated v1.2)*	boolean	*read-only (null)*	Indicates whether the device supports the CXL Specification-defined 'Temporary Throughput Reduction' mechanism. *Deprecated in v1.2 and later. This property has been deprecated in favor of* `TemporaryThroughputReductionSupported` *in* `PCIeDevice`.
}			
SemanticsSupported [ ]	array (string (enum))	*read-only*	The semantics supported by this CXL logical device. *For the possible property values, see SemanticsSupported in Property details.*
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.36.4 Property details

6.36.4.1 SemanticsSupported

The semantics supported by this CXL logical device.

string	Description
CXLcache	CXL caching protocol semantic.
CXLio	CXL I/O semantic.
CXLmem	CXL memory access semantic.

6.36.5 Example response


```
{
    "@odata.type": "#CXLLogicalDevice.v1_2_1.CXLLogicalDevice",
    "Id": "1",
    "Name": "CXL Logical Device Type 1",
    "Description": "Locally attached CXL Logical Device Type 1",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollup": "OK"
    },
    "Identifiers": [
        {
            "DurableName": "4C-1D-96-FF-FE-DD-D8-35:0001",
            "DurableNameFormat": "GCXLID"
        }
    ],
    "SemanticsSupported": [
        "CXLio",
        "CXLcache"
    ],
    "Links": {
        "PCIeFunctions": [
            {
                "@odata.id": "/redfish/v1/Chassis/CXL1/PCIeDevices/1/PCIeFunctions/1"
            }
        ]
    },
    "@odata.id": "/redfish/v1/Chassis/CXL1/PCIeDevices/1/CXLLogicalDevices/1"
}
```


6.37 Drive 1.21.0

Version	*v1.21*	*v1.20*	*v1.19*	*v1.18*	*v1.17*	*v1.16*	*v1.15*	*v1.14*	*v1.13*	*v1.12*	*v1.11*	...
Release	2024.4	2024.2	2024.1	2023.3	2023.1	2022.3	2022.1	2021.4	2021.2	2020.4	2020.3	...

6.37.1 Description

The `Drive` schema represents a single physical drive for a system, including links to associated volumes. It also describes the location, such as a slot, socket, or bay, where a unit can be installed, by populating a resource instance with an absent state if a unit is not present.

6.37.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/Drives/*{DriveId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Drives/*{DriveId}* (deprecated)
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.37.3 Properties

Property	Type	Attributes	Notes
Assembly *(v1.3+)* {	object		The link to the assembly associated with this drive. See the *Assembly* schema for details on this property.
@odata.id	string	*read-only*	Link to a Assembly resource. See the Links section and the *Assembly* schema for details.
}			
AssetTag	string	*read-write (null)*	The user-assigned asset tag for this drive.
BlockSecurityIDEnabled *(v1.20+)*	boolean	*read-write (null)*	Indicates if establishment of a TCG-defined security ID (SID) on the drive is blocked.
BlockSizeBytes	integer (bytes)	*read-only (null)*	The size, in bytes, of the smallest addressable unit, or block.
CapableSpeedGbs	number (Gbit/s)	*read-only (null)*	The speed, in gigabits per second (Gbit/s) units, at which this drive can communicate to a storage controller in ideal conditions.
CapacityBytes	integer (bytes)	*read-only (null)*	The size, in bytes, of this drive.
Certificates *(v1.12+)* {	object		The link to a collection of certificates for device identity and attestation. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
ConfigurationLock *(v1.19+)*	string (enum)	*read-write (null)*	Indicates whether in-band configuration requests to the drive are locked. Other properties, such as `ConfigurationLockState`, contain additional information regarding the status of the configuration lock. *For the possible property values, see ConfigurationLock in Property details.*
DriveFormFactor *(v1.16+)*	string (enum)	*read-only (null)*	The form factor of the drive inserted in this slot. *For the possible property values, see DriveFormFactor in Property details.*

Property	Type	Attributes	Notes
EncryptionAbility	string (enum)	*read-only (null)*	The encryption ability of this drive. *For the possible property values, see EncryptionAbility in Property details.*
EncryptionStatus	string (enum)	*read-only (null)*	The status of the encryption of this drive. *For the possible property values, see EncryptionStatus in Property details.*
EnvironmentMetrics *(v1.12+)* {	object		The link to the environment metrics for this drive. See the *EnvironmentMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a EnvironmentMetrics resource. See the Links section and the *EnvironmentMetrics* schema for details.
}			
FailurePredicted	boolean	*read-only (null)*	An indication of whether this drive currently predicts a failure in the near future.
FirmwareVersion *(v1.17+)*	string	*read-only (null)*	The firmware version for this drive.
HardwareVersion *(v1.21+)*	string	*read-only (null)*	The hardware version of this drive.
HotspareReplacementMode *(v1.5+)*	string (enum)	*read-write (null)*	The replacement mode for the hot spare drive. *For the possible property values, see HotspareReplacementMode in Property details.*
HotspareType	string (enum)	*read-write (null)*	The type of hot spare that this drive serves as. *For the possible property values, see HotspareType in Property details.*
Identifiers [{ }]	array (object)		The durable names for the drive. For property details, see Identifier.
IndicatorLED *(deprecated v1.11)*	string (enum)	*read-write (null)*	The state of the indicator LED, that identifies the drive. *For the possible property values, see IndicatorLED in Property details. Deprecated in v1.11 and later. This property has been deprecated in favor of the* `LocationIndicatorActive` *property.*
Links {	object		The links to other resources that are related to this resource.
ActiveSoftwareImage *(v1.16+)* {	object		The link to the software inventory that represents the active drive firmware image. See the *SoftwareInventory* schema for details on this property.
@odata.id	string	*read-write*	Link to a SoftwareInventory resource. See the Links section and the *SoftwareInventory* schema for details.
}			
Chassis *(v1.2+)* {	object		The link to the chassis that contains this drive. See the *Chassis* schema for details on this property.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}			
Endpoints *(v1.1+)* [{	array		An array of links to the endpoints that connect to this drive.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
NetworkDeviceFunctions *(v1.14+)* [{	array		An array of links to the network device functions that provide network connectivity for this drive.
@odata.id	string	*read-only*	Link to a NetworkDeviceFunction resource. See the Links section and the *NetworkDeviceFunction* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
PCIeFunctions *(v1.6+)* [{	array		An array of links to the PCIe functions that the drive produces.
@odata.id	string	*read-only*	Link to a PCIeFunction resource. See the Links section and the *PCIeFunction* schema for details.
}]			
SoftwareImages *(v1.16+)* [{	array		The images that are associated with this drive.
@odata.id	string	*read-only*	Link to a SoftwareInventory resource. See the Links section and the *SoftwareInventory* schema for details.
}]			
Storage *(v1.13+)* {	object		A link to the storage subsystem to which this drive belongs. See the *Storage* schema for details on this property.
@odata.id	string	*read-only*	Link to a Storage resource. See the Links section and the *Storage* schema for details.
}			
StoragePools *(v1.8+)* [{	array		An array of links to the storage pools to which this drive belongs.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			

Property	Type	Attributes	Notes
Volumes [{	array		An array of links to the volumes that this drive either wholly or only partially contains.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
}			
Location *(deprecated v1.4)* [{ }]	array (object)		The location of the drive. For property details, see Location. *Deprecated in v1.4 and later. This property has been deprecated in favor of the singular* `PhysicalLocation` *property.*
LocationIndicatorActive *(v1.11+)*	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
Manufacturer	string	*read-only (null)*	The manufacturer of this drive.
Measurements *(v1.12+, deprecated v1.14)* [{	array		An array of DSP0274-defined measurement blocks. *Deprecated in v1.14 and later. This property has been deprecated in favor of the* `ComponentIntegrity` *resource.*
@odata.id	string	*read-only*	Link to a MeasurementBlock resource. See the Links section and the *SoftwareInventory* schema for details.
}]			
MediaType	string (enum)	*read-only (null)*	The type of media contained in this drive. *For the possible property values, see MediaType in Property details.*
Metrics *(v1.17+)* {	object	*(null)*	The link to the metrics associated with this drive. See the *DriveMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a DriveMetrics resource. See the Links section and the *DriveMetrics* schema for details.
}			
Model	string	*read-only (null)*	The model number for the drive.
Multipath *(v1.9+)*	boolean	*read-only (null)*	An indication of whether the drive is accessible from multiple paths.
NegotiatedSpeedGbs	number (Gbit/s)	*read-only (null)*	The speed, in gigabits per second (Gbit/s) units, at which this drive currently communicates to the storage controller.
NVMe *(v1.20+)* {	object	*(null)*	NVMe properties for this drive.

Property	Type	Attributes	Notes
ConfigurationLockState *(v1.20+)* {	object	*(null)*	The configurable features that are able to be locked from in-band usage on an NVMe subsystem and their current lock state.
FirmwareCommit *(v1.20+)*	string (enum)	*read-only (null)*	The lock state of the NVMe-defined Firmware Commit command. *For the possible property values, see FirmwareCommit in Property details.*
FirmwareImageDownload *(v1.20+)*	string (enum)	*read-only (null)*	The lock state of the NVMe-defined Firmware Image Download command. *For the possible property values, see FirmwareImageDownload in Property details.*
Lockdown *(v1.20+)*	string (enum)	*read-only (null)*	The lock state of the NVMe-defined Lockdown command. *For the possible property values, see Lockdown in Property details.*
SecuritySend *(v1.20+)*	string (enum)	*read-only (null)*	The lock state of the NVMe-defined Security Send command. *For the possible property values, see SecuritySend in Property details.*
VPDWrite *(v1.20+)*	string (enum)	*read-only (null)*	The lock state of the NVMe-MI-defined VPD Write command. *For the possible property values, see VPDWrite in Property details.*
}			
}			
Operations *(v1.1+)* [{	array		The operations currently running on the drive.
AssociatedTask *(v1.1+)* {	object		The link to the task associated with the operation, if any. See the *Task* schema for details on this property.
@odata.id	string	*read-only*	Link to a Task resource. See the Links section and the *Task* schema for details.
}			
Operation *(v1.17+)*	string (enum)	*read-only (null)*	The type of the operation. *For the possible property values, see Operation in Property details.*
OperationName *(v1.1+, deprecated v1.17)*	string	*read-only (null)*	The name of the operation. *Deprecated in v1.17 and later. This property is deprecated in favor of the* `Operation` *property using the* `OperationType` *enumeration defined in the* `Volume` *schema.*
PercentageComplete *(v1.1+)*	integer (%)	*read-only (null)*	The percentage of the operation that has been completed.
}]			
PartNumber	string	*read-only (null)*	The part number for this drive.
PhysicalLocation *(v1.4+)* {}	object		The location of the drive. This property is equivalent to the `Location` property common to other standard Redfish resources. For property details, see Location.

Property	Type	Attributes	Notes
PredictedMediaLifeLeftPercent	number (%)	*read-only (null)*	The percentage of reads and writes that are predicted to be available for the media.
Protocol	string (enum)	*read-only (null)*	The protocol that this drive currently uses to communicate to the storage controller. *For the possible property values, see Protocol in Property details.*
ReadyToRemove *(v1.10+)*	boolean	*read-write (null)*	An indication of whether the drive is prepared by the system for removal.
Revision	string	*read-only (null)*	The revision of a SCSI-based drive, as returned from the 'Inquiry' command, which can be the firmware or hardware version. For other types of drives, the `HardwareVersion` and `FirmwareVersion` properties are recommended in favor of this property.
RotationSpeedRPM	number ({rev}/min)	*read-only (null)*	The rotation speed of this drive, in revolutions per minute (RPM) units.
SerialNumber	string	*read-only (null)*	The serial number for this drive.
SKU	string	*read-only (null)*	The SKU for this drive.
SlotCapableProtocols *(v1.16+)* [ ]	array (string (enum))	*read-only (null)*	The drive protocols capable in this slot. *For the possible property values, see SlotCapableProtocols in Property details.*
SlotFormFactor *(v1.16+)*	string (enum)	*read-only (null)*	The form factor of the slot. *For the possible property values, see SlotFormFactor in Property details.*
SparePartNumber *(v1.19+)*	string	*read-only (null)*	The spare part number of the drive.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
StatusIndicator	string (enum)	*read-write (null)*	The state of the status indicator, which communicates status information about this drive. *For the possible property values, see StatusIndicator in Property details.*
TargetConfigurationLockLevel *(v1.20+)*	string (enum)	*read-write (null)*	Indicates the target configuration lock level for the drive based upon the state of the `ConfigurationLock` property. Other properties, such as `ConfigurationLockState`, contain additional information regarding the status of the configuration lock. *For the possible property values, see TargetConfigurationLockLevel in Property details.*
WriteCacheEnabled *(v1.7+)*	boolean	*read-write (null)*	An indication of whether the drive write cache is enabled.

6.37.4 Actions

6.37.4.1 Reset *(v1.7+)*

Description

This action resets this drive.

Action URI

{Base URI of target resource}/Actions/Drive.Reset

Action parameters

Parameter Name	Type	Attributes	Notes
ResetType	string (enum)	*optional*	The type of reset. *For the possible property values, see ResetType in Property details.*

Request Example

```
{
    "ResetType": "On"
}
```

6.37.4.2 RevertToOriginalFactoryState *(v1.18+)*

Description

This action reverts a self-encrypting drive (SED) to the original factory state.

Action URI

{Base URI of target resource}/Actions/Drive.RevertToOriginalFactoryState

Action parameters

Parameter Name	Type	Attributes	Notes
PhysicalSecureID	string	*optional*	The physical secure ID (PSID). The PSID is generally printed on the drive label and used to revert an encrypted SED.

Request Example

```
{
    "PhysicalSecureID": "898318711983241720845652173610 41"
}
```

6.37.4.3 SecureErase

Description

This action securely erases the contents of the drive.

Action URI

{Base URI of target resource}/Actions/Drive.SecureErase

Action parameters

Parameter Name	Type	Attributes	Notes
OverwritePasses *(v1.15+)*	integer	*optional*	The number of times to overwrite the drive if performing an overwrite type of sanitization.
SanitizationType *(v1.15+)*	string (enum)	*optional*	The type of data sanitization to perform. *For the possible property values, see SanitizationType in Property details.*

Request Example

```
{
    "SanitizationType": "CryptographicErase"
}
```

6.37.5 Property details

6.37.5.1 ConfigurationLock

Indicates whether in-band configuration requests to the drive are locked. Other properties, such as `ConfigurationLockState`, contain additional information regarding the status of the configuration lock.

string	Description
Disabled	In-band configuration requests are not locked.
Enabled	In-band configuration requests are locked as specified by `TargetConfigurationLockLevel`.
Partial	Some in-band configuration requests are not locked while others are locked. This value is used for status reporting to indicate that the drive is partially locked and client action is recommended.

6.37.5.2 DriveFormFactor

The form factor of the drive inserted in this slot.

string	Description
Drive2_5	A 2.5 inch drive.
Drive3_5	A 3.5 inch drive.
EDSFF *(v1.18+)*	An EDSFF drive.
EDSFF_1U_Long	An EDSFF 1U Long (E1.L) drive.
EDSFF_1U_Short	An EDSFF 1U Short (E1.S) drive.
EDSFF_E3_Long	An EDSFF E3 Long (E3.L) drive.
EDSFF_E3_Short	An EDSFF E3 Short (E3.S) drive.
M2 *(v1.18+)*	An M.2 drive.
M2_22110	An M.2 22110 drive.
M2_2230	An M.2 2230 drive.
M2_2242	An M.2 2242 drive.
M2_2260	An M.2 2260 drive.
M2_2280	An M.2 2280 drive.

string	Description
OEM	An OEM-defined form factor.
PCIeHalfLength	A half-length PCIe add-in card.
PCIeSlotFullLength	A full-length PCIe add-in card.
PCIeSlotLowProfile	A low-profile PCIe add-in card.
U2	A U.2 drive.

6.37.5.3 EncryptionAbility

The encryption ability of this drive.

string	Description
None	The drive is not capable of self-encryption.
Other	The drive is capable of self-encryption through some other means.
SelfEncryptingDrive	The drive is capable of self-encryption per the Trusted Computing Group's Self Encrypting Drive Standard.

6.37.5.4 EncryptionStatus

The status of the encryption of this drive.

string	Description
Foreign	The drive is currently encrypted, the data is not accessible to the user, and the system requires user intervention to expose the data.
Locked	The drive is currently encrypted and the data is not accessible to the user. However, the system can unlock the drive automatically.
Unecrypted *(deprecated v1.1)*	The drive is not currently encrypted. *Deprecated in v1.1 and later. This value has been deprecated in favor of Unencrypted.*
Unencrypted *(v1.1+)*	The drive is not currently encrypted.
Unlocked	The drive is currently encrypted but the data is accessible to the user in unencrypted form.

6.37.5.5 FirmwareCommit

The lock state of the NVMe-defined Firmware Commit command.

string	Description
CommandUnsupported	The command is not supported, therefore lockdown does not apply.
LockdownUnsupported	The command is supported but is not able to be locked.
Locked	The command is supported and is currently locked.
Unlocked	The command is supported, able to be locked, and is currently unlocked.

6.37.5.6 FirmwareImageDownload

The lock state of the NVMe-defined Firmware Image Download command.

string	Description
CommandUnsupported	The command is not supported, therefore lockdown does not apply.
LockdownUnsupported	The command is supported but is not able to be locked.
Locked	The command is supported and is currently locked.
Unlocked	The command is supported, able to be locked, and is currently unlocked.

6.37.5.7 HotspareReplacementMode

The replacement mode for the hot spare drive.

string	Description
NonRevertible	The hot spare drive that is commissioned due to a drive failure remains as a data drive and does not revert to a hot spare if the failed drive is replaced.
Revertible	The hot spare drive that is commissioned due to a drive failure reverts to a hot spare after the failed drive is replaced and rebuilt.

6.37.5.8 HotspareType

The type of hot spare that this drive serves as.

string	Description
Chassis	The drive is serving as a hot spare for all other drives in this storage domain that are contained in the same chassis.
Dedicated	The drive is serving as a hot spare for a user-defined set of drives or volumes. Clients cannot specify this value when modifying the `HotspareType` property. This value is reported as a result of configuring the spare drives within a volume.
Global	The drive is serving as a hot spare for all other drives in this storage domain.
None	The drive is not a hot spare.

6.37.5.9 IndicatorLED

The state of the indicator LED, that identifies the drive.

string	Description
Blinking	The indicator LED is blinking.
Lit	The indicator LED is lit.
Off	The indicator LED is off.

6.37.5.10 Lockdown

The lock state of the NVMe-defined Lockdown command.

string	Description
CommandUnsupported	The command is not supported, therefore lockdown does not apply.
LockdownUnsupported	The command is supported but is not able to be locked.
Locked	The command is supported and is currently locked.
Unlocked	The command is supported, able to be locked, and is currently unlocked.

6.37.5.11 MediaType

The type of media contained in this drive.

string	Description
HDD	The drive media type is traditional magnetic platters.
SMR	The drive media type is shingled magnetic recording.
SSD	The drive media type is solid state or flash memory.

6.37.5.12 Operation

The type of the operation.

string	Description
ChangeRAIDType	A ChangeRAIDType operation is being performed.
ChangeStripSize	A ChangeStripSize operation is being performed.
CheckConsistency	A CheckConsistency operation is being performed.
Compress	A Compress operation is being performed.
Decrypt	A Decrypt operation is being performed.
Deduplicate	A Deduplicate operation is being performed.
Delete	A Delete operation is being performed.
Encrypt	An Encrypt operation is being performed.
Format	A Format operation is being performed.
Initialize	An Initialize operation is being performed.
Rebuild	A Rebuild operation is being performed.
Replicate	A Replicate operation is being performed.
Resize	A Resize operation is being performed.
Sanitize	A Sanitize operation is being performed.

6.37.5.13 Protocol

The protocol that this drive currently uses to communicate to the storage controller.

string	Description
AHCI	Advanced Host Controller Interface (AHCI).
CXL	Compute Express Link.
DisplayPort	DisplayPort.
DVI	DVI.
eMMC	Embedded MultiMediaCard (e.MMC).
Ethernet	Ethernet.
FC	Fibre Channel.
FCoE	Fibre Channel over Ethernet (FCoE).
FCP	Fibre Channel Protocol for SCSI.
FICON	FIbre CONnection (FICON).
FTP	File Transfer Protocol (FTP).
GenZ	GenZ.
HDMI	HDMI.
HTTP	Hypertext Transport Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
I2C	Inter-Integrated Circuit Bus.
InfiniBand	InfiniBand.
iSCSI	Internet SCSI.
iWARP	Internet Wide Area RDMA Protocol (iWARP).
MultiProtocol	Multiple Protocols.
NFSv3	Network File System (NFS) version 3.
NFSv4	Network File System (NFS) version 4.
NVLink	NVLink.
NVMe	Non-Volatile Memory Express (NVMe).
NVMeOverFabrics	NVMe over Fabrics.
OEM	OEM-specific.

string	Description
PCIe	PCI Express.
QPI	Intel QuickPath Interconnect (QPI).
RoCE	RDMA over Converged Ethernet Protocol.
RoCEv2	RDMA over Converged Ethernet Protocol Version 2.
SAS	Serial Attached SCSI.
SATA	Serial AT Attachment.
SFTP	SSH File Transfer Protocol (SFTP).
SMB	Server Message Block (SMB). Also known as the Common Internet File System (CIFS).
TCP	Transmission Control Protocol (TCP).
TFTP	Trivial File Transfer Protocol (TFTP).
UDP	User Datagram Protocol (UDP).
UET	Ultra Ethernet Transport.
UHCI	Universal Host Controller Interface (UHCI).
UPI	Intel UltraPath Interconnect (UPI).
USB	Universal Serial Bus (USB).
VGA	VGA.

6.37.5.14 ResetType

The type of reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the unit.
FullPowerCycle	Full power cycle the unit. Behaves like removing utility lines, followed by restoring utility lines to the resource.
GracefulRestart	Shut down gracefully and restart the unit.

string	Description
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
Pause	Pause execution on the unit but do not remove power. This is typically a feature of virtual machine hypervisors.
PowerCycle	Power cycle the unit. Behaves like a power removal, followed by a power restore to the resource.
PushPowerButton	Simulate the pressing of the physical power button on this unit.
Resume	Resume execution on the paused unit. This is typically a feature of virtual machine hypervisors.
Suspend	Write the state of the unit to disk before powering off. This allows for the state to be restored when powered back on.

6.37.5.15 SanitizationType

The type of data sanitization to perform.

string	Description
BlockErase	Delete all logical block addresses, including those that are not currently mapping to active addresses, but leaving the data on the drive.
CryptographicErase	Erase the target data's encryption key leaving only the ciphertext on the drive. For more information, see NIST800-88 and ISO/IEC 27040.
Overwrite	Overwrite data by writing an implementation-specific pattern onto all sectors of the drive.

6.37.5.16 SecuritySend

The lock state of the NVMe-defined Security Send command.

string	Description
CommandUnsupported	The command is not supported, therefore lockdown does not apply.
LockdownUnsupported	The command is supported but is not able to be locked.
Locked	The command is supported and is currently locked.

string	Description
Unlocked	The command is supported, able to be locked, and is currently unlocked.

6.37.5.17 SlotCapableProtocols

The drive protocols capable in this slot.

string	Description
AHCI	Advanced Host Controller Interface (AHCI).
CXL	Compute Express Link.
DisplayPort	DisplayPort.
DVI	DVI.
eMMC	Embedded MultiMediaCard (e.MMC).
Ethernet	Ethernet.
FC	Fibre Channel.
FCoE	Fibre Channel over Ethernet (FCoE).
FCP	Fibre Channel Protocol for SCSI.
FICON	FIbre CONnection (FICON).
FTP	File Transfer Protocol (FTP).
GenZ	GenZ.
HDMI	HDMI.
HTTP	Hypertext Transport Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
I2C	Inter-Integrated Circuit Bus.
InfiniBand	InfiniBand.
iSCSI	Internet SCSI.
iWARP	Internet Wide Area RDMA Protocol (iWARP).
MultiProtocol	Multiple Protocols.
NFSv3	Network File System (NFS) version 3.

string	Description
NFSv4	Network File System (NFS) version 4.
NVLink	NVLink.
NVMe	Non-Volatile Memory Express (NVMe).
NVMeOverFabrics	NVMe over Fabrics.
OEM	OEM-specific.
PCIe	PCI Express.
QPI	Intel QuickPath Interconnect (QPI).
RoCE	RDMA over Converged Ethernet Protocol.
RoCEv2	RDMA over Converged Ethernet Protocol Version 2.
SAS	Serial Attached SCSI.
SATA	Serial AT Attachment.
SFTP	SSH File Transfer Protocol (SFTP).
SMB	Server Message Block (SMB). Also known as the Common Internet File System (CIFS).
TCP	Transmission Control Protocol (TCP).
TFTP	Trivial File Transfer Protocol (TFTP).
UDP	User Datagram Protocol (UDP).
UET	Ultra Ethernet Transport.
UHCI	Universal Host Controller Interface (UHCI).
UPI	Intel UltraPath Interconnect (UPI).
USB	Universal Serial Bus (USB).
VGA	VGA.

6.37.5.18 SlotFormFactor

The form factor of the slot.

string	Description
Drive2_5	A 2.5 inch drive.

string	Description
Drive3_5	A 3.5 inch drive.
EDSFF *(v1.18+)*	An EDSFF drive.
EDSFF_1U_Long	An EDSFF 1U Long (E1.L) drive.
EDSFF_1U_Short	An EDSFF 1U Short (E1.S) drive.
EDSFF_E3_Long	An EDSFF E3 Long (E3.L) drive.
EDSFF_E3_Short	An EDSFF E3 Short (E3.S) drive.
M2 *(v1.18+)*	An M.2 drive.
M2_22110	An M.2 22110 drive.
M2_2230	An M.2 2230 drive.
M2_2242	An M.2 2242 drive.
M2_2260	An M.2 2260 drive.
M2_2280	An M.2 2280 drive.
OEM	An OEM-defined form factor.
PCIeHalfLength	A half-length PCIe add-in card.
PCIeSlotFullLength	A full-length PCIe add-in card.
PCIeSlotLowProfile	A low-profile PCIe add-in card.
U2	A U.2 drive.

6.37.5.19 StatusIndicator

The state of the status indicator, which communicates status information about this drive.

string	Description
Fail	The drive has failed.
Hotspare	The drive has been marked to automatically rebuild and replace a failed drive.
InACriticalArray	The array to which this drive belongs has been degraded.
InAFailedArray	The array to which this drive belongs has failed.
OK	The drive is OK.

string	Description
PredictiveFailureAnalysis	The drive still works but is predicted to fail soon.
Rebuild	The drive is being rebuilt.

6.37.5.20 TargetConfigurationLockLevel

Indicates the target configuration lock level for the drive based upon the state of the `ConfigurationLock` property. Other properties, such as `ConfigurationLockState`, contain additional information regarding the status of the configuration lock.

string	Description
Baseline	The standard configuration lock level, corresponding to applying firmware, updating security keys, and modifying other hardware settings. It does not include managing the volumes or data on the drive.

6.37.5.21 VPDWrite

The lock state of the NVMe-MI-defined VPD Write command.

string	Description
CommandUnsupported	The command is not supported, therefore lockdown does not apply.
LockdownUnsupported	The command is supported but is not able to be locked.
Locked	The command is supported and is currently locked.
Unlocked	The command is supported, able to be locked, and is currently unlocked.

6.37.6 Example response

```
{
    "@odata.type": "#Drive.v1_21_0.Drive",
    "Id": "3D58ECBC375FD9F2",
    "Name": "Drive Sample",
    "LocationIndicatorActive": true,
    "Model": "C123",
    "Revision": "100A",
    "Status": {
        "State": "Enabled",
```

```
        "Health": "OK"
    },
    "CapacityBytes": 899527000064,
    "FailurePredicted": false,
    "Protocol": "SAS",
    "MediaType": "HDD",
    "Manufacturer": "Contoso",
    "SerialNumber": "1234568",
    "PartNumber": "C123-1111",
    "Identifiers": [
        {
            "DurableNameFormat": "NAA",
            "DurableName": "32ADF365C6C1B7BD"
        }
    ],
    "HotspareType": "None",
    "EncryptionAbility": "SelfEncryptingDrive",
    "EncryptionStatus": "Unlocked",
    "RotationSpeedRPM": 15000,
    "BlockSizeBytes": 512,
    "CapableSpeedGbs": 12,
    "NegotiatedSpeedGbs": 12,
    "Links": {
        "Volumes": [
            {
                "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1/Volumes/2"
            },
            {
                "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1/Volumes/3"
            }
        ]
    },
    "Actions": {
        "#Drive.SecureErase": {
            "target": "/redfish/v1/Chassis/1U/Drives/3D58ECBC375FD9F2/Actions/Drive.SecureErase"
        }
    },
    "@odata.id": "/redfish/v1/Chassis/1U/Drives/3D58ECBC375FD9F2"
}
```


6.38 DriveMetrics 1.2.1

Version	*v1.2*	*v1.1*	*v1.0*
Release	2023.3	2023.2	2023.1

6.38.1 Description

The usage and health statistics for a drive.

6.38.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/Drives/*{DriveId}*/Metrics
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Drives/*{DriveId}*/Metrics (deprecated)
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.38.3 Properties

Property	Type	Attributes	Notes
BadBlockCount	integer	*read-only (null)*	The total number of bad blocks reported by the drive.
CorrectableIOReadErrorCount	integer	*read-only (null)*	The number of correctable read errors for the lifetime of the drive.
CorrectableIOWriteErrorCount	integer	*read-only (null)*	The number of correctable write errors for the lifetime of the drive.
NativeCommandQueueDepth *(v1.1+)*	integer	*read-only (null)*	The current depth of the Native Command Queue.
NVMeSMART {	object		The NVMe SMART metrics for the drive. See the *StorageControllerMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a NVMeSMARTMetrics resource. See the Links section and the *StorageControllerMetrics* schema for details.
}			
PowerOnHours	number	*read-only (null)*	The number of power-on hours for the lifetime of the drive.
ReadIOKiBytes *(v1.2+)*	integer (KiBy)	*read-only (null)*	The number of kibibytes read.
UncorrectableIOReadErrorCount	integer	*read-only (null)*	The number of uncorrectable read errors for the lifetime of the drive.
UncorrectableIOWriteErrorCount	integer	*read-only (null)*	The number of uncorrectable write errors for the lifetime of the drive.
WriteIOKiBytes *(v1.2+)*	integer (KiBy)	*read-only (null)*	The number of kibibytes written.

6.38.4 Example response


```
{
    "@odata.type": "#DriveMetrics.v1_2_1.DriveMetrics",
    "Id": "Metrics",
    "Name": "Drive Metrics",
    "CorrectableIOReadErrorCount": 184,
    "UncorrectableIOReadErrorCount": 0,
    "CorrectableIOWriteErrorCount": 18,
    "UncorrectableIOWriteErrorCount": 0,
    "BadBlockCount": 123098,
    "PowerOnHours": 3,
    "NVMeSMART": {
        "CriticalWarnings": {
            "PMRUnreliable": false,
            "PowerBackupFailed": false,
            "MediaInReadOnly": false,
            "OverallSubsystemDegraded": false,
            "SpareCapacityWornOut": false
        },
        "CompositeTemperatureCelsius": 34,
        "AvailableSparePercent": 50,
        "AvailableSpareThresholdPercent": 30,
        "PercentageUsed": 50,
        "EGCriticalWarningSummary": {
            "NamespacesInReadOnlyMode": false,
            "ReliabilityDegraded": false,
            "SpareCapacityUnderThreshold": false
        },
        "DataUnitsRead": 0,
        "DataUnitsWritten": 0,
        "HostReadCommands": 0,
        "HostWriteCommands": 0,
        "ControllerBusyTimeMinutes": 20,
        "PowerCycles": 49,
        "PowerOnHours": 3,
        "UnsafeShutdowns": 4,
        "MediaAndDataIntegrityErrors": 0,
        "NumberOfErrorInformationLogEntries": 100,
        "WarningCompositeTempTimeMinutes": 0,
        "CriticalCompositeTempTimeMinutes": 0,
        "TemperatureSensorsCelsius": [
            34,
            34,
            34,
            34,
            34,
            35,
            33,
```

```
            32
        ],
        "ThermalMgmtTemp1TransitionCount": 10,
        "ThermalMgmtTemp2TransitionCount": 2,
        "ThermalMgmtTemp1TotalTimeSeconds": 20,
        "ThermalMgmtTemp2TotalTimeSeconds": 42
    },
    "@odata.id": "/redfish/v1/Chassis/StorageEnclosure1/Drives/0THGR0KP/Metrics"
}
```


6.39 Endpoint 1.8.2

Version	*v1.8*	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2022.3	2022.1	2021.1	2020.3	2019.4	2018.3	2018.2	2017.3	2016.2

6.39.1 Description

The `Endpoint` schema contains the properties of an endpoint resource that represents the properties of an entity that sends or receives protocol-defined messages over a transport.

6.39.2 URIs

/redfish/v1/Fabrics/*{FabricId}*/Endpoints/*{EndpointId}*
/redfish/v1/Storage/*{StorageId}*/Endpoints/*{EndpointId}* (deprecated)
/redfish/v1/StorageServices/*{StorageServiceId}*/Endpoints/*{EndpointId}*

6.39.3 Properties

Property	Type	Attributes	Notes
ConnectedEntities [{	array		All the entities connected to this endpoint.
EntityLink {	object		The link to the associated entity.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}			
EntityPciId {	object		The PCI ID of the connected entity.

Property	Type	Attributes	Notes
ClassCode *(v1.2+)*	string	*read-only (null)*	The Class Code, Subclass, and Programming Interface code of this PCIe function.
DeviceId	string	*read-only (null)*	The Device ID of this PCIe function.
FunctionNumber *(v1.2+)*	integer	*read-only (null)*	The PCI ID of the connected entity.
SubsystemId	string	*read-only (null)*	The Subsystem ID of this PCIe function.
SubsystemVendorId	string	*read-only (null)*	The Subsystem Vendor ID of this PCIe function.
VendorId	string	*read-only (null)*	The Vendor ID of this PCIe function.
}			
EntityRole	string (enum)	*read-only (null)*	The role of the connected entity. *For the possible property values, see EntityRole in Property details.*
EntityType	string (enum)	*read-only (null)*	The type of the connected entity. *For the possible property values, see EntityType in Property details.*
GenZ *(v1.4+)* {	object		The Gen-Z related properties for the entity.
AccessKey *(v1.4+, deprecated v1.6)*	string	*read-write (null)*	The Access Key for the entity. *Deprecated in v1.6 and later. This property has been deprecated in favor of the* `ConnectionKeys` *property in the* `Connection` *resource.*
GCID *(v1.4+)* {	object	*(null)*	The Global Component ID (GCID) for the entity.
CID *(v1.4+)*	string	*read-write (null)*	The component identifier portion of the GCID for the entity.
SID *(v1.4+)*	string	*read-write (null)*	The subnet identifier portion of the GCID for the entity.
}			
RegionKey *(v1.4+, deprecated v1.6)*	string	*read-write (null)*	The Region Key for the entity. *Deprecated in v1.6 and later. This property has been deprecated in favor of the* `ConnectionKeys` *property in the* `Connection` *resource.*
}			
Identifiers [{ }]	array (object)		Identifiers for the remote entity. For property details, see Identifier.

Property	Type	Attributes	Notes
Oem {}	object		See the Oem object definition in the Common properties section.
PciClassCode *(deprecated v1.2)*	string	*read-only (null)*	The Class Code, Subclass, and Programming Interface code of this PCIe function. *Deprecated in v1.2 and later. This property has been deprecated in favor of the* `ClassCode` *property inside the* `EntityPciId` *object.*
PciFunctionNumber *(deprecated v1.2)*	integer	*read-only (null)*	The PCI ID of the connected entity. *Deprecated in v1.2 and later. This property has been deprecated in favor of the* `FunctionNumber` *property inside the* `EntityPciId` *object.*
}]			
EndpointProtocol	string (enum)	*read-only (null)*	The protocol supported by this endpoint. *For the possible property values, see EndpointProtocol in Property details.*
HostReservationMemoryBytes	integer (bytes)	*read-only (null)*	The amount of memory in bytes that the host should allocate to connect to this endpoint.
Identifiers [{ }]	array (object)		Identifiers for this endpoint. For property details, see Identifier.
IPTransportDetails *(v1.1+)* [{	array		An array of details for each IP transport supported by this endpoint. The array structure can model multiple IP addresses for this endpoint.
IPv4Address *(v1.1+)* {}	object		The IPv4 addresses assigned to the endpoint. For property details, see IPv4Address.
IPv6Address *(v1.1+)* {}	object		The IPv6 addresses assigned to the endpoint. For property details, see IPv6Address.
Port *(v1.1+)*	integer	*read-only*	The UDP or TCP port number used by the endpoint.
TransportProtocol *(v1.1+)*	string (enum)	*read-only*	The protocol used by the connection entity. *For the possible property values, see TransportProtocol in Property details.*
}]			
Links {	object		The links to other resources that are related to this resource.
AddressPools *(v1.4+)* [{	array		An array of links to the address pools associated with this endpoint.
@odata.id	string	*read-write*	Link to a AddressPool resource. See the Links section and the *AddressPool* schema for details.
}]			
ConnectedPorts *(v1.4+)* [{	array		An array of links to the switch ports or remote device ports at the other end of the link.
@odata.id	string	*read-only*	Link to a Port resource. See the Links section and the *Port* schema for details.

Property	Type	Attributes	Notes
}]			
Connections *(v1.5+)* [{	array		The connections to which this endpoint belongs.
@odata.id	string	*read-only*	Link to a Connection resource. See the Links section and the *Connection* schema for details.
}]			
LocalPorts *(v1.7+)* [{	array		An array of links to the device ports that this endpoint represents.
@odata.id	string	*read-only*	Link to a Port resource. See the Links section and the *Port* schema for details.
}]			
MutuallyExclusiveEndpoints [{	array		An array of links to the endpoints that cannot be used in zones if this endpoint is in a zone.
@odata.id	string	*read-only*	Link to another Endpoint resource.
}]			
NetworkDeviceFunction *(v1.1+)* [{	array		When `NetworkDeviceFunction` resources are present, this array contains links to the network device functions that connect to this endpoint.
@odata.id	string	*read-only*	Link to a NetworkDeviceFunction resource. See the Links section and the *NetworkDeviceFunction* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
Ports *(deprecated v1.7)* [{	array		An array of links to the physical ports associated with this endpoint. *Deprecated in v1.7 and later. This property has been deprecated in favor of the ConnectedPorts and LocalPorts properties to clarify the semantics of each port referenced.*
@odata.id	string	*read-only*	Link to a Port resource. See the Links section and the *Port* schema for details.
}]			
Zones *(v1.6+)* [{	array		The zones to which this endpoint belongs.
@odata.id	string	*read-only*	Link to a Zone resource. See the Links section and the *Zone* schema for details.
}]			
}			

Property	Type	Attributes	Notes
PciId {	object		The PCI ID of the endpoint.
ClassCode *(v1.2+)*	string	*read-only (null)*	The Class Code, Subclass, and Programming Interface code of this PCIe function.
DeviceId	string	*read-only (null)*	The Device ID of this PCIe function.
FunctionNumber *(v1.2+)*	integer	*read-only (null)*	The PCI ID of the connected entity.
SubsystemId	string	*read-only (null)*	The Subsystem ID of this PCIe function.
SubsystemVendorId	string	*read-only (null)*	The Subsystem Vendor ID of this PCIe function.
VendorId	string	*read-only (null)*	The Vendor ID of this PCIe function.
}			
Redundancy [{ }]	array (object)		Redundancy information for the lower-level endpoints supporting this endpoint. For property details, see Redundancy.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.39.4 Property details

6.39.4.1 EndpointProtocol

The protocol supported by this endpoint.

string	Description
AHCI	Advanced Host Controller Interface (AHCI).
CXL	Compute Express Link.
DisplayPort	DisplayPort.
DVI	DVI.
eMMC	Embedded MultiMediaCard (e.MMC).
Ethernet	Ethernet.

string	Description
FC	Fibre Channel.
FCoE	Fibre Channel over Ethernet (FCoE).
FCP	Fibre Channel Protocol for SCSI.
FICON	FIbre CONnection (FICON).
FTP	File Transfer Protocol (FTP).
GenZ	GenZ.
HDMI	HDMI.
HTTP	Hypertext Transport Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
I2C	Inter-Integrated Circuit Bus.
InfiniBand	InfiniBand.
iSCSI	Internet SCSI.
iWARP	Internet Wide Area RDMA Protocol (iWARP).
MultiProtocol	Multiple Protocols.
NFSv3	Network File System (NFS) version 3.
NFSv4	Network File System (NFS) version 4.
NVLink	NVLink.
NVMe	Non-Volatile Memory Express (NVMe).
NVMeOverFabrics	NVMe over Fabrics.
OEM	OEM-specific.
PCIe	PCI Express.
QPI	Intel QuickPath Interconnect (QPI).
RoCE	RDMA over Converged Ethernet Protocol.
RoCEv2	RDMA over Converged Ethernet Protocol Version 2.
SAS	Serial Attached SCSI.
SATA	Serial AT Attachment.

string	Description
SFTP	SSH File Transfer Protocol (SFTP).
SMB	Server Message Block (SMB). Also known as the Common Internet File System (CIFS).
TCP	Transmission Control Protocol (TCP).
TFTP	Trivial File Transfer Protocol (TFTP).
UDP	User Datagram Protocol (UDP).
UET	Ultra Ethernet Transport.
UHCI	Universal Host Controller Interface (UHCI).
UPI	Intel UltraPath Interconnect (UPI).
USB	Universal Serial Bus (USB).
VGA	VGA.

6.39.4.2 EntityRole

The role of the connected entity.

string	Description
Both	The entity can both send and receive commands, messages, and other requests to or from other entities on the fabric.
Initiator	The entity sends commands, messages, or other types of requests to other entities on the fabric, but cannot receive commands from other entities.
Target	The entity receives commands, messages, or other types of requests from other entities on the fabric, but cannot send commands to other entities.

6.39.4.3 EntityType

The type of the connected entity.

string	Description
AccelerationFunction *(v1.3+)*	The entity is an acceleration function realized through a device, such as an FPGA.
Bridge	The entity is a PCIe bridge.

string	Description
CXLDevice *(v1.8+)*	The entity is a CXL logical device.
DisplayController	The entity is a display controller.
Drive	The entity is a drive.
FabricBridge *(v1.4+)*	The entity is a fabric bridge.
Manager *(v1.5+)*	The entity is a manager.
MediaController *(v1.4+)*	The entity is a media controller.
Memory *(v1.8+)*	The entity is a memory device.
MemoryChunk *(v1.4+)*	The entity is a memory chunk.
NetworkController	The entity is a network controller.
Processor	The entity is a processor.
RootComplex	The entity is a PCIe root complex.
StorageExpander	The entity is a storage expander.
StorageInitiator	The entity is a storage initiator.
StorageSubsystem *(v1.6+)*	The entity is a storage subsystem.
Switch *(v1.4+)*	The entity is a switch, not an expander. Use `Expander` for expanders.
Volume *(v1.1+)*	The entity is a volume.

6.39.4.4 TransportProtocol

The protocol used by the connection entity.

string	Description
AHCI	Advanced Host Controller Interface (AHCI).
CXL	Compute Express Link.
DisplayPort	DisplayPort.
DVI	DVI.
eMMC	Embedded MultiMediaCard (e.MMC).
Ethernet	Ethernet.

string	Description
FC	Fibre Channel.
FCoE	Fibre Channel over Ethernet (FCoE).
FCP	Fibre Channel Protocol for SCSI.
FICON	FIbre CONnection (FICON).
FTP	File Transfer Protocol (FTP).
GenZ	GenZ.
HDMI	HDMI.
HTTP	Hypertext Transport Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
I2C	Inter-Integrated Circuit Bus.
InfiniBand	InfiniBand.
iSCSI	Internet SCSI.
iWARP	Internet Wide Area RDMA Protocol (iWARP).
MultiProtocol	Multiple Protocols.
NFSv3	Network File System (NFS) version 3.
NFSv4	Network File System (NFS) version 4.
NVLink	NVLink.
NVMe	Non-Volatile Memory Express (NVMe).
NVMeOverFabrics	NVMe over Fabrics.
OEM	OEM-specific.
PCIe	PCI Express.
QPI	Intel QuickPath Interconnect (QPI).
RoCE	RDMA over Converged Ethernet Protocol.
RoCEv2	RDMA over Converged Ethernet Protocol Version 2.
SAS	Serial Attached SCSI.
SATA	Serial AT Attachment.

string	Description
SFTP	SSH File Transfer Protocol (SFTP).
SMB	Server Message Block (SMB). Also known as the Common Internet File System (CIFS).
TCP	Transmission Control Protocol (TCP).
TFTP	Trivial File Transfer Protocol (TFTP).
UDP	User Datagram Protocol (UDP).
UET	Ultra Ethernet Transport.
UHCI	Universal Host Controller Interface (UHCI).
UPI	Intel UltraPath Interconnect (UPI).
USB	Universal Serial Bus (USB).
VGA	VGA.

6.39.5 Example response


```
{
    "@odata.type": "#Endpoint.v1_8_2.Endpoint",
    "Id": "Drive1",
    "Name": "SAS Drive",
    "Description": "The SAS Drive in Enclosure 2 Bay 0",
    "EndpointProtocol": "SAS",
    "ConnectedEntities": [
        {
            "EntityType": "Drive",
            "EntityRole": "Target",
            "Identifiers": [
                {
                    "DurableNameFormat": "NAA",
                    "DurableName": "32ADF365C6C1B7C3"
                }
            ]
        }
    ],
    "Links": {
        "MutuallyExclusiveEndpoints": [
            {
                "@odata.id": "/redfish/v1/Fabrics/SAS/Endpoints/Enclosure2"
            }
        ],
        "ConnectedPorts": [
```

```
            {
                "@odata.id": "/redfish/v1/Fabrics/SAS/Switches/Switch1/Ports/8"
            },
            {
                "@odata.id": "/redfish/v1/Fabrics/SAS/Switches/Switch2/Ports/8"
            }
        ]
    },
    "@odata.id": "/redfish/v1/Fabrics/SAS/Endpoints/Drive1"
}
```


6.40 EndpointGroup 1.3.4

Version	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2020.3	WIP v1.1.0	WIP v1.0.5	TP v1.0.3

6.40.1 Description

The `EndpointGroup` schema describes a group of endpoints that are managed as a unit.

6.40.2 URIs

/redfish/v1/Fabrics/*{FabricId}*/EndpointGroups/*{EndpointGroupId}*
/redfish/v1/Storage/*{StorageId}*/EndpointGroups/*{EndpointGroupId}*
/redfish/v1/StorageServices/*{StorageServiceId}*/EndpointGroups/*{EndpointGroupId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/EndpointGroups/*{EndpointGroupId}*

6.40.3 Properties

Property	Type	Attributes	Notes
AccessState *(deprecated v1.3)*	string (enum)	*read-write (null)*	The access state for this group. *For the possible property values, see AccessState in Property details. Deprecated in v1.3 and later. This property has been deprecated in favor of the* `AccessState` *property in the connection resource.*
Endpoints *(deprecated v1.3)* [{	array		The endpoints in this endpoint group. *Deprecated in v1.3 and later. This property has been deprecated in favor of the* `Endpoints` *property within* `Links` *.*

Property	Type	Attributes	Notes
@odata.id	string	*read-write*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
GroupType	string (enum)	*read-write (null)*	The endpoint group type. *For the possible property values, see GroupType in Property details.*
Identifier {}	object		The durable name for the endpoint group. For property details, see Identifier.
Links {	object		The links to other resources that are related to this resource.
Connections *(v1.3+)* [{	array		The connections to which this endpoint group belongs.
@odata.id	string	*read-only*	Link to a Connection resource. See the Links section and the *Connection* schema for details.
}]			
Endpoints *(v1.3+)* [{	array		The endpoints in this endpoint group.
@odata.id	string	*read-write*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
}			
Preferred *(deprecated v1.2)*	boolean	*read-write (null)*	An indication if access to the resources through the endpoint group is preferred. *Deprecated in v1.2 and later. This property has been deprecated in favor of the* `AccessState` *property in the connection resource.*
TargetEndpointGroupIdentifier	integer	*read-write (null)*	The SCSI-defined identifier for this group.

6.40.4 Property details

6.40.4.1 AccessState

The access state for this group.

string	Description
NonOptimized	The endpoints are in an active and non-optimized state.

string	Description
Optimized	The endpoints are in an active and optimized state.
Standby	The endpoints are in a standby state.
Transitioning	The endpoints are transitioning to a new state.
Unavailable	The endpoints are in an unavailable state.

6.40.4.2 GroupType

The endpoint group type.

string	Description
Client *(deprecated v1.3)*	The group contains the client (initiator) endpoints. *Deprecated in v1.3 and later. This value has been deprecated in favor of* `Initiator`.
Initiator *(v1.3+)*	The group contains the initiator endpoints.
Server *(deprecated v1.3)*	The group contains the server (target) endpoints. *Deprecated in v1.3 and later. This value has been deprecated in favor of* `Target`.
Target *(v1.3+)*	The group contains the target endpoints.

6.40.5 Example response

```
{
    "@odata.type": "#EndpointGroup.v1_3_4.EndpointGroup",
    "Id": "1",
    "Name": "Endpoint group for all initiators",
    "GroupType": "Initiator",
    "Links": {
        "Endpoints": [
            {
                "@odata.id": "/redfish/v1/Fabrics/NVMeoF/Endpoints/Initiator1"
            },
            {
                "@odata.id": "/redfish/v1/Fabrics/NVMeoF/Endpoints/Initiator2"
            }
        ],
        "Connections": [
            {
                "@odata.id": "/redfish/v1/Fabrics/NVMeoF/Connections/3"
            }
```

```
            ]
        },
        "@odata.id": "/redfish/v1/Fabrics/NVMeoF/EndpointGroups/1"
    }
```

6.41 EnvironmentMetrics 1.5.0

Version	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2025.2	2025.1	2022.2	2021.4	2021.2	2020.4

6.41.1 Description

The `EnvironmentMetrics` schema represents the environmental metrics of a device.

6.41.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/Drives/*{DriveId}*/EnvironmentMetrics
/redfish/v1/Chassis/*{ChassisId}*/EnvironmentMetrics
/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/EnvironmentMetrics
/redfish/v1/Chassis/*{ChassisId}*/MediaControllers/*{MediaControllerId}*/EnvironmentMetrics
/redfish/v1/Chassis/*{ChassisId}*/MediaControllers/*{MediaControllerId}*/Ports/*{PortId}*/EnvironmentMetrics
/redfish/v1/Chassis/*{ChassisId}*/Memory/*{MemoryId}*/EnvironmentMetrics
/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/EnvironmentMetrics
/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Ports/*{PortId}*/EnvironmentMetrics
/redfish/v1/Chassis/*{ChassisId}*/PCIeDevices/*{PCIeDeviceId}*/EnvironmentMetrics
/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/EnvironmentMetrics
/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*/EnvironmentMetrics
/redfish/v1/Facilities/*{FacilityId}*/AmbientMetrics
/redfish/v1/Facilities/*{FacilityId}*/EnvironmentMetrics
/redfish/v1/Managers/*{ManagerId}*/DedicatedNetworkPorts/*{PortId}*/EnvironmentMetrics
/redfish/v1/Managers/*{ManagerId}*/USBPorts/*{PortId}*/EnvironmentMetrics
/redfish/v1/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/EnvironmentMetrics
/redfish/v1/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Ports/*{PortId}*/EnvironmentMetrics
/redfish/v1/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports/*{PortId}*/EnvironmentMetrics
/redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/EnvironmentMetrics
/redfish/v1/Systems/*{ComputerSystemId}*/GraphicsControllers/*{GraphicsControllerId}*/Ports/*{PortId}*/
EnvironmentMetrics
/redfish/v1/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/EnvironmentMetrics
/redfish/v1/Systems/*{ComputerSystemId}*/PCIeDevices/*{PCIeDeviceId}*/EnvironmentMetrics

/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/EnvironmentMetrics
/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/Ports/*{PortId}*/EnvironmentMetrics
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/EnvironmentMetrics
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Ports/*{PortId}*/EnvironmentMetrics
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Drives/*{DriveId}*/EnvironmentMetrics (deprecated)
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports/*{PortId}*/EnvironmentMetrics
/redfish/v1/Systems/*{ComputerSystemId}*/USBControllers/*{USBControllerId}*/Ports/*{PortId}*/EnvironmentMetrics
/redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/EnvironmentMetrics
/redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/EnvironmentMetrics
/redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/EnvironmentMetrics
/redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/EnvironmentMetrics
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.41.3 Properties

Property	Type	Attributes	Notes
AbsoluteHumidity *(v1.2+)* {}	object		Absolute humidity (g/m^3). For more information about this property, see SensorExcerpt in Property Details.
AmbientTemperatureCelsius *(v1.4+)* {}	object		Ambient temperature (Celsius). For more information about this property, see SensorExcerpt in Property Details.
CurrentAmps *(v1.5+)* {	object (excerpt)		The current (A) for this device. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
CrestFactor *(v1.1+)*	number	*read-only (null)*	The crest factor for this sensor.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
THDPercent *(v1.1+)*	number (%)	*read-only (null)*	The total harmonic distortion percent (% THD).
}			
DewPointCelsius *(v1.1+)* {}	object		The dew point temperature (C). For more information about this property, see SensorExcerpt in Property Details.
EnergyJoules *(v1.2+)* {}	object		Energy consumption (J). For more information about this property, see SensorExcerpt in Property Details.

Property	Type	Attributes	Notes
EnergykWh {	object (excerpt)		Energy consumption (kWh). This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
ApparentkVAh *(v1.5+)*	number (kV.A.h)	*read-only (null)*	Apparent energy (kVAh).
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
LifetimeReading *(v1.1+)*	number	*read-only (null)*	The total accumulation value for this sensor.
ReactivekVARh *(v1.5+)*	number (kV.A.h)	*read-only (null)*	Reactive energy (kVARh).
Reading	number	*read-only (null)*	The sensor value.
SensorResetTime	string (date-time)	*read-only (null)*	The date and time when the time-based properties were last reset.
}			
FanSpeedsPercent [{	array (excerpt)		Fan speeds (percent). This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
DeviceName *(v1.2+)*	string	*read-only (null)*	The name of the device.
PhysicalContext	string (enum)	*read-write (null)*	The area or device to which this sensor measurement applies. *For the possible property values, see PhysicalContext in Property details.*
PhysicalSubContext	string (enum)	*read-write (null)*	The usage or location within a device to which this sensor measurement applies. *For the possible property values, see PhysicalSubContext in Property details.*
Reading	number	*read-only (null)*	The sensor value.
SpeedRPM *(v1.2+)*	number ({rev}/min)	*read-only (null)*	The rotational speed.
}]			
HumidityPercent {}	object		Humidity (percent). For more information about this property, see SensorExcerpt in Property Details.

Property	Type	Attributes	Notes
PowerLimitWatts *(v1.1+)* {	object (excerpt)		Power limit (W). This object is an excerpt of the *Control* resource located at the URI shown in DataSourceUri.
AllowableMax	number	*read-only (null)*	The maximum possible setting for this control.
AllowableMin	number	*read-only (null)*	The minimum possible setting for this control.
ControlMode	string (enum)	*read-write (null)*	The current operating mode of the control. *For the possible property values, see ControlMode in Property details.*
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this control.
DefaultSetPoint *(v1.3+)*	number	*read-only (null)*	The default set point of the control.
Reading	number	*read-only (null)*	The reading of the sensor associated with this control.
SetPoint	number	*read-write (null)*	The desired set point of the control.
}			
PowerLoadPercent *(v1.1+)* {}	object		The power load (percent) for this device. For more information about this property, see SensorExcerpt in Property Details.
PowerWatts {	object (excerpt)		Power consumption (W). This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
ApparentVA	number (V.A)	*read-only (null)*	The product of voltage and current for an AC circuit, in volt-ampere units.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
PhaseAngleDegrees *(v1.5+)*	number	*read-only (null)*	The phase angle (degrees) between the current and voltage waveforms.
PowerFactor	number	*read-only (null)*	The power factor for this sensor.
ReactiveVAR	number (V.A)	*read-only (null)*	The square root of the difference term of squared apparent VA and squared power (Reading) for a circuit, in VAR units.
Reading	number	*read-only (null)*	The sensor value.
}			

Property	Type	Attributes	Notes
TemperatureCelsius {}	object		Temperature (Celsius). For more information about this property, see SensorExcerpt in Property Details.
Voltage *(v1.5+)* {	object (excerpt)		The voltage (V) for this device. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
CrestFactor *(v1.1+)*	number	*read-only (null)*	The crest factor for this sensor.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
THDPercent *(v1.1+)*	number (%)	*read-only (null)*	The total harmonic distortion percent (% THD).
}			

6.41.4 Actions

6.41.4.1 ResetMetrics

Description

This action resets the summary metrics related to this equipment.

Action URI

{Base URI of target resource}/Actions/EnvironmentMetrics.ResetMetrics

Action parameters

This action takes no parameters.

6.41.4.2 ResetToDefaults *(v1.3+)*

Description

The action resets the values of writable properties to factory defaults.

Action URI

{Base URI of target resource}/Actions/EnvironmentMetrics.ResetToDefaults

Action parameters

This action takes no parameters.

6.41.5 Property details

6.41.5.1 ControlMode

The current operating mode of the control.

string	Description
Automatic	Automatically adjust control to meet the set point.
Disabled	The control has been disabled.
Manual	No automatic adjustments are made to the control.
Override	User override of the automatic set point value.

6.41.5.2 PhysicalContext

The area or device to which this sensor measurement applies.

string	Description
Accelerator	An accelerator.
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.
ACOutput	An AC electrical output or output-related circuit.
ACStaticBypassInput	An AC electrical static bypass input.
ACUtilityInput	An AC electrical utility input.
ASIC	An ASIC device, such as a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.

string	Description
Chassis	The entire chassis.
ComputeBay	A compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Manager	A management controller, such as a BMC (baseboard management controller).
Memory	A memory device.
MemorySubsystem	The entire memory subsystem.
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.

string	Description
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	A power supply bay.
Pump	A pump.
Rectifier	A rectifier device.
Reservoir	A reservoir.
Room	The room.
StorageBay	A storage bay.
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

6.41.5.3 PhysicalSubContext

The usage or location within a device to which this sensor measurement applies.

string	Description
Input	The input.
Output	The output.

6.41.5.4 SensorExcerpt

The `Sensor` schema describes a sensor and its properties. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.

DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.

6.41.6 Example response

```
{
    "@odata.type": "#EnvironmentMetrics.v1_5_0.EnvironmentMetrics",
    "Name": "Processor Environment Metrics",
    "TemperatureCelsius": {
        "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/CPU1Temp",
        "Reading": 44
    },
    "PowerWatts": {
        "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/CPU1Power",
        "Reading": 12.87
    },
    "FanSpeedsPercent": [
        {
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/CPUFan1",
            "DeviceName": "CPU #1 Fan Speed",
            "Reading": 80
        }
    ],
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/Processors/1/EnvironmentMetrics"
}
```

6.42 EthernetInterface 1.12.4

Version	*v1.12*	*v1.11*	*v1.10*	*v1.9*	*v1.8*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	...
Release	2023.3	2023.2	2023.1	2022.2	2021.2	2020.1	2019.1	2017.3	2017.1	2016.3	2016.2	...

6.42.1 Description

The `EthernetInterface` schema represents a single, logical Ethernet interface or network interface controller (NIC).

6.42.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/NetworkDeviceFunctions/*{NetworkDeviceFunctionId}*/EthernetInterfaces/*{EthernetInterfaceId}*
/redfish/v1/Managers/*{ManagerId}*/EthernetInterfaces/*{EthernetInterfaceId}*
/redfish/v1/Systems/*{ComputerSystemId}*/EthernetInterfaces/*{EthernetInterfaceId}*
/redfish/v1/Systems/*{ComputerSystemId}*/OperatingSystem/Containers/EthernetInterfaces/*{EthernetInterfaceId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.42.3 Properties

Property	Type	Attributes	Notes
AutoNeg	boolean	*read-write (null)*	An indication of whether the speed and duplex are automatically negotiated and configured on this interface.
DHCPv4 *(v1.4+)* {	object		DHCPv4 configuration for this interface.
DHCPEnabled *(v1.4+)*	boolean	*read-write (null)*	An indication of whether DHCP v4 is enabled on this Ethernet interface.
FallbackAddress *(v1.5+)*	string (enum)	*read-write (null)*	DHCPv4 fallback address method for this interface. *For the possible property values, see FallbackAddress in Property details.*
UseDNSServers *(v1.4+)*	boolean	*read-write (null)*	An indication of whether this interface uses DHCP v4-supplied DNS servers.
UseDomainName *(v1.4+)*	boolean	*read-write (null)*	An indication of whether this interface uses a DHCP v4-supplied domain name.
UseGateway *(v1.4+)*	boolean	*read-write (null)*	An indication of whether this interface uses a DHCP v4-supplied gateway.
UseNTPServers *(v1.4+)*	boolean	*read-write (null)*	An indication of whether the interface uses DHCP v4-supplied NTP servers.
UseStaticRoutes *(v1.4+)*	boolean	*read-write (null)*	An indication of whether the interface uses DHCP v4-supplied static routes.
}			
DHCPv6 *(v1.4+)* {	object		DHCPv6 configuration for this interface.

Property	Type	Attributes	Notes
OperatingMode *(v1.4+)*	string (enum)	*read-write (null)*	Determines the DHCPv6 operating mode for this interface. *For the possible property values, see OperatingMode in Property details.*
UseDNSServers *(v1.4+)*	boolean	*read-write (null)*	An indication of whether the interface uses DHCP v6-supplied DNS servers.
UseDomainName *(v1.4+)*	boolean	*read-write (null)*	An indication of whether this interface uses a DHCP v6-supplied domain name.
UseNTPServers *(v1.4+)*	boolean	*read-write (null)*	An indication of whether the interface uses DHCP v6-supplied NTP servers.
UseRapidCommit *(v1.4+)*	boolean	*read-write (null)*	An indication of whether the interface uses DHCP v6 rapid commit mode for stateful mode address assignments. Do not enable this option in networks where more than one DHCP v6 server is configured to provide address assignments.
}			
EthernetInterfaceType *(v1.6+)*	string (enum)	*read-only (null)*	The type of interface. *For the possible property values, see EthernetInterfaceType in Property details.*
FQDN	string	*read-write (null)*	The complete, fully qualified domain name that DNS obtains for this interface.
FullDuplex	boolean	*read-write (null)*	An indication of whether full-duplex mode is enabled on the Ethernet connection for this interface.
HostName	string	*read-write (null)*	The DNS host name, without any domain information.
InterfaceEnabled	boolean	*read-write (null)*	An indication of whether this interface is enabled.
IPv4Addresses [{ }]	array (object)		The IPv4 addresses currently in use by this interface. For property details, see IPv4Address.
IPv4StaticAddresses *(v1.4+)* [{ }]	array (object)	*(null)*	The IPv4 static addresses assigned to this interface. See `IPv4Addresses` for the addresses in use by this interface. For property details, see IPv4Address.
IPv6Addresses [{ }]	array (object)		The IPv6 addresses currently in use by this interface. For property details, see IPv6Address.
IPv6AddressPolicyTable [{	array		An array that represents the RFC6724-defined address selection policy table.
Label	integer	*read-write (null)*	The IPv6 label, as defined in RFC6724, section 2.1.
Precedence	integer	*read-write (null)*	The IPv6 precedence, as defined in RFC6724, section 2.1.

Property	Type	Attributes	Notes
Prefix	string	*read-write (null)*	The IPv6 address prefix, as defined in RFC6724, section 2.1.
}]			
IPv6DefaultGateway	string	*read-only (null)*	The IPv6 default gateway address in use on this interface.
IPv6Enabled *(v1.12+)*	boolean	*read-write (null)*	An indication of whether IPv6 is enabled on this interface.
IPv6StaticAddresses [{ }]	array (object)	*(null)*	The IPv6 static addresses assigned to this interface. See `IPv6Addresses` for the addresses in use by this interface. For property details, see IPv6StaticAddress.
IPv6StaticDefaultGateways *(v1.4+)* [{ }]	array (object)	*(null)*	The IPv6 static default gateways for this interface. For property details, see IPv6GatewayStaticAddress v1.1.5).
Links *(v1.1+)* {	object	*required on create*	The links to other resources that are related to this resource.
AffiliatedInterfaces *(v1.10+)* [{	array		The links to the Ethernet interfaces that are affiliated with this interface, such as a VLAN or a team that uses this interface.
@odata.id	string	*read-only*	Link to another EthernetInterface resource.
}]			
Chassis *(v1.3+)* {	object		The link to the chassis that contains this Ethernet interface. See the *Chassis* schema for details on this property.
@odata.id	string	*read-only*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}			
Endpoints *(v1.1+)* [{	array		An array of links to the endpoints that connect to this Ethernet interface.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
HostInterface *(v1.2+)* {	object		The link to a Host Interface that is associated with this Ethernet interface. See the *HostInterface* schema for details on this property.
@odata.id	string	*read-only*	Link to a HostInterface resource. See the Links section and the *HostInterface* schema for details.
}			

Property	Type	Attributes	Notes
NetworkDeviceFunction *(v1.6+, deprecated v1.7)* {	object	*(null)*	The link to the parent network device function and is only used when representing one of the VLANs on that network device function, such as is done in Unix. See the *NetworkDeviceFunction* schema for details on this property. *Deprecated in v1.7 and later. This property has been deprecated in favor of* `NetworkDeviceFunctions` *as each* `EthernetInterface` *could represent more than one* `NetworkDeviceFunction`.
@odata.id	string	*read-only*	Link to a NetworkDeviceFunction resource. See the Links section and the *NetworkDeviceFunction* schema for details.
}			
NetworkDeviceFunctions *(v1.7+)* [{	array		The link to the network device functions that constitute this Ethernet interface.
@odata.id	string	*read-only*	Link to a NetworkDeviceFunction resource. See the Links section and the *NetworkDeviceFunction* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
Ports *(v1.9+)* [{	array		The links to the ports providing this Ethernet interface.
@odata.id	string	*read-only*	Link to a Port resource. See the Links section and the *Port* schema for details.
}]			
RelatedInterfaces *(v1.9+)* [{	array	*required on create*	The links to the Ethernet interfaces that constitute this Ethernet interface.
@odata.id	string	*read-write*	Link to another EthernetInterface resource.
}]			
}			
LinkStatus *(v1.1+)*	string (enum)	*read-only (null)*	The link status of this interface, or port. *For the possible property values, see LinkStatus in Property details.*
MACAddress	string	*read-write (null)*	The currently configured MAC address of the interface, or logical port.
MaxIPv6StaticAddresses	integer	*read-only (null)*	The maximum number of static IPv6 addresses that can be configured on this interface.
MTUSize	integer	*read-write (null)*	The currently configured maximum transmission unit (MTU), in bytes, on this interface.
NameServers [ ]	array (string)	*read-only*	The DNS servers in use on this interface.

Property	Type	Attributes	Notes
PermanentMACAddress	string	*read-only (null)*	The permanent MAC address assigned to this interface, or port.
RoutingScope *(v1.11+)*	string (enum)	*read-only (null)*	The routing scope for this interface. *For the possible property values, see RoutingScope in Property details.*
SpeedMbps	integer (Mbit/s)	*read-write (null)*	The current speed, in Mbit/s, of this interface.
StatelessAddressAutoConfig *(v1.4+)* {	object		Stateless address autoconfiguration (SLAAC) parameters for this interface.
IPv4AutoConfigEnabled *(v1.4+)*	boolean	*read-write (null)*	An indication of whether IPv4 stateless address autoconfiguration (SLAAC) is enabled for this interface.
IPv6AutoConfigEnabled *(v1.4+)*	boolean	*read-write (null)*	An indication of whether IPv6 stateless address autoconfiguration (SLAAC) is enabled for this interface.
}			
StaticNameServers *(v1.4+)* [ ]	array (string, null)	*read-write*	The statically-defined set of DNS server IPv4 and IPv6 addresses.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
TeamMode *(v1.9+)*	string (enum)	*read-write (null)*	The team mode for this interface. *For the possible property values, see TeamMode in Property details.*
UefiDevicePath	string	*read-only (null)*	The UEFI device path for this interface.
VLAN {	object		If this network interface supports more than one VLAN, this property is absent. VLAN collections appear in the `Links` property of this resource.
Tagged *(v1.3+)*	boolean	*read-write (null)*	An indication of whether this VLAN is tagged or untagged for this interface.
VLANEnable	boolean	*read-write required on create (null)*	An indication of whether this VLAN is enabled for this VLAN network interface.
VLANId	integer	*read-write required on create (null)*	The ID for this VLAN.
VLANPriority *(v1.2+)*	integer	*read-write (null)*	The priority for this VLAN.

Property	Type	Attributes	Notes
}			
VLANs *(deprecated v1.7)* {	object		The link to a collection of VLANs, which applies only if the interface supports more than one VLAN. If this property applies, the `VLANEnabled` and `VLANId` properties do not apply. Contains a link to a resource. *Deprecated in v1.7 and later. This property has been deprecated in favor of newer methods indicating multiple VLANs.*
@odata.id	string	*read-only*	Link to Collection of *VLanNetworkInterface*. See the VLanNetworkInterface schema for details.
}			

6.42.4 Property details

6.42.4.1 EthernetInterfaceType

The type of interface.

string	Description
Physical	A physical Ethernet interface.
Virtual	A virtual Ethernet interface.

6.42.4.2 FallbackAddress

DHCPv4 fallback address method for this interface.

string	Description
AutoConfig	Fall back to an autoconfigured address.
None	Continue attempting DHCP without a fallback address.
Static	Fall back to a static address specified by `IPv4StaticAddresses`.

6.42.4.3 LinkStatus

The link status of this interface, or port.

string	Description
LinkDown	No link is detected on this interface, but the interface is connected.
LinkUp	The link is available for communication on this interface.
NoLink	No link or connection is detected on this interface.

6.42.4.4 OperatingMode

Determines the DHCPv6 operating mode for this interface.

string	Description
Disabled	DHCPv6 is disabled.
Enabled *(v1.8+)*	DHCPv6 is enabled.
Stateful *(deprecated v1.8)*	DHCPv6 stateful mode. *Deprecated in v1.8 and later. This property has been deprecated in favor of* `Enabled` *. The control between 'stateful' and 'stateless' is managed by the DHCP server and not the client.*
Stateless *(deprecated v1.8)*	DHCPv6 stateless mode. *Deprecated in v1.8 and later. This property has been deprecated in favor of* `Enabled` *. The control between 'stateful' and 'stateless' is managed by the DHCP server and not the client.*

6.42.4.5 RoutingScope

The routing scope for this interface.

string	Description
External	Externally accessible.
HostOnly	Only accessible to a dedicated interface on the host.
Internal	Only accessible to internal networking on the host, such as when virtual machines or containers are allowed to communicate with each other on the same host system as well as a dedicated interface on the hosting system.
Limited	Accessible through IP translation provided by the hosting system.

6.42.4.6 TeamMode

The team mode for this interface.

string	Description
ActiveBackup	One interface in the team is active and the others are kept in standby until a failure occurs.
AdaptiveLoadBalancing	Packets are transmitted and received based upon the current load of each interface in the team.
AdaptiveTransmitLoadBalancing	Packets are transmitted based upon the current load of each interface in the team.
Broadcast	Packets are transmitted on all interfaces in the team.
IEEE802_3ad	The interfaces in the team create an IEEE802.3ad link aggregation group.
None	No teaming.
RoundRobin	Packets are transmitted in sequential order from the teamed interfaces.
XOR	Transmitting is determined based upon a hash policy.

6.42.5 Example response


```
{
    "@odata.type": "#EthernetInterface.v1_12_4.EthernetInterface",
    "Id": "1",
    "Name": "Ethernet Interface",
    "Description": "Manager NIC 1",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "LinkStatus": "LinkUp",
    "PermanentMACAddress": "12:44:6A:3B:04:11",
    "MACAddress": "12:44:6A:3B:04:11",
    "SpeedMbps": 1000,
    "AutoNeg": true,
    "FullDuplex": true,
    "MTUSize": 1500,
    "HostName": "web483",
    "FQDN": "web483.contoso.com",
    "NameServers": [
        "names.contoso.com"
    ],
    "IPv4Addresses": [
        {
            "Address": "192.168.0.10",
            "SubnetMask": "255.255.252.0",
            "AddressOrigin": "DHCP",
            "Gateway": "192.168.0.1"
        }
    ],
```

```
    "DHCPv4": {
        "DHCPEnabled": true,
        "UseDNSServers": true,
        "UseGateway": true,
        "UseNTPServers": false,
        "UseStaticRoutes": true,
        "UseDomainName": true
    },
    "DHCPv6": {
        "OperatingMode": "Enabled",
        "UseDNSServers": true,
        "UseDomainName": false,
        "UseNTPServers": false,
        "UseRapidCommit": false
    },
    "StatelessAddressAutoConfig": {
        "IPv4AutoConfigEnabled": false,
        "IPv6AutoConfigEnabled": true
    },
    "IPv4StaticAddresses": [
        {
            "Address": "192.168.88.130",
            "SubnetMask": "255.255.0.0",
            "Gateway": "192.168.0.1"
        }
    ],
    "IPv6AddressPolicyTable": [
        {
            "Prefix": "::1/128",
            "Precedence": 50,
            "Label": 0
        }
    ],
    "MaxIPv6StaticAddresses": 1,
    "IPv6StaticAddresses": [
        {
            "Address": "fc00:1234::a:b:c:d",
            "PrefixLength": 64
        }
    ],
    "IPv6StaticDefaultGateways": [
        {
            "Address": "fe80::fe15:b4ff:fe97:90cd",
            "PrefixLength": 64
        }
    ],
    "IPv6DefaultGateway": "fe80::214:c1ff:fe4c:5c4d",
    "IPv6Addresses": [
        {
            "Address": "fe80::1ec1:deff:fe6f:1e24",
```

```
            "PrefixLength": 64,
            "AddressOrigin": "SLAAC",
            "AddressState": "Preferred"
        },
        {
            "Address": "fc00:1234::a:b:c:d",
            "PrefixLength": 64,
            "AddressOrigin": "Static",
            "AddressState": "Preferred"
        },
        {
            "Address": "2001:1:3:5::100",
            "PrefixLength": 64,
            "AddressOrigin": "DHCPv6",
            "AddressState": "Preferred"
        },
        {
            "Address": "2002:2:5::1ec1:deff:fe6f:1e24",
            "PrefixLength": 64,
            "AddressOrigin": "SLAAC",
            "AddressState": "Preferred"
        }
    ],
    "StaticNameServers": [
        "192.168.150.1",
        "fc00:1234:200:2500"
    ],
    "VLAN": {
        "VLANEnable": true,
        "VLANId": 101
    },
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/EthernetInterfaces/12446A3B0411"
}
```


6.43 Event 1.11.1

Version	*v1.11*	*v1.10*	*v1.9*	*v1.8*	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	...
Release	2024.3	2023.3	2023.2	2023.1	2021.2	2020.3	2020.2	2019.1	2018.2	2017.1	2016.1	...

6.43.1 Description

The `Event` schema describes the JSON payload received by an event destination, which has subscribed to event notification, when events occur. This resource contains data about events, including descriptions, severity, and a message identifier to a message registry that can be accessed for further information.

6.43.2 Properties

Property	Type	Attributes	Notes
Context *(v1.1+)*	string	*read-only*	A context can be supplied at subscription time. This property is the context value supplied by the subscriber.
Events [{	array	*required*	Each event in this array has a set of properties that describe the event. Because this is an array, more than one event can be sent simultaneously.
Actions *(v1.2+)* {}	object		The available actions for this resource.
AdditionalDataSizeBytes *(v1.8+)*	integer (bytes)	*read-only (null)*	The size of the additional data for this event.
AdditionalDataURI *(v1.8+)*	string (URI)	*read-only (null)*	The URI at which to access the additional data for the event, such as diagnostic data, image captures, or other files.
Context *(deprecated v1.1)*	string	*read-only*	A context can be supplied at subscription time. This property is the context value supplied by the subscriber. *Deprecated in v1.1 and later. Events are triggered independently from subscriptions to those events. This property has been deprecated in favor of the* `Context` *property found at the root level of the object.*
CPER *(v1.8+)* {	object		Details for a CPER section or record associated with this event.
NotificationType *(v1.8+)*	string (uuid)	*read-only (null)*	The CPER Notification Type for a CPER record.
Oem *(v1.8+)* {}	object		See the Oem object definition in the Common properties section.
SectionType *(v1.8+)*	string (uuid)	*read-only (null)*	The CPER Section Type.
}			
DiagnosticData *(v1.8+)*	string	*read-only (null)*	A Base64-encoded set of diagnostic data associated with this event.
DiagnosticDataType *(v1.8+)*	string (enum)	*read-only (null)*	The type of data available in the `DiagnosticData` property or retrieved from the URI specified by the `AdditionalDataURI` property. *For the possible property values, see DiagnosticDataType in Property details.*
EventGroupId *(v1.3+)*	integer	*read-only*	The identifier that correlates events with the same root cause. If `0`, no other event is related to this event.
EventId	string	*read-only*	The unique instance identifier of an event.
EventTimestamp	string (date-time)	*read-only*	The time the event occurred.

Property	Type	Attributes	Notes
EventType *(deprecated v1.3)*	string (enum)	*read-only required*	The type of event. *For the possible property values, see EventType in Property details. Deprecated in v1.3 and later. This property has been deprecated. Starting with Redfish Specification v1.6 (Event v1.3), subscriptions are based on the* `RegistryPrefix` *and* `ResourceType` *properties and not on the* `EventType` *property.*
LogEntry *(v1.7+)* {	object		The link to a log entry if an entry was created for this event. See the *LogEntry* schema for details on this property.
@odata.id	string	*read-only*	Link to a LogEntry resource. See the Links section and the *LogEntry* schema for details.
}			
MemberId	string	*read-only required*	The unique identifier for the member within an array.
Message	string	*read-only*	The human-readable event message.
MessageArgs [ ]	array (string)	*read-only*	An array of message arguments that are substituted for the arguments in the message when looked up in the message registry.
MessageId	string	*read-only required*	The identifier for the message.
MessageSeverity *(v1.5+)*	string (enum)	*read-only*	The severity of the message in this event. *For the possible property values, see MessageSeverity in Property details.*
Oem {}	object		See the Oem object definition in the Common properties section.
OEMDiagnosticDataType *(v1.9+)*	string	*read-only (null)*	The OEM-defined type of data available in the `DiagnosticData` property or retrieved from the URI specified by the `AdditionalDataURI` property.
OriginOfCondition {	object		A link to the resource or object that originated the condition that caused the event to be generated.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}			
Resolution *(v1.9+)*	string	*read-only*	Used to provide suggestions on how to resolve the situation that caused the event.
ResolutionSteps *(v1.10+)* [{ }]	array (object)		The list of recommended steps to resolve the cause of the event. For property details, see ResolutionStep.
Severity *(deprecated v1.5)*	string	*read-only*	The severity of the event. *Deprecated in v1.5 and later. This property has been deprecated in favor of* `MessageSeverity`*, which ties the values to the enumerations defined for the* `Health` *property within* `Status`*.*

Property	Type	Attributes	Notes
SpecificEventExistsInGroup *(v1.6+)*	boolean	*read-only*	Indicates this event is equivalent to a more specific event in this event group.
UserAuthenticationSource *(v1.11+)*	string	*read-only* *(null)*	The source of authentication for the username property associated with the event record.
Username *(v1.11+)*	string	*read-only* *(null)*	The username of the account associated with the event record.
}]			

6.43.3 Property details

6.43.3.1 DiagnosticDataType

The type of data available in the `DiagnosticData` property or retrieved from the URI specified by the `AdditionalDataURI` property.

string	Description
CPER	UEFI Common Platform Error Record.
CPERSection	A Section of a UEFI Common Platform Error Record.
Manager	Manager diagnostic data.
OEM	OEM diagnostic data.
OS	Operating system (OS) diagnostic data.
PreOS	Pre-OS diagnostic data.

6.43.3.2 EventType

The type of event.

string	Description
Alert	A condition requires attention.
MetricReport *(v1.3+)*	The telemetry service is sending a metric report.

string	Description
Other *(v1.4+)*	Because `EventType` is deprecated as of Redfish Specification v1.6, the event is based on a registry or resource but not an `EventType`.
ResourceAdded	A resource has been added.
ResourceRemoved	A resource has been removed.
ResourceUpdated	A resource has been updated.
StatusChange	The status of a resource has changed.

6.43.3.3 MessageSeverity

The severity of the message in this event.

string	Description
Critical	A critical condition requires immediate attention.
OK	Normal.
Warning	A condition requires attention.

6.43.4 Example response

```
{
    "@odata.type": "#Event.v1_7_0.Event",
    "Id": "1",
    "Name": "Event Array",
    "Context": "ContosoWebClient",
    "Events": [
        {
            "EventType": "Other",
            "EventId": "4593",
            "Severity": "Warning",
            "Message": "A cable has been removed from network adapter '1' port '1'.",
            "MessageId": "NetworkDevice.1.0.CableRemoved",
            "MessageArgs": [
                "1",
                "1"
            ],
            "OriginOfCondition": {
                "@odata.id": "/redfish/v1/Systems/1/EthernetInterfaces/1"
            },
```

```
            "LogEntry": {
                "@odata.id": "/redfish/v1/Managers/BMC/LogServices/EventLog/Entries/532"
            }
        }
    ]
}
```

6.44 EventDestination 1.15.1

Version	*v1.15*	*v1.14*	*v1.13*	*v1.12*	*v1.11*	*v1.10*	*v1.9*	*v1.8*	*v1.7*	*v1.6*	*v1.5*	...
Release	2024.3	2023.3	2022.3	2022.1	2021.2	2020.4	2020.3	2020.1	2019.3	2019.2	2019.1	...

6.44.1 Description

The `EventDestination` schema defines the target of an event subscription, including the event types and context to provide to the target in the event payload.

6.44.2 URIs

/redfish/v1/EventService/Subscriptions/*{EventDestinationId}*

6.44.3 Properties

Property	Type	Attributes	Notes
BackupDestinations *(v1.15+)* [ ]	array (URI) (string, null)	*read-write*	The backup destination URIs for this event receiver. Events are sent to these URIs, in array order, when the destination URI is unreachable or returns an error.
Certificates *(v1.9+)* {	object		The link to a collection of server certificates for the server referenced by the `Destination` property. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
ClientCertificates *(v1.11+)* {	object		The link to a collection of client identity certificates provided to the server referenced by the `Destination` property. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.

Property	Type	Attributes	Notes
}			
Context	string	*read-write required (null)*	A client-supplied string that is stored with the event destination subscription.
DeliveryRetryPolicy *(v1.6+)*	string (enum)	*read-write (null)*	The subscription delivery retry policy for events, where the subscription type is `RedfishEvent`. *For the possible property values, see DeliveryRetryPolicy in Property details.*
Destination	string (URI)	*read-only required on create*	The URI of the destination event receiver.
EventFormatType *(v1.4+)*	string (enum)	*read-only (null)*	The content types of the message that are sent to the `EventDestination`. *For the possible property values, see EventFormatType in Property details.*
EventTypes *(deprecated v1.5)* [ ]	array (string (enum))	*read-only*	The types of events that are sent to the destination. *For the possible property values, see EventTypes in Property details. Deprecated in v1.5 and later. This property has been deprecated. Starting with Redfish Specification v1.6 (Event v1.3), subscriptions are based on the `RegistryPrefix` and `ResourceType` properties and not on the `EventType` property. Use `EventFormatType` to create subscriptions for metric reports. If the subscription does not include this property, the service shall use a single element with a default of `Other`.*
ExcludeMessageIds *(v1.12+)* [ ]	array (string, null)	*read-only*	The list of `MessageId` values that are not sent to this event destination.
ExcludeRegistryPrefixes *(v1.12+)* [ ]	array (string, null)	*read-only*	The list of prefixes for the message registries that contain the `MessageId` values that are not sent to this event destination.
HeartbeatIntervalMinutes *(v1.11+)*	integer	*read-only (null)*	Interval for sending heartbeat events to the destination in minutes.
HttpHeaders [{	array		An array of settings for HTTP headers, such as authorization information. This array is `null` or an empty array in responses. An empty array is the preferred return value on read operations.
(pattern)	string	*read-write*	Property names follow regular expression pattern "^[^:\\s]+$"
}]			
IncludeOriginOfCondition *(v1.8+)*	boolean	*read-only (null)*	An indication of whether the events subscribed to will also include the entire resource or object referenced by the `OriginOfCondition` property in the event payload.
MessageIds *(v1.1+)* [ ]	array (string, null)	*read-only*	The list of `MessageId` values that are sent to this event destination.

Property	Type	Attributes	Notes
MetricReportDefinitions *(v1.6+)* [{	array		A list of metric report definitions for which the service only sends related metric reports. If this property is absent or the array is empty, metric reports that originate from any metric report definition are sent to the subscriber.
@odata.id	string	*read-only*	Link to a MetricReportDefinition resource. See the Links section and the *MetricReportDefinition* schema for details.
}]			
OEMProtocol *(v1.9+)*	string	*read-only*	The OEM-defined protocol type of the event connection.
OEMSubscriptionType *(v1.9+)*	string	*read-only*	The OEM-defined subscription type for events.
OriginResources *(v1.1+)* [{	array		The array of resources for which the service sends only related events.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
Protocol	string (enum)	*read-only required on create*	The protocol type of the event connection. *For the possible property values, see Protocol in Property details.*
RegistryPrefixes *(v1.4+)* [ ]	array (string, null)	*read-only*	The list of prefixes for the message registries that contain the `MessageId` values that are sent to this event destination.
ResourceTypes *(v1.4+)* [ ]	array (string, null)	*read-only*	The list of resource type values (schema names) that correspond to the `OriginOfCondition`. The version and full namespace should not be specified.
SendHeartbeat *(v1.11+)*	boolean	*read-only (null)*	Send a heartbeat event periodically to the destination.
Severities *(v1.13+)* [ ]	array (string (enum))	*read-only (null)*	The list of severities that are sent to this event destination. *For the possible property values, see Severities in Property details.*
SNMP *(v1.7+)* {	object		Settings for an SNMP event destination.
AuthenticationKey *(v1.7+)*	string	*read-write (null)*	The secret authentication key for SNMPv3.
AuthenticationKeySet *(v1.10+)*	boolean	*read-only*	Indicates if the `AuthenticationKey` property is set.
AuthenticationProtocol *(v1.7+)*	string (enum)	*read-write (null)*	The authentication protocol for SNMPv3. *For the possible property values, see AuthenticationProtocol in Property details.*
EncryptionKey *(v1.7+)*	string	*read-write (null)*	The secret authentication key for SNMPv3.

Property	Type	Attributes	Notes
EncryptionKeySet *(v1.10+)*	boolean	*read-only*	Indicates if the `EncryptionKey` property is set.
EncryptionProtocol *(v1.7+)*	string (enum)	*read-write (null)*	The encryption protocol for SNMPv3. *For the possible property values, see EncryptionProtocol in Property details.*
TrapCommunity *(v1.7+)*	string	*read-write (null)*	The SNMP trap community string.
}			
Status *(v1.6+)* {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
SubordinateResources *(v1.4+)*	boolean	*read-only (null)*	An indication of whether the subscription is for events in the `OriginResources` array and its subordinate resources. If `true` and the `OriginResources` array is specified, the subscription is for events in the `OriginResources` array and its subordinate resources. Note that resources associated through the Links section are not considered subordinate. If `false` and the `OriginResources` array is specified, the subscription is for events in the `OriginResources` array only. If the `OriginResources` array is not present, this property has no relevance.
SubscriptionType *(v1.3+)*	string (enum)	*read-only required (null)*	The subscription type for events. *For the possible property values, see SubscriptionType in Property details.*
SyslogFilters *(v1.9+)* [{	array		A list of filters applied to syslog messages before sending to a remote syslog server. An empty list indicates all syslog messages are sent.
LogFacilities *(v1.9+)* [ ]	array (string (enum))	*read-write (null)*	The types of programs that can log messages. *For the possible property values, see LogFacilities in Property details.*
LowestSeverity *(v1.9+)*	string (enum)	*read-write (null)*	The lowest severity level message that will be forwarded. *For the possible property values, see LowestSeverity in Property details.*
}]			
VerifyCertificate *(v1.9+)*	boolean	*read-write (null)*	An indication of whether the service will verify the certificate of the server referenced by the `Destination` property prior to sending the event.

6.44.4 Actions

6.44.4.1 ResumeSubscription

Description

This action resumes a suspended event subscription.

Action URI

{Base URI of target resource}/Actions/EventDestination.ResumeSubscription

Action parameters

Parameter Name	Type	Attributes	Notes
DeliverBufferedEventDuration *(v1.12+)*	string (duration)	*optional*	The maximum age of buffered events that should be delivered when resuming the subscription.

Request Example

```
{
    "DeliverBufferedEventDuration": "PT8H"
}
```

6.44.4.2 SuspendSubscription *(v1.12+)*

Description

This action suspends an event subscription.

Action URI

{Base URI of target resource}/Actions/EventDestination.SuspendSubscription

Action parameters

This action takes no parameters.

6.44.5 Property details

6.44.5.1 AuthenticationProtocol

The authentication protocol for SNMPv3.

string	Description
CommunityString	Trap community string authentication.
HMAC128_SHA224 *(v1.10+)*	HMAC-128-SHA-224 authentication.

string	Description
HMAC192_SHA256 *(v1.10+)*	HMAC-192-SHA-256 authentication.
HMAC256_SHA384 *(v1.10+)*	HMAC-256-SHA-384 authentication.
HMAC384_SHA512 *(v1.10+)*	HMAC-384-SHA-512 authentication.
HMAC_MD5	HMAC-MD5-96 authentication.
HMAC_SHA96	HMAC-SHA-96 authentication.
None	No authentication.

6.44.5.2 DeliveryRetryPolicy

The subscription delivery retry policy for events, where the subscription type is `RedfishEvent`.

string	Description
RetryForever	The subscription is not suspended or terminated, and attempts at delivery of future events continues regardless of the number of retries.
RetryForeverWithBackoff *(v1.10+)*	The subscription is not suspended or terminated, and attempts at delivery of future events continues regardless of the number of retries, but issued over time according to a service-defined backoff algorithm.
SuspendRetries	The subscription is suspended after the maximum number of retries is reached.
TerminateAfterRetries	The subscription is terminated after the maximum number of retries is reached.

6.44.5.3 EncryptionProtocol

The encryption protocol for SNMPv3.

string	Description
CBC_DES	CBC-DES encryption.
CFB128_AES128	CFB128-AES-128 encryption.
CFB128_AES192 *(v1.14+)*	CFB128-AES-192 encryption.
CFB128_AES256 *(v1.14+)*	CFB128-AES-256 encryption.
None	No encryption.

6.44.5.4 EventFormatType

The content types of the message that are sent to the `EventDestination`.

string	Description
Event	The subscription destination receives an event payload.
MetricReport	The subscription destination receives a metric report.

6.44.5.5 EventTypes

The types of events that are sent to the destination.

string	Description
Alert	A condition requires attention.
MetricReport	The telemetry service is sending a metric report.
Other	Because `EventType` is deprecated as of Redfish Specification v1.6, the event is based on a registry or resource but not an `EventType`.
ResourceAdded	A resource has been added.
ResourceRemoved	A resource has been removed.
ResourceUpdated	A resource has been updated.
StatusChange	The status of a resource has changed.

6.44.5.6 LogFacilities

The types of programs that can log messages.

string	Description
Auth	Security/authentication messages.
Authpriv	Security/authentication messages.
Console	Log alert.
Cron	Clock daemon.

string	Description
Daemon	System daemons.
FTP	FTP daemon.
Kern	Kernel messages.
Local0	Locally used facility 0.
Local1	Locally used facility 1.
Local2	Locally used facility 2.
Local3	Locally used facility 3.
Local4	Locally used facility 4.
Local5	Locally used facility 5.
Local6	Locally used facility 6.
Local7	Locally used facility 7.
LPR	Line printer subsystem.
Mail	Mail system.
News	Network news subsystem.
NTP	NTP subsystem.
Security	Log audit.
SolarisCron	Scheduling daemon.
Syslog	Messages generated internally by syslogd.
User	User-level messages.
UUCP	UUCP subsystem.

6.44.5.7 LowestSeverity

The lowest severity level message that will be forwarded.

string	Description
Alert	A condition that should be corrected immediately, such as a corrupted system database.
All	A message of any severity.

string	Description
Critical	Hard device errors.
Debug	Messages that contain information normally of use only when debugging a program.
Emergency	A panic condition.
Error	An Error.
Informational	Informational only.
Notice	Conditions that are not error conditions, but that might require special handling.
Warning	A Warning.

6.44.5.8 Protocol

The protocol type of the event connection.

string	Description
Kafka *(v1.13+)*	The destination follows the Kafka protocol for event notifications.
OEM *(v1.9+)*	The destination follows an OEM protocol for event notifications.
Redfish	The destination follows the Redfish Specification for event notifications.
SMTP *(v1.7+)*	The destination follows the SMTP specification for event notifications.
SNMPv1 *(v1.7+)*	The destination follows the SNMPv1 protocol for event notifications.
SNMPv2c *(v1.7+)*	The destination follows the SNMPv2c protocol for event notifications.
SNMPv3 *(v1.7+)*	The destination follows the SNMPv3 protocol for event notifications.
SyslogRELP *(v1.9+)*	The destination follows syslog RELP for event notifications.
SyslogTCP *(v1.9+)*	The destination follows syslog TCP-based transport for event notifications.
SyslogTLS *(v1.9+)*	The destination follows syslog TLS-based transport for event notifications.
SyslogUDP *(v1.9+)*	The destination follows syslog UDP-based transport for event notifications.

6.44.5.9 Severities

The list of severities that are sent to this event destination.

string	Description
Critical	A critical condition requires immediate attention.
OK	Normal.
Warning	A condition requires attention.

6.44.5.10 SubscriptionType

The subscription type for events.

string	Description
OEM *(v1.9+)*	The subscription is an OEM subscription.
RedfishEvent	The subscription follows the Redfish Specification for event notifications. To send an event notification, a service sends an HTTP `POST` to the subscriber's destination URI.
SNMPInform *(v1.7+)*	The subscription follows versions 2 and 3 of SNMP Inform for event notifications.
SNMPTrap *(v1.7+)*	The subscription follows the various versions of SNMP Traps for event notifications.
SSE	The subscription follows the HTML5 server-sent event definition for event notifications.
Syslog *(v1.9+)*	The subscription sends syslog messages for event notifications.

6.44.6 Example response


```
{
    "@odata.type": "#EventDestination.v1_15_1.EventDestination",
    "Id": "1",
    "Name": "WebUser3 subscribes to all Redfish events",
    "Destination": "http://www.dnsname.com/Destination1",
    "SubscriptionType": "RedfishEvent",
    "DeliveryRetryPolicy": "TerminateAfterRetries",
    "RegistryPrefixes": [],
    "MessageIds": [],
    "OriginResources": [],
    "ResourceTypes": [],
    "Status": {
        "State": "Enabled"
    },
    "Actions": {
        "#EventDestination.ResumeSubscription": {
```

```
            "target": "/redfish/v1/EventService/Subscriptions/1/Actions/
          EventDestination.ResumeSubscription"
         }
      },
      "Context": "WebUser3",
      "Protocol": "Redfish",
      "@odata.id": "/redfish/v1/EventService/Subscriptions/1"
   }
```


6.45 EventService 1.11.0

Version	*v1.11*	*v1.10*	*v1.9*	*v1.8*	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	...
Release	2025.1	2023.1	2022.3	2022.1	2020.2	2020.1	2019.3	2019.2	2019.1	2018.2	2018.1	...

6.45.1 Description

The `EventService` schema contains properties for managing event subscriptions and generates the events sent to subscribers. The resource has links to the actual collection of subscriptions, which are called event destinations.

6.45.2 URIs

/redfish/v1/EventService

6.45.3 Properties

Property	Type	Attributes	Notes
DeliveryRetryAttempts	integer	*read-write*	The number of times that the `POST` of an event is retried before the subscription terminates or is suspended. This retry occurs at the service level, which means that the HTTP `POST` to the event destination fails with an HTTP `4XX` or `5XX` status code or an HTTP timeout occurs this many times before the event destination subscription terminates or is suspended.
DeliveryRetryIntervalSeconds	integer (seconds)	*read-write*	The interval, in seconds, between retry attempts for sending any event.
EventFormatTypes *(v1.2+)* [ ]	array (string (enum))	*read-only (null)*	The content types of the message that this service can send to the event destination. *For the possible property values, see EventFormatTypes in Property details.*

Property	Type	Attributes	Notes
EventTypesForSubscription *(deprecated v1.3)* [ ]	array (string (enum))	*read-only*	The types of events to which a client can subscribe. *For the possible property values, see EventTypesForSubscription in Property details. Deprecated in v1.3 and later. This property has been deprecated. Starting with Redfish Specification v1.6 (Event v1.3), subscriptions are based on the* `RegistryPrefix` *and* `ResourceType` *properties and not on the* `EventType` *property.*
ExcludeMessageId *(v1.8+)*	boolean	*read-only*	An indication of whether the service supports filtering by the `ExcludeMessageIds` property.
ExcludeRegistryPrefix *(v1.8+)*	boolean	*read-only*	An indication of whether the service supports filtering by the `ExcludeRegistryPrefixes` property.
IncludeOriginOfConditionSupported *(v1.6+)*	boolean	*read-only (null)*	An indication of whether the service supports including the resource payload of the origin of condition in the event payload.
RegistryPrefixes *(v1.2+)* [ ]	array (string, null)	*read-only*	The list of the prefixes of the message registries that can be used for the `RegistryPrefixes` or `ExcludeRegistryPrefixes` properties on a subscription. If this property is absent or contains an empty array, the service does not support registry prefix-based subscriptions.
ResourceTypes *(v1.2+)* [ ]	array (string, null)	*read-only*	The list of `@odata.type` values, or schema names, that can be specified in the `ResourceTypes` array in a subscription. If this property is absent or contains an empty array, the service does not support resource type-based subscriptions.
ServerSentEventUri *(v1.1+)*	string (URI)	*read-only*	The link to a URI for receiving Server-Sent Event representations for the events that this service generates.
ServiceEnabled	boolean	*read-write (null)*	An indication of whether this service is enabled. If `false`, events are no longer published, new SSE connections cannot be established, and existing SSE connections are terminated.
Severities *(v1.9+)* [ ]	array (string (enum))	*read-only (null)*	The list of severities that can be specified in the `Severities` array in a subscription. *For the possible property values, see Severities in Property details.*
SMTP *(v1.5+)* {	object		Settings for SMTP event delivery.
Authentication *(v1.5+)*	string (enum)	*read-write (null)*	The authentication method for the SMTP server. *For the possible property values, see Authentication in Property details.*
ConnectionProtocol *(v1.5+)*	string (enum)	*read-write (null)*	The connection type to the outgoing SMTP server. *For the possible property values, see ConnectionProtocol in Property details.*
FromAddress *(v1.5+)*	string	*read-write (null)*	The 'from' email address of the outgoing email.
Password *(v1.5+)*	string	*read-write (null)*	The password for authentication with the SMTP server. The value is `null` in responses.

Property	Type	Attributes	Notes
PasswordSet *(v1.9+)*	boolean	*read-only*	Indicates if the `Password` property is set.
Port *(v1.5+)*	integer	*read-write (null)*	The destination SMTP port.
ServerAddress *(v1.5+)*	string	*read-write (null)*	The address of the SMTP server.
ServiceEnabled *(v1.5+)*	boolean	*read-write (null)*	An indication if SMTP for event delivery is enabled.
Username *(v1.5+)*	string	*read-write (null)*	The username for authentication with the SMTP server.
}			
SSEFilterPropertiesSupported *(v1.2+)* {	object		The set of properties that are supported in the `$filter` query parameter for the `ServerSentEventUri`.
EventFormatType *(v1.2+)*	boolean	*read-only*	An indication of whether the service supports filtering by the `EventFormatType` property.
EventType *(v1.2+, deprecated v1.3)*	boolean	*read-only*	An indication of whether the service supports filtering by the `EventTypes` property. *Deprecated in v1.3 and later. This property has been deprecated. Starting with Redfish Specification v1.6 (Event v1.3), subscriptions are based on the `RegistryPrefix` and `ResourceType` properties and not on the `EventType` property.*
MessageId *(v1.2+)*	boolean	*read-only*	An indication of whether the service supports filtering by the `MessageIds` property.
MetricReportDefinition *(v1.2+)*	boolean	*read-only*	An indication of whether the service supports filtering by the `MetricReportDefinitions` property.
OriginResource *(v1.2+)*	boolean	*read-only*	An indication of whether the service supports filtering by the `OriginResources` property.
RegistryPrefix *(v1.2+)*	boolean	*read-only*	An indication of whether the service supports filtering by the `RegistryPrefixes` property.
ResourceType *(v1.2+)*	boolean	*read-only*	An indication of whether the service supports filtering by the `ResourceTypes` property.
SubordinateResources *(v1.4+)*	boolean	*read-only*	An indication of whether the service supports filtering by the `SubordinateResources` property.
}			
SSEIncludeOriginOfConditionSupported *(v1.11+)*	boolean	*read-only (null)*	An indication of whether the service supports the `includeoriginofcondition` query parameter for the `ServerSentEventUri`.

Property	Type	Attributes	Notes
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
SubordinateResourcesSupported *(v1.2+)*	boolean	*read-only* *(null)*	An indication of whether the service supports the `SubordinateResources` property on both event subscriptions and generated events.
Subscriptions {	object		The link to a collection of event destinations. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *EventDestination*. See the EventDestination schema for details.
}			

6.45.4 Actions

6.45.4.1 SubmitTestEvent

Description

This action generates a test event.

Action URI

{Base URI of target resource}/Actions/EventService.SubmitTestEvent

Action parameters

Parameter Name	Type	Attributes	Notes
EventGroupId *(v1.3+)*	integer	*optional*	The group identifier for the event.
EventId	string	*optional*	The ID for the event to add.
EventTimestamp	string (date-time)	*optional*	The date and time for the event to add.
EventType *(deprecated v1.3)*	string (enum)	*optional*	The type for the event to add. *For the possible property values, see EventType in Property details. Deprecated in v1.3 and later. This parameter has been deprecated. Starting with Redfish Specification v1.6 (Event v1.3), subscriptions are based on the `RegistryPrefix` and `ResourceType` properties and not on the `EventType` property.*
Message	string	*optional*	The human-readable message for the event to add.

Parameter Name	Type	Attributes	Notes
MessageArgs [ ]	array (string)	*optional*	An array of message arguments for the event to add.
MessageId	string	*required*	The `MessageId` for the event to add.
MessageSeverity *(v1.10+)*	string (enum)	*optional*	The severity for the event to add. *For the possible property values, see MessageSeverity in Property details.*
OriginOfCondition	string (URI)	*optional*	The URL in the `OriginOfCondition` property of the event to add. It is not a reference object.
Severity	string	*optional*	The severity for the event to add.

Request Example

```
{
    "EventId": "5",
    "EventTimestamp": "2016-01-10T18:02:00Z",
    "Severity": "Critical",
    "Message": "Fan 2 crossed Lower Fatal Threshold; fans are no longer redundant",
    "MessageId": "Event.1.0.FanWayTooSlow",
    "MessageArgs": [
        "2"
    ],
    "OriginOfCondition": "/redfish/v1/Chassis/MultiBladeEncl/Thermal"
}
```

6.45.4.2 TestEventSubscription *(v1.10+)*

Description

This action generates a test event using the pre-defined test message.

Action URI

{Base URI of target resource}/Actions/EventService.TestEventSubscription

Action parameters

This action takes no parameters.

6.45.5 Property details

6.45.5.1 Authentication

The authentication method for the SMTP server.

string	Description
AutoDetect	Auto-detect.
CRAM_MD5	CRAM-MD5 authentication.
Login *(deprecated v1.7)*	LOGIN authentication. *Deprecated in v1.7 and later. This value has been deprecated in favor of* `Plain`*, which supersedes the LOGIN authentication method for SASL.*
None	No authentication.
Plain	PLAIN authentication.

6.45.5.2 ConnectionProtocol

The connection type to the outgoing SMTP server.

string	Description
AutoDetect	Auto-detect.
None	Clear text.
StartTLS	StartTLS.
TLS_SSL	TLS/SSL.

6.45.5.3 EventFormatTypes

The content types of the message that this service can send to the event destination.

string	Description
Event	The subscription destination receives an event payload.
MetricReport	The subscription destination receives a metric report.

6.45.5.4 EventType

The type for the event to add.

string	Description
Alert	A condition requires attention.
MetricReport	The telemetry service is sending a metric report.
Other	Because `EventType` is deprecated as of Redfish Specification v1.6, the event is based on a registry or resource but not an `EventType`.
ResourceAdded	A resource has been added.
ResourceRemoved	A resource has been removed.
ResourceUpdated	A resource has been updated.
StatusChange	The status of a resource has changed.

6.45.5.5 EventTypesForSubscription

The types of events to which a client can subscribe.

string	Description
Alert	A condition requires attention.
MetricReport	The telemetry service is sending a metric report.
Other	Because `EventType` is deprecated as of Redfish Specification v1.6, the event is based on a registry or resource but not an `EventType`.
ResourceAdded	A resource has been added.
ResourceRemoved	A resource has been removed.
ResourceUpdated	A resource has been updated.
StatusChange	The status of a resource has changed.

6.45.5.6 MessageSeverity

The severity for the event to add.

string	Description
Critical	A critical condition requires immediate attention.
OK	Normal.
Warning	A condition requires attention.

6.45.5.7 Severities

The list of severities that can be specified in the `Severities` array in a subscription.

string	Description
Critical	A critical condition requires immediate attention.
OK	Normal.
Warning	A condition requires attention.

6.45.6 Example response


```
{
    "@odata.type": "#EventService.v1_11_0.EventService",
    "Id": "EventService",
    "Name": "Event Service",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "ServiceEnabled": true,
    "DeliveryRetryAttempts": 3,
    "DeliveryRetryIntervalSeconds": 60,
    "EventTypesForSubscription": [
        "StatusChange",
        "ResourceUpdated",
        "ResourceAdded",
        "ResourceRemoved",
        "Alert",
        "Other"
    ],
    "ServerSentEventUri": "/redfish/v1/EventService/SSE",
    "SSEFilterPropertiesSupported": {
        "EventType": true,
        "MetricReportDefinition": false,
        "RegistryPrefix": true,
```

```
            "ResourceType": true,
            "EventFormatType": false,
            "MessageId": true,
            "OriginResource": true,
            "SubordinateResources": true
        },
        "Subscriptions": {
            "@odata.id": "/redfish/v1/EventService/Subscriptions"
        },
        "Actions": {
            "#EventService.SubmitTestEvent": {
                "target": "/redfish/v1/EventService/Actions/EventService.SubmitTestEvent",
                "@Redfish.ActionInfo": "/redfish/v1/EventService/SubmitTestEventActionInfo"
            }
        },
        "@odata.id": "/redfish/v1/EventService"
    }
```


6.46 ExternalAccountProvider 1.8.1

Version	*v1.8*	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2024.3	2023.2	2023.1	2022.3	2022.1	2021.2	2020.4	2018.3	2018.1

6.46.1 Description

The `ExternalAccountProvider` schema represents a remote service that provides accounts for this manager to use for authentication.

6.46.2 URIs

/redfish/v1/AccountService/ExternalAccountProviders/*{ExternalAccountProviderId}*
/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/ExternalAccountProviders/*{ExternalAccountProviderId}*

6.46.3 Properties

Property	Type	Attributes	Notes
AccountProviderType	string (enum)	*read-only required on create (null)*	The type of external account provider to which this service connects. *For the possible property values, see AccountProviderType in Property details.*
Authentication {	object		The authentication information for the external account provider.
AuthenticationType	string (enum)	*read-write (null)*	The type of authentication used to connect to the external account provider. *For the possible property values, see AuthenticationType in Property details.*
EncryptionKey *(v1.2+)*	string	*read-write (null)*	Specifies the encryption key.
EncryptionKeySet *(v1.2+)*	boolean	*read-only (null)*	Indicates if the `EncryptionKey` property is set.
KerberosKeytab	string	*read-write (null)*	The Base64-encoded Kerberos keytab for this service. A `PATCH` or `PUT` operation writes the keytab. This property is `null` in responses.
Oem {}	object		See the Oem object definition in the Common properties section.
Password	string	*read-write (null)*	The password for this service. A `PATCH` or `PUT` request writes the password. This property is `null` in responses.
Token	string	*read-write (null)*	The token for this service. A `PATCH` or `PUT` operation writes the token. This property is `null` in responses.
Username	string	*read-write*	The username for the service.
}			
Certificates *(v1.1+)* {	object		The link to a collection of certificates that the external account provider uses. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
LDAPService {	object		The additional mapping information needed to parse a generic LDAP service.
Oem {}	object		See the Oem object definition in the Common properties section.
SearchSettings {	object		The required settings to search an external LDAP service.

Property	Type	Attributes	Notes
BaseDistinguishedNames [ ]	array (string, null)	*read-write*	The base distinguished names to use to search an external LDAP service.
EmailAttribute *(v1.7+)*	string	*read-write (null)*	The attribute name that contains the LDAP user's email address.
GroupNameAttribute	string	*read-write (null)*	The attribute name that contains the LDAP group name entry.
GroupsAttribute	string	*read-write (null)*	The attribute name that contains the groups for a user on the LDAP user entry.
SSHKeyAttribute *(v1.4+)*	string	*read-write (null)*	The attribute name that contains the LDAP user's SSH public key entry.
UsernameAttribute	string	*read-write (null)*	The attribute name that contains the LDAP username entry.
}			
}			
Links {	object		The links to other resources that are related to this resource.
Oem {}	object		See the Oem object definition in the Common properties section.
}			
OAuth2Service *(v1.3+)* {	object	*(null)*	The additional information needed to parse an OAuth 2.0 service.
Audience *(v1.3+)* [ ]	array (string)	*read-only*	The allowable audience strings of the Redfish service.
Issuer *(v1.3+)*	string	*read-write (null)*	The issuer string of the OAuth 2.0 service. Clients should configure this property if `Mode` contains `Offline`.
Mode *(v1.3+)*	string (enum)	*read-write*	The mode of operation for token validation. *For the possible property values, see Mode in Property details.*
OAuthServiceSigningKeys *(v1.3+)*	string	*read-write (null)*	The Base64-encoded signing keys of the issuer of the OAuth 2.0 service. Clients should configure this property if `Mode` contains `Offline`.
Oem *(v1.6+)* {}	object		See the Oem object definition in the Common properties section.
}			
Priority *(v1.2+)*	integer	*read-write (null)*	The authentication priority for the external account provider.

Property	Type	Attributes	Notes
RemoteRoleMapping [{	array		The mapping rules to convert the external account providers account information to the local Redfish role.
LocalAccountTypes *(v1.8+)* [ ]	array (string (enum))	*read-write (null)*	The list of local services in the manager that the remote user or group is allowed to access. *For the possible property values, see LocalAccountTypes in Property details.*
LocalOEMAccountTypes *(v1.8+)* [ ]	array (string, null)	*read-write*	The OEM account types for the remote user or group.
LocalRole	string	*read-write (null)*	The name of the local Redfish role to which to map the remote user or group.
MFABypass *(v1.5+)* {	object	*(null)*	The multi-factor authentication bypass settings.
BypassTypes *(v1.12+)* [ ]	array (string (enum))	*read-write (null)*	The types of multi-factor authentication this account or role mapping is allowed to bypass. *For the possible property values, see BypassTypes in Property details.*
}			
Oem {}	object		See the Oem object definition in the Common properties section.
RemoteGroup	string	*read-write (null)*	The name of the remote group, or the remote role in the case of a Redfish service, that maps to the local Redfish role to which this entity links.
RemoteUser	string	*read-write (null)*	The name of the remote user that maps to the local Redfish role to which this entity links.
}]			
Retries *(v1.6+)*	integer	*read-write (null)*	The number of times to retry connecting to an address in the `ServiceAddresses` property before attempting the next address in the array.
ServiceAddresses [ ]	array (string, null)	*read-write*	The addresses of the user account providers to which this external account provider links. The format of this field depends on the type of external account provider.
ServiceEnabled	boolean	*read-write (null)*	An indication of whether this service is enabled.
TACACSplusService *(v1.2+)* {	object	*(null)*	The additional information needed to parse a TACACS+ services.
AuthorizationService *(v1.6+)*	string	*read-write*	The TACACS+ service authorization argument.
Oem *(v1.6+)* {}	object		See the Oem object definition in the Common properties section.

Property	Type	Attributes	Notes
PasswordExchangeProtocols *(v1.2+)* [ ]	array (string (enum))	*read-write (null)*	Indicates the allowed TACACS+ password exchange protocols. *For the possible property values, see PasswordExchangeProtocols in Property details.*
PrivilegeLevelArgument *(v1.2+)*	string	*read-write (null)*	Indicates the name of the TACACS+ argument name in an authorization request.
}			
TimeoutSeconds *(v1.6+)*	integer	*read-write (null)*	The period of time, in seconds, this account service will wait for a response from an address of a user account provider before timing out.

6.46.4 Property details

6.46.4.1 AccountProviderType

The type of external account provider to which this service connects.

string	Description
ActiveDirectoryService	An external Active Directory service.
LDAPService	A generic external LDAP service.
OAuth2 *(v1.3+)*	An external OAuth 2.0 service.
OEM	An OEM-specific external authentication or directory service.
RedfishService	An external Redfish service.
TACACSplus *(v1.3+)*	An external TACACS+ service.

6.46.4.2 AuthenticationType

The type of authentication used to connect to the external account provider.

string	Description
KerberosKeytab	A Kerberos keytab.
OEM	An OEM-specific authentication mechanism.
Token	An opaque authentication token.

string	Description
UsernameAndPassword	A username and password combination.

6.46.4.3 BypassTypes

The types of multi-factor authentication this account or role mapping is allowed to bypass.

string	Description
All	Bypass all multi-factor authentication types.
ClientCertificate	Bypass client certificate authentication.
GoogleAuthenticator	Bypass Google Authenticator.
MicrosoftAuthenticator	Bypass Microsoft Authenticator.
OEM	Bypass OEM-defined multi-factor authentication.
OneTimePasscode	Bypass one-time passcode authentication.
SecurID	Bypass RSA SecurID.
TimeBasedOneTimePassword	Bypass Time-based One-Time Password (TOTP) authentication.

6.46.4.4 LocalAccountTypes

The list of local services in the manager that the remote user or group is allowed to access.

string	Description
ControlPanel	Allow PIN-based access via an external control panel, such as a keypad, touchscreen, or other human interface.
HostConsole	Allow access to the host's console, which could be connected through Telnet, SSH, or another protocol.
IPMI	Allow access to the Intelligent Platform Management Interface service.
KVMIP	Allow access to a Keyboard-Video-Mouse over IP session.
ManagerConsole	Allow access to the manager's console, which could be connected through Telnet, SSH, SM CLP, or another protocol.
OEM	OEM account type. See the `OEMAccountTypes` property.
Redfish	Allow access to the Redfish service.

string	Description
SNMP	Allow access to SNMP services.
VirtualMedia	Allow access to control virtual media.
WebUI	Allow access to a web user interface session, such as a graphical interface or another web-based protocol.

6.46.4.5 Mode

The mode of operation for token validation.

string	Description
Discovery	OAuth 2.0 service information for token validation is downloaded by the service.
Offline	OAuth 2.0 service information for token validation is configured by a client. Clients should configure the `Issuer` and `OAuthServiceSigningKeys` properties for this mode.

6.46.4.6 PasswordExchangeProtocols

Indicates the allowed TACACS+ password exchange protocols.

string	Description
ASCII	The ASCII Login method.
CHAP	The CHAP Login method.
MSCHAPv1	The MS-CHAP v1 Login method.
MSCHAPv2	The MS-CHAP v2 Login method.
PAP	The PAP Login method.

6.46.5 Example response

```
{
    "@odata.type": "#ExternalAccountProvider.v1_8_1.ExternalAccountProvider",
    "Id": "ExternalRedfishService",
    "Name": "Remote Redfish Service",
    "Description": "Remote Redfish Service providing additional Accounts to this Redfish Service",
```

```
    "AccountProviderType": "RedfishService",
    "ServiceAddresses": [
        "https://redfish.contoso.org/redfish/v1/AccountService"
    ],
    "Authentication": {
        "AuthenticationType": "Token",
        "Token": null
    },
    "RemoteRoleMapping": [
        {
            "RemoteGroup": "Admin",
            "LocalRole": "Administrator"
        },
        {
            "RemoteGroup": "Operator",
            "LocalRole": "Operator"
        },
        {
            "RemoteGroup": "ReadOnly",
            "LocalRole": "ReadOnly"
        }
    ],
    "@odata.id": "/redfish/v1/AccountService/ExternalAccountProviders/ExternalRedfishService"
}
```


6.47 Fabric 1.4.0

Version	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2025.2	2022.1	2020.3	2019.4	2016.2

6.47.1 Description

The `Fabric` schema represents a simple fabric consisting of one or more switches, zero or more endpoints, and zero or more zones.

6.47.2 URIs

/redfish/v1/Fabrics/*{FabricId}*

6.47.3 Properties

Property	Type	Attributes	Notes
AddressPools *(v1.1+)* {	object		The collection of links to the address pools that this fabric contains. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *AddressPool*. See the AddressPool schema for details.
}			
Connections *(v1.2+)* {	object		The collection of links to the connections that this fabric contains. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Connection*. See the Connection schema for details.
}			
EndpointGroups *(v1.2+)* {	object		The collection of links to the endpoint groups that this fabric contains. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *EndpointGroup*. See the EndpointGroup schema for details.
}			
Endpoints {	object		The collection of links to the endpoints that this fabric contains. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Endpoint*. See the Endpoint schema for details.
}			
FabricType	string (enum)	*read-only* *(null)*	The protocol being sent over this fabric. *For the possible property values, see FabricType in Property details.*
Links {	object		The links to other resources that are related to this resource.
ManagedBy *(v1.4+)* [{	array		An array of links to the managers responsible for managing this fabric.
@odata.id	string	*read-only*	Link to a Manager resource. See the Links section and the *Manager* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
}			
MaxZones	integer	*read-only* *(null)*	The maximum number of zones the switch can currently configure.

Property	Type	Attributes	Notes
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
Switches {	object		The collection of links to the switches that this fabric contains. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Switch*. See the Switch schema for details.
}			
UUID *(v1.3+)*	string (uuid)	*read-write (null)*	The UUID for this fabric.
Zones {	object		The collection of links to the zones that this fabric contains. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Zone*. See the Zone schema for details.
}			

6.47.4 Property details

6.47.4.1 FabricType

The protocol being sent over this fabric.

string	Description
AHCI	Advanced Host Controller Interface (AHCI).
CXL	Compute Express Link.
DisplayPort	DisplayPort.
DVI	DVI.
eMMC	Embedded MultiMediaCard (e.MMC).
Ethernet	Ethernet.
FC	Fibre Channel.
FCoE	Fibre Channel over Ethernet (FCoE).
FCP	Fibre Channel Protocol for SCSI.
FICON	FIbre CONnection (FICON).

string	Description
FTP	File Transfer Protocol (FTP).
GenZ	GenZ.
HDMI	HDMI.
HTTP	Hypertext Transport Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
I2C	Inter-Integrated Circuit Bus.
InfiniBand	InfiniBand.
iSCSI	Internet SCSI.
iWARP	Internet Wide Area RDMA Protocol (iWARP).
MultiProtocol	Multiple Protocols.
NFSv3	Network File System (NFS) version 3.
NFSv4	Network File System (NFS) version 4.
NVLink	NVLink.
NVMe	Non-Volatile Memory Express (NVMe).
NVMeOverFabrics	NVMe over Fabrics.
OEM	OEM-specific.
PCIe	PCI Express.
QPI	Intel QuickPath Interconnect (QPI).
RoCE	RDMA over Converged Ethernet Protocol.
RoCEv2	RDMA over Converged Ethernet Protocol Version 2.
SAS	Serial Attached SCSI.
SATA	Serial AT Attachment.
SFTP	SSH File Transfer Protocol (SFTP).
SMB	Server Message Block (SMB). Also known as the Common Internet File System (CIFS).
TCP	Transmission Control Protocol (TCP).
TFTP	Trivial File Transfer Protocol (TFTP).

string	Description
UDP	User Datagram Protocol (UDP).
UET	Ultra Ethernet Transport.
UHCI	Universal Host Controller Interface (UHCI).
UPI	Intel UltraPath Interconnect (UPI).
USB	Universal Serial Bus (USB).
VGA	VGA.

6.47.5 Example response

```
{
    "@odata.type": "#Fabric.v1_4_0.Fabric",
    "Id": "SAS",
    "Name": "SAS Fabric",
    "FabricType": "SAS",
    "Description": "A SAS Fabric with redundant switches connected to two initiators",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Zones": {
        "@odata.id": "/redfish/v1/Fabrics/SAS/Zones"
    },
    "Endpoints": {
        "@odata.id": "/redfish/v1/Fabrics/SAS/Endpoints"
    },
    "Switches": {
        "@odata.id": "/redfish/v1/Fabrics/SAS/Switches"
    },
    "@odata.id": "/redfish/v1/Fabrics/SAS"
}
```

6.48 FabricAdapter 1.5.3

Version	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2022.3	2022.2	2022.1	2021.3	2021.2	2019.4

6.48.1 Description

A fabric adapter represents the physical fabric adapter capable of connecting to an interconnect fabric. Examples include, but are not limited to, Ethernet, NVMe over Fabrics, Gen-Z, and SAS fabric adapters.

6.48.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*
/redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.48.3 Properties

Property	Type	Attributes	Notes
ASICManufacturer	string	*read-only (null)*	The manufacturer name for the ASIC of this fabric adapter.
ASICPartNumber	string	*read-only (null)*	The part number for the ASIC on this fabric adapter.
ASICRevisionIdentifier	string	*read-only (null)*	The revision identifier for the ASIC on this fabric adapter.
FabricType *(v1.3+)*	string (enum)	*read-write*	The configured fabric type of this fabric adapter. *For the possible property values, see FabricType in Property details.*
FabricTypeCapabilities *(v1.3+)* [ ]	array (string (enum))	*read-only*	An array of fabric types supported by this fabric adapter. *For the possible property values, see FabricTypeCapabilities in Property details.*
FirmwareVersion	string	*read-only (null)*	The firmware version of this fabric adapter.
GenZ {	object		The Gen-Z specific properties for this fabric adapter.
MSDT {	object		The Multi Subnet Destination Table for the component. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *RouteEntry*. See the RouteEntry schema for details.
}			
PIDT [ ]	array (string, null)	*read-write*	An array of table entry values for the Packet Injection Delay Table.
RequestorVCAT {	object		The Requestor Virtual Channel Action Table for the component. Contains a link to a resource.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to Collection of *VCATEntry*. See the VCATEntry schema for details.
}			
ResponderVCAT {	object		The Responder Virtual Channel Action Table for the component. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *VCATEntry*. See the VCATEntry schema for details.
}			
RITable [ ]	array (string, null)	*read-write*	An array of table entry values for the Responder Interface Table.
SSDT {	object		The Single Subnet Destination Table for the component. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *RouteEntry*. See the RouteEntry schema for details.
}			
}			
Links {	object		The links to other resources that are related to this resource.
Endpoints [{	array		An array of links to the endpoints that represent the logical fabric connection to this fabric adapter.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
MemoryDomains *(v1.3+)* [{	array		An array of links to the memory domains associated with this fabric adapter.
@odata.id	string	*read-write*	Link to a MemoryDomain resource. See the Links section and the *MemoryDomain* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
PCIeDevices *(v1.2+)* [{	array		An array of links to the PCIe devices associated with this fabric adapter.
@odata.id	string	*read-only*	Link to a PCIeDevice resource. See the Links section and the *PCIeDevice* schema for details.
}]			

Property	Type	Attributes	Notes
Processors *(v1.5+)* [{	array		An array of links to the processors that this fabric adapter provides to a fabric.
@odata.id	string	*read-only*	Link to a Processor resource. See the Links section and the *Processor* schema for details.
}]			
}			
Location *(v1.1+)* {}	object		The location of the fabric adapter. For property details, see Location.
LocationIndicatorActive *(v1.4+)*	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
Manufacturer	string	*read-only (null)*	The manufacturer or OEM of this fabric adapter.
Model	string	*read-only (null)*	The model string for this fabric adapter.
PartNumber	string	*read-only (null)*	The part number for this fabric adapter.
PCIeInterface {	object		The PCIe interface details for this fabric adapter.
LanesInUse *(v1.3+)*	integer	*read-only (null)*	The number of PCIe lanes in use by this device.
MaxLanes *(v1.3+)*	integer	*read-only (null)*	The number of PCIe lanes supported by this device.
MaxPCIeType *(v1.3+)*	string (enum)	*read-only (null)*	The highest version of the PCIe specification supported by this device. *For the possible property values, see MaxPCIeType in Property details.*
Oem *(v1.3+)* {}	object		See the Oem object definition in the Common properties section.
PCIeType *(v1.3+)*	string (enum)	*read-only (null)*	The version of the PCIe specification in use by this device. *For the possible property values, see PCIeType in Property details.*
}			
Ports {	object		The link to the collection of ports that exist on the fabric adapter. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Port*. See the Port schema for details.
}			
SerialNumber	string	*read-only (null)*	The serial number for this fabric adapter.

Property	Type	Attributes	Notes
SKU	string	*read-only (null)*	The manufacturer SKU for this fabric adapter.
SparePartNumber	string	*read-only (null)*	The spare part number for this fabric adapter.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
UUID	string (uuid)	*read-only (null)*	The UUID for this fabric adapter.

6.48.4 Property details

6.48.4.1 FabricType

The configured fabric type of this fabric adapter.

string	Description
AHCI	Advanced Host Controller Interface (AHCI).
CXL	Compute Express Link.
DisplayPort	DisplayPort.
DVI	DVI.
eMMC	Embedded MultiMediaCard (e.MMC).
Ethernet	Ethernet.
FC	Fibre Channel.
FCoE	Fibre Channel over Ethernet (FCoE).
FCP	Fibre Channel Protocol for SCSI.
FICON	FIbre CONnection (FICON).
FTP	File Transfer Protocol (FTP).
GenZ	GenZ.
HDMI	HDMI.
HTTP	Hypertext Transport Protocol (HTTP).

string	Description
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
I2C	Inter-Integrated Circuit Bus.
InfiniBand	InfiniBand.
iSCSI	Internet SCSI.
iWARP	Internet Wide Area RDMA Protocol (iWARP).
MultiProtocol	Multiple Protocols.
NFSv3	Network File System (NFS) version 3.
NFSv4	Network File System (NFS) version 4.
NVLink	NVLink.
NVMe	Non-Volatile Memory Express (NVMe).
NVMeOverFabrics	NVMe over Fabrics.
OEM	OEM-specific.
PCIe	PCI Express.
QPI	Intel QuickPath Interconnect (QPI).
RoCE	RDMA over Converged Ethernet Protocol.
RoCEv2	RDMA over Converged Ethernet Protocol Version 2.
SAS	Serial Attached SCSI.
SATA	Serial AT Attachment.
SFTP	SSH File Transfer Protocol (SFTP).
SMB	Server Message Block (SMB). Also known as the Common Internet File System (CIFS).
TCP	Transmission Control Protocol (TCP).
TFTP	Trivial File Transfer Protocol (TFTP).
UDP	User Datagram Protocol (UDP).
UET	Ultra Ethernet Transport.
UHCI	Universal Host Controller Interface (UHCI).
UPI	Intel UltraPath Interconnect (UPI).

string	Description
USB	Universal Serial Bus (USB).
VGA	VGA.

6.48.4.2 FabricTypeCapabilities

An array of fabric types supported by this fabric adapter.

string	Description
AHCI	Advanced Host Controller Interface (AHCI).
CXL	Compute Express Link.
DisplayPort	DisplayPort.
DVI	DVI.
eMMC	Embedded MultiMediaCard (e.MMC).
Ethernet	Ethernet.
FC	Fibre Channel.
FCoE	Fibre Channel over Ethernet (FCoE).
FCP	Fibre Channel Protocol for SCSI.
FICON	FIbre CONnection (FICON).
FTP	File Transfer Protocol (FTP).
GenZ	GenZ.
HDMI	HDMI.
HTTP	Hypertext Transport Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
I2C	Inter-Integrated Circuit Bus.
InfiniBand	InfiniBand.
iSCSI	Internet SCSI.
iWARP	Internet Wide Area RDMA Protocol (iWARP).
MultiProtocol	Multiple Protocols.

string	Description
NFSv3	Network File System (NFS) version 3.
NFSv4	Network File System (NFS) version 4.
NVLink	NVLink.
NVMe	Non-Volatile Memory Express (NVMe).
NVMeOverFabrics	NVMe over Fabrics.
OEM	OEM-specific.
PCIe	PCI Express.
QPI	Intel QuickPath Interconnect (QPI).
RoCE	RDMA over Converged Ethernet Protocol.
RoCEv2	RDMA over Converged Ethernet Protocol Version 2.
SAS	Serial Attached SCSI.
SATA	Serial AT Attachment.
SFTP	SSH File Transfer Protocol (SFTP).
SMB	Server Message Block (SMB). Also known as the Common Internet File System (CIFS).
TCP	Transmission Control Protocol (TCP).
TFTP	Trivial File Transfer Protocol (TFTP).
UDP	User Datagram Protocol (UDP).
UET	Ultra Ethernet Transport.
UHCI	Universal Host Controller Interface (UHCI).
UPI	Intel UltraPath Interconnect (UPI).
USB	Universal Serial Bus (USB).
VGA	VGA.

6.48.4.3 MaxPCIeType

The highest version of the PCIe specification supported by this device.

string	Description
Gen1	A PCIe v1.0 slot.
Gen2	A PCIe v2.0 slot.
Gen3	A PCIe v3.0 slot.
Gen4	A PCIe v4.0 slot.
Gen5	A PCIe v5.0 slot.
Gen6 *(v1.16+)*	A PCIe v6.0 slot.

6.48.4.4 PCIeType

The version of the PCIe specification in use by this device.

string	Description
Gen1	A PCIe v1.0 slot.
Gen2	A PCIe v2.0 slot.
Gen3	A PCIe v3.0 slot.
Gen4	A PCIe v4.0 slot.
Gen5	A PCIe v5.0 slot.
Gen6 *(v1.16+)*	A PCIe v6.0 slot.

6.48.5 Example response


```
{
    "@odata.type": "#FabricAdapter.v1_5_3.FabricAdapter",
    "Id": "Bridge",
    "Name": "Gen-Z Bridge",
    "Manufacturer": "Contoso",
    "Model": "Gen-Z Bridge Model X",
    "PartNumber": "975999-001",
    "SparePartNumber": "152111-A01",
    "SKU": "Contoso 2-port Gen-Z Bridge",
    "SerialNumber": "2M220100SL",
    "ASICRevisionIdentifier": "A0",
    "ASICPartNumber": "53312",
```

```
    "ASICManufacturer": "Contoso",
    "FirmwareVersion": "7.4.10",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Ports": {
        "@odata.id": "/redfish/v1/Systems/GenZ-example/FabricAdapters/1/Ports"
    },
    "PCIeInterface": {
        "MaxPCIeType": "Gen4",
        "MaxLanes": 64,
        "PCIeType": "Gen4",
        "LanesInUse": 64
    },
    "UUID": "45724775-ed3b-2214-1313-9865200c1cc1",
    "Links": {
        "Endpoints": [
            {
                "@odata.id": "/redfish/v1/Fabrics/GenZ/Endpoints/3"
            }
        ]
    },
    "GenZ": {
        "SSDT": {
            "@odata.id": "/redfish/v1/Systems/GenZ-example/FabricAdapters/1/SSDT"
        },
        "MSDT": {
            "@odata.id": "/redfish/v1/Systems/GenZ-example/FabricAdapters/1/MSDT"
        },
        "RequestorVCAT": {
            "@odata.id": "/redfish/v1/Systems/GenZ-example/FabricAdapters/1/REQ-VCAT"
        },
        "ResponderVCAT": {
            "@odata.id": "/redfish/v1/Systems/GenZ-example/FabricAdapters/1/RSP-VCAT"
        },
        "RITable": [
            "0x12",
            "0x3E",
            "0x12",
            "0x3E",
            "0x12",
            "0x3E",
            "0x12",
            "0x3E",
            "0x12",
            "0x3E",
            "0x12",
            "0x3E",
            "0x12",
            "0x3E",
            "0x12",
```

```
            "0x3E",
            "0x12",
            "0x3E"
        ],
        "PIDT": [
            "0x12234568",
            "0x12234568",
            "0x12234568",
            "0x12234568",
            "0x12234568",
            "0x12234568",
            "0x12234568",
            "0x12234568",
            "0x12234568",
            "0x12234568",
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            "0x12234568",
            "0x12234568",
            "0x12234568",
            "0x12234568",
            "0x12234568",
            "0x12234568",
            "0x12234568"
        ]
    },
    "@odata.id": "/redfish/v1/Systems/GenZ-example/FabricAdapters/1"
}
```


6.49 Facility 1.4.2

Version	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2023.1	2021.3	2021.2	2020.4	2019.4

6.49.1 Description

The `Facility` schema represents the physical location containing equipment, such as a room, building, or campus.

6.49.2 URIs

/redfish/v1/Facilities/*{FacilityId}*

6.49.3 Properties

Property	Type	Attributes	Notes
AmbientMetrics *(v1.1+)* {	object		The link to the ambient environment metrics for this facility. See the *EnvironmentMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a EnvironmentMetrics resource. See the Links section and the *EnvironmentMetrics* schema for details.
}			
EnvironmentMetrics *(v1.1+)* {	object		The link to the environment metrics for this facility. See the *EnvironmentMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a EnvironmentMetrics resource. See the Links section and the *EnvironmentMetrics* schema for details.
}			
FacilityType	string (enum)	*read-only* *required*	The type of location this resource represents. *For the possible property values, see FacilityType in Property details.*
Links {	object		The links to other resources that are related to this resource.
CDUs *(v1.4+)* [{	array		An array of links to the coolant distribution units in this facility.
@odata.id	string	*read-write*	Link to a CoolingUnit resource. See the Links section and the *CoolingUnit* schema for details.
}]			
ContainedByFacility {	object		The link to the facility that contains this facility.
@odata.id	string	*read-write*	Link to another Facility resource.
}			
ContainsChassis [{	array		An array of links to the outermost chassis contained within this facility.

Property	Type	Attributes	Notes
@odata.id	string	*read-write*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}]			
ContainsFacilities [{	array		An array of links to other facilities contained within this facility.
@odata.id	string	*read-write*	Link to another Facility resource.
}]			
CoolingLoops *(v1.4+)* [{	array		An array of links to the cooling loops in this facility.
@odata.id	string	*read-write*	Link to a CoolingLoop resource. See the Links section and the *CoolingLoop* schema for details.
}]			
ElectricalBuses *(v1.3+)* [{	array		An array of links to the electrical buses in this facility.
@odata.id	string	*read-write*	Link to a PowerDistribution resource. See the Links section and the *PowerDistribution* schema for details.
}]			
FloorPDUs [{	array		An array of links to the floor power distribution units in this facility.
@odata.id	string	*read-write*	Link to a PowerDistribution resource. See the Links section and the *PowerDistribution* schema for details.
}]			
ImmersionUnits *(v1.4+)* [{	array		An array of links to the immersion cooling units in this facility.
@odata.id	string	*read-write*	Link to a CoolingUnit resource. See the Links section and the *CoolingUnit* schema for details.
}]			
ManagedBy [{	array		An array of links to the managers responsible for managing this facility.
@odata.id	string	*read-only*	Link to a Manager resource. See the Links section and the *Manager* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.

Property	Type	Attributes	Notes
PowerShelves *(v1.2+)* [{	array		An array of links to the power shelves in this facility.
@odata.id	string	*read-write*	Link to a PowerDistribution resource. See the Links section and the *PowerDistribution* schema for details.
}]			
RackPDUs [{	array		An array of links to the rack-level power distribution units in this facility.
@odata.id	string	*read-write*	Link to a PowerDistribution resource. See the Links section and the *PowerDistribution* schema for details.
}]			
Switchgear [{	array		An array of links to the switchgear in this facility.
@odata.id	string	*read-write*	Link to a PowerDistribution resource. See the Links section and the *PowerDistribution* schema for details.
}]			
TransferSwitches [{	array		An array of links to the transfer switches in this facility.
@odata.id	string	*read-write*	Link to a PowerDistribution resource. See the Links section and the *PowerDistribution* schema for details.
}]			
}			
Location {}	object		The location of the facility. For property details, see Location.
PowerDomains {	object		Link to the power domains in this facility. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *PowerDomain*. See the PowerDomain schema for details.
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.49.4 Property details

6.49.4.1 FacilityType

The type of location this resource represents.

string	Description
Building	A structure with a roof and walls.
Floor	A floor inside of a building.
Room	A room inside of a building or floor.
Site	A small area consisting of several buildings.

6.49.5 Example response


```
{
    "@odata.type": "#Facility.v1_4_2.Facility",
    "Id": "Room237",
    "Name": "Room #237, 2nd Floor",
    "FacilityType": "Room",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Location": {
        "PhysicalAddress": {
            "Country": "US",
            "StateOrProvince": "Oregon",
            "City": "Portland",
            "StreetAddress": "1001 SW 5th Avenue",
            "PostalCode": "97204",
            "ISOCountryCode": "USA",
            "ISOSubdivisionCode": "OR"
        }
    },
    "PowerDomains": {
        "@odata.id": "/redfish/v1/Facilities/Room237/PowerDomains"
    },
    "Links": {
        "ContainedByFacility": {
            "@odata.id": "/redfish/v1/Facilities/Building"
        },
        "RackPDUs": [
            {
                "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs/1"
            }
        ]
    },
    "@odata.id": "/redfish/v1/Facilities/Room237"
}
```

6.50 Fan 1.5.2

Version	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2023.2	2023.1	2022.2	2022.1	2021.1	2020.4

6.50.1 Description

The `Fan` schema describes a cooling fan unit for a computer system or similar devices contained within a chassis. It also describes the location, such as a slot, socket, or bay, where a unit can be installed, by populating a resource instance with an absent state if a unit is not present.

6.50.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem/Fans/*{FanId}*

6.50.3 Properties

Property	Type	Attributes	Notes
Assembly {	object		The link to the assembly associated with this fan. See the *Assembly* schema for details on this property.
@odata.id	string	*read-only*	Link to a Assembly resource. See the Links section and the *Assembly* schema for details.
}			
FanDiameterMm *(v1.4+)*	integer (mm)	*read-only (null)*	The diameter of the fan assembly in millimeter units.
HotPluggable	boolean	*read-only (null)*	An indication of whether this device can be inserted or removed while the equipment is in operation.
Links *(v1.2+)* {	object		The links to other resources that are related to this resource.
CoolingChassis *(v1.2+)* [{	array		An array of links to the chassis that are directly cooled by this fan.
@odata.id	string	*read-only*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}]			

Property	Type	Attributes	Notes
Oem {}	object		See the Oem object definition in the Common properties section.
}			
Location {}	object		The location of the fan. For property details, see Location.
LocationIndicatorActive	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
Manufacturer	string	*read-only (null)*	The manufacturer of this fan.
Model	string	*read-only (null)*	The model number for this fan.
PartNumber	string	*read-only (null)*	The part number for this fan.
PhysicalContext	string (enum)	*read-only*	The area or device associated with this fan. *For the possible property values, see PhysicalContext in Property details.*
PowerWatts *(v1.1+)* {	object (excerpt)		Power consumption (W). This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
ApparentVA	number (V.A)	*read-only (null)*	The product of voltage and current for an AC circuit, in volt-ampere units.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
PhaseAngleDegrees *(v1.5+)*	number	*read-only (null)*	The phase angle (degrees) between the current and voltage waveforms.
PowerFactor	number	*read-only (null)*	The power factor for this sensor.
ReactiveVAR	number (V.A)	*read-only (null)*	The square root of the difference term of squared apparent VA and squared power (Reading) for a circuit, in VAR units.
Reading	number	*read-only (null)*	The sensor value.
}			
Replaceable *(v1.3+)*	boolean	*read-only (null)*	An indication of whether this component can be independently replaced as allowed by the vendor's replacement policy.
SecondarySpeedPercent *(v1.5+)* {	object (excerpt)		The fan speed (percent) of the second rotor in a multi-rotor fan. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.

Property	Type	Attributes	Notes
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
SpeedRPM *(v1.2+)*	number ({rev}/min)	*read-only (null)*	The rotational speed.
}			
SerialNumber	string	*read-only (null)*	The serial number for this fan.
SparePartNumber	string	*read-only (null)*	The spare part number for this fan.
SpeedPercent {	object (excerpt)		The fan speed (percent). This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
SpeedRPM *(v1.2+)*	number ({rev}/min)	*read-only (null)*	The rotational speed.
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.50.4 Property details

6.50.4.1 PhysicalContext

The area or device associated with this fan.

string	Description
Accelerator	An accelerator.
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.

string	Description
ACOutput	An AC electrical output or output-related circuit.
ACStaticBypassInput	An AC electrical static bypass input.
ACUtilityInput	An AC electrical utility input.
ASIC	An ASIC device, such as a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.
Chassis	The entire chassis.
ComputeBay	A compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.

string	Description
Lower	The lower portion of the chassis.
Manager	A management controller, such as a BMC (baseboard management controller).
Memory	A memory device.
MemorySubsystem	The entire memory subsystem.
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	A power supply bay.
Pump	A pump.
Rectifier	A rectifier device.
Reservoir	A reservoir.
Room	The room.
StorageBay	A storage bay.
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

6.50.5 Example response


```
{
    "@odata.type": "#Fan.v1_5_2.Fan",
    "Id": "Bay1",
    "Name": "Fan Bay 1",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "PhysicalContext": "Chassis",
    "Model": "RKS-440DC",
    "Manufacturer": "Contoso Fans",
    "PartNumber": "23456-133",
    "SparePartNumber": "93284-133",
    "LocationIndicatorActive": true,
    "HotPluggable": true,
    "SpeedPercent": {
        "Reading": 45,
        "SpeedRPM": 2200,
        "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/FanBay1"
    },
    "Location": {
        "PartLocation": {
            "ServiceLabel": "Chassis Fan Bay 1",
            "LocationType": "Bay",
            "LocationOrdinalValue": 0
        }
    },
    "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/Fans/Bay1"
}
```


6.51 Filter 1.1.0

Version	*v1.1*	*v1.0*
Release	2025.2	2023.1

6.51.1 Description

The `Filter` schema describes a filter unit for a cooling system or similar device.

6.51.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem/Filters/*{FilterId}*
/redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem/Pumps/*{PumpId}*/Filters/*{FilterId}*
/redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/Filters/*{FilterId}*
/redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/Pumps/*{PumpId}*/Filters/*{FilterId}*
/redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*/Filters/*{FilterId}*
/redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/Filters/*{FilterId}*
/redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/Pumps/*{PumpId}*/Filters/*{FilterId}*
/redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*/Filters/*{FilterId}*
/redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/Filters/*{FilterId}*
/redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/Pumps/*{PumpId}*/Filters/*{FilterId}*
/redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*/Filters/*{FilterId}*
/redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/Filters/*{FilterId}*
/redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/Pumps/*{PumpId}*/Filters/*{FilterId}*
/redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*/Filters/*{FilterId}*

6.51.3 Properties

Property	Type	Attributes	Notes
Assembly {	object		The link to the assembly associated with this filter. See the *Assembly* schema for details on this property.
@odata.id	string	*read-only*	Link to a Assembly resource. See the Links section and the *Assembly* schema for details.
}			
DeltaLiquidPressurekPa *(v1.1+)* {	object (excerpt)		The differential pressure (kPa) across the liquid filter. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
}			
HotPluggable	boolean	*read-only (null)*	An indication of whether this device can be inserted or removed while the equipment is in operation.
Location {}	object		The location of the filter. For property details, see Location.

Property	Type	Attributes	Notes
LocationIndicatorActive	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
Manufacturer	string	*read-only (null)*	The manufacturer of this filter.
Model	string	*read-only (null)*	The model number for this filter.
PartNumber	string	*read-only (null)*	The part number for this filter.
PhysicalContext	string (enum)	*read-only*	The area or device associated with this filter. *For the possible property values, see PhysicalContext in Property details.*
RatedServiceHours	number	*read-only (null)*	The rated hours of service life for this filter.
Replaceable	boolean	*read-only (null)*	An indication of whether this component can be independently replaced as allowed by the vendor's replacement policy.
SerialNumber	string	*read-only (null)*	The serial number for this filter.
ServicedDate	string (date-time)	*read-write (null)*	The date this filter was put into service.
ServiceHours	number	*read-write (null)*	The hours of service this filter has provided.
SparePartNumber	string	*read-only (null)*	The spare part number for this filter.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
UserLabel	string	*read-write*	A user-assigned label.

6.51.4 Property details

6.51.4.1 PhysicalContext

The area or device associated with this filter.

string	Description
Accelerator	An accelerator.

string	Description
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.
ACOutput	An AC electrical output or output-related circuit.
ACStaticBypassInput	An AC electrical static bypass input.
ACUtilityInput	An AC electrical utility input.
ASIC	An ASIC device, such as a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.
Chassis	The entire chassis.
ComputeBay	A compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points or region of the chassis.

string	Description
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Manager	A management controller, such as a BMC (baseboard management controller).
Memory	A memory device.
MemorySubsystem	The entire memory subsystem.
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	A power supply bay.
Pump	A pump.
Rectifier	A rectifier device.
Reservoir	A reservoir.
Room	The room.
StorageBay	A storage bay.
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.
Upper	The upper portion of the chassis.

string	Description
VoltageRegulator	A voltage regulator device.

6.51.5 Example response

```
{
    "@odata.type": "#Filter.v1_1_0.Filter",
    "Id": "1",
    "Name": "Cooling Loop Filter",
    "ServicedDate": "2020-12-24T08:00:00Z",
    "ServiceHours": 5791,
    "RatedServiceHours": 10000,
    "Manufacturer": "Contoso",
    "Model": "MyCoffee",
    "PartNumber": "Cone4",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Location": {
        "Placement": {
            "Row": "North 1"
        }
    },
    "@odata.id": "/redfish/v1/ThermalEquipment/CDUs/1/Filters/1"
}
```

6.52 GraphicsController 1.0.2

Version	*v1.0*
Release	2021.1

6.52.1 Description

The `GraphicsController` schema defines a graphics controller that can be used to drive one or more display devices.

6.52.2 URIs

/redfish/v1/Systems/*{ComputerSystemId}*/GraphicsControllers/*{GraphicsControllerId}*

6.52.3 Properties

Property	Type	Attributes	Notes
AssetTag	string	*read-write (null)*	The user-assigned asset tag for this graphics controller.
BiosVersion	string	*read-only (null)*	The version of the graphics controller BIOS or primary graphics controller firmware.
DriverVersion	string	*read-only (null)*	The version of the graphics controller driver loaded in the operating system.
Links {	object		The links to other resources that are related to this resource.
Oem {}	object		See the Oem object definition in the Common properties section.
PCIeDevice {	object		A link to the PCIe device that represents this graphics controller. See the *PCIeDevice* schema for details on this property.
@odata.id	string	*read-only*	Link to a PCIeDevice resource. See the Links section and the *PCIeDevice* schema for details.
}			
Processors [{	array		An array of links to the processors that are a part of this graphics controller.
@odata.id	string	*read-only*	Link to a Processor resource. See the Links section and the *Processor* schema for details.
}]			
}			
Location {}	object		The location of the graphics controller. For property details, see Location.
Manufacturer	string	*read-only (null)*	The manufacturer of this graphics controller.
Model	string	*read-only (null)*	The product model number of this graphics controller.
PartNumber	string	*read-only (null)*	The part number for this graphics controller.
Ports {	object		The ports of the graphics controller. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Port*. See the Port schema for details.
}			

Property	Type	Attributes	Notes
SerialNumber	string	*read-only* *(null)*	The serial number for this graphics controller.
SKU	string	*read-only* *(null)*	The SKU for this graphics controller.
SparePartNumber	string	*read-only* *(null)*	The spare part number of the graphics controller.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.52.4 Example response


```
{
    "@odata.type": "#GraphicsController.v1_0_2.GraphicsController",
    "Id": "GPU1",
    "Name": "Contoso Graphics Controller 1",
    "AssetTag": "",
    "Manufacturer": "Contoso",
    "Model": "GPU1",
    "SKU": "80937",
    "SerialNumber": "2M220100SL",
    "PartNumber": "G37891",
    "SparePartNumber": "G37890",
    "BiosVersion": "90.02.17.00.7D",
    "DriverVersion": "27.21.14.6079 (Contoso 460.79) DCH / Win 10 64",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Location": {
        "PartLocation": {
            "ServiceLabel": "Slot 1",
            "LocationOrdinalValue": 1,
            "LocationType": "Slot",
            "Orientation": "LeftToRight",
            "Reference": "Rear"
        }
    },
    "Ports": {
        "@odata.id": "/redfish/v1/Systems/1/GraphicsControllers/GPU1/Ports"
    },
    "Links": {
        "Processors": [
            {
                "@odata.id": "/redfish/v1/Systems/1/Processors/GPU"
```

```
            }
        ]
    },
    "@odata.id": "/redfish/v1/Systems/1/GraphicsControllers/GPU1"
}
```

6.53 Heater 1.0.2

Version	*v1.0*
Release	2022.3

6.53.1 Description

The `Heater` schema describes a heating unit for devices contained within a chassis.

6.53.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem/Heaters/*{HeaterId}*

6.53.3 Properties

Property	Type	Attributes	Notes
Assembly {	object		The link to the assembly associated with this heater. See the *Assembly* schema for details on this property.
@odata.id	string	*read-only*	Link to a Assembly resource. See the Links section and the *Assembly* schema for details.
}			
HotPluggable	boolean	*read-only* *(null)*	An indication of whether this device can be inserted or removed while the equipment is in operation.
Links {	object		The links to other resources that are related to this resource.
Managers [{	array		An array of links to the managers heated by this heater.
@odata.id	string	*read-only*	Link to a Manager resource. See the Links section and the *Manager* schema for details.

Property	Type	Attributes	Notes
}]			
Memory [{	array		An array of links to the memory devices heated by this heater.
@odata.id	string	*read-only*	Link to a Memory resource. See the Links section and the *Memory* schema for details.
}]			
NetworkAdapters [{	array		An array of links to the network adapters heated by this heater.
@odata.id	string	*read-only*	Link to a NetworkAdapter resource. See the Links section and the *NetworkAdapter* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
Processors [{	array		An array of links to the processors heated by this heater.
@odata.id	string	*read-only*	Link to a Processor resource. See the Links section and the *Processor* schema for details.
}]			
StorageControllers [{	array		An array of links to the storage controllers heated by this heater.
@odata.id	string	*read-only*	Link to a StorageController resource. See the Links section and the *StorageController* schema for details.
}]			
}			
Location {}	object		The location of the heater. For property details, see Location.
LocationIndicatorActive	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
Manufacturer	string	*read-only (null)*	The manufacturer of this heater.
Metrics {	object		The link to the heater metrics resource associated with this heater. See the *HeaterMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a HeaterMetrics resource. See the Links section and the *HeaterMetrics* schema for details.
}			

Property	Type	Attributes	Notes
Model	string	*read-only (null)*	The model number for this heater.
PartNumber	string	*read-only (null)*	The part number for this heater.
PhysicalContext	string (enum)	*read-only*	The area or device associated with this heater. *For the possible property values, see PhysicalContext in Property details.*
SerialNumber	string	*read-only (null)*	The serial number for this heater.
SparePartNumber	string	*read-only (null)*	The spare part number for this heater.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.53.4 Property details

6.53.4.1 PhysicalContext

The area or device associated with this heater.

string	Description
Accelerator	An accelerator.
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.
ACOutput	An AC electrical output or output-related circuit.
ACStaticBypassInput	An AC electrical static bypass input.
ACUtilityInput	An AC electrical utility input.
ASIC	An ASIC device, such as a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.

string	Description
Chassis	The entire chassis.
ComputeBay	A compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Manager	A management controller, such as a BMC (baseboard management controller).
Memory	A memory device.
MemorySubsystem	The entire memory subsystem.
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.

string	Description
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	A power supply bay.
Pump	A pump.
Rectifier	A rectifier device.
Reservoir	A reservoir.
Room	The room.
StorageBay	A storage bay.
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

6.53.5 Example response


```
{
    "@odata.type": "#Heater.v1_0_2.Heater",
    "Id": "CPU1Heater",
    "Description": "Heater for CPU1",
    "Name": "Heater 1",
    "PhysicalContext": "CPU",
    "Manufacturer": "Contoso Heaters",
    "Model": "CPUHeater",
    "SerialNumber": "SNDHM0123456789",
    "PartNumber": "12345-123",
    "SparePartNumber": "54321-321",
    "LocationIndicatorActive": false,
```

```
    "HotPluggable": true,
    "Status": {
        "Health": "OK",
        "State": "Enabled"
    },
    "Links": {
        "Processors": [
            {
                "@odata.id": "/redfish/v1/Systems/437XR1138R2/Processors/CPU1"
            }
        ]
    },
    "Metrics": {
        "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/Heaters/CPU1Heater/Metrics"
    },
    "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/Heaters/CPU1Heater"
}
```


6.54 HeaterMetrics 1.0.2

Version	*v1.0*
Release	2022.3

6.54.1 Description

The `HeaterMetrics` schema contains definitions for the metrics of a heater.

6.54.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem/Heaters/*{HeaderId}*/Metrics

6.54.3 Properties

Property	Type	Attributes	Notes
PowerWatts {	object (excerpt)		Power consumption (W). This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
ApparentVA	number (V.A)	*read-only (null)*	The product of voltage and current for an AC circuit, in volt-ampere units.

Property	Type	Attributes	Notes
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
PhaseAngleDegrees *(v1.5+)*	number	*read-only (null)*	The phase angle (degrees) between the current and voltage waveforms.
PowerFactor	number	*read-only (null)*	The power factor for this sensor.
ReactiveVAR	number (V.A)	*read-only (null)*	The square root of the difference term of squared apparent VA and squared power (Reading) for a circuit, in VAR units.
Reading	number	*read-only (null)*	The sensor value.
}			
PrePowerOnHeatingTimeSeconds	integer	*read-only (null)*	The total number of seconds the heater was active while the device it heats was powered off.
RuntimeHeatingTimeSeconds	integer	*read-only (null)*	The total number of seconds the heater was active while the device it heats was powered on.
TemperatureReadingsCelsius [{	array (excerpt)		The temperatures (in degree Celsius units) from all related sensors for this device. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
DeviceName *(v1.2+)*	string	*read-only (null)*	The name of the device.
PhysicalContext	string (enum)	*read-write (null)*	The area or device to which this sensor measurement applies. *For the possible property values, see PhysicalContext in Property details.*
PhysicalSubContext	string (enum)	*read-write (null)*	The usage or location within a device to which this sensor measurement applies. *For the possible property values, see PhysicalSubContext in Property details.*
Reading	number	*read-only (null)*	The sensor value.
}]			

6.54.4 Actions

6.54.4.1 ResetMetrics

Description

This action resets the summary metrics related to this equipment.

Action URI

{Base URI of target resource}/Actions/HeaterMetrics.ResetMetrics

Action parameters

This action takes no parameters.

6.54.5 Property details

6.54.5.1 PhysicalContext

The area or device to which this sensor measurement applies.

string	Description
Accelerator	An accelerator.
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.
ACOutput	An AC electrical output or output-related circuit.
ACStaticBypassInput	An AC electrical static bypass input.
ACUtilityInput	An AC electrical utility input.
ASIC	An ASIC device, such as a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.

string	Description
Chassis	The entire chassis.
ComputeBay	A compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Manager	A management controller, such as a BMC (baseboard management controller).
Memory	A memory device.
MemorySubsystem	The entire memory subsystem.
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.

string	Description
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	A power supply bay.
Pump	A pump.
Rectifier	A rectifier device.
Reservoir	A reservoir.
Room	The room.
StorageBay	A storage bay.
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

6.54.5.2 PhysicalSubContext

The usage or location within a device to which this sensor measurement applies.

string	Description
Input	The input.
Output	The output.

6.54.6 Example response

```
{
    "@odata.type": "#HeaterMetrics.v1_0_2.HeaterMetrics",
    "Id": "HeaterMetrics",
    "Description": "Heater Metrics for CPU1 Heater",
    "Name": "CPU1 Heater Metrics",
    "PrePowerOnHeatingTimeSeconds": 600,
    "RuntimeHeatingTimeSeconds": 3600,
    "PowerWatts": {
        "Reading": 200.3
    },
    "TemperatureReadingsCelsius": [
        {
            "DeviceName": "Heater Average Temperature",
            "Reading": 2.5
        }
    ],
    "Actions": {
        "#HeaterMetrics.ResetMetrics": {
            "target": "/redfish/v1/Chassis/1U/ThermalSubsystem/Heaters/CPU1Heater/Metrics/
         HeaterMetrics.ResetMetrics"
        }
    },
    "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/Heaters/CPU1Heater/Metrics"
}
```

6.55 HostInterface 1.3.3

Version	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2020.3	2018.2	2017.1	2016.3

6.55.1 Description

The `HostInterface` schema contains properties associated with a Redfish host interface. A Redfish host interface is a connection between host software and a Redfish service.

6.55.2 URIs

/redfish/v1/Managers/*{ManagerId}*/HostInterfaces/*{HostInterfaceId}*

6.55.3 Properties

Property	Type	Attributes	Notes
AuthenticationModes [ ]	array (string (enum))	*read-write*	The authentication modes available on this interface. *For the possible property values, see AuthenticationModes in Property details.*
AuthNoneRoleId *(v1.2+)*	string	*read-write*	The role when no authentication on this interface is used.
CredentialBootstrapping *(v1.3+)* {	object		The credential bootstrapping settings for this interface.
EnableAfterReset *(v1.3+)*	boolean	*read-write (null)*	An indication of whether credential bootstrapping is enabled after a reset for this interface.
Enabled *(v1.3+)*	boolean	*read-write (null)*	An indication of whether credential bootstrapping is enabled for this interface.
RoleId *(v1.3+)*	string	*read-write*	The role used for the bootstrap account created for this interface.
}			
ExternallyAccessible	boolean	*read-only (null)*	An indication of whether external entities can access this interface. External entities are non-host entities. For example, if the host and manager are connected through a switch and the switch also exposes an external port on the system, external clients can also use the interface, and this property value is `true`.
FirmwareAuthEnabled *(deprecated v1.3)*	boolean	*read-write (null)*	An indication of whether this firmware authentication is enabled for this interface. *Deprecated in v1.3 and later. This property has been deprecated in favor of newer methods of negotiating credentials.*
FirmwareAuthRoleId *(deprecated v1.3)*	string	*read-write*	The Redfish role used for firmware authentication on this interface. *Deprecated in v1.3 and later. This property has been deprecated in favor of newer methods of negotiating credentials.*
HostEthernetInterfaces {	object		A link to the collection of network interface controllers or cards (NICs) that a computer system uses to communicate with this host interface. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *EthernetInterface*. See the EthernetInterface schema for details.
}			
HostInterfaceType	string (enum)	*read-only (null)*	The host interface type for this interface. *For the possible property values, see HostInterfaceType in Property details.*
InterfaceEnabled	boolean	*read-write (null)*	An indication of whether this interface is enabled.

Property	Type	Attributes	Notes
KernelAuthEnabled *(deprecated v1.3)*	boolean	*read-write (null)*	An indication of whether this kernel authentication is enabled for this interface. *Deprecated in v1.3 and later. This property has been deprecated in favor of newer methods of negotiating credentials.*
KernelAuthRoleId *(deprecated v1.3)*	string	*read-write*	The Redfish role used for kernel authentication on this interface. *Deprecated in v1.3 and later. This property has been deprecated in favor of newer methods of negotiating credentials.*
Links {	object		The links to other resources that are related to this resource.
AuthNoneRole *(v1.2+)* {	object		The link to the Redfish role that contains the privileges on this host interface when no authentication is performed. See the *Role* schema for details on this property.
@odata.id	string	*read-only*	Link to a Role resource. See the Links section and the *Role* schema for details.
}			
ComputerSystems [{	array		An array of links to the computer systems connected to this host interface.
@odata.id	string	*read-only*	Link to a ComputerSystem resource. See the Links section and the *ComputerSystem* schema for details.
}]			
CredentialBootstrappingRole *(v1.3+)* {	object		The link to the role that contains the privileges for the bootstrap account created for this interface. See the *Role* schema for details on this property.
@odata.id	string	*read-only*	Link to a Role resource. See the Links section and the *Role* schema for details.
}			
FirmwareAuthRole *(deprecated v1.3)* {	object		The link to the Redfish role that has firmware authentication privileges on this host interface. See the *Role* schema for details on this property. *Deprecated in v1.3 and later. This property has been deprecated in favor of newer methods of negotiating credentials.*
@odata.id	string	*read-only*	Link to a Role resource. See the Links section and the *Role* schema for details.
}			
KernelAuthRole *(deprecated v1.3)* {	object		The link to the Redfish role defining privileges for this host interface when using kernel authentication. See the *Role* schema for details on this property. *Deprecated in v1.3 and later. This property has been deprecated in favor of newer methods of negotiating credentials.*
@odata.id	string	*read-only*	Link to a Role resource. See the Links section and the *Role* schema for details.

Property	Type	Attributes	Notes
}			
Oem {}	object		See the Oem object definition in the Common properties section.
}			
ManagerEthernetInterface {	object		A link to a single network interface controllers or cards (NIC) that this manager uses for network communication with this host interface. See the *EthernetInterface* schema for details on this property.
@odata.id	string	*read-only*	Link to a EthernetInterface resource. See the Links section and the *EthernetInterface* schema for details.
}			
NetworkProtocol {	object		A link to the network services and their settings that the manager controls. In this property, clients find configuration options for the network and network services. See the *ManagerNetworkProtocol* schema for details on this property.
@odata.id	string	*read-only*	Link to a ManagerNetworkProtocol resource. See the Links section and the *ManagerNetworkProtocol* schema for details.
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.55.4 Property details

6.55.4.1 AuthenticationModes

The authentication modes available on this interface.

string	Description
AuthNone	Requests without any sort of authentication are allowed.
BasicAuth	Requests using HTTP Basic authentication are allowed.
OemAuth	Requests using OEM authentication mechanisms are allowed.
RedfishSessionAuth	Requests using Redfish session authentication are allowed.

6.55.4.2 HostInterfaceType

The host interface type for this interface.

string	Description
NetworkHostInterface	This interface is a network host interface.

6.55.5 Example response


```
{
    "@odata.type": "#HostInterface.v1_3_3.HostInterface",
    "Id": "1",
    "Name": "Host Interface",
    "Description": "Management Host Interface",
    "HostInterfaceType": "NetworkHostInterface",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "InterfaceEnabled": true,
    "ExternallyAccessible": false,
    "AuthenticationModes": [
        "AuthNone",
        "BasicAuth",
        "RedfishSessionAuth",
        "OemAuth"
    ],
    "CredentialBootstrapping": {
        "EnableAfterReset": true,
        "Enabled": true,
        "RoleId": "User"
    },
    "HostEthernetInterfaces": {
        "@odata.id": "/redfish/v1/Managers/BMC/HostInterfaces/1/HostEthernetInterfaces"
    },
    "ManagerEthernetInterface": {
        "@odata.id": "/redfish/v1/Managers/BMC/EthernetInterfaces/ToHost"
    },
    "NetworkProtocol": {
        "@odata.id": "/redfish/v1/Managers/BMC/NetworkProtocol"
    },
    "Links": {
        "ComputerSystems": [
            {
                "@odata.id": "/redfish/v1/Systems/ORD144"
```

```
            }
        ],
        "CredentialBootstrappingRole": {
            "@odata.id": "/redfish/v1/AccountService/Roles/User"
        }
    },
    "@odata.id": "/redfish/v1/Managers/BMC/HostInterfaces/1"
}
```

6.56 Job 1.3.0

Version	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2025.2	2022.3	2022.1	2018.2

6.56.1 Description

The `Job` schema contains information about a job that a Redfish job service schedules or executes. Clients create jobs to describe a series of operations that occur at periodic intervals.

6.56.2 URIs

/redfish/v1/JobService/Jobs/*{JobId}*
/redfish/v1/JobService/Jobs/*{JobId}*/Steps/*{JobId2}*

6.56.3 Properties

Property	Type	Attributes	Notes
CreatedBy	string	*read-only*	The person or program that created this job entry.
CreationTime *(v1.3+)*	string (date-time)	*read-only*	The date and time when the job was created.
EndTime	string (date-time)	*read-only*	The date and time when the job was completed.
EstimatedCompletionTime *(v1.3+)*	string (date-time)	*read-only*	The date and time when the job is expected to complete.

Property	Type	Attributes	Notes
EstimatedDuration *(v1.1+)*	string (duration)	*read-only* *(null)*	The estimated total time required to complete the job.
HidePayload	boolean	*read-only*	An indication of whether the contents of the payload or parameters should be hidden from view after the job has been created. If `true`, responses do not return the payload or parameters. If `false`, responses return the payload or parameters. If this property is not present when the job is created, the default is `false`.
JobPriority *(v1.3+)*	integer	*read-only* *(null)*	The requested priority for this job.
JobState	string (enum)	*read-write*	The state of the job. *For the possible property values, see JobState in Property details.*
JobStatus	string (enum)	*read-only*	The status of the job. *For the possible property values, see JobStatus in Property details.*
JobType *(v1.3+)*	string (enum)	*read-only*	The type of this job. *For the possible property values, see JobType in Property details.*
Links *(v1.2+)* {	object		The links to other resources that are related to this resource.
CreatedResources *(v1.2+)* [{	array		An array of URIs referencing the resources created as the result of this job.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
Executor *(v1.3+)* {	object	*(null)*	A link to the executor that is running this job. See the *JobExecutor* schema for details on this property.
@odata.id	string	*read-only*	Link to a JobExecutor resource. See the Links section and the *JobExecutor* schema for details.
}			
JobDocument *(v1.3+)* {	object	*(null)*	A link to the job document that was used to create this job. See the *JobDocument* schema for details on this property.
@odata.id	string	*read-only*	Link to a JobDocument resource. See the Links section and the *JobDocument* schema for details.
}			
Oem {}	object		See the Oem object definition in the Common properties section.
ParentJob *(v1.3+)* {	object	*(null)*	The link to the job that created this job.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to another Job resource.
}			
PreferredExecutors *(v1.3+)* [{	array		An array of links to the preferred executors to run this job.
@odata.id	string	*read-only*	Link to a JobExecutor resource. See the Links section and the *JobExecutor* schema for details.
}]			
SubsidiaryJobs *(v1.3+)* [{	array		An array of links to the jobs created by this job.
@odata.id	string	*read-only*	Link to another Job resource.
}]			
ValidatedExecutors *(v1.3+)* [{	array		An array of links to the executors that have been validated to run this job.
@odata.id	string	*read-only*	Link to a JobExecutor resource. See the Links section and the *JobExecutor* schema for details.
}]			
}			
MaxExecutionTime	string (duration)	*read-write (null)*	The maximum amount of time the job is allowed to execute.
Messages [{ }]	array (object)		An array of messages associated with the job. For property details, see Message.
Parameters *(v1.3+)* {	object		The parameters specified for running this document-based job.
(pattern)	string, boolean, number	*read-write (null)*	Property names follow regular expression pattern "^[A-Za-z][A-Za-z0-9_]+$"
}			
Payload {	object		The HTTP and JSON request payload details for this user-specified job.
HttpHeaders [ ]	array (string)	*read-only*	An array of HTTP headers in this job.
HttpOperation	string	*read-only*	The HTTP operation that executes this job.
JsonBody	string	*read-only*	The JSON payload to use in the execution of this job.

Property	Type	Attributes	Notes
TargetUri	string (URI)	*read-only*	The link to the target for this job.
}			
PercentComplete	integer (%)	*read-only* *(null)*	The completion percentage of this job.
Schedule {}	object		The schedule settings for this job. For property details, see Schedule.
StartTime	string (date-time)	*read-only*	The date and time when the job was started or is scheduled to start.
StepOrder [ ]	array (string)	*read-only*	The serialized execution order of the job steps.
Steps {	object		The link to a collection of steps for this job. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Job*. See the Job schema for details.
}			

6.56.4 Actions

6.56.4.1 Cancel *(v1.3+)*

Description

Cancels the job.

Action URI

{Base URI of target resource}/Actions/Job.Cancel

Action parameters

This action takes no parameters.

6.56.4.2 ForceStart *(v1.3+)*

Description

Forces the job to start.

Action URI

{Base URI of target resource}/Actions/Job.ForceStart

Action parameters

This action takes no parameters.

6.56.4.3 Invalidate *(v1.3+)*

Description

Invalidates the job.

Action URI

{Base URI of target resource}/Actions/Job.Invalidate

Action parameters

This action takes no parameters.

6.56.4.4 Resubmit *(v1.3+)*

Description

Resubmits the job.

Action URI

{Base URI of target resource}/Actions/Job.Resubmit

Action parameters

Parameter Name	Type	Attributes	Notes
StartTime	string (date-time)	*optional*	The time to start the job.

Request Example

```
{
    "StartTime": "2022-01-16T04:14:33+06:00"
}
```

6.56.4.5 Resume *(v1.3+)*

Description

Resumes the job.

Action URI

{Base URI of target resource}/Actions/Job.Resume

Action parameters

This action takes no parameters.

6.56.4.6 Suspend *(v1.3+)*

Description

Suspends the job.

Action URI

{Base URI of target resource}/Actions/Job.Suspend

Action parameters

This action takes no parameters.

6.56.4.7 Validate *(v1.3+)*

Description

Validates the job.

Action URI

{Base URI of target resource}/Actions/Job.Validate

Action parameters

This action takes no parameters.

6.56.5 Property details

6.56.5.1 JobState

The state of the job.

string	Description
Cancelled	Job was cancelled.
Completed	Job was completed.
Continue	Job is to resume operation.
Exception	Job has stopped due to an exception condition.
Interrupted	Job has been interrupted.
Invalid *(v1.3+)*	Job is invalid.
New	A new job.
Pending	Job is pending and has not started.
Running	Job is running normally.
Service	Job is running as a service.
Starting	Job is starting.
Stopping	Job is in the process of stopping.
Suspended	Job has been suspended.
UserIntervention	Job is waiting for user intervention.
Validating *(v1.3+)*	Job is validating.

6.56.5.2 JobStatus

The status of the job.

string	Description
Critical	A critical condition requires immediate attention.
OK	Normal.

string	Description
Warning	A condition requires attention.

6.56.5.3 JobType

The type of this job.

string	Description
DocumentBased	A document-based job.
ServiceGenerated	A service-generated job.
UserSpecified	A user-specified job.

6.56.6 Example response

```
{
    "@odata.type": "#Job.v1_3_0.Job",
    "Id": "RebootRack",
    "Name": "Scheduled Nightly Reboot of the rack",
    "JobStatus": "OK",
    "JobState": "Running",
    "StartTime": "2018-04-01T00:01+6:00",
    "PercentComplete": 24,
    "Schedule": {
        "Lifetime": "P4Y",
        "InitialStartTime": "2018-01-01T01:00:00+06:00",
        "RecurrenceInterval": "P1D",
        "EnabledDaysOfWeek": [
            "Monday",
            "Tuesday",
            "Wednesday",
            "Thursday",
            "Friday"
        ]
    },
    "Steps": {
        "@odata.id": "/redfish/v1/JobService/Jobs/RebootRack/Steps"
    },
    "StepOrder": [
        "Red",
        "Orange",
        "Yellow",
        "Green",
```

```
        "Blue",
        "Indigo",
        "Violet"
    ],
    "@odata.id": "/redfish/v1/JobService/Jobs/RebootRack"
}
```

6.57 JobDocument 1.0.0

Version	*v1.0*
Release	2025.2

6.57.1 Description

The `JobDocument` schema describes the template for a job with a set of parameters.

6.57.2 URIs

/redfish/v1/JobService/Documents/{*JobDocumentId*}

6.57.3 Properties

Property	Type	Attributes	Notes
CreationTime	string (date-time)	*read-only*	The date and time when this job document resource was created.
DocumentData	string	*read-only*	The job document data as a Base64-encoded string.
DocumentDataHash	string	*read-only*	The hash of the job document data.
DocumentDataURI	string (URI)	*read-only*	The URI at which to access the job document data.
DocumentType	string	*read-only*	The type of job document data associated with this job document.
Links {	object		The links to other resources that are related to this resource.
SupportedExecutors [{	array		An array of links to the executors that are capable of running jobs instantiated from this job document.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a JobExecutor resource. See the Links section and the *JobExecutor* schema for details.
}]			
}			
ParameterMetadata [{	array		The metadata for each of the parameters supported by this job document for the `SubmitJob` action.
AllowableNumbers [ ]	array (string)	*read-only*	The allowable numeric values or duration values, inclusive ranges of values, and incremental step values for this parameter.
AllowablePattern	string	*read-only*	The allowable pattern for this parameter.
AllowableValueDescriptions [ ]	array (string)	*read-only*	Descriptions of allowable values for this parameter.
AllowableValues [ ]	array (string)	*read-only*	The allowable values for this parameter.
DataType	string (enum)	*read-only required*	The JSON property type for this parameter. *For the possible property values, see DataType in Property details.*
Description	string	*read-only*	A description of the parameter.
MaximumValue	number	*read-only*	The maximum supported value for this parameter.
MinimumValue	number	*read-only*	The minimum supported value for this parameter.
Name	string	*read-only required*	The name of the parameter.
Required	boolean	*read-only*	An indication of whether the parameter is required.
ValueHint	string	*read-only*	A hint value for the parameter.
}]			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
Version	string	*read-only*	The version of this job document.

6.57.4 Actions

6.57.4.1 SubmitJob

Description

Creates a new job based on the contents of this job document and additional parameters.

Action URI

{Base URI of target resource}/Actions/JobDocument.SubmitJob

Action parameters

Parameter Name	Type	Attributes	Notes
HidePayload	boolean	*optional*	An indication of whether the contents of the parameters should be hidden from view after the job has been created. If `true`, responses do not return the parameters. If `false`, responses return the parameters. If this parameter is not present when the job is created, the default is `false`.
JobCreator {	object	*optional*	The link to the job that is submitting this job. See the *Job* schema for details on this property.
@odata.id	string	*read-only*	Link to a Job resource. See the Links section and the *Job* schema for details.
}			
Parameters {}	object	*required*	The list of parameters for the new job that are specific to this job document.
PreferredExecutors [{	array	*required*	An array of links to the preferred executors to run this job.
@odata.id	string	*read-only*	Link to a JobExecutor resource. See the Links section and the *JobExecutor* schema for details.
}]			
StartTime	string (date-time)	*optional*	The date and time when the job is scheduled to start.

Request Example

```
{
    "JobCreator": {
        "@odata.id": "https://192.168.0.1/redfish/v1/JobService/Jobs/1"
    },
    "Parameters": {
        "AmountPieces": 10000,
        "Flavor": "Orange",
        "Shape": "Cylinder"
    },
    "StartTime": "2022-01-16T04:14:33+06:00",
    "PreferredExecutors": [
```

```
        {
            "@odata.id": "/redfish/v1/JobService/Executors/1"
        }
    ]
}
```

6.57.5 Property details

6.57.5.1 DataType

The JSON property type for this parameter.

string	Description
Boolean	A boolean.
Number	A number.
String	A string.

6.57.6 Example response

```
{
    "@odata.type": "#JobDocument.v1_0_0.JobDocument",
    "Id": "Recipe1",
    "Name": "Sweet candy",
    "Description": "Produce specified amount of the sweet candies",
    "Actions": {
        "#JobDocument.SubmitJob": {
            "target": "/redfish/v1/JobService/Documents/Recipe1/Actions/JobDocument.SubmitJob"
        }
    },
    "DocumentType": "Script",
    "Version": "1.0.0-20210215",
    "CreationTime": "2022-01-16T04:14:33+06:00",
    "DocumentDataURI": "https://recipestore.vendor.com/recipes?Action=Download&RecipeId=SweetCandy",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "ParameterMetadata": [
        {
            "Name": "AmountPieces",
            "DataType": "Number",
```

```
            "MinimumValue": 0,
            "Required": true,
            "Description": "The number of pieces to produce",
            "ValueHint": "10000"
        },
        {
            "Name": "Flavors",
            "AllowableValues": [
                "Orange",
                "Strawberry",
                "Lemon",
                "Lime",
                "Raspberry",
                "Vanilla"
            ],
            "DataType": "String",
            "Required": true,
            "Description": "The flavors of the candy.  One or two choices may be given",
            "ValueHint": "Orange"
        },
        {
            "Name": "Shape",
            "AllowableValues": [
                "Cylinder",
                "Sphere",
                "Dome",
                "Cone"
            ],
            "DataType": "String",
            "Required": true,
            "Description": "The shape of the candy.",
            "ValueHint": "Dome"
        }
    ],
    "Links": {
        "SupportedExecutors": [
            {
                "@odata.id": "/redfish/v1/JobService/Executors/1"
            }
        ]
    },
    "@odata.id": "/redfish/v1/JobService/Documents/Recipe1"
}
```


6.58 JobExecutor 1.0.0

Version	*v1.0*

Release	2025.2

6.58.1 Description

The `JobExecutor` schema describes an entity that carries out a job.

6.58.2 URIs

/redfish/v1/JobService/Executors/*{JobExecutorId}*

6.58.3 Properties

Property	Type	Attributes	Notes
ExecutorType	string	*read-only*	The primary type of job this executor processes.
Links {	object		The links to other resources that are related to this resource.
Chassis [{	array		An array of links to the chassis that contain this equipment.
@odata.id	string	*read-only*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}]			
ComputerSystem {	object		The system that is performing the work of this job executor. See the *ComputerSystem* schema for details on this property.
@odata.id	string	*read-only*	Link to a ComputerSystem resource. See the Links section and the *ComputerSystem* schema for details.
}			
ExecutingJobs [{	array		Links to jobs this executor is running.
@odata.id	string	*read-only*	Link to a Job resource. See the Links section and the *Job* schema for details.
}]			
}			
MaximumConcurrentJobs	integer	*read-only*	The maximum concurrent jobs this executor can process.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.58.4 Example response


```
{
    "@odata.type": "#JobExecutor.v1_0_0.JobExecutor",
    "Id": "1",
    "Name": "Main Job Executor",
    "Description": "Executor for Document-based Jobs",
    "ExecutorType": "Script",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "MaximumConcurrentJobs": 1,
    "Links": {
        "ExecutingJobs": [
            {
                "@odata.id": "/redfish/v1/JobService/Jobs/1"
            }
        ],
        "Chassis": [
            {
                "@odata.id": "/redfish/v1/Chassis/Aggregator"
            }
        ],
        "ComputerSystem": {
            "@odata.id": "/redfish/v1/Systems/1"
        }
    },
    "@odata.id": "/redfish/v1/JobService/Executors/1"
}
```


6.59 JobService 1.1.0

Version	*v1.1*	*v1.0*
Release	2025.2	2018.2

6.59.1 Description

The `JobService` schema contains properties for scheduling and execution of operations, represents the properties for the job service itself, and has links to jobs managed by the job service.

6.59.2 URIs

/redfish/v1/JobService

6.59.3 Properties

Property	Type	Attributes	Notes
DateTime	string (date-time)	*read-only (null)*	The current date and time setting for the job service.
JobDocuments *(v1.1+)* {	object		The links to the job document collection. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *JobDocument*. See the JobDocument schema for details.
}			
JobExecutors *(v1.1+)* {	object		The links to the job executor collection. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *JobExecutor*. See the JobExecutor schema for details.
}			
Jobs {	object		The links to the jobs collection. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Job*. See the Job schema for details.
}			
Log {	object		The link to a log service that the job service uses. This service can be a dedicated log service or a pointer to a log service under another resource, such as a manager. See the *LogService* schema for details on this property.
@odata.id	string	*read-only*	Link to a LogService resource. See the Links section and the *LogService* schema for details.
}			
ServiceCapabilities {	object		The supported capabilities of this job service implementation.
DocumentBasedJobs *(v1.1+)*	boolean	*read-only (null)*	An indication of whether document-based jobs are supported.
MaxJobs	integer	*read-only (null)*	The maximum number of jobs supported.
MaxSteps	integer	*read-only (null)*	The maximum number of job steps supported.

Property	Type	Attributes	Notes
Scheduling	boolean	*read-only (null)*	An indication of whether scheduling of jobs is supported.
UserSpecifiedJobs *(v1.1+)*	boolean	*read-only (null)*	An indication of whether user-specified jobs are supported.
}			
ServiceEnabled	boolean	*read-write (null)*	An indication of whether this service is enabled.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
ValidationPolicy *(v1.1+)*	string (enum)	*read-only (null)*	The policy for how document-based jobs are validated. *For the possible property values, see ValidationPolicy in Property details.*

6.59.4 Actions

6.59.4.1 CancelAllJobs *(v1.1+)*

Description

Cancels all jobs.

Action URI

{Base URI of target resource}/Actions/JobService.CancelAllJobs

Action parameters

This action takes no parameters.

6.59.5 Property details

6.59.5.1 ValidationPolicy

The policy for how document-based jobs are validated.

string	Description
Automatic	Jobs are validated automatically.

string	Description
Bypass	Jobs are not validated.
Manual	Jobs are validated manually.

6.59.6 Example response


```
{
    "@odata.type": "#JobService.v1_1_0.JobService",
    "Id": "JobService",
    "Name": "Job Service",
    "DateTime": "2018-06-13T04:14+06:00",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "ServiceEnabled": true,
    "ServiceCapabilities": {
        "MaxJobs": 100,
        "MaxSteps": 50,
        "Scheduling": true
    },
    "Jobs": {
        "@odata.id": "/redfish/v1/JobService/Jobs"
    },
    "Log": {
        "@odata.id": "/redfish/v1/JobService/Log"
    },
    "Actions": {
        "Oem": {
            "#Contoso.EasyButton": {
                "target": "/redfish/v1/JobService/Contoso.EasyButton",
                "@Redfish.ActionInfo": "/redfish/v1/JobService/EasyButtonActionInfo"
            }
        }
    },
    "@odata.id": "/redfish/v1/JobService"
}
```


6.60 JsonSchemaFile 1.1.5

Version	*v1.1*	*v1.0*
Release	2017.1	1.0

6.60.1 Description

The `JsonSchemaFile` schema contains the properties that describe the locations, as URIs, of a Redfish schema definition that a Redfish service implements or references.

6.60.2 URIs

/redfish/v1/JsonSchemas/*{JsonSchemaFileId}*

6.60.3 Properties

Property	Type	Attributes	Notes
Languages [ ]	array (string)	*read-only* *required*	The RFC5646-conformant language codes for the available schemas.
Location [{	array	*required*	Location information for this schema file.
ArchiveFile	string	*read-only*	The name of the file in the archive, if the schema is hosted on the service in an archive file.
ArchiveUri	string (URI)	*read-only*	The link to an archive file, if the schema is hosted on the service in an archive file.
Language	string	*read-only*	The language code for the schema file.
PublicationUri	string (URI)	*read-only*	The link to publicly available (canonical) URI for schema.
Uri	string (URI)	*read-only*	The link to locally available URI for schema.
}]			
Schema	string	*read-only* *required*	The `@odata.type` name this schema describes.

6.60.4 Example response


```
{
    "@odata.type": "#JsonSchemaFile.v1_1_5.JsonSchemaFile",
    "Id": "Chassis.v1_11_0",
    "Name": "Chassis Schema File",
    "Description": "Chassis Schema File Location",
    "Languages": [
```

```
        "en"
    ],
    "Schema": "#Chassis.v1_11_0.Chassis",
    "Location": [
        {
            "Language": "en",
            "ArchiveUri": "/Schemas.gz",
            "PublicationUri": "http://redfish.dmtf.org/schemas/v1/Chassis.v1_11_0.json",
            "ArchiveFile": "Chassis.v1_11_0.json"
        },
        {
            "Language": "zh",
            "ArchiveUri": "/Schemas.zh.gz",
            "PublicationUri": "http://schemas.contoso.com/Chassis.v1_11_0.zh.json",
            "ArchiveFile": "Chassis.v1_11_0.zh.json"
        },
        {
            "Language": "xy",
            "Uri": "/redfish/v1/JsonSchemas/Chassis.v1_11_0.xy.json",
            "PublicationUri": "http://schemas.contoso.com/Chassis.v1_11_0.xy.json"
        }
    ],
    "@odata.id": "/redfish/v1/JsonSchemas/Chassis.v1_11_0"
}
```


6.61 Key 1.4.1

Version	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2023.3	2023.2	2022.3	2022.1	2021.2

6.61.1 Description

The `Key` schema describes sensitive data for accessing devices or services.

6.61.2 URIs

/redfish/v1/AccountService/Accounts/*{ManagerAccountId}*/Keys/*{KeyId}*
/redfish/v1/AggregationService/AggregationSources/*{AggregationSourceId}*/PresentedPublicHostKey
/redfish/v1/AggregationService/AggregationSources/*{AggregationSourceId}*/PublicIdentityKey
/redfish/v1/AggregationService/AggregationSources/*{AggregationSourceId}*/TrustedPublicHostKeys/*{KeyId}*
/redfish/v1/KeyService/NVMeoFSecrets/*{KeyId}*
/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/Accounts/*{ManagerAccountId}*/Keys/*{KeyId}*

/redfish/v1/UpdateService/PublicIdentitySSHKey/*{KeyId}*
/redfish/v1/UpdateService/RemoteServerSSHKeys/*{KeyId}*

6.61.3 Properties

Property	Type	Attributes	Notes
KeyString	string	*read-only required on create (null)*	The string for the key.
KeyType	string (enum)	*read-only required on create (null)*	The format of the key. *For the possible property values, see KeyType in Property details.*
NVMeoF {	object		NVMe-oF specific properties.
HostKeyId	string	*read-write (null)*	The identifier of the host key paired with this target key.
NQN	string	*read-only required on create (null)*	The NVMe Qualified Name (NQN) of the host or target subsystem associated with this key.
OEMSecurityProtocolType	string	*read-only (null)*	The OEM security protocol that this key uses.
SecureHashAllowList [ ]	array (string (enum))	*read-only (null)*	The secure hash algorithms allowed with the usage of this key. *For the possible property values, see SecureHashAllowList in Property details.*
SecurityProtocolType	string (enum)	*read-only (null)*	The security protocol that this key uses. *For the possible property values, see SecurityProtocolType in Property details.*
}			
SSH *(v1.2+)* {	object		SSH specific properties.
Comment *(v1.4+)*	string	*read-only (null)*	The user-specified comment associated with this key, which typically contains the client's username and host name.
Fingerprint *(v1.2+)*	string	*read-only (null)*	A fingerprint of the key.
RemoteServerHostName *(v1.3+)*	string	*read-only (null)*	The host name of the remote server associated with this key.
}			

Property	Type	Attributes	Notes
UserDescription *(v1.1+)*	string	*read-write (null)*	A user-defined string to describe this key.

6.61.4 Property details

6.61.4.1 KeyType

The format of the key.

string	Description
NVMeoF	An NVMe-oF key.
SSH *(v1.1+)*	An SSH public key.

6.61.4.2 SecureHashAllowList

The secure hash algorithms allowed with the usage of this key.

string	Description
SHA256	SHA-256.
SHA384	SHA-384.
SHA512	SHA-512.

6.61.4.3 SecurityProtocolType

The security protocol that this key uses.

string	Description
DHHC	Diffie-Hellman Hashed Message Authentication Code Challenge Handshake Authentication Protocol (DH-HMAC-CHAP).
OEM	OEM.
TLS_PSK	Transport Layer Security Pre-Shared Key (TLS PSK).

6.61.5 Example response


```
{
    "@odata.type": "#Key.v1_4_1.Key",
    "Id": "0",
    "Name": "NVMeoF key 0, target subsystem",
    "KeyType": "NVMeoF",
    "KeyString": "DHHC-1:00:ia6zGodOr4SEG0Zzaw398rpY0wqipUWj4jWjUh4HWUz6aQ2n:",
    "NVMeoF": {
        "NQN": "nqn.corp.com:nvme:target-subsystem-0001",
        "SecurityProtocolType": "DHHC",
        "HostKeyId": "1",
        "SecureHashAllowList": [
            "SHA384",
            "SHA512"
        ]
    },
    "@odata.id": "/redfish/v1/KeyService/NVMeoFSecrets/0"
}
```


6.62 KeyPolicy 1.0.1

Version	*v1.0*
Release	2021.2

6.62.1 Description

The `KeyPolicy` schema describes settings for how keys are allowed to be used for accessing devices or services.

6.62.2 URIs

/redfish/v1/KeyService/NVMeoFKeyPolicies/*{KeyPolicyId}*

6.62.3 Properties

Property	Type	Attributes	Notes
IsDefault	boolean	*read-write (null)*	Indicates if this is the default key policy.

Property	Type	Attributes	Notes
KeyPolicyType	string (enum)	*read-only required on create (null)*	The type of key policy. *For the possible property values, see KeyPolicyType in Property details.*
NVMeoF {	object		NVMe-oF specific properties.
CipherSuiteAllowList [ ]	array (string (enum))	*read-write (null)*	The cipher suites that this key policy allows. *For the possible property values, see CipherSuiteAllowList in Property details.*
DHGroupAllowList [ ]	array (string (enum))	*read-write (null)*	The Diffie-Hellman (DH) groups that this key policy allows. *For the possible property values, see DHGroupAllowList in Property details.*
OEMSecurityProtocolAllowList [ ]	array (string, null)	*read-write*	The OEM security protocols that this key policy allows.
SecureHashAllowList [ ]	array (string (enum))	*read-write (null)*	The secure hash algorithms that this key policy allows. *For the possible property values, see SecureHashAllowList in Property details.*
SecurityProtocolAllowList [ ]	array (string (enum))	*read-write (null)*	The security protocols that this key policy allows. *For the possible property values, see SecurityProtocolAllowList in Property details.*
SecurityTransportAllowList [ ]	array (string (enum))	*read-write (null)*	The security transports that this key policy allows. *For the possible property values, see SecurityTransportAllowList in Property details.*
}			

6.62.4 Property details

6.62.4.1 CipherSuiteAllowList

The cipher suites that this key policy allows.

string	Description
TLS_AES_128_GCM_SHA256	TLS_AES_128_GCM_SHA256.
TLS_AES_256_GCM_SHA384	TLS_AES_256_GCM_SHA384.

6.62.4.2 DHGroupAllowList

The Diffie-Hellman (DH) groups that this key policy allows.

string	Description
FFDHE2048	2048-bit Diffie-Hellman (DH) group.
FFDHE3072	3072-bit Diffie-Hellman (DH) group.
FFDHE4096	4096-bit Diffie-Hellman (DH) group.
FFDHE6144	6144-bit Diffie-Hellman (DH) group.
FFDHE8192	8192-bit Diffie-Hellman (DH) group.

6.62.4.3 KeyPolicyType

The type of key policy.

string	Description
NVMeoF	An NVMe-oF key policy.

6.62.4.4 SecureHashAllowList

The secure hash algorithms that this key policy allows.

string	Description
SHA256	SHA-256.
SHA384	SHA-384.
SHA512	SHA-512.

6.62.4.5 SecurityProtocolAllowList

The security protocols that this key policy allows.

string	Description
DHHC	Diffie-Hellman Hashed Message Authentication Code Challenge Handshake Authentication Protocol (DH-HMAC-CHAP).
OEM	OEM.
TLS_PSK	Transport Layer Security Pre-Shared Key (TLS PSK).

6.62.4.6 SecurityTransportAllowList

The security transports that this key policy allows.

string	Description
TLSv2	Transport Layer Security (TLS) v2.
TLSv3	Transport Layer Security (TLS) v3.

6.62.5 Example response

```
{
    "@odata.type": "#KeyPolicy.v1_0_1.KeyPolicy",
    "Id": "0",
    "Name": "Default NVMeoF Key Policy",
    "IsDefault": true,
    "KeyPolicyType": "NVMeoF",
    "NVMeoF": {
        "SecurityTransportAllowList": [
            "TLSv2",
            "TLSv3"
        ],
        "CipherSuiteAllowList": [
            "TLS_AES_128_GCM_SHA256",
            "TLS_AES_256_GCM_SHA384"
        ],
        "SecurityProtocolAllowList": [
            "DHHC",
            "TLS_PSK"
        ],
        "DHGroupAllowList": [
            "FFDHE2048",
            "FFDHE3072",
            "FFDHE4096",
            "FFDHE6144",
            "FFDHE8192"
```

```
        ],
        "SecureHashAllowList": [
            "SHA384",
            "SHA512"
        ]
    },
    "@odata.id": "/redfish/v1/KeyService/NVMeoFKeyPolicies/0"
}
```


6.63 KeyService 1.0.1

Version	*v1.0*
Release	2021.2

6.63.1 Description

The `KeyService` schema describes a key service that represents the actions available to manage keys.

6.63.2 URIs

/redfish/v1/KeyService

6.63.3 Properties

Property	Type	Attributes	Notes
NVMeoFKeyPolicies {	object		The NVMe-oF key policies maintained by this service. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *KeyPolicy*. See the KeyPolicy schema for details.
}			
NVMeoFSecrets {	object		The NVMe-oF keys maintained by this service. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Key*. See the Key schema for details.
}			

6.63.4 Example response

```
{
    "@odata.type": "#KeyService.v1_0_1.KeyService",
    "Id": "KeyService",
    "Name": "Key Service",
    "NVMeoFSecrets": {
        "@odata.id": "/redfish/v1/KeyService/NVMeoFSecrets"
    },
    "NVMeoFKeyPolicies": {
        "@odata.id": "/redfish/v1/KeyService/NVMeoFKeyPolicies"
    },
    "@odata.id": "/redfish/v1/KeyService"
}
```

6.64 LeakDetection 1.1.0

Version	*v1.1*	*v1.0*
Release	2024.3	2023.1

6.64.1 Description

The `LeakDetection` schema contains definitions for reporting leaks in liquid cooling systems or other equipment.

6.64.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem/LeakDetection
/redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/LeakDetection
/redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/LeakDetection
/redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/LeakDetection
/redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/LeakDetection

6.64.3 Properties

Property	Type	Attributes	Notes
LeakDetectorGroups [{	array		The groups of leak detection equipment.

Property	Type	Attributes	Notes
Detectors [{	array (excerpt)		The leak detection states from all related leak detection devices in this group. This object is an excerpt of the *LeakDetector* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this leak detector.
DetectorState	string (enum)	*read-only (null)*	The state of the leak detector. *For the possible property values, see DetectorState in Property details.*
DeviceName *(v1.2+)*	string	*read-only (null)*	The name of the device.
PhysicalContext	string (enum)	*read-only (null)*	The area or device to which this leak detector applies. *For the possible property values, see PhysicalContext in Property details.*
PhysicalSubContext	string (enum)	*read-only (null)*	The usage or location within a device to which this leak detector applies. *For the possible property values, see PhysicalSubContext in Property details.*
}]			
GroupName	string	*read-only*	The name of this leak detector group.
HumidityPercent {	object (excerpt)		Humidity (percent). This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
}			
Status *(v1.1+)* {}	object	*required*	The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
}]			
LeakDetectors {	object		The link to the collection of leak detectors within this subsystem. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *LeakDetector*. See the LeakDetector schema for details.
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.64.4 Property details

6.64.4.1 DetectorState

The state of the leak detector.

string	Description
Critical	A critical condition requires immediate attention.
OK	Normal.
Warning	A condition requires attention.

6.64.4.2 PhysicalContext

The area or device to which this leak detector applies.

string	Description
Accelerator	An accelerator.
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.
ACOutput	An AC electrical output or output-related circuit.
ACStaticBypassInput	An AC electrical static bypass input.
ACUtilityInput	An AC electrical utility input.
ASIC	An ASIC device, such as a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.
Chassis	The entire chassis.
ComputeBay	A compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.

string	Description
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Manager	A management controller, such as a BMC (baseboard management controller).
Memory	A memory device.
MemorySubsystem	The entire memory subsystem.
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	A power supply bay.

string	Description
Pump	A pump.
Rectifier	A rectifier device.
Reservoir	A reservoir.
Room	The room.
StorageBay	A storage bay.
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

6.64.4.3 PhysicalSubContext

The usage or location within a device to which this leak detector applies.

string	Description
Input	The input.
Output	The output.

6.64.5 Example response

```
{
    "@odata.type": "#LeakDetection.v1_1_0.LeakDetection",
    "Id": "LeakDetection",
    "Name": "Leak Detection Systems",
    "Status": {
```

```
        "State": "Enabled",
        "Health": "OK",
        "Conditions": []
    },
    "LeakDetectorGroups": [
        {
            "GroupName": "Detectors under and around the CDU",
            "Status": {
                "Health": "OK"
            },
            "HumidityPercent": {
                "Reading": 45
            },
            "Detectors": [
                {
                    "DataSourceUri": "/redfish/v1/ThermalEquipment/CDUs/1/LeakDetection/LeakDetectors/
     Moisture",
                    "DeviceName": "Moisture-type Leak Detector",
                    "DetectorState": "OK"
                },
                {
                    "DeviceName": "Leak Detection Rope 1",
                    "DetectorState": "OK"
                },
                {
                    "DataSourceUri": "/redfish/v1/ThermalEquipment/CDUs/1/LeakDetection/LeakDetectors/
     Overflow",
                    "DeviceName": "Overflow Float Switch",
                    "DetectorState": "OK"
                }
            ]
        }
    ],
    "LeakDetectors": {
        "@odata.id": "/redfish/v1/ThermalEquipment/CDUs/1/LeakDetection/LeakDetectors"
    },
    "@odata.id": "/redfish/v1/ThermalEquipment/CDUs/1/LeakDetection"
}
```


6.65 LeakDetector 1.4.0

Version	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2025.2	2024.4	2024.3	2024.1	2023.1

6.65.1 Description

The `LeakDetector` schema describes a state-based or digital-value leak detector and its properties.

6.65.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/LeakDetectors/*{LeakDetectorId}*
/redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem/LeakDetection/LeakDetectors/*{LeakDetectorId}* (deprecated)
/redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/LeakDetection/LeakDetectors/*{LeakDetectorId}* (deprecated)
/redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/LeakDetection/LeakDetectors/*{LeakDetectorId}* (deprecated)
/redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/LeakDetection/LeakDetectors/*{LeakDetectorId}* (deprecated)

6.65.3 Properties

Property	Type	Attributes	Notes
CriticalReactionType *(v1.4+)*	string (enum)	*read-write*	The reaction to perform when a critical leak is detected. *For the possible property values, see CriticalReactionType in Property details.*
DetectorState	string (enum)	*read-only (null)*	The state of the leak detector. *For the possible property values, see DetectorState in Property details.*
Enabled *(v1.3+)*	boolean	*read-write (null)*	Indicates whether the leak detector is enabled and provides a status.
LeakDetectorType	string (enum)	*read-only (null)*	The type of leak detection sensor. *For the possible property values, see LeakDetectorType in Property details.*
Location {}	object		The location information for this leak detector. For property details, see Location.
Manufacturer	string	*read-only (null)*	The manufacturer of this leak detector.
Model	string	*read-only (null)*	The model number of the leak detector.
PartNumber	string	*read-only (null)*	The part number of the leak detector.
PhysicalContext	string (enum)	*read-only (null)*	The area or device to which this leak detector applies. *For the possible property values, see PhysicalContext in Property details.*
PhysicalSubContext	string (enum)	*read-only (null)*	The usage or location within a device to which this leak detector applies. *For the possible property values, see PhysicalSubContext in Property details.*

Property	Type	Attributes	Notes
ReactionDelaySeconds *(v1.4+)*	integer (seconds)	*read-write*	The delay in seconds after a leak is detected before the selected reaction is executed.
SensingFrequency	number	*read-only (null)*	The time interval between readings of the physical leak detector.
SerialNumber	string	*read-only (null)*	The serial number of the leak detector.
SKU	string	*read-only (null)*	The SKU of the leak detector.
SparePartNumber	string	*read-only (null)*	The spare part number of the leak detector.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
UserLabel *(v1.1+)*	string	*read-write*	A user-assigned label.
WarningReactionType *(v1.4+)*	string (enum)	*read-write*	The reaction to perform when a warning-level leak is detected. *For the possible property values, see WarningReactionType in Property details.*

6.65.4 Property details

6.65.4.1 CriticalReactionType

The reaction to perform when a critical leak is detected.

string	Description
ForceOff	Forcefully shut down the device, equipment, or system.
GracefulShutdown	Gracefully shut down the device, equipment, or system.
None	No reaction.

6.65.4.2 DetectorState

The state of the leak detector.

string	Description
Critical	A critical condition requires immediate attention.

string	Description
OK	Normal.
Warning	A condition requires attention.

6.65.4.3 LeakDetectorType

The type of leak detection sensor.

string	Description
FloatSwitch	A float switch.
Moisture	A moisture sensor.

6.65.4.4 PhysicalContext

The area or device to which this leak detector applies.

string	Description
Accelerator	An accelerator.
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.
ACOutput	An AC electrical output or output-related circuit.
ACStaticBypassInput	An AC electrical static bypass input.
ACUtilityInput	An AC electrical utility input.
ASIC	An ASIC device, such as a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.
Chassis	The entire chassis.
ComputeBay	A compute bay.

string	Description
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Manager	A management controller, such as a BMC (baseboard management controller).
Memory	A memory device.
MemorySubsystem	The entire memory subsystem.
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.

string	Description
PowerSupplyBay	A power supply bay.
Pump	A pump.
Rectifier	A rectifier device.
Reservoir	A reservoir.
Room	The room.
StorageBay	A storage bay.
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

6.65.4.5 PhysicalSubContext

The usage or location within a device to which this leak detector applies.

string	Description
Input	The input.
Output	The output.

6.65.4.6 WarningReactionType

The reaction to perform when a warning-level leak is detected.

string	Description
ForceOff	Forcefully shut down the device, equipment, or system.
GracefulShutdown	Gracefully shut down the device, equipment, or system.
None	No reaction.

6.65.5 Example response


```
{
    "@odata.type": "#LeakDetector.v1_4_0.LeakDetector",
    "Id": "Moisture",
    "Name": "Moisture-type Leak Detector",
    "LeakDetectorType": "Moisture",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "DetectorState": "OK",
    "CriticalReactionType": "ForceOff",
    "WarningReactionType": "None",
    "ReactionDelaySeconds": 15,
    "PartNumber": "3493-A44",
    "SerialNumber": "916239",
    "Manufacturer": "Contoso Water Detection Systems",
    "Model": "Depends 3000",
    "Location": {
        "PartLocation": {
            "Reference": "Bottom",
            "ServiceLabel": "Leak Detector"
        }
    },
    "PhysicalContext": "Chassis",
    "@odata.id": "/redfish/v1/ThermalEquipment/CDUs/1/LeakDetection/LeakDetectors/Moisture"
}
```


6.66 License 1.1.4

Version	*v1.1*	*v1.0*
Release	2022.3	2021.3

6.66.1 Description

The `License` schema describes a license for a feature.

6.66.2 URIs

/redfish/v1/LicenseService/Licenses/*{LicenseId}*

6.66.3 Properties

Property	Type	Attributes	Notes
AuthorizationScope	string (enum)	*read-only (null)*	The authorization scope of the license. *For the possible property values, see AuthorizationScope in Property details.*
Contact {	object		The contact of the license.
ContactName	string	*read-only (null)*	Name of this contact.
EmailAddress	string	*read-only (null)*	Email address for this contact.
PhoneNumber	string	*read-only (null)*	Phone number for this contact.
}			
DownloadURI	string (URI)	*read-only*	The URI from which to download the license file.
EntitlementId	string	*read-only (null)*	The entitlement identifier for this license.
ExpirationDate	string (date-time)	*read-only (null)*	The date and time when the license expires.
GracePeriodDays	integer	*read-only (null)*	The grace days of this license.
InstallDate	string (date-time)	*read-only (null)*	The date and time when the license was installed.
LicenseInfoURI	string (URI)	*read-only (null)*	The URI at which more information about this license can be obtained.
LicenseOrigin	string (enum)	*read-only (null)*	This indicates the origin of the license. *For the possible property values, see LicenseOrigin in Property details.*

Property	Type	Attributes	Notes
LicenseString	string	*read-only required on create (null)*	The Base64-encoded string of the license.
LicenseType	string (enum)	*read-only (null)*	The type of the license. *For the possible property values, see LicenseType in Property details.*
Links {	object		The links to other resources that are related to this resource.
AuthorizedDevices [{	array		An array of links to the devices authorized by the license.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
TargetServices *(v1.1+)* [{	array		An array of links to the managers where the license is installed.
@odata.id	string	*read-only*	Link to a Manager resource. See the Links section and the *Manager* schema for details.
}]			
}			
Manufacturer	string	*read-only (null)*	The manufacturer or producer of this license.
MaxAuthorizedDevices	integer	*read-only (null)*	The maximum number of devices authorized by the license.
PartNumber	string	*read-only (null)*	The part number for this license.
RemainingDuration	string (duration)	*read-only (null)*	The remaining usage duration before the license expires.
RemainingUseCount	integer	*read-only (null)*	The remaining usage count before the license expires.
Removable	boolean	*read-only (null)*	An indication of whether the license is removable.
SerialNumber	string	*read-only (null)*	The serial number for this license.

Property	Type	Attributes	Notes
SKU	string	*read-only (null)*	The SKU for this license.
Status {}	object		The status of the license. For property details, see Status.

6.66.4 Property details

6.66.4.1 AuthorizationScope

The authorization scope of the license.

string	Description
Capacity	The license authorizes functionality to a number of devices, but not restricted to specific device instances.
Device	The license authorizes functionality for specific device instances.
Service	The license authorizes functionality to a service.

6.66.4.2 LicenseOrigin

This indicates the origin of the license.

string	Description
BuiltIn	A license was provided with the product.
Installed	A license installed by user.

6.66.4.3 LicenseType

The type of the license.

string	Description
Production	A license for use in production environments.
Prototype	A prototype version of license.
Trial	A trial license.

6.66.5 Example response


```
{
    "@odata.type": "#License.v1_1_4.License",
    "Id": "KVM",
    "Name": "Blade KVM-IP License 3-Pack",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "EntitlementId": "LIC20180820LDLM5C",
    "LicenseType": "Production",
    "Removable": false,
    "LicenseOrigin": "BuiltIn",
    "AuthorizationScope": "Device",
    "GracePeriodDays": 60,
    "Manufacturer": "Contoso",
    "InstallDate": "2020-08-20T20:13:44Z",
    "ExpirationDate": "2022-08-20T20:13:43Z",
    "Links": {
        "AuthorizedDevices": [
            {
                "@odata.id": "/redfish/v1/Managers/Blade1"
            },
            {
                "@odata.id": "/redfish/v1/Managers/Blade4"
            },
            {
                "@odata.id": "/redfish/v1/Managers/Blade5"
            }
        ]
    },
    "Contact": {
        "ContactName": "Bob Johnson",
        "EmailAddress": "bjohnson@contoso.com"
    },
    "DownloadURI": "/dumpster/license111",
    "LicenseInfoURI": "http://shop.contoso.com/licenses/blade-kvm",
    "@odata.id": "/redfish/v1/LicenseService/Licenses/KVM"
}
```


6.67 LicenseService 1.1.2

Version	*v1.1*	*v1.0*
Release	2022.3	2021.3

6.67.1 Description

The `LicenseService` schema describes the license service and the properties for the service itself with a link to the collection of licenses. The license service also provides methods for installing licenses in a Redfish service.

6.67.2 URIs

/redfish/v1/LicenseService

6.67.3 Properties

Property	Type	Attributes	Notes
LicenseExpirationWarningDays	integer	*read-write (null)*	The number of days prior to a license expiration that a warning message is sent. A value of zero indicates no warning message is sent.
Licenses {	object		The link to the collection of licenses. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *License*. See the License schema for details.
}			
ServiceEnabled	boolean	*read-write (null)*	An indication of whether this service is enabled.

6.67.4 Actions

6.67.4.1 Install

Description

This action installs one or more licenses from a remote file.

Action URI

{Base URI of target resource}/Actions/LicenseService.Install

Action parameters

Parameter Name	Type	Attributes	Notes
AuthorizedDevices *(v1.1+)* [{	array	*optional*	An array of links to the devices to be authorized by the license.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
LicenseFileURI	string (URI)	*required*	The URI of the license file to install.
Password	string	*optional*	The password to access the URI specified by the `LicenseFileURI` parameter.
TargetServices *(v1.1+)* [{	array	*optional*	An array of links to the managers where the license will be installed.
@odata.id	string	*read-only*	Link to a Manager resource. See the Links section and the *Manager* schema for details.
}]			
TransferProtocol	string (enum)	*optional*	The network protocol that the license service uses to retrieve the license file located at the URI provided in `LicenseFileURI`. This parameter is ignored if the URI provided in `LicenseFileURI` contains a scheme. *For the possible property values, see TransferProtocol in Property details.*
Username	string	*optional*	The username to access the URI specified by the `LicenseFileURI` parameter.

Request Example

```
{
    "LicenseFileURI": "ftp://licensing.contoso.org/bmc_kvmip_8RS247MKRQ8027.bin",
    "Username": "operations",
    "Password": "Pa55w0rd"
}
```

6.67.5 Property details

6.67.5.1 TransferProtocol

The network protocol that the license service uses to retrieve the license file located at the URI provided in `LicenseFileURI`. This parameter is ignored if the URI provided in `LicenseFileURI` contains a scheme.

string	Description
CIFS	Common Internet File System (CIFS).
FTP	File Transfer Protocol (FTP).
HTTP	Hypertext Transfer Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
NFS	Network File System (NFS).
OEM	A manufacturer-defined protocol.
SCP	Secure Copy Protocol (SCP).
SFTP	SSH File Transfer Protocol (SFTP).
TFTP	Trivial File Transfer Protocol (TFTP).

6.67.6 Example response


```
{
    "@odata.type": "#LicenseService.v1_1_2.LicenseService",
    "Name": "License Service",
    "ServiceEnabled": true,
    "LicenseExpirationWarningDays": 14,
    "Actions": {
        "#LicenseService.Install": {
            "target": "/redfish/v1/LicenseService/Actions/LicenseService.Install",
            "@Redfish.ActionInfo": "/redfish/v1/LicenseService/InstallActionInfo"
        }
    },
    "Licenses": {
        "@odata.id": "/redfish/v1/LicenseService/Licenses"
    },
    "@odata.id": "/redfish/v1/LicenseService"
}
```


6.68 LogEntry 1.19.0

Version	*v1.19*	*v1.18*	*v1.17*	*v1.16*	*v1.15*	*v1.14*	*v1.13*	*v1.12*	*v1.11*	*v1.10*	*v1.9*	...
Release	2025.2	2025.1	2024.3	2023.3	2023.1	2022.3	2022.2	2022.1	2021.4	2021.3	2021.1	...

6.68.1 Description

The `LogEntry` schema defines the record format for a log. It is designed for Redfish event logs, OEM-specific log formats, and the IPMI System Event Log (SEL). The `EntryType` field indicates the type of log and the resource includes several additional properties dependent on the `EntryType`.

6.68.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/LogServices/*{LogServiceId}*/Entries/*{LogEntryId}*
/redfish/v1/Chassis/*{ChassisId}*/PCIeDevices/*{PCIeDeviceId}*/CXLLogicalDevices/*{CXLLogicalDeviceId}*/DeviceLog/Entries/*{LogEntryId}*
/redfish/v1/JobService/Log/Entries/*{LogEntryId}*
/redfish/v1/Managers/*{ManagerId}*/LogServices/*{LogServiceId}*/Entries/*{LogEntryId}*
/redfish/v1/Systems/*{ComputerSystemId}*/LogServices/*{LogServiceId}*/Entries/*{LogEntryId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/DeviceLog/Entries/*{LogEntryId}*
/redfish/v1/TelemetryService/LogService/Entries/*{LogEntryId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.68.3 Properties

Property	Type	Attributes	Notes
AdditionalDataSizeBytes *(v1.7+)*	integer (bytes)	*read-only (null)*	The size of the additional data for this log entry.
AdditionalDataURI *(v1.7+)*	string (URI)	*read-only (null)*	The URI at which to access the additional data for this log entry, such as diagnostic data, image captures, or other files.
CPER *(v1.15+)* {	object		Details for a CPER section or record associated with this log entry.
NotificationType *(v1.15+)*	string (uuid)	*read-only (null)*	The CPER Notification Type for a CPER record.
Oem *(v1.15+)* {}	object		See the Oem object definition in the Common properties section.
SectionType *(v1.15+)*	string (uuid)	*read-only (null)*	The CPER Section Type.
}			
Created	string (date-time)	*read-only*	The date and time when the log entry was created.
CXLEntryType *(v1.14+)*	string (enum)	*read-only*	The specific CXL entry type. *For the possible property values, see CXLEntryType in Property details.*

Property	Type	Attributes	Notes
DiagnosticData *(v1.15+)*	string	*read-only (null)*	A Base64-encoded set of diagnostic data associated with this log entry.
DiagnosticDataType *(v1.7+)*	string (enum)	*read-only (null)*	The type of data available in the `DiagnosticData` property or retrieved from the URI specified by the `AdditionalDataURI` property. *For the possible property values, see DiagnosticDataType in Property details.*
EntryCode	string (enum)	*read-only (null)*	The entry code for the log entry if the entry type is `SEL`. *For the possible property values, see EntryCode in Property details.*
EntryType	string (enum)	*read-only required*	The type of log entry. *For the possible property values, see EntryType in Property details.*
EventGroupId *(v1.4+)*	integer	*read-only (null)*	An identifier that correlates events with the same cause.
EventId *(v1.1+)*	string	*read-only*	The unique instance identifier for an event.
EventTimestamp *(v1.1+)*	string (date-time)	*read-only*	The date and time when the event occurred.
EventType *(v1.1+, deprecated v1.4)*	string (enum)	*read-only*	The type of event recorded in this log. *For the possible property values, see EventType in Property details. Deprecated in v1.4 and later. This property has been deprecated. Starting with Redfish Specification v1.6 (Event v1.3), subscriptions are based on the `RegistryPrefix` and `ResourceType` properties and not on the `EventType` property.*
FirstOverflowTimestamp *(v1.14+)*	string (date-time)	*read-only*	The timestamp of the first overflow captured after this log entry.
GeneratorId *(v1.5+)*	string	*read-only (null)*	An identifier of the device that has generated the IPMI SEL Event Record.
LastOverflowTimestamp *(v1.14+)*	string (date-time)	*read-only*	The timestamp of the last overflow captured after this log entry.
Links {	object		The links to other resources that are related to this resource.
Oem {}	object		See the Oem object definition in the Common properties section.
OriginOfCondition {	object		The link to the resource that caused the log entry.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}			
RelatedItem *(v1.12+)* [{	array		An array of links to resources associated with this log entry.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.

Property	Type	Attributes	Notes
}]			
RelatedLogEntries *(v1.12+)* [{	array		An array of links to other log entries that are related to this log entry.
@odata.id	string	*read-only*	Link to another LogEntry resource.
}]			
}			
Message	string	*read-only* *(null)*	The message of the log entry. This property decodes from the entry type. If the entry type is `Event`, this property contains a message. If the entry type is `SEL`, this property contains an SEL-specific message. If the entry type is `CXL`, this property contains a CXL event record. Otherwise, this property contains an OEM-specific log entry. In most cases, this property contains the actual log entry.
MessageArgs [ ]	array (string)	*read-only*	An array of message arguments that are substituted for the arguments in the message when looked up in the message registry.
MessageId	string	*read-only*	The `MessageId`, event data, or OEM-specific information. This property decodes from the entry type. If the entry type is `Event`, this property contains a Redfish Specification-defined `MessageId`. If the entry type is `SEL`, this property contains the Event Data. Otherwise, this property contains OEM-specific information.
Modified *(v1.6+)*	string (date-time)	*read-only*	The date and time when the log entry was last modified.
OEMDiagnosticDataType *(v1.7+)*	string	*read-only* *(null)*	The OEM-defined type of data available in the `DiagnosticData` property or retrieved from the URI specified by the `AdditionalDataURI` property.
OemLogEntryCode *(v1.3+)*	string	*read-only* *(null)*	The OEM-specific entry code, if the `LogEntryCode` type is `OEM`.
OemRecordFormat	string	*read-only* *(null)*	The OEM-specific format of the entry. If the entry type is `Oem`, this property contains more information about the record format from the OEM.
OemSensorType *(v1.3+)*	string	*read-only* *(null)*	The OEM-specific sensor type if the sensor type is `OEM`.
Originator *(v1.11+)*	string	*read-only*	The source of the log entry.
OriginatorType *(v1.11+)*	string (enum)	*read-only*	The type of originator data. *For the possible property values, see OriginatorType in Property details.*
OverflowErrorCount *(v1.14+)*	integer	*read-only*	The count of overflow errors that occurred after this log entry.

Property	Type	Attributes	Notes
PartNumber *(v1.19+)*	string	*read-only (null)*	The part number associated with the source of this log entry.
Persistency *(v1.14+)*	boolean	*read-only*	Indicates whether the log entry is persistent across a cold reset of the device.
Resolution *(v1.9+)*	string	*read-only*	Used to provide suggestions on how to resolve the situation that caused the log entry.
ResolutionSteps *(v1.16+)* [{ }]	array (object)		The list of recommended steps to resolve the cause of the log entry. For property details, see ResolutionStep.
Resolved *(v1.8+)*	boolean	*read-write (null)*	Indicates if the cause of the log entry has been resolved or repaired.
SensorNumber	integer	*read-only (null)*	The IPMI-defined sensor number.
SensorType	string (enum)	*read-only (null)*	The sensor type to which the log entry pertains if the entry type is `SEL`. *For the possible property values, see SensorType in Property details.*
SerialNumber *(v1.19+)*	string	*read-only (null)*	The serial number associated with the source of this log entry.
ServiceProviderNotified *(v1.9+)*	boolean	*read-only (null)*	Indicates if the log entry has been sent to the service provider.
Severity	string (enum)	*read-only (null)*	The severity of the log entry. *For the possible property values, see Severity in Property details.*
SpecificEventExistsInGroup *(v1.13+)*	boolean	*read-only*	Indicates this log entry is equivalent to a more specific log entry within the same `EventGroupId`.
UserAuthenticationSource *(v1.17+)*	string	*read-only (null)*	The source of authentication for the username property associated with the log entry.
Username *(v1.17+)*	string	*read-only (null)*	The username of the account associated with the log entry.

6.68.4 Property details

6.68.4.1 CXLEntryType

The specific CXL entry type.

string	Description
DynamicCapacity	A CXL Dynamic Capacity log entry.

string	Description
Failure	A CXL failure log entry.
Fatal	A CXL fatal log entry.
Informational	A CXL informational log entry.
Warning	A CXL warning log entry.

6.68.4.2 DiagnosticDataType

The type of data available in the `DiagnosticData` property or retrieved from the URI specified by the `AdditionalDataURI` property.

string	Description
CPER *(v1.10+)*	UEFI Common Platform Error Record.
CPERSection *(v1.10+)*	A Section of a UEFI Common Platform Error Record.
Device *(v1.18+)*	Device diagnostic data.
Manager	Manager diagnostic data.
OEM	OEM diagnostic data.
OS	Operating system (OS) diagnostic data.
PreOS	Pre-OS diagnostic data.

6.68.4.3 EntryCode

The entry code for the log entry if the entry type is `SEL`.

string	Description
Assert	The condition has been asserted.
D0 Power State	The ACPI-defined D0 power state.
D1 Power State	The ACPI-defined D1 power state.
D2 Power State	The ACPI-defined D2 power state.
D3 Power State	The ACPI-defined D3 power state.

string	Description
Deassert	The condition has been deasserted.
Device Disabled	A device has been disabled.
Device Enabled	A device has been enabled.
Device Inserted / Device Present	A device has been inserted or is present.
Device Removed / Device Absent	A device has been removed or is absent.
Fully Redundant	Indicates that full redundancy has been regained.
Informational	An informational event.
Install Error	An install error has been detected.
Limit Exceeded	A limit has been exceeded.
Limit Not Exceeded	A limit has not been exceeded.
Lower Critical - going high	The reading crossed the Lower Critical threshold while going high.
Lower Critical - going low	The reading crossed the Lower Critical threshold while going low.
Lower Non-critical - going high	The reading crossed the Lower Non-critical threshold while going high.
Lower Non-critical - going low	The reading crossed the Lower Non-critical threshold while going low.
Lower Non-recoverable - going high	The reading crossed the Lower Non-recoverable threshold while going high.
Lower Non-recoverable - going low	The reading crossed the Lower Non-recoverable threshold while going low.
Monitor	A monitor event.
Non-redundant:Insufficient Resources	Unit is non-redundant and has insufficient resources to maintain normal operation.
Non-redundant:Sufficient Resources from Insufficient Resources	Unit has regained minimum resources needed for normal operation.
Non-redundant:Sufficient Resources from Redundant	Redundancy has been lost but unit is functioning with minimum resources needed for normal operation.
OEM *(v1.3+)*	An OEM-defined event.
Performance Lags	Performance does not meet expectations.

string	Description
Performance Met	Performance meets expectations.
Predictive Failure asserted	A Predictive Failure has been detected.
Predictive Failure deasserted	A Predictive Failure is no longer present.
Redundancy Degraded	Redundancy still exists, but at less than full level.
Redundancy Degraded from Fully Redundant	Unit has lost some redundant resource(s) but is still in a redundant state.
Redundancy Degraded from Non-redundant	Unit has regained some resource(s) and is redundant but not fully redundant.
Redundancy Lost	Entered any non-redundant state, including Non-redundant: Insufficient Resources.
State Asserted	The state has been asserted.
State Deasserted	The state has been deasserted.
Transition to Active	The state transitioned to active.
Transition to Busy	The state transitioned to busy.
Transition to Critical from less severe	A state has changed to Critical from less severe.
Transition to Critical from Non-recoverable	A state has changed to Critical from Non-recoverable.
Transition to Degraded	A state has transitioned to Degraded.
Transition to Idle	The state transitioned to idle.
Transition to In Test	A state has transitioned to In Test.
Transition to Non-Critical from more severe	A state has changed to Non-Critical from more severe.
Transition to Non-Critical from OK	A state has changed to Non-Critical from OK.
Transition to Non-recoverable	A state has changed to Non-recoverable.
Transition to Non-recoverable from less severe	A state has changed to Non-recoverable from less severe.
Transition to Off Duty	A state has transitioned to Off Duty.
Transition to Off Line	A state has transitioned to Off Line.
Transition to OK	A state has changed to OK.

string	Description
Transition to On Line	A state has transitioned to On Line.
Transition to Power Off	A state has transitioned to Power Off.
Transition to Power Save	A state has transitioned to Power Save.
Transition to Running	A state has transitioned to Running.
Upper Critical - going high	The reading crossed the Upper Critical threshold while going high.
Upper Critical - going low	The reading crossed the Upper Critical threshold while going low.
Upper Non-critical - going high	The reading crossed the Upper Non-critical threshold while going high.
Upper Non-critical - going low	The reading crossed the Upper Non-critical threshold while going low.
Upper Non-recoverable - going high	The reading crossed the Upper Non-recoverable threshold while going high.
Upper Non-recoverable - going low	The reading crossed the Upper Non-recoverable threshold while going low.

6.68.4.4 EntryType

The type of log entry.

string	Description
CXL *(v1.14+)*	A CXL log entry.
Event	A Redfish-defined message.
Oem	An entry in an OEM-defined format.
SEL	A legacy IPMI System Event Log (SEL) entry.

6.68.4.5 EventType

The type of event recorded in this log.

string	Description
Alert	A condition requires attention.
MetricReport	The telemetry service is sending a metric report.

string	Description
Other	Because `EventType` is deprecated as of Redfish Specification v1.6, the event is based on a registry or resource but not an `EventType`.
ResourceAdded	A resource has been added.
ResourceRemoved	A resource has been removed.
ResourceUpdated	A resource has been updated.
StatusChange	The status of a resource has changed.

6.68.4.6 OriginatorType

The type of originator data.

string	Description
Client	A client of the service created this log entry.
Internal	A process running on the service created this log entry.
SupportingService	A process not running on the service but running on a supporting service, such as RDE implementations, UEFI, or host processes, created this log entry.

6.68.4.7 SensorType

The sensor type to which the log entry pertains if the entry type is `SEL`.

string	Description
Add-in Card	A sensor for an add-in card.
BaseOSBoot/InstallationStatus	A sensor for a base OS boot or installation status event.
Battery	A sensor for a battery.
Boot Error	A sensor for a boot error event.
Button/Switch	A sensor for a button or switch.
Cable/Interconnect	A sensor for a cable or interconnect device type.
Chassis	A sensor for a chassis.
ChipSet	A sensor for a chipset.

string	Description
CoolingDevice	A sensor for a cooling device.
Critical Interrupt	A sensor for a critical interrupt event.
Current	A current sensor.
Drive Slot/Bay	A sensor for a drive slot or bay.
Entity Presence	A sensor for an entity presence event.
Event Logging Disabled	A sensor for the event log.
Fan	A fan sensor.
FRUState	A sensor for a FRU state event.
LAN	A sensor for a LAN device.
Management Subsystem Health	A sensor for a management subsystem health event.
Memory	A sensor for a memory device.
Microcontroller/Coprocessor	A sensor for a microcontroller or coprocessor.
Module/Board	A sensor for a module or board.
Monitor ASIC/IC	A sensor for a monitor ASIC or IC.
OEM *(v1.3+)*	An OEM-defined sensor.
OS Stop/Shutdown	A sensor for an OS stop or shutdown event.
Other FRU	A sensor for another type of FRU.
Other Units-based Sensor	A sensor for a miscellaneous analog sensor.
Physical Chassis Security	A physical security sensor.
Platform Alert	A sensor for a platform alert event.
Platform Security Violation Attempt	A platform security sensor.
POST Memory Resize	A sensor for a POST memory resize event.
Power Supply / Converter	A sensor for a power supply or DC-to-DC converter.
PowerUnit	A sensor for a power unit.
Processor	A sensor for a processor.

string	Description
Session Audit	A sensor for a session audit event.
Slot/Connector	A sensor for a slot or connector.
System ACPI PowerState	A sensor for an ACPI power state event.
System Event	A sensor for a system event.
System Firmware Progress	A sensor for a system firmware progress event.
SystemBoot/Restart	A sensor for a system boot or restart event.
Temperature	A temperature sensor.
Terminator	A sensor for a terminator.
Version Change	A sensor for a version change event.
Voltage	A voltage sensor.
Watchdog	A sensor for a watchdog event.

6.68.4.8 Severity

The severity of the log entry.

string	Description
Critical	A critical condition that requires immediate attention.
OK	Informational or operating normally.
Warning	A condition that requires attention.

6.68.5 Example response

```
{
    "@odata.type": "#LogEntry.v1_19_0.LogEntry",
    "Id": "1",
    "Name": "Log Entry 1",
    "EntryType": "Event",
    "Severity": "Critical",
    "Created": "2012-03-07T14:44:00Z",
    "Resolved": false,
    "Message": "Temperature threshold exceeded",
```

```
    "MessageId": "Contoso.1.0.TempAssert",
    "MessageArgs": [
        "42"
    ],
    "Links": {
        "OriginOfCondition": {
            "@odata.id": "/redfish/v1/Chassis/1U/Thermal"
        }
    },
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/LogServices/Log1/Entries/1"
}
```


6.69 LogService 1.8.0

Version	*v1.8*	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2025.1	2024.1	2023.3	2023.2	2022.3	2021.2	2020.3	2017.3	1.0

6.69.1 Description

The `LogService` schema contains properties for monitoring and configuring a log service. When the `Id` property contains `DeviceLog`, the log contains device-resident log entries that follow the physical device when moved from system-to-system, and not a replication or subset of a system event log.

6.69.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/LogServices/*{LogServiceId}*
/redfish/v1/Chassis/*{ChassisId}*/PCIeDevices/*{PCIeDeviceId}*/CXLLogicalDevices/*{CXLLogicalDeviceId}*/DeviceLog
/redfish/v1/JobService/Log
/redfish/v1/Managers/*{ManagerId}*/LogServices/*{LogServiceId}*
/redfish/v1/Systems/*{ComputerSystemId}*/LogServices/*{LogServiceId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/DeviceLog
/redfish/v1/TelemetryService/LogService
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.69.3 Properties

Property	Type	Attributes	Notes
AutoClearResolvedEntries *(v1.7+)*	string (enum)	*read-write (null)*	Indicates if this log service automatically clears the resolved log entries. *For the possible property values, see AutoClearResolvedEntries in Property details.*
AutoDSTEnabled *(v1.3+)*	boolean	*read-write*	An indication of whether the log service is configured for automatic Daylight Saving Time (DST) adjustment.
DateTime	string (date-time)	*read-write (null)*	The current date and time with UTC offset of the log service.
DateTimeLocalOffset	string	*read-write (null)*	The time offset from UTC that the `DateTime` property is in `+HH:MM` format.
DiagnosticDataDetails *(v1.7+)* [{	array		The detailed information for the data collected with the `CollectDiagnosticData` action.
DiagnosticDataType *(v1.7+)*	string (enum)	*read-only (null)*	The type of diagnostic data to collect with the `CollectDiagnosticData` action. *For the possible property values, see DiagnosticDataType in Property details.*
EstimatedDuration *(v1.7+)*	string (duration)	*read-only (null)*	The estimated total time required to generate the data with the `CollectDiagnosticData` action.
EstimatedSizeBytes *(v1.7+)*	integer	*read-only (null)*	The estimated size of the data collected by `CollectDiagnosticData` action.
OEMDiagnosticDataType *(v1.7+)*	string	*read-only (null)*	The OEM-defined type of diagnostic data to collect with the `CollectDiagnosticData` action.
}]			
Entries {	object		The link to the log entry collection. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *LogEntry*. See the LogEntry schema for details.
}			
LogEntryType *(v1.1+)*	string (enum)	*read-only (null)*	The format of the log entries. *For the possible property values, see LogEntryType in Property details.*
LogPurposes *(v1.4+)* [ ]	array (string (enum))	*read-only (null)*	The purposes of the log. *For the possible property values, see LogPurposes in Property details.*
MaxNumberOfRecords	integer	*read-only*	The maximum number of log entries that this service can have.
OEMLogPurpose *(v1.4+)*	string	*read-only (null)*	The OEM-specified purpose of the log if `LogPurposes` contains `OEM`.
Overflow *(v1.4+)*	boolean	*read-only*	Indicates whether the log service has overflowed.

Property	Type	Attributes	Notes
OverWritePolicy	string (enum)	*read-only*	The overwrite policy for this service that takes place when the log is full. *For the possible property values, see OverWritePolicy in Property details.*
Persistency *(v1.4+)*	boolean	*read-only*	Indicates whether the log service is persistent across a cold reset.
ServiceEnabled	boolean	*read-write (null)*	An indication of whether this service is enabled.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
SyslogFilters *(v1.2+)* [{	array		A list of syslog message filters to be logged locally.
LogFacilities *(v1.2+)* [ ]	array (string (enum))	*read-write (null)*	The types of programs that can log messages. *For the possible property values, see LogFacilities in Property details.*
LowestSeverity *(v1.2+)*	string (enum)	*read-write (null)*	The lowest severity level message that will be logged. *For the possible property values, see LowestSeverity in Property details.*
}]			

6.69.4 Actions

6.69.4.1 ClearLog

Description

The action to clear the log for this log service.

Action URI

{Base URI of target resource}/Actions/LogService.ClearLog

Action parameters

Parameter Name	Type	Attributes	Notes
LogEntriesETag *(v1.3+)*	string	*optional*	The ETag of the log entry collection within this log service. If the provided ETag does not match the current ETag of the log entry collection, the request is rejected.

Request Example

```
{
```

```
    "LogEntriesEtag": "W/\"2A90423A\""
}
```

6.69.4.2 CollectDiagnosticData *(v1.2+)*

Description

The action to collect the diagnostic data for the given type. When the diagnostic data is collected, a new log entry will be created and the additional data referenced by the new log entry will contain the diagnostic data.

Action URI

{Base URI of target resource}/Actions/LogService.CollectDiagnosticData

Action parameters

Parameter Name	Type	Attributes	Notes
DiagnosticDataType	string (enum)	*required*	The type of diagnostic data to collect. *For the possible property values, see DiagnosticDataType in Property details.*
OEMDiagnosticDataType	string	*optional*	The OEM-defined type of diagnostic data to collect.
Password *(v1.6+)*	string	*optional*	The password to access the URI specified by the `TargetURI` parameter.
TargetDevice *(v1.8+)* {	object	*optional*	The link to the device to collect diagnostic data.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}			
TargetURI *(v1.6+)*	string (URI)	*optional*	The URI to access when sending the diagnostic data.
TransferProtocol *(v1.6+)*	string (enum)	*optional*	The network protocol that the service uses to send the diagnostic data. *For the possible property values, see TransferProtocol in Property details.*
UserName *(v1.6+)*	string	*optional*	The username to access the URI specified by the `TargetURI` parameter.

Request Example

```
{
    "DiagnosticDataType": "Manager"
```

```
}
```

6.69.4.3 PushDiagnosticData *(v1.6+)*

Description

The action to push an existing diagnostic data to a target URI.

Action URI

{Base URI of target resource}/Actions/LogService.PushDiagnosticData

Action parameters

Parameter Name	Type	Attributes	Notes
AdditionalDataURI	string (URI)	*required*	The URI of the diagnostic data to transfer to the URI specified by the `TargetURI` parameter.
Password	string	*optional*	The password to access the URI specified by the `TargetURI` parameter.
TargetURI	string (URI)	*required*	The URI to access when sending the diagnostic data.
TransferProtocol	string (enum)	*optional*	The network protocol that the service uses to send the diagnostic data. *For the possible property values, see TransferProtocol in Property details.*
UserName	string	*optional*	The username to access the URI specified by the `TargetURI` parameter.

Request Example

```
{
    "AdditionalDataUri": "/redfish/v1/LogSerivce/Diags/10242023T132938.bin",
    "TargetURI": "https://192.168.24.34/receivedfiles/192-168-89-33_10242023T132938.bin",
    "UserName": "Admin",
    "Password": "FluffyBunny23",
    "TransferProtocol": "HTTPS"
}
```

6.69.5 Property details

6.69.5.1 AutoClearResolvedEntries

Indicates if this log service automatically clears the resolved log entries.

string	Description
ClearEventGroup	Automatically clears all resolved log entries and other entries within the same `EventGroupId`.
None	Do not automatically clear the resolved log entries.
RetainCauseResolutionEntries	Retains log entries of the original cause and the final resolution, but automatically clears other entries containing the intermediate results within the same `EventGroupId`.
UpdateCauseEntry	Updates log entries of the original cause, but automatically clears other entries within the same `EventGroupId`.

6.69.5.2 DiagnosticDataType

The type of diagnostic data to collect.

string	Description
Device *(v1.8+)*	Device diagnostic data.
Manager	Manager diagnostic data.
OEM	OEM diagnostic data.
OS	Operating system (OS) diagnostic data.
PreOS	Pre-OS diagnostic data.

6.69.5.3 LogEntryType

The format of the log entries.

string	Description
CXL *(v1.5+)*	The log contains CXL log entries.
Event	The log contains Redfish-defined messages.

string	Description
Multiple	The log contains multiple log entry types and, therefore, the log service cannot guarantee a single entry type.
OEM	The log contains entries in an OEM-defined format.
SEL	The log contains legacy IPMI System Event Log (SEL) entries.

6.69.5.4 LogFacilities

The types of programs that can log messages.

string	Description
Auth	Security/authentication messages.
Authpriv	Security/authentication messages.
Console	Log alert.
Cron	Clock daemon.
Daemon	System daemons.
FTP	FTP daemon.
Kern	Kernel messages.
Local0	Locally used facility 0.
Local1	Locally used facility 1.
Local2	Locally used facility 2.
Local3	Locally used facility 3.
Local4	Locally used facility 4.
Local5	Locally used facility 5.
Local6	Locally used facility 6.
Local7	Locally used facility 7.
LPR	Line printer subsystem.
Mail	Mail system.
News	Network news subsystem.

string	Description
NTP	NTP subsystem.
Security	Log audit.
SolarisCron	Scheduling daemon.
Syslog	Messages generated internally by syslogd.
User	User-level messages.
UUCP	UUCP subsystem.

6.69.5.5 LogPurposes

The purposes of the log.

string	Description
Diagnostic	The log provides information for diagnosing hardware or software issues, such as error conditions, sensor threshold trips, or exception cases.
ExternalEntity	The log exposes log entries provided by external entities, such as external users, system firmware, operating systems, or management applications.
OEM	The log is used for an OEM-defined purpose.
Operations	The log provides information about management operations that have a significant impact on the system, such as firmware updates, system resets, and storage volume creation.
Security	The log provides security-related information such as authentication, authorization, and data access logging required for security audits.
Telemetry	The log provides telemetry history, typically collected on a regular basis.

6.69.5.6 LowestSeverity

The lowest severity level message that will be logged.

string	Description
Alert	A condition that should be corrected immediately, such as a corrupted system database.
All	A message of any severity.
Critical	Hard device errors.

string	Description
Debug	Messages that contain information normally of use only when debugging a program.
Emergency	A panic condition.
Error	An Error.
Informational	Informational only.
Notice	Conditions that are not error conditions, but that might require special handling.
Warning	A Warning.

6.69.5.7 OverWritePolicy

The overwrite policy for this service that takes place when the log is full.

string	Description
NeverOverWrites	When full, new entries to the log are discarded.
Unknown	The overwrite policy is not known or is undefined.
WrapsWhenFull	When full, new entries to the log overwrite earlier entries.

6.69.5.8 TransferProtocol

The network protocol that the service uses to send the diagnostic data.

string	Description
CIFS	Common Internet File System (CIFS).
FTP	File Transfer Protocol (FTP).
HTTP	Hypertext Transfer Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
NFS	Network File System (NFS).
OEM	A manufacturer-defined protocol.
SCP	Secure Copy Protocol (SCP).
SFTP	SSH File Transfer Protocol (SFTP).

string	Description
TFTP	Trivial File Transfer Protocol (TFTP).

6.69.6 Example response

```
{
    "@odata.type": "#LogService.v1_8_0.LogService",
    "Id": "Log1",
    "Name": "System Log Service",
    "Description": "This log contains entries related to the operation of the host Computer System.",
    "MaxNumberOfRecords": 1000,
    "OverWritePolicy": "WrapsWhenFull",
    "DateTime": "2015-03-13T04:14:33+06:00",
    "DateTimeLocalOffset": "+06:00",
    "ServiceEnabled": true,
    "LogEntryType": "Event",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Actions": {
        "#LogService.ClearLog": {
            "target": "/redfish/v1/Managers/1/LogServices/Log1/Actions/LogService.ClearLog"
        }
    },
    "Entries": {
        "@odata.id": "/redfish/v1/Managers/1/LogServices/Log1/Entries"
    },
    "@odata.id": "/redfish/v1/Managers/1/LogServices/Log1"
}
```

6.70 Manager 1.22.0

Version	*v1.22*	*v1.21*	*v1.20*	*v1.19*	*v1.18*	*v1.17*	*v1.16*	*v1.15*	*v1.14*	*v1.13*	*v1.12*	...
Release	2025.2	2025.1	2024.4	2023.3	2023.1	2022.3	2022.2	2022.1	2021.4	2021.2	2021.1	...

6.70.1 Description

In Redfish, a manager is a systems management entity that can implement or provide access to a Redfish service. Examples of managers are BMCs (baseboard management controllers), enclosure managers, management

controllers, and other subsystems that are assigned manageability functions. An implementation can have multiple managers, which might be directly accessible through a Redfish-defined interface.

6.70.2 URIs

/redfish/v1/Managers/*{ManagerId}*

6.70.3 Properties

Property	Type	Attributes	Notes
AdditionalFirmwareVersions *(v1.15+)* {	object		The additional firmware versions of the manager.
Bootloader *(v1.7+)*	string	*read-only (null)*	The bootloader version contained in this software, such as U-Boot or UEFI.
BootParameters *(v1.11+)*	string	*read-only (null)*	The version of the configuration file that contains the initial boot parameters of this software, such as parameters for U-Boot.
FactoryConfiguration *(v1.11+)*	string	*read-only (null)*	The version of the configuration that contains the factory default runtime configuration parameters of this software.
Kernel *(v1.7+)*	string	*read-only (null)*	The kernel version contained in this software.
Microcode *(v1.7+)*	string	*read-only (null)*	The microcode version contained in this software, such as processor microcode.
Oem *(v1.7+)* {}	object		See the Oem object definition in the Common properties section.
OSDistribution *(v1.8+)*	string	*read-only (null)*	The operating system name of this software.
}			
AutoDSTEnabled *(v1.4+)*	boolean	*read-write*	An indication of whether the manager is configured for automatic Daylight Saving Time (DST) adjustment.
Certificates *(v1.13+)* {	object		The link to a collection of certificates for device identity and attestation. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
CommandShell {	object		The manager's command line user interface or command shell service.

Property	Type	Attributes	Notes
ConnectTypesSupported [ ]	array (string (enum))	*read-only*	This property enumerates the command shell connection types that the implementation allows. *For the possible property values, see ConnectTypesSupported in Property details.*
MaxConcurrentSessions	integer	*read-only*	The maximum number of service sessions, regardless of protocol, that this manager can support.
ServiceEnabled	boolean	*read-write*	An indication of whether the service is enabled for this manager.
}			
DateTime	string (date-time)	*read-write (null)*	The current date and time with UTC offset of the manager.
DateTimeLocalOffset	string	*read-write (null)*	The time offset from UTC that the `DateTime` property is in `+HH:MM` format.
DateTimeSource *(v1.20+)*	string (enum)	*read-write (null)*	The source of the date and time of this manager, such as NTP, RTC, or firmware. *For the possible property values, see DateTimeSource in Property details.*
DaylightSavingTime *(v1.19+)* {	object		The daylight saving time settings for this manager.
EndDateTime *(v1.19+)*	string (date-time)	*read-write*	The end date and time with UTC offset of daylight saving time.
OffsetMinutes *(v1.19+)*	integer	*read-write*	The daylight saving time offset in minutes.
StartDateTime *(v1.19+)*	string (date-time)	*read-write*	The start date and time with UTC offset of daylight saving time.
TimeZoneName *(v1.19+)*	string	*read-write*	The time zone of the manager when daylight saving time is in effect.
}			
DedicatedNetworkPorts *(v1.16+)* {	object		The dedicated network ports of the manager. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Port*. See the Port schema for details.
}			
EthernetInterfaces {	object		The link to a collection of NICs that this manager uses for network communication. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *EthernetInterface*. See the EthernetInterface schema for details.
}			

Property	Type	Attributes	Notes
FirmwareVersion	string	*read-only (null)*	The firmware version of this manager.
GraphicalConsole {	object		The manager's graphical console service.
ConnectTypesSupported [ ]	array (string (enum))	*read-only*	This property enumerates the graphical console connection types that the implementation allows. *For the possible property values, see ConnectTypesSupported in Property details.*
MaxConcurrentSessions	integer	*read-only*	The maximum number of service sessions, regardless of protocol, that this manager can support.
ServiceEnabled	boolean	*read-write*	An indication of whether the service is enabled for this manager.
}			
HostInterfaces *(v1.3+)* {	object		The link to a collection of host interfaces that this manager uses for local host communication. Clients can find host interface configuration options and settings in this navigation property. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *HostInterface*. See the HostInterface schema for details.
}			
LastResetTime *(v1.9+)*	string (date-time)	*read-only*	The date and time when the manager was last reset or rebooted.
Links {	object		The links to other resources that are related to this resource.
ActiveSoftwareImage *(v1.6+)* {	object		The link to the software inventory resource that represents the active firmware image for this manager. See the *SoftwareInventory* schema for details on this property.
@odata.id	string	*read-write*	Link to a SoftwareInventory resource. See the Links section and the *SoftwareInventory* schema for details.
}			
ManagedBy *(v1.9+)* [{	array		The array of links to the managers responsible for managing this manager.
@odata.id	string	*read-only*	Link to another Manager resource.
}]			
ManagerForChassis [{	array		An array of links to the chassis this manager controls.
@odata.id	string	*read-only*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}]			

Property	Type	Attributes	Notes
ManagerForFabrics *(v1.22+)* [{	array		An array of links to the fabrics that this manager controls.
@odata.id	string	*read-only*	Link to a Fabric resource. See the Links section and the *Fabric* schema for details.
}]			
ManagerForManagers *(v1.9+)* [{	array		An array of links to the managers that are managed by this manager.
@odata.id	string	*read-only*	Link to another Manager resource.
}]			
ManagerForServers [{	array		An array of links to the systems that this manager controls.
@odata.id	string	*read-only*	Link to a ComputerSystem resource. See the Links section and the *ComputerSystem* schema for details.
}]			
ManagerForSwitches *(v1.4+)* [{	array		An array of links to the switches that this manager controls.
@odata.id	string	*read-only*	Link to a Switch resource. See the Links section and the *Switch* schema for details.
}]			
ManagerInChassis *(v1.1+)* {	object		The link to the chassis where this manager is located. See the *Chassis* schema for details on this property.
@odata.id	string	*read-only*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}			
Oem {}	object		See the Oem object definition in the Common properties section.
SelectedNetworkPort *(v1.18+)* {	object	*(null)*	The network port currently used by this manager. This allows selection of shared or dedicated ports for managers that support one or the other. For managers that always have their dedicated port enabled, this allows the selection of which shared port to use. See the *Port* schema for details on this property.
@odata.id	string	*read-write*	Link to a Port resource. See the Links section and the *Port* schema for details.
}			

Property	Type	Attributes	Notes
SoftwareImages *(v1.6+)* [{	array		The images that are associated with this manager.
@odata.id	string	*read-only*	Link to a SoftwareInventory resource. See the Links section and the *SoftwareInventory* schema for details.
}]			
}			
Location *(v1.11+)* {}	object		The location of the manager. For property details, see Location.
LocationIndicatorActive *(v1.11+)*	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
LogServices {	object		The link to a collection of logs that the manager uses. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *LogService*. See the LogService schema for details.
}			
ManagerDiagnosticData *(v1.14+)* {	object	*(null)*	The diagnostic data for this manager. See the *ManagerDiagnosticData* schema for details on this property.
@odata.id	string	*read-only*	Link to a ManagerDiagnosticData resource. See the Links section and the *ManagerDiagnosticData* schema for details.
}			
ManagerType	string (enum)	*read-only*	The type of manager that this resource represents. *For the possible property values, see ManagerType in Property details.*
Manufacturer *(v1.7+)*	string	*read-only (null)*	The manufacturer of this manager.
Measurements *(v1.13+, deprecated v1.14)* [{	array		An array of DSP0274-defined measurement blocks. *Deprecated in v1.14 and later. This property has been deprecated in favor of the* `ComponentIntegrity` *resource.*
@odata.id	string	*read-only*	Link to a MeasurementBlock resource. See the Links section and the *SoftwareInventory* schema for details.
}]			
Model	string	*read-only (null)*	The model information of this manager, as defined by the manufacturer.
NetworkProtocol {	object		The link to the network services and their settings that the manager controls. See the *ManagerNetworkProtocol* schema for details on this property.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a ManagerNetworkProtocol resource. See the Links section and the *ManagerNetworkProtocol* schema for details.
}			
OEMSecurityMode *(v1.21+)*	string	*read-only (null)*	The OEM-specific security compliance mode(s) that the manager is currently configured to enforce.
PartNumber *(v1.7+)*	string	*read-only (null)*	The part number of the manager.
PowerState *(v1.2+)*	string (enum)	*read-only (null)*	The current power state of the manager. *For the possible property values, see PowerState in Property details.*
Redundancy [{ }]	array (object)		The redundancy information for the managers of this system. For property details, see Redundancy.
RemoteAccountService *(v1.5+)* {	object		The link to the account service resource for the remote manager that this resource represents. See the *AccountService* schema for details on this property.
@odata.id	string	*read-only*	Link to a AccountService resource. See the Links section and the *AccountService* schema for details.
}			
RemoteRedfishServiceUri *(v1.5+)*	string (URI)	*read-only (null)*	The URI of the Redfish service root for the remote manager that this resource represents.
SecurityMode *(v1.21+)*	string (enum)	*read-only*	The security compliance mode that the manager is currently configured to enforce. *For the possible property values, see SecurityMode in Property details.*
SecurityPolicy *(v1.16+)* {	object	*(null)*	The security policy settings for this manager. See the *SecurityPolicy* schema for details on this property.
@odata.id	string	*read-only*	Link to a SecurityPolicy resource. See the Links section and the *SecurityPolicy* schema for details.
}			
SerialConsole *(deprecated v1.10)* {	object		The serial console service that this manager provides. *Deprecated in v1.10 and later. This property has been deprecated in favor of the* `SerialConsole` *property in the* `ComputerSystem` *resource.*
ConnectTypesSupported [ ]	array (string (enum))	*read-only*	This property enumerates the serial console connection types that the implementation allows. *For the possible property values, see ConnectTypesSupported in Property details.*
MaxConcurrentSessions	integer	*read-only*	The maximum number of service sessions, regardless of protocol, that this manager can support.

Property	Type	Attributes	Notes
ServiceEnabled	boolean	*read-write*	An indication of whether the service is enabled for this manager.
}			
SerialInterfaces {	object		The link to a collection of serial interfaces that this manager uses for serial and console communication. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *SerialInterface*. See the SerialInterface schema for details.
}			
SerialNumber *(v1.7+)*	string	*read-only (null)*	The serial number of the manager.
ServiceEntryPointUUID	string (uuid)	*read-only (null)*	The UUID of the Redfish service that is hosted by this manager.
ServiceIdentification *(v1.15+)*	string	*read-write (null)*	A product instance identifier displayed in the Redfish service root.
SharedNetworkPorts *(v1.16+)* {	object		The shared network ports of the manager. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Port*. See the Port schema for details.
}			
SparePartNumber *(v1.11+)*	string	*read-only (null)*	The spare part number of the manager.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
TimeZoneName *(v1.10+)*	string	*read-write*	The time zone of the manager.
USBPorts *(v1.12+)* {	object		The USB ports of the manager. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Port*. See the Port schema for details.
}			
UUID	string (uuid)	*read-only (null)*	The UUID for this manager.
Version *(v1.17+)*	string	*read-only (null)*	The hardware version of this manager.
VirtualMedia *(deprecated v1.10)* {	object		The link to the virtual media services for this particular manager. Contains a link to a resource. *Deprecated in v1.10 and later. This property has been deprecated in favor of the* `VirtualMedia` *property in the* `ComputerSystem` *resource.*

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to Collection of *VirtualMedia*. See the VirtualMedia schema for details.
}			

6.70.4 Actions

6.70.4.1 ForceFailover

Description

The `ForceFailover` action forces a failover of this manager to the manager used in the parameter.

Action URI

{Base URI of target resource}/Actions/Manager.ForceFailover

Action parameters

Parameter Name	Type	Attributes	Notes
NewManager {	object	*required*	The manager to which to fail over.
@odata.id	string	*read-only*	Link to another Manager resource.
}			

Request Example

```
{
    "NewManager": [
        {
            "@odata.id": "/redfish/v1/Managers/3"
        }
    ]
}
```

6.70.4.2 ModifyRedundancySet

Description

The `ModifyRedundancySet` operation adds members to or removes members from a redundant group of managers.

Action URI

{Base URI of target resource}/Actions/Manager.ModifyRedundancySet

Action parameters

Parameter Name	Type	Attributes	Notes
Add [{	array	*optional*	An array of managers to add to the redundancy set.
@odata.id	string	*read-only*	Link to another Manager resource.
}]			
Remove [{	array	*optional*	An array of managers to remove from the redundancy set.
@odata.id	string	*read-only*	Link to another Manager resource.
}]			

Request Example

```
{
    "Add": [
        {
            "@odata.id": "/redfish/v1/Managers/4"
        }
    ]
}
```

6.70.4.3 Reset

Description

The reset action resets/reboots the manager.

Action URI

{Base URI of target resource}/Actions/Manager.Reset

Action parameters

Parameter Name	Type	Attributes	Notes
ResetType	string (enum)	*optional*	The type of reset. *For the possible property values, see ResetType in Property details.*

Request Example

```
{
    "ResetType": "ForceRestart"
}
```

6.70.4.4 ResetToDefaults *(v1.8+)*

Description

The reset action resets the manager settings to factory defaults. This can cause the manager to reset.

Action URI

{Base URI of target resource}/Actions/Manager.ResetToDefaults

Action parameters

Parameter Name	Type	Attributes	Notes
ResetType	string (enum)	*required*	The type of reset to defaults. *For the possible property values, see ResetType in Property details.*

Request Example

```
{
    "ResetType": "PreserveNetworkAndUsers"
}
```

6.70.4.5 UpdateSecurityMode *(v1.21+)*

Description

The update security mode action updates the security mode for the manager. This can cause the manager to reset

and reset other settings to factory defaults. Services might require the `ResetToDefaults` action to clear the security mode.

Action URI

{Base URI of target resource}/Actions/Manager.UpdateSecurityMode

Action parameters

Parameter Name	Type	Attributes	Notes
OEMSecurityMode	string	*optional*	The OEM-specific security mode to apply to the manager.
SecurityMode	string (enum)	*required*	The security mode to apply to the manager. *For the possible property values, see SecurityMode in Property details.*

Request Example

```
{
    "SecurityMode": "CNSA_1_0"
}
```

6.70.5 Property details

6.70.5.1 ConnectTypesSupported

6.70.5.1.1 In CommandShell:

This property enumerates the command shell connection types that the implementation allows.

string	Description
IPMI	The controller supports a command shell connection through the IPMI Serial Over LAN (SOL) protocol.
Oem	The controller supports a command shell connection through an OEM-specific protocol.
SSH	The controller supports a command shell connection through the SSH protocol.
Telnet	The controller supports a command shell connection through the Telnet protocol.

6.70.5.1.2 In GraphicalConsole:

This property enumerates the graphical console connection types that the implementation allows.

string	Description
KVMIP	The controller supports a graphical console connection through a KVM-IP (redirection of Keyboard, Video, Mouse over IP) protocol.
Oem	The controller supports a graphical console connection through an OEM-specific protocol.

6.70.5.1.3 In SerialConsole:

This property enumerates the serial console connection types that the implementation allows.

string	Description
IPMI	The controller supports a serial console connection through the IPMI Serial Over LAN (SOL) protocol.
Oem	The controller supports a serial console connection through an OEM-specific protocol.
SSH	The controller supports a serial console connection through the SSH protocol.
Telnet	The controller supports a serial console connection through the Telnet protocol.

6.70.5.2 DateTimeSource

The source of the date and time of this manager, such as NTP, RTC, or firmware.

string	Description
Firmware	The date and time is set and held by firmware.
Host	The date and time is retrieved from the host.
NTP	The date and time source is a Network Time Protocol (NTP) server.
PTP	The date and time source is a Precision Time Protocol (PTP) server.
RTC	The date and time is retrieved from the manager's real time clock (RTC).

6.70.5.3 ManagerType

The type of manager that this resource represents.

string	Description
AuxiliaryController	A controller that provides management functions for a particular subsystem or group of devices as part of a larger system.
BMC	A controller that provides management functions for one or more computer systems. Commonly known as a BMC (baseboard management controller). Examples of this include a BMC dedicated to one system or a multi-host manager providing BMC capabilities to multiple systems.
EnclosureManager	A controller that provides management functions for a chassis, group of devices, or group of systems with their own BMCs (baseboard management controllers). An example of this is a manager that aggregates and orchestrates management functions across multiple BMCs in an enclosure.
FabricManager *(v1.22+)*	A controller that primarily monitors or manages the operation of a group of fabric attached nodes and switches.
ManagementController	A controller that primarily monitors or manages the operation of a device or system.
RackManager	A controller that provides management functions for a whole or part of a rack. An example of this is a manager that aggregates and orchestrates management functions across multiple managers, such as enclosure managers and BMCs (baseboard management controllers), in a rack.
Service *(v1.4+)*	A software-based service that provides management functions.

6.70.5.4 PowerState

The current power state of the manager.

string	Description
Off	The resource is powered off. The components within the resource might continue to have AUX power.
On	The resource is powered on.
Paused	The resource is paused.
PoweringOff	A temporary state between on and off. The components within the resource can take time to process the power off action.
PoweringOn	A temporary state between off and on. The components within the resource can take time to process the power on action.

6.70.5.5 ResetType

6.70.5.5.1 In Actions: Reset:

The type of reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the unit.
FullPowerCycle	Full power cycle the unit. Behaves like removing utility lines, followed by restoring utility lines to the resource.
GracefulRestart	Shut down gracefully and restart the unit.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
Pause	Pause execution on the unit but do not remove power. This is typically a feature of virtual machine hypervisors.
PowerCycle	Power cycle the unit. Behaves like a power removal, followed by a power restore to the resource.
PushPowerButton	Simulate the pressing of the physical power button on this unit.
Resume	Resume execution on the paused unit. This is typically a feature of virtual machine hypervisors.
Suspend	Write the state of the unit to disk before powering off. This allows for the state to be restored when powered back on.

6.70.5.5.2 In Actions: ResetToDefaults:

The type of reset to defaults.

string	Description
PreserveNetwork	Reset all settings except network settings to factory defaults.
PreserveNetworkAndUsers	Reset all settings except network and local usernames/passwords to factory defaults.
ResetAll	Reset all settings to factory defaults.

6.70.5.6 SecurityMode

The security mode to apply to the manager.

string	Description
CNSA_1_0	This security mode indicates the implementation meets NSA Commercial National Security Algorithm Suite 1.0 requirements. This mode requires FIPS 140-2 compliance.
CNSA_2_0	This security mode indicates the implementation meets NSA Commercial National Security Algorithm Suite 2.0 requirements. This mode requires FIPS 140-3 compliance.
Default	This security mode indicates the implementation is in a vendor-specific default security state that does not match any other value.
FIPS_140_2	This security mode indicates the implementation complies with FIPS 140-2.
FIPS_140_3	This security mode indicates the implementation complies with FIPS 140-3.
OEM	This security mode indicates the implementation is in an OEM-specific security state.
SuiteB	This security mode indicates the implementation meets NSA Suite B cryptographic standards for Top Secret installations. This mode requires FIPS 140-2 compliance.

6.70.6 Example response


```
{
    "@odata.type": "#Manager.v1_22_0.Manager",
    "Id": "BMC",
    "Name": "Manager",
    "ManagerType": "BMC",
    "Description": "Contoso BMC",
    "ServiceEntryPointUUID": "92384634-2938-2342-8820-489239905423",
    "UUID": "58893887-8974-2487-2389-841168418919",
    "Model": "Joo Janta 200",
    "FirmwareVersion": "4.4.6521",
    "DateTime": "2015-03-13T04:14:33+06:00",
    "DateTimeLocalOffset": "+06:00",
    "DateTimeSource": "NTP",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "PowerState": "On",
    "GraphicalConsole": {
        "ServiceEnabled": true,
        "MaxConcurrentSessions": 2,
        "ConnectTypesSupported": [
            "KVMIP"
        ]
    },
    "CommandShell": {
        "ServiceEnabled": true,
```

```
        "MaxConcurrentSessions": 4,
        "ConnectTypesSupported": [
            "Telnet",
            "SSH"
        ]
    },
    "HostInterfaces": {
        "@odata.id": "/redfish/v1/Managers/9/HostInterfaces"
    },
    "NetworkProtocol": {
        "@odata.id": "/redfish/v1/Managers/BMC/NetworkProtocol"
    },
    "EthernetInterfaces": {
        "@odata.id": "/redfish/v1/Managers/BMC/NICs"
    },
    "SerialInterfaces": {
        "@odata.id": "/redfish/v1/Managers/BMC/SerialInterfaces"
    },
    "LogServices": {
        "@odata.id": "/redfish/v1/Managers/BMC/LogServices"
    },
    "VirtualMedia": {
        "@odata.id": "/redfish/v1/Systems/437XR1138R2/VirtualMedia"
    },
    "Links": {
        "ManagerForServers": [
            {
                "@odata.id": "/redfish/v1/Systems/437XR1138R2"
            }
        ],
        "ManagerForChassis": [
            {
                "@odata.id": "/redfish/v1/Chassis/1U"
            }
        ],
        "ManagerInChassis": {
            "@odata.id": "/redfish/v1/Chassis/1U"
        }
    },
    "Actions": {
        "#Manager.Reset": {
            "target": "/redfish/v1/Managers/BMC/Actions/Manager.Reset",
            "ResetType@Redfish.AllowableValues": [
                "ForceRestart",
                "GracefulRestart"
            ]
        }
    },
    "@odata.id": "/redfish/v1/Managers/BMC"
}
```

6.71 ManagerAccount 1.14.0

Version	*v1.14*	*v1.13*	*v1.12*	*v1.11*	*v1.10*	*v1.9*	*v1.8*	*v1.7*	*v1.6*	*v1.5*	*v1.4*	...
Release	2025.2	2024.3	2023.3	2023.2	2022.3	2022.1	2021.1	2020.4	2020.1	2019.4	2019.3	...

6.71.1 Description

The `ManagerAccount` schema defines the user accounts that are owned by a manager. Changes to a manager account might affect the current Redfish service connection if this manager is responsible for the Redfish service.

6.71.2 URIs

/redfish/v1/AccountService/Accounts/*{ManagerAccountId}*
/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/Accounts/*{ManagerAccountId}*

6.71.3 Properties

Property	Type	Attributes	Notes
AccountExpiration *(v1.8+)*	string (date-time)	*read-write (null)*	Indicates the date and time when this account expires. If `null`, the account never expires.
AccountTypes *(v1.4+)* [ ]	array (string (enum))	*read-write required (null)*	The list of services in the manager that the account is allowed to access. *For the possible property values, see AccountTypes in Property details.*
Certificates *(v1.2+)* {	object		The link to a collection of user identity certificates for this account. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
EmailAddress *(v1.11+)*	string	*read-write (null)*	The email address associated with this account.
Enabled	boolean	*read-write*	An indication of whether an account is enabled. An administrator can disable it without deleting the user information. If `true`, the account is enabled and the user can log in. If `false`, the account is disabled and, in the future, the user cannot log in.
HostBootstrapAccount *(v1.8+)*	boolean	*read-only*	An indication of whether this account is a bootstrap account for the host interface.

Property	Type	Attributes	Notes
Keys *(v1.9+)* {	object		The link to the collection of keys that can be used to authenticate this account. For example, an SSH public key could be added to this collection to allow for SSH public key authentication. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Key*. See the Key schema for details.
}			
Links {	object		The links to other resources that are related to this resource.
Oem {}	object		See the Oem object definition in the Common properties section.
Role {	object		The link to the Redfish role that defines the privileges for this account. See the *Role* schema for details on this property.
@odata.id	string	*read-only*	Link to a Role resource. See the Links section and the *Role* schema for details.
}			
}			
Locked	boolean	*read-write*	An indication of whether the account service automatically locked the account because the lockout threshold was exceeded. To manually unlock the account before the lockout duration period, an administrator can change the property to `false` to clear the lockout condition.
MFABypass *(v1.10+)* {	object	*(null)*	The multi-factor authentication bypass settings for this account.
BypassTypes *(v1.12+)* [ ]	array (string (enum))	*read-write (null)*	The types of multi-factor authentication this account or role mapping is allowed to bypass. *For the possible property values, see BypassTypes in Property details.*
}			
OEMAccountTypes *(v1.4+)* [ ]	array (string, null)	*read-write*	The OEM account types.
OneTimePasscodeDeliveryAddress *(v1.11+)*	string	*read-write (null)*	The address used to receive one-time passcode messages for multi-factor authentication.
Password	string	*read-write required on create (null)*	The password. Use this property with a `PATCH` or `PUT` to write the password for the account. This property is `null` in responses.
PasswordChangeRequired *(v1.3+)*	boolean	*read-write (null)*	An indication of whether the service requires that the password for this account be changed before further access to the account is allowed.

Property	Type	Attributes	Notes
PasswordExpiration *(v1.6+)*	string (date-time)	*read-write (null)*	Indicates the date and time when this account password expires. If `null`, the account password never expires.
PhoneNumber *(v1.11+)*	string	*read-write (null)*	The contact phone number associated with this account.
RoleId	string	*read-write required on create*	The role for this account.
SecretKeySet *(v1.13+)*	boolean	*read-only*	Indicates if the secret key for Time-based One-Time Password (TOTP) multi-factor authentication is set.
SNMP *(v1.4+)* {	object	*(null)*	The SNMP settings for this account.
AuthenticationKey *(v1.4+)*	string	*read-write (null)*	The secret authentication key for SNMPv3.
AuthenticationKeySet *(v1.5+)*	boolean	*read-only*	Indicates if the `AuthenticationKey` property is set.
AuthenticationProtocol *(v1.4+)*	string (enum)	*read-write (null)*	The authentication protocol for SNMPv3. *For the possible property values, see AuthenticationProtocol in Property details.*
EncryptionKey *(v1.4+)*	string	*read-write (null)*	The secret encryption key used in SNMPv3.
EncryptionKeySet *(v1.5+)*	boolean	*read-only*	Indicates if the `EncryptionKey` property is set.
EncryptionProtocol *(v1.4+)*	string (enum)	*read-write (null)*	The encryption protocol for SNMPv3. *For the possible property values, see EncryptionProtocol in Property details.*
}			
StrictAccountTypes *(v1.7+)*	boolean	*read-write (null)*	Indicates if the service needs to use the account types exactly as specified when the account is created or updated.
UserName	string	*read-write required on create*	The username for the account.

6.71.4 Actions

6.71.4.1 ChangePassword *(v1.11+)*

Description

This action changes the account password.

Action URI

{Base URI of target resource}/Actions/ManagerAccount.ChangePassword

Action parameters

Parameter Name	Type	Attributes	Notes
NewPassword	string	*required*	The new account password.
SessionAccountPassword	string	*required*	The password of the account tied to the current session.

Request Example

```
{
    "SessionAccountPassword": "secret123",
    "NewPassword": "B3tterS3cur1tY!"
}
```

6.71.4.2 ClearSecretKey *(v1.13+)*

Description

This action clears the secret key for Time-based One-Time Password (TOTP) multi-factor authentication for this account.

Action URI

{Base URI of target resource}/Actions/ManagerAccount.ClearSecretKey

Action parameters

This action takes no parameters.

6.71.4.3 GenerateSecretKey *(v1.13+)*

Description

This action randomly generates a new secret key for Time-based One-Time Password (TOTP) multi-factor authentication for this account.

Action URI

{Base URI of target resource}/Actions/ManagerAccount.GenerateSecretKey

Action parameters

This action takes no parameters.

Response Payload

{			
SecretKey *(v1.13+)*	string	*read-only*	The secret key generated for Time-based One-Time Password (TOTP) multi-factor authentication.
}			

Response Example

```
{
    "SecretKey": "JEFDWSHUJOL342324DSFHJ324"
}
```

6.71.4.4 VerifyTimeBasedOneTimePassword *(v1.13+)*

Description

This action verifies a user-provided Time-based One-Time Password (TOTP). This is to ensure the client's copy of the secret key is aligned with the secret key stored by the service.

Action URI

{Base URI of target resource}/Actions/ManagerAccount.VerifyTimeBasedOneTimePassword

Action parameters

Parameter Name	Type	Attributes	Notes
TimeBasedOneTimePassword	string	*required*	The Time-based One-Time Password (TOTP) to verify.

Request Example

```
{
```

```
    "TimeBasedOneTimePassword": "123456789abcdef"
}
```

6.71.5 Property details

6.71.5.1 AccountTypes

The list of services in the manager that the account is allowed to access.

string	Description
ControlPanel	Allow PIN-based access via an external control panel, such as a keypad, touchscreen, or other human interface.
HostConsole	Allow access to the host's console, which could be connected through Telnet, SSH, or another protocol.
IPMI	Allow access to the Intelligent Platform Management Interface service.
KVMIP	Allow access to a Keyboard-Video-Mouse over IP session.
ManagerConsole	Allow access to the manager's console, which could be connected through Telnet, SSH, SM CLP, or another protocol.
OEM	OEM account type. See the `OEMAccountTypes` property.
Redfish	Allow access to the Redfish service.
SNMP	Allow access to SNMP services.
VirtualMedia	Allow access to control virtual media.
WebUI	Allow access to a web user interface session, such as a graphical interface or another web-based protocol.

6.71.5.2 AuthenticationProtocol

The authentication protocol for SNMPv3.

string	Description
HMAC128_SHA224 *(v1.7+)*	HMAC-128-SHA-224 authentication.
HMAC192_SHA256 *(v1.7+)*	HMAC-192-SHA-256 authentication.
HMAC256_SHA384 *(v1.7+)*	HMAC-256-SHA-384 authentication.

string	Description
HMAC384_SHA512 *(v1.7+)*	HMAC-384-SHA-512 authentication.
HMAC_MD5	HMAC-MD5-96 authentication.
HMAC_SHA96	HMAC-SHA-96 authentication.
None	No authentication.

6.71.5.3 BypassTypes

The types of multi-factor authentication this account or role mapping is allowed to bypass.

string	Description
All	Bypass all multi-factor authentication types.
ClientCertificate	Bypass client certificate authentication.
GoogleAuthenticator	Bypass Google Authenticator.
MicrosoftAuthenticator	Bypass Microsoft Authenticator.
OEM	Bypass OEM-defined multi-factor authentication.
OneTimePasscode	Bypass one-time passcode authentication.
SecurID	Bypass RSA SecurID.
TimeBasedOneTimePassword	Bypass Time-based One-Time Password (TOTP) authentication.

6.71.5.4 EncryptionProtocol

The encryption protocol for SNMPv3.

string	Description
CBC_DES	CBC-DES encryption.
CFB128_AES128	CFB128-AES-128 encryption.
CFB128_AES192 *(v1.12+)*	CFB128-AES-192 encryption.
CFB128_AES256 *(v1.12+)*	CFB128-AES-256 encryption.
None	No encryption.

6.71.6 Example response


```
{
    "@odata.type": "#ManagerAccount.v1_14_0.ManagerAccount",
    "Id": "1",
    "Name": "User Account",
    "Description": "User Account",
    "Enabled": true,
    "Password": null,
    "PasswordChangeRequired": false,
    "AccountTypes": [
        "Redfish"
    ],
    "UserName": "Administrator",
    "RoleId": "Administrator",
    "Locked": false,
    "Links": {
        "Role": {
            "@odata.id": "/redfish/v1/AccountService/Roles/Administrator"
        }
    },
    "Actions": {
        "#ManagerAccount.ChangePassword": {
            "target": "/redfish/v1/AccountService/Accounts/1/Actions/ManagerAccount.ChangePassword"
        }
    },
    "@odata.id": "/redfish/v1/AccountService/Accounts/1"
}
```


6.72 ManagerDiagnosticData 1.2.3

Version	*v1.2*	*v1.1*
Release	2022.3	2021.4

6.72.1 Description

The `ManagerDiagnosticData` schema defines internal diagnostic data for a manager. It contains information that might be used by vendors to collect debug information about the manager. Clients should not make decisions for raising alerts, creating service events, or other actions based on information in this resource.

6.72.2 URIs

/redfish/v1/Managers/*{ManagerId}*/ManagerDiagnosticData

6.72.3 Properties

Property	Type	Attributes	Notes
BootTimeStatistics {	object		The boot-time statistics of the manager.
FirmwareTimeSeconds	number	*read-only (null)*	The number of seconds the manager spent in the firmware stage.
InitrdTimeSeconds	number	*read-only (null)*	The number of seconds the manager spent in the initrd boot stage.
KernelTimeSeconds	number	*read-only (null)*	The number of seconds the manager spent in the kernel stage.
LoaderTimeSeconds	number	*read-only (null)*	The number of seconds the manager spent in the loader stage.
UserSpaceTimeSeconds	number	*read-only (null)*	The number of seconds the manager spent in the user space boot stage.
}			
FreeStorageSpaceKiB	integer (KiBy)	*read-only (null)*	The available storage space on this manager in kibibytes (KiB).
I2CBuses [{	array		The statistics of the I2C buses.
BusErrorCount	integer	*read-only (null)*	The number of bus errors on this I2C bus.
I2CBusName	string	*read-only*	The name of the I2C bus.
NACKCount	integer	*read-only (null)*	The number of NACKs on this I2C bus.
TotalTransactionCount	integer	*read-only (null)*	The total number of transactions on this I2C bus.
}]			
MemoryECCStatistics {	object		The memory ECC statistics of the manager.
CorrectableECCErrorCount	integer	*read-only (null)*	The number of correctable errors since reset.

Property	Type	Attributes	Notes
UncorrectableECCErrorCount	integer	*read-only (null)*	The number of uncorrectable errors since reset.
}			
MemoryStatistics {	object		The memory statistics of the manager.
AvailableBytes	integer (bytes)	*read-only (null)*	The amount of memory available in bytes for starting new processes without swapping.
BuffersAndCacheBytes	integer (bytes)	*read-only (null)*	The amount of memory used in bytes by kernel buffers, page caches, and slabs.
FreeBytes	integer (bytes)	*read-only (null)*	The amount of free memory in bytes.
SharedBytes	integer (bytes)	*read-only (null)*	The amount of shared memory in bytes.
TotalBytes	integer (bytes)	*read-only (null)*	The total amount of memory in bytes.
UsedBytes	integer (bytes)	*read-only (null)*	The amount of used memory in bytes.
}			
ProcessorStatistics {	object		The processor statistics of the manager.
KernelPercent	number (%)	*read-only (null)*	The percentage of CPU time spent in kernel mode.
UserPercent	number (%)	*read-only (null)*	The percentage of CPU time spent in user mode.
}			
ServiceRootUptimeSeconds *(v1.2+)*	number	*read-only (null)*	The wall-clock time the service root hosted by this manager has been running in seconds.
TopProcesses [{	array		The statistics of the top processes of this manager.
CommandLine	string	*read-only*	The command line of this process.
KernelTimeSeconds	number	*read-only (null)*	The number of seconds this process executed in kernel space.
ResidentSetSizeBytes	integer (bytes)	*read-only (null)*	The resident set size of this process in bytes.

Property	Type	Attributes	Notes
RestartAfterFailureCount *(v1.1+)*	integer	*read-only (null)*	The number of times this process has restarted unexpectedly.
RestartCount *(v1.1+)*	integer	*read-only (null)*	The number of times this process has restarted.
UptimeSeconds *(v1.1+)*	number	*read-only (null)*	The wall-clock time this process has been running in seconds.
UserTimeSeconds	number	*read-only (null)*	The number of seconds this process executed in user space.
}]			

6.72.4 Actions

6.72.4.1 ResetMetrics

Description

Resets time intervals or counted values of the diagnostic data for this manager.

Action URI

{Base URI of target resource}/Actions/ManagerDiagnosticData.ResetMetrics

Action parameters

This action takes no parameters.

6.72.5 Example response


```
{
    "@odata.type": "#ManagerDiagnosticData.v1_2_3.ManagerDiagnosticData",
    "Id": "ManagerDiagnosticData",
    "Name": "Manager Diagnostic Data",
    "I2CBuses": [
        {
            "I2CBusName": "i2c-0",
            "TotalTransactionCount": 10000,
            "BusErrorCount": 12,
            "NACKCount": 34
        },
```

```
        {
            "I2CBusName": "i2c-1",
            "TotalTransactionCount": 20000,
            "BusErrorCount": 56,
            "NACKCount": 78
        }
    ],
    "MemoryStatistics": {
        "TotalBytes": 1013052000,
        "UsedBytes": 45084000,
        "FreeBytes": 894820000,
        "SharedBytes": 19864000,
        "BuffersAndCacheBytes": 73148000,
        "AvailableBytes": 928248000
    },
    "ProcessorStatistics": {
        "KernelPercent": 12.34,
        "UserPercent": 23.45
    },
    "TopProcesses": [
        {
            "CommandLine": "dbus-broker",
            "UserTimeSeconds": 14400,
            "KernelTimeSeconds": 10800,
            "ResidentSetSizeBytes": 2300000
        },
        {
            "CommandLine": "swampd",
            "UserTimeSeconds": 13200,
            "KernelTimeSeconds": 8441,
            "ResidentSetSizeBytes": 8883000
        },
        {
            "CommandLine": "ipmid",
            "UserTimeSeconds": 13100,
            "KernelTimeSeconds": 6650,
            "ResidentSetSizeBytes": 23400000
        },
        {
            "CommandLine": "phosphor-hwmon-readd -i iface1",
            "UserTimeSeconds": 5100,
            "KernelTimeSeconds": 3200,
            "ResidentSetSizeBytes": 564000
        }
    ],
    "BootTimeStatistics": {
        "FirmwareTimeSeconds": 42.3,
        "LoaderTimeSeconds": 12.3,
        "KernelTimeSeconds": 33.1,
        "InitrdTimeSeconds": 3.2,
```

```
        "UserSpaceTimeSeconds": 81.1
    },
    "MemoryECCStatistics": {
        "CorrectableECCErrorCount": 1,
        "UncorrectableECCErrorCount": 2
    },
    "@odata.id": "/redfish/v1/Managers/BMC/ManagerDiagnosticData"
}
```


6.73 ManagerNetworkProtocol 1.12.0

Version	*v1.12*	*v1.11*	*v1.10*	*v1.9*	*v1.8*	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	...
Release	2025.2	2025.1	2023.3	2022.2	2021.2	2020.4	2020.1	2019.3	2018.3	2018.2	2017.1	...

6.73.1 Description

The network service settings for the manager.

6.73.2 URIs

/redfish/v1/Managers/*{ManagerId}*/NetworkProtocol

6.73.3 Properties

Property	Type	Attributes	Notes
DHCP *(v1.1+)* {}	object		The settings for this manager's DHCPv4 protocol support. For more information about this property, see Protocol in Property Details.
DHCPv6 *(v1.3+)* {}	object		The settings for this manager's DHCPv6 protocol support. For more information about this property, see Protocol in Property Details.
FQDN	string	*read-only (null)*	The fully qualified domain name for the manager obtained by DNS including the host name and top-level domain name.
FTP *(v1.10+)* {}	object		The settings for this manager's FTP protocol support. For more information about this property, see Protocol in Property Details.

Property	Type	Attributes	Notes
FTPS *(v1.10+)* {}	object		The settings for this manager's FTP over SSL (FTPS) protocol support that apply to all system instances controlled by this manager. For more information about this property, see Protocol in Property Details.
HostName	string	*read-only (null)*	The DNS host name of this manager, without any domain information.
HTTP {}	object		The settings for this manager's HTTP protocol support. For more information about this property, see Protocol in Property Details.
HTTPS {	object		The settings for this manager's HTTPS protocol support.
Certificates *(v1.4+)* {	object		The link to a collection of certificates used for HTTPS by this manager. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
Port	integer	*read-write (null)*	The protocol port.
ProtocolEnabled	boolean	*read-write (null)*	An indication of whether the protocol is enabled.
}			
IPMI {}	object		The settings for this manager's IPMI-over-LAN protocol support. For more information about this property, see Protocol in Property Details.
KVMIP {}	object		The settings for this manager's KVM-IP protocol support that apply to all system instances controlled by this manager. For more information about this property, see Protocol in Property Details.
mDNS *(v1.11+)* {}	object		The settings for this manager's Multicast Domain Name Service (mDNS) protocol support. For more information about this property, see Protocol in Property Details.
Modbus *(v1.12+)* {	object		The settings for this manager's Modbus TCP protocol support.
AllowedClients *(v1.12+)* [ ]	array (string, null)	*read-write*	Indicates the list of allowed clients for this Modbus TCP server interface.
MaximumConnectedClients *(v1.12+)*	integer	*read-write (null)*	The maximum number of simultaneously connected clients.

Property	Type	Attributes	Notes
NumberOfConnectedClients *(v1.12+)*	integer	*read-only (null)*	The current number of connected clients.
Port	integer	*read-write (null)*	The protocol port.
ProtocolEnabled	boolean	*read-write (null)*	An indication of whether the protocol is enabled.
ReadOnly *(v1.12+)*	boolean	*read-write (null)*	Indicates if the interface is read only.
RestrictAccessToAllowedClients *(v1.12+)*	boolean	*read-write (null)*	Indicates if access to this Modbus TCP server protocol interface is restricted to allowed clients.
ServerId *(v1.12+)*	integer	*read-write (null)*	The server identifier for this Modbus TCP protocol interface.
}			
NTP *(v1.2+)* {	object		The settings for this manager's NTP protocol support.
NetworkSuppliedServers *(v1.9+)* [ ]	array (string, null)	*read-only*	The NTP servers supplied by other network protocols to this manager.
NTPServers *(v1.2+)* [ ]	array (string, null)	*read-write*	Indicates to which user-supplied NTP servers this manager is subscribed.
Port	integer	*read-write (null)*	The protocol port.
ProtocolEnabled	boolean	*read-write (null)*	An indication of whether the protocol is enabled.
}			
Proxy *(v1.8+)* {	object		The HTTP/HTTPS proxy information for this manager.
Enabled *(v1.8+)*	boolean	*read-write*	Indicates if the manager uses the proxy server.
ExcludeAddresses *(v1.8+)* [ ]	array (string, null)	*read-write*	Addresses that do not require the proxy server to access.
Password *(v1.8+)*	string	*read-write (null)*	The password for the proxy. The value is `null` in responses.
PasswordSet *(v1.8+)*	boolean	*read-only*	Indicates if the `Password` property is set.

Property	Type	Attributes	Notes
ProxyAutoConfigURI *(v1.8+)*	string (URI)	*read-write (null)*	The URI used to access a proxy auto-configuration (PAC) file.
ProxyServerURI *(v1.8+)*	string (URI)	*read-write*	The URI of the proxy server, including the scheme and any non-default port value.
Username *(v1.8+)*	string	*read-write*	The username for the proxy.
}			
RDP *(v1.3+)* {}	object		The settings for this manager's Remote Desktop Protocol support. For more information about this property, see Protocol in Property Details.
RFB *(v1.3+)* {}	object		The settings for this manager's Remote Frame Buffer protocol support, which can support VNC. For more information about this property, see Protocol in Property Details.
SFTP *(v1.10+)* {}	object		The settings for this manager's Secure Shell File Transfer Protocol (SFTP) support. For more information about this property, see Protocol in Property Details.
SNMP {	object		The settings for this manager's SNMP support.
AuthenticationProtocol *(v1.5+)*	string (enum)	*read-write (null)*	The authentication protocol used for SNMP access to this manager. *For the possible property values, see AuthenticationProtocol in Property details.*
CommunityAccessMode *(v1.5+, deprecated v1.10)*	string (enum)	*read-write (null)*	The access level of the SNMP community. *For the possible property values, see CommunityAccessMode in Property details. Deprecated in v1.10 and later. This property has been deprecated in favor of* `AccessMode` *inside* `CommunityStrings`.
CommunityStrings *(v1.5+)* [{	array		The SNMP community strings.
AccessMode *(v1.5+)*	string (enum)	*read-write (null)*	The access level of the SNMP community. *For the possible property values, see AccessMode in Property details.*
CommunityString *(v1.5+)*	string	*read-write (null)*	The SNMP community string.
IPv4AddressRangeLower *(v1.10+)*	string	*read-write (null)*	The lowest IPv4 address in the range allowed to access the service.
IPv4AddressRangeUpper *(v1.10+)*	string	*read-write (null)*	The highest IPv4 address in the range allowed to access the service.
Name *(v1.5+)*	string	*read-write (null)*	The name of the SNMP community.

Property	Type	Attributes	Notes
RestrictCommunityToIPv4AddressRange *(v1.10+)*	boolean	*read-only*	Indicates if this community is restricted to accessing the service from a range of IPv4 addresses.
}]			
EnableSNMPv1 *(v1.5+)*	boolean	*read-write (null)*	Indicates if access via SNMPv1 is enabled.
EnableSNMPv2c *(v1.5+)*	boolean	*read-write (null)*	Indicates if access via SNMPv2c is enabled.
EnableSNMPv3 *(v1.5+)*	boolean	*read-write (null)*	Indicates if access via SNMPv3 is enabled.
EncryptionProtocol *(v1.5+)*	string (enum)	*read-write (null)*	The encryption protocol used for SNMPv3 access to this manager. *For the possible property values, see EncryptionProtocol in Property details.*
EngineId *(v1.5+)* {	object	*(null)*	The engine ID.
ArchitectureId *(v1.6+)*	string	*read-write (null)*	The architecture identifier.
EnterpriseSpecificMethod *(v1.5+)*	string	*read-write (null)*	The enterprise-specific method.
PrivateEnterpriseId *(v1.5+)*	string	*read-only (null)*	The private enterprise ID.
}			
HideCommunityStrings *(v1.5+)*	boolean	*read-write (null)*	Indicates if the community strings should be hidden.
Port	integer	*read-write (null)*	The protocol port.
ProtocolEnabled	boolean	*read-write (null)*	An indication of whether the protocol is enabled.
TrapPort *(v1.10+)*	integer	*read-write (null)*	The SNMP trap port.
}			
SSDP {	object		The settings for this manager's SSDP support.
NotifyIPv6Scope	string (enum)	*read-write (null)*	The IPv6 scope for multicast NOTIFY messages for SSDP. *For the possible property values, see NotifyIPv6Scope in Property details.*

Property	Type	Attributes	Notes
NotifyMulticastIntervalSeconds	integer (seconds)	*read-write (null)*	The time interval, in seconds, between transmissions of the multicast NOTIFY ALIVE message from this service for SSDP.
NotifyTTL	integer	*read-write (null)*	The time-to-live hop count for SSDP multicast NOTIFY messages.
Port	integer	*read-write (null)*	The protocol port.
ProtocolEnabled	boolean	*read-write (null)*	An indication of whether the protocol is enabled.
}			
SSH {}	object		The settings for this manager's Secure Shell (SSH) protocol support. For more information about this property, see Protocol in Property Details.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
Telnet {}	object		The settings for this manager's Telnet protocol support. For more information about this property, see Protocol in Property Details.
VirtualMedia {}	object		The settings for this manager's virtual media support that apply to all system instances controlled by this manager. For more information about this property, see Protocol in Property Details.

6.73.4 Property details

6.73.4.1 AccessMode

The access level of the SNMP community.

string	Description
Full	READ-WRITE access mode.
Limited	READ-ONLY access mode.

6.73.4.2 AuthenticationProtocol

The authentication protocol used for SNMP access to this manager.

string	Description
Account	Authentication is determined by account settings.
CommunityString	SNMP community string authentication.
HMAC128_SHA224 *(v1.7+)*	HMAC-128-SHA-224 authentication.
HMAC192_SHA256 *(v1.7+)*	HMAC-192-SHA-256 authentication.
HMAC256_SHA384 *(v1.7+)*	HMAC-256-SHA-384 authentication.
HMAC384_SHA512 *(v1.7+)*	HMAC-384-SHA-512 authentication.
HMAC_MD5	HMAC-MD5-96 authentication.
HMAC_SHA96	HMAC-SHA-96 authentication.

6.73.4.3 CommunityAccessMode

The access level of the SNMP community.

string	Description
Full	READ-WRITE access mode.
Limited	READ-ONLY access mode.

6.73.4.4 EncryptionProtocol

The encryption protocol used for SNMPv3 access to this manager.

string	Description
Account	Encryption is determined by account settings.
CBC_DES	CBC-DES encryption.
CFB128_AES128	CFB128-AES-128 encryption.
CFB128_AES192 *(v1.10+)*	CFB128-AES-192 encryption.
CFB128_AES256 *(v1.10+)*	CFB128-AES-256 encryption.
None	No encryption.

6.73.4.5 NotifyIPv6Scope

The IPv6 scope for multicast NOTIFY messages for SSDP.

string	Description
Link	SSDP NOTIFY messages are sent to addresses in the IPv6 local link scope.
Organization	SSDP NOTIFY messages are sent to addresses in the IPv6 local organization scope.
Site	SSDP NOTIFY messages are sent to addresses in the IPv6 local site scope.

6.73.4.6 Protocol

The settings for a network protocol associated with a manager.

Port	integer	*read-write (null)*	The protocol port.
ProtocolEnabled	boolean	*read-write (null)*	An indication of whether the protocol is enabled.

6.73.5 Example response


```
{
    "@odata.type": "#ManagerNetworkProtocol.v1_12_0.ManagerNetworkProtocol",
    "Id": "NetworkProtocol",
    "Name": "Manager Network Protocol",
    "Description": "Manager Network Service",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "HostName": "web483-bmc",
    "FQDN": "web483-bmc.dmtf.org",
    "HTTP": {
        "ProtocolEnabled": true,
        "Port": 80
    },
    "HTTPS": {
        "ProtocolEnabled": true,
        "Port": 443
```

```
    },
    "IPMI": {
        "ProtocolEnabled": true,
        "Port": 623
    },
    "SSH": {
        "ProtocolEnabled": true,
        "Port": 22
    },
    "SNMP": {
        "ProtocolEnabled": true,
        "Port": 161
    },
    "VirtualMedia": {
        "ProtocolEnabled": true,
        "Port": 17988
    },
    "SSDP": {
        "ProtocolEnabled": true,
        "Port": 1900,
        "NotifyMulticastIntervalSeconds": 600,
        "NotifyTTL": 5,
        "NotifyIPv6Scope": "Site"
    },
    "Telnet": {
        "ProtocolEnabled": true,
        "Port": 23
    },
    "KVMIP": {
        "ProtocolEnabled": true,
        "Port": 5288
    },
    "@odata.id": "/redfish/v1/Managers/BMC/NetworkProtocol"
}
```


6.74 MediaController 1.3.2 (deprecated)

Version	*v1.3 Deprecated*	*v1.2 Deprecated*	*v1.1*	*v1.0*
Release	2022.1	2021.1	2020.2	2019.4

This schema has been deprecated and use in new implementations is discouraged except to retain compatibility with existing products. This schema has been deprecated in favor of the `FabricAdapter` schema.

6.74.1 Description

The `MediaController` schema contains the definition of a media controller and its configuration.

6.74.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/MediaControllers/*{MediaControllerId}* (deprecated)

6.74.3 Properties

Property	Type	Attributes	Notes
EnvironmentMetrics *(v1.2+)* {	object		The link to the environment metrics for this media controller. See the *EnvironmentMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a EnvironmentMetrics resource. See the Links section and the *EnvironmentMetrics* schema for details.
}			
Links {	object		The links to other resources that are related to this resource.
Endpoints [{	array		An array of links to the endpoints that connect to this media controller.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
MemoryDomains [{	array		An array of links to the memory domains associated with this media controller.
@odata.id	string	*read-only*	Link to a MemoryDomain resource. See the Links section and the *MemoryDomain* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
}			
Manufacturer	string	*read-only* *(null)*	The manufacturer of this media controller.
MediaControllerType	string (enum)	*read-only* *(null)*	The type of media controller. *For the possible property values, see MediaControllerType in Property details.*

Property	Type	Attributes	Notes
Model	string	*read-only* *(null)*	The model of this media controller.
PartNumber	string	*read-only* *(null)*	The part number of this media controller.
Ports {	object		The link to the collection of ports associated with this media controller. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Port*. See the Port schema for details.
}			
SerialNumber	string	*read-only* *(null)*	The serial number of this media controller.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
UUID *(v1.1+)*	string (uuid)	*read-only* *(null)*	The UUID for this media controller.

6.74.4 Actions

6.74.4.1 Reset

Description

This action resets this media controller.

Action URI

{Base URI of target resource}/Actions/MediaController.Reset

Action parameters

Parameter Name	Type	Attributes	Notes
ResetType	string (enum)	*optional*	The type of reset. *For the possible property values, see ResetType in Property details.*

Request Example

```
{
    "ResetType": "ForceRestart"
}
```

6.74.5 Property details

6.74.5.1 MediaControllerType

The type of media controller.

string	Description
Memory	The media controller is for memory.

6.74.5.2 ResetType

The type of reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the unit.
FullPowerCycle	Full power cycle the unit. Behaves like removing utility lines, followed by restoring utility lines to the resource.
GracefulRestart	Shut down gracefully and restart the unit.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
Pause	Pause execution on the unit but do not remove power. This is typically a feature of virtual machine hypervisors.
PowerCycle	Power cycle the unit. Behaves like a power removal, followed by a power restore to the resource.
PushPowerButton	Simulate the pressing of the physical power button on this unit.

string	Description
Resume	Resume execution on the paused unit. This is typically a feature of virtual machine hypervisors.
Suspend	Write the state of the unit to disk before powering off. This allows for the state to be restored when powered back on.

6.74.6 Example response


```
{
    "@odata.type": "#MediaController.v1_3_2.MediaController",
    "Id": "MediaController1",
    "Name": "Media Controller 1",
    "MediaControllerType": "Memory",
    "Manufacturer": "Contoso",
    "Model": "Contoso MediaController",
    "SerialNumber": "2M220100SL",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "UUID": "41784113-ed6b-2284-1414-916520dc1dd1",
    "Ports": {
        "@odata.id": "/redfish/v1/Chassis/GenZ/MediaControllers/1/Ports"
    },
    "Actions": {
        "#MediaController.Reset": {
            "target": "/redfish/v1/Chassis/GenZ/MediaControllers/1/Actions/MediaController.Reset",
            "ResetType@Redfish.AllowableValues": [
                "ForceRestart"
            ]
        }
    },
    "Links": {
        "Endpoints": [
            {
                "@odata.id": "/redfish/v1/Fabrics/GenZ/Endpoints/1"
            }
        ],
        "MemoryDomains": [
            {
                "@odata.id": "/redfish/v1/Chassis/GenZ/MemoryDomains/1"
            }
        ]
    },
    "@odata.id": "/redfish/v1/Chassis/GenZ/MediaControllers/1"
}
```

6.75 Memory 1.21.0

Version	*v1.21*	*v1.20*	*v1.19*	*v1.18*	*v1.17*	*v1.16*	*v1.15*	*v1.14*	*v1.13*	*v1.12*	*v1.11*	...
Release	2025.2	2024.1	2023.3	2023.2	2022.3	2022.2	2022.1	2021.4	2021.2	2021.1	2020.4	...

6.75.1 Description

The `Memory` schema represents a memory device, such as a DIMM, and its configuration. It also describes the location, such as a slot, socket, or bay, where a unit can be installed, by populating a resource instance with an absent state if a unit is not present.

6.75.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/Memory/*{MemoryId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/CacheMemory/*{MemoryId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.75.3 Properties

Property	Type	Attributes	Notes
AllocationAlignmentMiB *(v1.2+)*	integer (mebibytes)	*read-only (null)*	The boundary that memory regions are allocated on, measured in mebibytes (MiB).
AllocationIncrementMiB *(v1.2+)*	integer (mebibytes)	*read-only (null)*	The size of the smallest unit of allocation for a memory region in mebibytes (MiB).
AllowedSpeedsMHz [ ]	array (MHz) (integer)	*read-only*	Speeds supported by this memory device.
Assembly *(v1.4+)* {	object		The link to the assembly resource associated with this memory device. See the *Assembly* schema for details on this property.
@odata.id	string	*read-only*	Link to a Assembly resource. See the Links section and the *Assembly* schema for details.
}			
BaseModuleType	string (enum)	*read-only (null)*	The base module type of the memory device. *For the possible property values, see BaseModuleType in Property details.*

Property	Type	Attributes	Notes
BusWidthBits	integer	*read-only (null)*	The bus width, in bits.
CacheLevel *(v1.20+)*	integer	*read-only*	The level of the cache memory.
CacheSizeMiB *(v1.4+)*	integer (mebibytes)	*read-only (null)*	Total size of the cache portion memory in MiB.
CapacityMiB	integer (mebibytes)	*read-only (null)*	Memory capacity in mebibytes (MiB).
Certificates *(v1.11+)* {	object		The link to a collection of certificates for device identity and attestation. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
ConfigurationLocked *(v1.7+)*	boolean	*read-only (null)*	An indication of whether the configuration of this memory device is locked and cannot be altered.
CXL *(v1.17+)* {	object		CXL properties for this memory device.
LabelStorageSizeBytes *(v1.17+)*	integer (bytes)	*read-only*	The size of the label storage area in bytes of this memory device.
StagedNonVolatileSizeMiB *(v1.17+)*	integer (mebibytes)	*read-write*	Total device non-volatile memory capacity in MiB staged for next activation. The value is in multiples of 256 MiB.
StagedVolatileSizeMiB *(v1.17+)*	integer (mebibytes)	*read-write*	Total device volatile memory capacity in MiB staged for next activation. This value is in multiples of 256 MiB.
}			
DataWidthBits	integer	*read-only (null)*	Data width in bits.
DeviceID *(deprecated v1.3)*	string	*read-only (null)*	Device ID. *Deprecated in v1.3 and later. This property has been deprecated in favor of* `ModuleProductID`.
DeviceLocator *(deprecated v1.9)*	string	*read-only (null)*	Location of the memory device in the platform. *Deprecated in v1.9 and later. This property has been deprecated in favor of the* `ServiceLabel` *property within* `Location`.
Enabled *(v1.12+)*	boolean	*read-write*	An indication of whether this memory is enabled.
EnvironmentMetrics *(v1.11+)* {	object		The link to the environment metrics for this memory. See the *EnvironmentMetrics* schema for details on this property.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a EnvironmentMetrics resource. See the Links section and the *EnvironmentMetrics* schema for details.
}			
ErrorCorrection	string (enum)	*read-only (null)*	Error correction scheme supported for this memory device. *For the possible property values, see ErrorCorrection in Property details.*
FirmwareApiVersion	string	*read-only (null)*	Version of API supported by the firmware.
FirmwareRevision	string	*read-only (null)*	Revision of firmware on the memory controller.
FunctionClasses *(deprecated v1.3)* [ ]	array (string)	*read-only*	Function classes by the memory device. *Deprecated in v1.3 and later. This property has been deprecated in favor of* `OperatingMemoryModes` *at the root of the resource, or* `MemoryClassification` *found within* `RegionSet`*.*
HealthData *(v1.17+)* {	object		The health data of this memory device.
PredictedMediaLifeLeftPercent *(v1.17+, deprecated v1.19)*	number (%)	*read-only (null)*	The current health of the memory device as a percentage. *Deprecated in v1.19 and later. This property has been deprecated in favor of* `PredictedMediaLifeLeftPercent` *in the* `MemoryMetrics` *resource.*
}			
IsRankSpareEnabled	boolean	*read-only (null)*	An indication of whether rank spare is enabled for this memory device.
IsSpareDeviceEnabled	boolean	*read-only (null)*	An indication of whether a spare device is enabled for this memory device.
Links *(v1.2+)* {	object		The links to other resources that are related to this resource.
Batteries *(v1.15+)* [{	array		The batteries that provide power to this memory device during a power-loss event.
@odata.id	string	*read-only*	Link to a Battery resource. See the Links section and the *Battery* schema for details.
}]			
Chassis *(v1.2+)* {	object		The link to the chassis that contains this memory device. See the *Chassis* schema for details on this property.
@odata.id	string	*read-only*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.

Property	Type	Attributes	Notes
}			
Endpoints *(v1.17+)* [{	array		An array of links to the endpoints associated with this memory.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
MemoryMediaSources *(v1.17+)* [{	array		An array of memory chunks providing media for this memory.
@odata.id	string	*read-only*	Link to a MemoryChunks resource. See the Links section and the *MemoryChunks* schema for details.
}]			
MemoryRegionMediaSources *(v1.18+)* [{	array		An array of memory regions providing media for this memory.
@odata.id	string	*read-only*	Link to a MemoryRegion resource. See the Links section and the *MemoryRegion* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
Processors *(v1.11+)* [{	array		An array of links to the processors associated with this memory device.
@odata.id	string	*read-only*	Link to a Processor resource. See the Links section and the *Processor* schema for details.
}]			
}			
Location *(v1.4+)* {}	object		The location of the memory device. For property details, see Location.
LocationIndicatorActive *(v1.10+)*	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
Log *(v1.13+)* {	object		The link to the log service associated with this memory. See the *LogService* schema for details on this property.
@odata.id	string	*read-only*	Link to a LogService resource. See the Links section and the *LogService* schema for details.
}			
LogicalSizeMiB *(v1.4+)*	integer (mebibytes)	*read-only (null)*	Total size of the logical memory in MiB.

Property	Type	Attributes	Notes
Manufacturer	string	*read-only (null)*	The memory device manufacturer.
MaxTDPMilliWatts [ ]	array (milliWatts) (integer)	*read-only*	Set of maximum power budgets supported by the memory device in milliwatt units.
Measurements *(v1.11+, deprecated v1.14)* [{	array		An array of DSP0274-defined measurement blocks. *Deprecated in v1.14 and later. This property has been deprecated in favor of the* `ComponentIntegrity` *resource.*
@odata.id	string	*read-only*	Link to a MeasurementBlock resource. See the Links section and the *SoftwareInventory* schema for details.
}]			
MemoryDeviceType	string (enum)	*read-only (null)*	Type details of the memory device. *For the possible property values, see MemoryDeviceType in Property details.*
MemoryLocation {	object		Memory connection information to sockets and memory controllers.
Channel	integer	*read-only (null)*	The channel number to which the memory device is connected.
MemoryController	integer	*read-only (null)*	The memory controller number to which the memory device is connected.
Slot	integer	*read-only (null)*	The slot number to which the memory device is connected.
Socket	integer	*read-only (null)*	The socket number to which the memory device is connected.
}			
MemoryMedia [ ]	array (string (enum))	*read-only*	Media of this memory device. *For the possible property values, see MemoryMedia in Property details.*
MemorySubsystemControllerManufacturerID *(v1.3+)*	string	*read-only (null)*	The manufacturer ID of the memory subsystem controller of this memory device.
MemorySubsystemControllerProductID *(v1.3+)*	string	*read-only (null)*	The product ID of the memory subsystem controller of this memory device.
MemoryType	string (enum)	*read-only (null)*	The type of memory device. *For the possible property values, see MemoryType in Property details.*
Metrics {	object		The link to the metrics associated with this memory device. See the *MemoryMetrics* schema for details on this property.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a MemoryMetrics resource. See the Links section and the *MemoryMetrics* schema for details.
}			
Model *(v1.11+)*	string	*read-only (null)*	The product model number of this device.
ModuleManufacturerID *(v1.3+)*	string	*read-only (null)*	The manufacturer ID of this memory device.
ModuleProductID *(v1.3+)*	string	*read-only (null)*	The product ID of this memory device.
NonVolatileSizeLimitMiB *(v1.17+)*	integer (mebibytes)	*read-write*	The total non-volatile memory capacity in mebibytes (MiB).
NonVolatileSizeMiB *(v1.4+)*	integer (mebibytes)	*read-only (null)*	Total size of the non-volatile portion memory in MiB.
OperatingMemoryModes [ ]	array (string (enum))	*read-only*	Memory modes supported by the memory device. *For the possible property values, see OperatingMemoryModes in Property details.*
OperatingSpeedMhz	integer (MHz)	*read-only (null)*	Operating speed of the memory device in MHz or MT/s as appropriate.
OperatingSpeedRangeMHz *(v1.13+)* {	object (excerpt)		Range of allowed operating speeds (MHz). This object is an excerpt of the *Control* resource located at the URI shown in DataSourceUri.
AllowableMax	number	*read-only (null)*	The maximum possible setting for this control.
AllowableMin	number	*read-only (null)*	The minimum possible setting for this control.
AllowableNumericValues [ ]	array (number, null)	*read-only*	The supported values for the set point.
ControlMode	string (enum)	*read-write (null)*	The current operating mode of the control. *For the possible property values, see ControlMode in Property details.*
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this control.
Reading	number	*read-only (null)*	The reading of the sensor associated with this control.

Property	Type	Attributes	Notes
SettingMax	number	*read-write (null)*	The maximum set point in the allowed range.
SettingMin	number	*read-write (null)*	The minimum set point in the allowed range.
}			
PartNumber	string	*read-only (null)*	The product part number of this device.
PersistentRegionNumberLimit *(v1.2+)*	integer	*read-only (null)*	Total number of persistent regions this memory device can support.
PersistentRegionSizeLimitMiB	integer (mebibytes)	*read-only (null)*	Total size of persistent regions in mebibytes (MiB).
PersistentRegionSizeMaxMiB *(v1.2+)*	integer (mebibytes)	*read-only (null)*	Maximum size of a single persistent region in mebibytes (MiB).
PoisonListMaxMediaErrorRecords *(v1.17+)*	integer	*read-write*	The maximum number of media error records this device can track in its poison list.
PowerManagementICManufacturerID *(v1.20+)*	string	*read-only (null)*	The manufacturer ID of the Power Management Integrated Controller on this memory device.
PowerManagementICRevisionID *(v1.20+)*	string	*read-only (null)*	The revision ID of the Power Management Integrated Controller on this memory device.
PowerManagementPolicy {	object		Power management policy information.
AveragePowerBudgetMilliWatts	integer (milliWatts)	*read-only (null)*	Average power budget, in milliwatt units.
MaxTDPMilliWatts	integer (milliWatts)	*read-only (null)*	Maximum TDP in milliwatt units.
PeakPowerBudgetMilliWatts	integer (milliWatts)	*read-only (null)*	Peak power budget, in milliwatt units.
PolicyEnabled	boolean	*read-only (null)*	An indication of whether the power management policy is enabled.
}			
RankCount	integer	*read-only (null)*	Number of ranks available in the memory device.
Regions [{	array		Memory regions information within the memory device.

Property	Type	Attributes	Notes
MasterPassphraseEnabled *(v1.17+)*	boolean	*read-only (null)*	An indication of whether the master passphrase is enabled for this region.
MemoryClassification	string (enum)	*read-only (null)*	The classification of memory that the memory region occupies. *For the possible property values, see MemoryClassification in Property details.*
OffsetMiB	integer (mebibytes)	*read-only (null)*	Offset within the memory that corresponds to the start of this memory region in mebibytes (MiB).
PassphraseEnabled *(v1.5+)*	boolean	*read-only (null)*	An indication of whether the passphrase is enabled for this region.
PassphraseState *(deprecated v1.5)*	boolean	*read-only (null)*	An indication of whether the state of the passphrase for this region is enabled. *Deprecated in v1.5 and later. This property has been deprecated in favor of* `PassphraseEnabled` *found within* `RegionSet`.
RegionId	string	*read-only (null)*	Unique region ID representing a specific region within the memory device.
SizeMiB	integer (mebibytes)	*read-only (null)*	Size of this memory region in mebibytes (MiB).
}]			
SecurityCapabilities {	object		Security capabilities of the memory device.
ConfigurationLockCapable *(v1.7+)*	boolean	*read-only (null)*	An indication of whether this memory device supports the locking, or freezing, of the configuration.
DataLockCapable *(v1.7+)*	boolean	*read-only (null)*	An indication of whether this memory device supports data locking.
MaxPassphraseCount	integer	*read-only (null)*	Maximum number of passphrases supported for this memory device.
PassphraseCapable	boolean	*read-only (null)*	An indication of whether the memory device is passphrase capable.
PassphraseLockLimit *(v1.7+)*	integer	*read-only (null)*	The maximum number of incorrect passphrase attempts allowed before memory device is locked.
SecurityStates *(deprecated v1.7)* [ ]	array (string (enum))	*read-only*	Security states supported by the memory device. *For the possible property values, see SecurityStates in Property details. Deprecated in v1.7 and later. This property has been deprecated in favor of using the individual* `PassphraseCapable`, `DataLockCapable`, *and* `ConfigurationLockCapable` *properties.*
}			

Property	Type	Attributes	Notes
SecurityState *(v1.7+)*	string (enum)	*read-write (null)*	The current security state of this memory device. *For the possible property values, see SecurityState in Property details.*
SecurityStates *(v1.17+)* {	object		The security states of this memory device.
MasterPassphraseAttemptCountReached *(v1.17+)*	boolean	*read-only (null)*	An indication of whether an incorrect master passphrase attempt count has been reached.
UserPassphraseAttemptCountReached *(v1.17+)*	boolean	*read-only (null)*	An indication of whether an incorrect user passphrase attempt count has been reached.
}			
SerialNumber	string	*read-only (null)*	The product serial number of this device.
SpareDeviceCount	integer	*read-only (null)*	Number of unused spare devices available in the memory device.
SparePartNumber *(v1.11+)*	string	*read-only (null)*	The spare part number of the memory.
Status *(v1.1+)* {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
SubsystemDeviceID *(deprecated v1.3)*	string	*read-only (null)*	Subsystem device ID. *Deprecated in v1.3 and later. This property has been deprecated in favor of* `MemorySubsystemControllerProductID`.
SubsystemVendorID *(deprecated v1.3)*	string	*read-only (null)*	SubSystem vendor ID. *Deprecated in v1.3 and later. This property has been deprecated in favor of* `MemorySubsystemControllerManufacturerID`.
VendorID *(deprecated v1.3)*	string	*read-only (null)*	Vendor ID. *Deprecated in v1.3 and later. This property has been deprecated in favor of* `ModuleManufacturerID`.
VolatileRegionNumberLimit *(v1.2+)*	integer	*read-only (null)*	Total number of volatile regions this memory device can support.
VolatileRegionSizeLimitMiB	integer (mebibytes)	*read-only (null)*	Total size of volatile regions in mebibytes (MiB).
VolatileRegionSizeMaxMiB *(v1.2+)*	integer (mebibytes)	*read-only (null)*	Maximum size of a single volatile region in mebibytes (MiB).
VolatileSizeLimitMiB *(v1.17+)*	integer (mebibytes)	*read-write*	The total volatile memory capacity in mebibytes (MiB).
VolatileSizeMiB *(v1.4+)*	integer (mebibytes)	*read-only (null)*	Total size of the volatile portion memory in MiB.

6.75.4 Actions

6.75.4.1 DisableMasterPassphrase *(v1.17+)*

Description

Disables the master passphrase for the given region.

Action URI

{Base URI of target resource}/Actions/Memory.DisableMasterPassphrase

Action parameters

Parameter Name	Type	Attributes	Notes
Passphrase	string	*required*	The master passphrase for the specified region.
RegionId	string	*required*	The memory region ID to which to disable the master passphrase.

Request Example

```
{
    "Passphrase": "FluffyBunny",
    "RegionId": 2
}
```

6.75.4.2 DisablePassphrase

Description

Disable passphrase for the given region.

Action URI

{Base URI of target resource}/Actions/Memory.DisablePassphrase

Action parameters

Parameter Name	Type	Attributes	Notes
Passphrase	string	*required*	Passphrase for doing the operation.
RegionId	string	*required*	The memory region ID to which to apply this action.

Request Example

```
{
    "Passphrase": "FluffyBunny",
    "RegionId": 2
}
```

6.75.4.3 FreezeSecurityState *(v1.17+)*

Description

Freezes the security state of the memory device.

Action URI

{Base URI of target resource}/Actions/Memory.FreezeSecurityState

Action parameters

This action takes no parameters.

6.75.4.4 InjectPersistentPoison *(v1.17+)*

Description

Injects poison to a specific persistent memory address in the memory device.

Action URI

{Base URI of target resource}/Actions/Memory.InjectPersistentPoison

Action parameters

Parameter Name	Type	Attributes	Notes
PhysicalAddress	string	*required*	The device persistent physical address in which to perform a poison injection as a hex-encoded string.

Request Example

```
{
    "PhysicalAddress": "0x8000000"
}
```

6.75.4.5 OverwriteUnit *(v1.6+)*

Description

This contains the action for securely erasing given regions using the NIST SP800-88 Purge: Overwrite.

Action URI

{Base URI of target resource}/Actions/Memory.OverwriteUnit

Action parameters

Parameter Name	Type	Attributes	Notes
Passphrase	string	*required*	Passphrase for doing the operation.
RegionId	string	*required*	The memory region ID to which to apply this action.

Request Example

```
{
    "Passphrase": "FluffyBunny",
    "RegionId": 2
}
```

6.75.4.6 Reset *(v1.8+)*

Description

This action resets this memory device.

Action URI

{Base URI of target resource}/Actions/Memory.Reset

Action parameters

Parameter Name	Type	Attributes	Notes
ResetType	string (enum)	*optional*	The type of reset. *For the possible property values, see ResetType in Property details.*

Request Example

```
{
    "ResetType": "ForceRestart"
}
```

6.75.4.7 ResetToDefaults *(v1.16+)*

Description

The action resets the values of writable properties to factory defaults.

Action URI

{Base URI of target resource}/Actions/Memory.ResetToDefaults

Action parameters

This action takes no parameters.

6.75.4.8 ScanMedia *(v1.17+)*

Description

Scans the media of the memory device.

Action URI

{Base URI of target resource}/Actions/Memory.ScanMedia

Action parameters

Parameter Name	Type	Attributes	Notes
Length	integer	*required*	The length of the target region to scan in bytes from the physical address.
NoEventLog	boolean	*optional*	Indicates whether events related to the media scan are not logged.
PhysicalAddress	string	*required*	The starting device physical address to scan as a hex-encoded string.

Request Example

```
{
    "PhysicalAddress": "0x8000000",
    "Length": 2097152
}
```

6.75.4.9 SecureEraseUnit

Description

This contains the action for securely erasing given regions using the NIST SP800-88 Purge: Cryptographic Erase.

Action URI

{Base URI of target resource}/Actions/Memory.SecureEraseUnit

Action parameters

Parameter Name	Type	Attributes	Notes
Passphrase	string	*required*	Passphrase for doing the operation.
RegionId	string	*required*	The memory region ID to which to apply this action.

Request Example

```
{
    "Passphrase": "FluffyBunny",
    "RegionId": 2
}
```

6.75.4.10 SetMasterPassphrase *(v1.17+)*

Description

Sets the master passphrase for the given region.

Action URI

{Base URI of target resource}/Actions/Memory.SetMasterPassphrase

Action parameters

Parameter Name	Type	Attributes	Notes
Passphrase	string	*required*	The master passphrase to set for the specified region.
RegionId	string	*required*	The memory region ID to which to apply the master passphrase.

Request Example

```
{
    "Passphrase": "FluffyBunny",
    "RegionId": 2
}
```

6.75.4.11 SetPassphrase

Description

Set passphrase for the given regions.

Action URI

{Base URI of target resource}/Actions/Memory.SetPassphrase

Action parameters

Parameter Name	Type	Attributes	Notes
Passphrase	string	*required*	Passphrase for doing the operation.

Parameter Name	Type	Attributes	Notes
RegionId	string	*required*	The memory region ID to which to apply this action.

Request Example

```
{
    "Passphrase": "FluffyBunny",
    "RegionId": 2
}
```

6.75.4.12 UnlockUnit

Description

This contains the action for unlocking given regions.

Action URI

{Base URI of target resource}/Actions/Memory.UnlockUnit

Action parameters

Parameter Name	Type	Attributes	Notes
Passphrase	string	*required*	The passphrase required to complete the operation.
RegionId	string	*required*	The memory region ID to which to apply this action.

Request Example

```
{
    "Passphrase": "FluffyBunny",
    "RegionId": 2
}
```

6.75.5 Property details

6.75.5.1 BaseModuleType

The base module type of the memory device.

string	Description
CAMM *(v1.21+)*	Compression Attached Memory Module.
Die *(v1.7+)*	A die within a package.
LRDIMM	Load Reduced.
Mini_RDIMM	Mini_RDIMM.
Mini_UDIMM	Mini_UDIMM.
RDIMM	Registered DIMM.
SO_DIMM	SO_DIMM.
SO_DIMM_16b	SO_DIMM_16b.
SO_DIMM_32b	SO_DIMM_32b.
SO_RDIMM_72b	SO_RDIMM_72b.
SO_UDIMM_72b	SO_UDIMM_72b.
UDIMM	UDIMM.

6.75.5.2 ControlMode

The current operating mode of the control.

string	Description
Automatic	Automatically adjust control to meet the set point.
Disabled	The control has been disabled.
Manual	No automatic adjustments are made to the control.
Override	User override of the automatic set point value.

6.75.5.3 ErrorCorrection

Error correction scheme supported for this memory device.

string	Description
AddressParity	Address parity errors can be corrected.
MultiBitECC	Multibit data errors can be corrected by ECC.
NoECC	No ECC available.
SingleBitECC	Single bit data errors can be corrected by ECC.

6.75.5.4 MemoryClassification

The classification of memory that the memory region occupies.

string	Description
Block	Block-accessible memory.
ByteAccessiblePersistent	Byte-accessible persistent memory.
Volatile	Volatile memory.

6.75.5.5 MemoryDeviceType

Type details of the memory device.

string	Description
DDR	DDR.
DDR2	DDR2.
DDR2_SDRAM	DDR2 SDRAM.
DDR2_SDRAM_FB_DIMM	DDR2 SDRAM FB_DIMM.
DDR2_SDRAM_FB_DIMM_PROBE	DDR2 SDRAM FB_DIMM PROBE.
DDR3	DDR3.
DDR3_SDRAM	DDR3 SDRAM.

string	Description
DDR4	DDR4.
DDR4_SDRAM	DDR4 SDRAM.
DDR4E_SDRAM	DDR4E SDRAM.
DDR5 *(v1.11+)*	Double data rate type five synchronous dynamic random-access memory.
DDR5_MRDIMM *(v1.21+)*	DDR5 MRDIMM.
DDR_SDRAM	DDR SDRAM.
DDR_SGRAM	DDR SGRAM.
EDO	EDO.
FastPageMode	Fast Page Mode.
GDDR *(v1.11+)*	Synchronous graphics random-access memory.
GDDR2 *(v1.11+)*	Double data rate type two synchronous graphics random-access memory.
GDDR3 *(v1.11+)*	Double data rate type three synchronous graphics random-access memory.
GDDR4 *(v1.11+)*	Double data rate type four synchronous graphics random-access memory.
GDDR5 *(v1.11+)*	Double data rate type five synchronous graphics random-access memory.
GDDR5X *(v1.11+)*	Double data rate type five X synchronous graphics random-access memory.
GDDR6 *(v1.11+)*	Double data rate type six synchronous graphics random-access memory.
HBM *(v1.7+)*	High Bandwidth Memory.
HBM2 *(v1.7+)*	The second generation of High Bandwidth Memory.
HBM2E *(v1.17+)*	An updated version of the second generation of High Bandwidth Memory.
HBM3 *(v1.11+)*	The third generation of High Bandwidth Memory.
Logical *(v1.4+)*	Logical device, such as when the memory is fabric-attached.
LPDDR3_SDRAM	LPDDR3 SDRAM.
LPDDR4_SDRAM	LPDDR4 SDRAM.
LPDDR5_SDRAM *(v1.19+)*	LPDDR5 SDRAM.
OEM *(v1.11+)*	OEM-defined.
PipelinedNibble	Pipelined Nibble.

string	Description
ROM	ROM.
SDRAM	SDRAM.

6.75.5.6 MemoryMedia

Media of this memory device.

string	Description
DRAM	DRAM media.
Intel3DXPoint	Intel 3D XPoint media.
NAND	NAND media.
Proprietary	Proprietary media.

6.75.5.7 MemoryType

The type of memory device.

string	Description
Cache *(v1.20+)*	Cache.
DRAM	The memory device is composed of volatile memory.
IntelOptane *(v1.6+)*	The memory device is an Intel Optane Persistent Memory Module.
NVDIMM_F	The memory device is composed of non-volatile memory.
NVDIMM_N	The memory device is composed of volatile memory backed by non-volatile memory.
NVDIMM_P	The memory device is composed of a combination of non-volatile and volatile memory.

6.75.5.8 OperatingMemoryModes

Memory modes supported by the memory device.

string	Description
Block	Block-accessible system memory.
PMEM	Persistent memory, byte-accessible through system address space.
Volatile	Volatile memory.

6.75.5.9 ResetType

The type of reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the unit.
FullPowerCycle	Full power cycle the unit. Behaves like removing utility lines, followed by restoring utility lines to the resource.
GracefulRestart	Shut down gracefully and restart the unit.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
Pause	Pause execution on the unit but do not remove power. This is typically a feature of virtual machine hypervisors.
PowerCycle	Power cycle the unit. Behaves like a power removal, followed by a power restore to the resource.
PushPowerButton	Simulate the pressing of the physical power button on this unit.
Resume	Resume execution on the paused unit. This is typically a feature of virtual machine hypervisors.
Suspend	Write the state of the unit to disk before powering off. This allows for the state to be restored when powered back on.

6.75.5.10 SecurityState

The current security state of this memory device.

string	Description
Disabled	Secure mode is disabled.
Enabled	Secure mode is enabled and access to the data is allowed.
Frozen *(deprecated v1.7)*	Secure state is frozen and cannot be modified until reset. *Deprecated in v1.7 and later. This value has been deprecated in favor of using the* `ConfigurationLocked` *value to indicate that the configuration has been frozen.*
Locked	Secure mode is enabled and access to the data is locked.
Passphraselimit	Number of attempts to unlock the memory exceeded limit.
Unlocked *(deprecated v1.7)*	Secure mode is enabled and access to the data is unlocked. *Deprecated in v1.7 and later. This value has been deprecated in favor of* `Enabled` *to indicate normal security operation.*

6.75.5.11 SecurityStates

Security states supported by the memory device.

string	Description
Disabled	Secure mode is disabled.
Enabled	Secure mode is enabled and access to the data is allowed.
Frozen	Secure state is frozen and cannot be modified until reset.
Locked	Secure mode is enabled and access to the data is locked.
Passphraselimit	Number of attempts to unlock the memory exceeded limit.
Unlocked	Secure mode is enabled and access to the data is unlocked.

6.75.6 Example response


```
{
    "@odata.type": "#Memory.v1_21_0.Memory",
    "Name": "Regular Memory",
    "Id": "1",
    "RankCount": 1,
    "MaxTDPMilliWatts": [
        12000
    ],
    "CapacityMiB": 8192,
```

```
    "DataWidthBits": 64,
    "BusWidthBits": 72,
    "ErrorCorrection": "MultiBitECC",
    "MemoryLocation": {
        "Socket": 1,
        "MemoryController": 1,
        "Channel": 1,
        "Slot": 1
    },
    "MemoryType": "DRAM",
    "MemoryDeviceType": "DDR4",
    "BaseModuleType": "RDIMM",
    "MemoryMedia": [
        "DRAM"
    ],
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Metrics": {
        "@odata.id": "/redfish/v1/Systems/437XR1138R2/Memory/1/MemoryMetrics"
    },
    "EnvironmentMetrics": {
        "@odata.id": "/redfish/v1/Systems/437XR1138R2/Memory/1/EnvironmentMetrics"
    },
    "Location": {
        "PartLocation": {
            "ServiceLabel": "Socket 1_A",
            "LocationType": "Socket",
            "LocationOrdinalValue": 0
        }
    },
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/Memory/1"
}
```


6.76 MemoryChunks 1.6.2

Version	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2023.2	2022.3	2020.3	2019.4	2017.3	2017.1	2016.2

6.76.1 Description

The `MemoryChunks` schema contains the definition of a memory chunk and its configuration.

6.76.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/MemoryDomains/*{MemoryDomainId}*/MemoryChunks/*{MemoryChunksId}*
/redfish/v1/Systems/*{ComputerSystemId}*/MemoryDomains/*{MemoryDomainId}*/MemoryChunks/*{MemoryChunksId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.76.3 Properties

Property	Type	Attributes	Notes
AddressRangeOffsetMiB *(v1.3+)*	integer (mebibytes)	*read-only (null)*	Offset of the memory chunk in the address range in MiB.
AddressRangeType	string (enum)	*read-only required (null)*	Memory type of this memory chunk. *For the possible property values, see AddressRangeType in Property details.*
DisplayName *(v1.4+)*	string	*read-write (null)*	A user-configurable string to name the memory chunk.
InterleaveSets [{	array		The interleave sets for the memory chunk.
Memory {	object		Describes a memory device of the interleave set.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}			
MemoryLevel	integer	*read-only (null)*	Level of the interleave set for multi-level tiered memory.
OffsetMiB	integer (mebibytes)	*read-only (null)*	Offset within the DIMM that corresponds to the start of this memory region, measured in mebibytes (MiB).
RegionId	string	*read-only (null)*	DIMM region identifier.
SizeMiB	integer (mebibytes)	*read-only (null)*	Size of this memory region measured in mebibytes (MiB).
}]			
IsMirrorEnabled	boolean	*read-only (null)*	An indication of whether memory mirroring is enabled for this memory chunk.
IsSpare	boolean	*read-only (null)*	An indication of whether sparing is enabled for this memory chunk.

Property	Type	Attributes	Notes
Links *(v1.3+)* {	object		The links to other resources that are related to this resource.
CXLLogicalDevices *(v1.5+)* [{	array		An array of links to the CXL logical devices associated with this memory chunk.
@odata.id	string	*read-only*	Link to a CXLLogicalDevice resource. See the Links section and the *CXLLogicalDevice* schema for details.
}]			
Endpoints *(v1.3+)* [{	array		An array of links to the endpoints that connect to this memory chunk.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
MemoryRegions *(v1.6+)* [{	array		An array of links to the memory regions for which this memory chunk provides capacity.
@odata.id	string	*read-only*	Link to a MemoryRegion resource. See the Links section and the *MemoryRegion* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
}			
MediaLocation *(v1.5+)*	string (enum)	*read-write (null)*	The location of the memory media for this memory chunk. *For the possible property values, see MediaLocation in Property details.*
MemoryChunkSizeMiB	integer (mebibytes)	*read-only (null)*	Size of the memory chunk measured in mebibytes (MiB).
RequestedOperationalState *(v1.5+)*	string (enum)	*read-write (null)*	The requested operational state of this memory chunk. *For the possible property values, see RequestedOperationalState in Property details.*
Status *(v1.2+)* {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.76.4 Property details

6.76.4.1 AddressRangeType

Memory type of this memory chunk.

string	Description
Block	Block accessible memory.
PMEM	Byte accessible persistent memory.
Volatile	Volatile memory.

6.76.4.2 MediaLocation

The location of the memory media for this memory chunk.

string	Description
Local	The memory chunk was created using local media.
Mixed	The memory chunk was created using both local media and remote media accessible through a fabric.
Remote	The memory chunk was created using remote media accessible through a fabric.

6.76.4.3 RequestedOperationalState

The requested operational state of this memory chunk.

string	Description
Offline	Memory chunk cannot be used. Consumers of this memory chunk should perform cleanup operations as needed to prepare for the removal of this memory chunk.
Online	Memory chunk can be used.

6.76.5 Example response


```
{
    "@odata.type": "#MemoryChunks.v1_6_2.MemoryChunks",
    "Name": "Memory Chunk - Whole System",
    "Id": "1",
    "MemoryChunkSizeMiB": 32768,
    "AddressRangeType": "Volatile",
    "IsMirrorEnabled": false,
    "IsSpare": false,
    "InterleaveSets": [
        {
```

```
            "Memory": {
                "@odata.id": "/redfish/v1/Systems/2/Memory/1"
            }
        },
        {
            "Memory": {
                "@odata.id": "/redfish/v1/Systems/2/Memory/2"
            }
        },
        {
            "Memory": {
                "@odata.id": "/redfish/v1/Systems/2/Memory/3"
            }
        },
        {
            "Memory": {
                "@odata.id": "/redfish/v1/Systems/2/Memory/4"
            }
        }
    ],
    "@Redfish.Settings": {
        "@odata.type": "#Settings.v1_4_0.Settings",
        "SettingsObject": {
            "@odata.id": "/redfish/v1/Systems/2/MemoryDomains/1/MemoryChunks/1/SD"
        },
        "Time": "2012-03-07T14:44.30-05:00",
        "ETag": "someetag",
        "Messages": [
            {
                "MessageId": "Base.1.0.Success"
            }
        ]
    },
    "@odata.id": "/redfish/v1/Systems/2/MemoryDomains/1/MemoryChunks/1"
}
```


6.77 MemoryDomain 1.5.1

Version	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2022.3	2022.1	2019.4	2017.1	2016.3	2016.2

6.77.1 Description

The `MemoryDomain` schema describes a memory domain and its configuration. Memory domains indicate to the client which memory, or DIMMs, can be grouped together in memory chunks to represent addressable memory.

6.77.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/MemoryDomains/*{MemoryDomainId}*
/redfish/v1/Systems/*{ComputerSystemId}*/MemoryDomains/*{MemoryDomainId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.77.3 Properties

Property	Type	Attributes	Notes
AllowsBlockProvisioning	boolean	*read-only (null)*	An indication of whether this memory domain supports the provisioning of blocks of memory.
AllowsMemoryChunkCreation	boolean	*read-only (null)*	An indication of whether this memory domain supports the creation of memory chunks.
AllowsMirroring *(v1.1+)*	boolean	*read-only (null)*	An indication of whether this memory domain supports the creation of memory chunks with mirroring enabled.
AllowsSparing *(v1.1+)*	boolean	*read-only (null)*	An indication of whether this memory domain supports the creation of memory chunks with sparing enabled.
InterleavableMemorySets [{	array		The interleave sets for the memory chunk.
MemorySet [{	array		The set of memory for a particular interleave set.
@odata.id	string	*read-only*	Link to a Memory resource. See the Links section and the *Memory* schema for details.
}]			
}]			
Links *(v1.3+)* {	object		The links to other resources that are related to this resource.
CXLLogicalDevices *(v1.5+)* [{	array		An array of links to the CXL logical devices associated with this memory domain.
@odata.id	string	*read-only*	Link to a CXLLogicalDevice resource. See the Links section and the *CXLLogicalDevice* schema for details.
}]			

Property	Type	Attributes	Notes
FabricAdapters *(v1.5+)* [{	array		An array of links to the fabric adapters that present this memory domain to a fabric.
@odata.id	string	*read-only*	Link to a FabricAdapter resource. See the Links section and the *FabricAdapter* schema for details.
}]			
MediaControllers *(v1.3+, deprecated v1.4)* [{	array		An array of links to the media controllers for this memory domain. *Deprecated in v1.4 and later. This property has been deprecated in favor of the* `FabricAdapters` *property.*
@odata.id	string	*read-only*	Link to a MediaController resource. See the Links section and the *MediaController* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
PCIeFunctions *(v1.5+)* [{	array		An array of links to the PCIe functions representing this memory domain.
@odata.id	string	*read-only*	Link to a PCIeFunction resource. See the Links section and the *PCIeFunction* schema for details.
}]			
}			
MemoryChunkIncrementMiB *(v1.5+)*	integer (mebibytes)	*read-only* *(null)*	The incremental size, from the minimum size, allowed for a memory chunk within this domain in mebibytes (MiB).
MemoryChunks {	object		The link to the collection of memory chunks associated with this memory domain. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *MemoryChunks*. See the MemoryChunks schema for details.
}			
MemorySizeMiB *(v1.5+)*	integer (mebibytes)	*read-only* *(null)*	The total size of the memory domain in mebibytes (MiB).
MinMemoryChunkSizeMiB *(v1.5+)*	integer (mebibytes)	*read-only* *(null)*	The minimum size allowed for a memory chunk within this domain in mebibytes (MiB).
Status *(v1.5+)* {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.77.4 Example response


```
{
    "@odata.type": "#MemoryDomain.v1_5_1.MemoryDomain",
    "Name": "Memory Domain - Whole System Mirroring Only",
    "Id": "1",
    "MemoryChunks": {
        "@odata.id": "/redfish/v1/Systems/4/MemoryDomains/1/MemoryChunks"
    },
    "AllowsMemoryChunkCreation": false,
    "AllowsBlockProvisioning": false,
    "InterleavableMemorySets": [
        {
            "MemorySet": [
                {
                    "@odata.id": "/redfish/v1/Systems/2/Memory/1"
                },
                {
                    "@odata.id": "/redfish/v1/Systems/2/Memory/2"
                },
                {
                    "@odata.id": "/redfish/v1/Systems/2/Memory/3"
                },
                {
                    "@odata.id": "/redfish/v1/Systems/2/Memory/4"
                }
            ]
        }
    ],
    "@odata.id": "/redfish/v1/Systems/2/MemoryDomains/1"
}
```


6.78 MemoryMetrics 1.7.3

Version	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2023.1	2022.3	2022.1	2020.3	2020.1	2019.2	2016.2	2016.1

6.78.1 Description

The `MemoryMetrics` schema contains usage and health statistics for a memory device or system memory summary.

6.78.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/Memory/*{MemoryId}*/MemoryMetrics
/redfish/v1/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/MemoryMetrics
/redfish/v1/Systems/*{ComputerSystemId}*/MemorySummary/MemoryMetrics
/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/CacheMemory/*{MemoryId}*/MemoryMetrics
/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/MemorySummary/MemoryMetrics
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.78.3 Properties

Property	Type	Attributes	Notes
BandwidthPercent *(v1.2+)*	number (%)	*read-only (null)*	The memory bandwidth utilization as a percentage.
BlockSizeBytes	integer (bytes)	*read-only (null)*	The block size, in bytes.
CapacityUtilizationPercent *(v1.7+)*	number (%)	*read-only (null)*	The memory capacity utilization as a percentage.
CorrectedPersistentErrorCount *(v1.6+)*	integer	*read-only (null)*	The number of corrected errors in persistent memory.
CorrectedVolatileErrorCount *(v1.6+)*	integer	*read-only (null)*	The number of corrected errors in volatile memory.
CurrentPeriod {	object		The memory metrics since the last reset or `ClearCurrentPeriod` action.
BlocksRead	integer	*read-only (null)*	The number of blocks read since reset.
BlocksWritten	integer	*read-only (null)*	The number of blocks written since reset.
CorrectableECCErrorCount *(v1.4+)*	integer	*read-only (null)*	The number of correctable errors since reset.
IndeterminateCorrectableErrorCount *(v1.5+)*	integer	*read-only (null)*	The number of indeterminate correctable errors since reset.
IndeterminateUncorrectableErrorCount *(v1.5+)*	integer	*read-only (null)*	The number of indeterminate uncorrectable errors since reset.
UncorrectableECCErrorCount *(v1.4+)*	integer	*read-only (null)*	The number of uncorrectable errors since reset.

Property	Type	Attributes	Notes
}			
CXL *(v1.6+)* {	object		The memory metrics specific to CXL devices.
AlertCapabilities *(v1.6+)* {	object	*(null)*	The conditions that would generate an alert to the CXL Fabric Manager or host.
CorrectableECCError *(v1.6+)*	boolean	*read-only (null)*	Indicates whether correctable ECC errors generate an alert to the CXL Fabric Manager or host.
SpareBlock *(v1.6+)*	boolean	*read-only (null)*	Indicates whether spare block conditions generate an alert to the CXL Fabric Manager or host.
Temperature *(v1.6+)*	boolean	*read-only (null)*	Indicates whether temperature conditions generate an alert to the CXL Fabric Manager or host.
UncorrectableECCError *(v1.6+)*	boolean	*read-only (null)*	Indicates whether uncorrectable ECC errors generate an alert to the CXL Fabric Manager or host.
}			
}			
DirtyShutdownCount *(v1.6+)*	integer	*read-only (null)*	The number of shutdowns while outstanding writes have not completed to persistent memory.
HealthData {	object		The health information of the memory.
AlarmTrips {	object		Alarm trip information about the memory.
AddressParityError	boolean	*read-only (null)*	An indication of whether an address parity error was detected that a retry could not correct.
CorrectableECCError	boolean	*read-only (null)*	An indication of whether the correctable error threshold crossing alarm trip was detected.
SpareBlock	boolean	*read-only (null)*	An indication of whether the spare block capacity crossing alarm trip was detected.
Temperature	boolean	*read-only (null)*	An indication of whether a temperature threshold alarm trip was detected.
UncorrectableECCError	boolean	*read-only (null)*	An indication of whether the uncorrectable error threshold alarm trip was detected.
}			
DataLossDetected	boolean	*read-only (null)*	An indication of whether data loss was detected.

Property	Type	Attributes	Notes
LastShutdownSuccess	boolean	*read-only (null)*	An indication of whether the last shutdown succeeded.
PerformanceDegraded	boolean	*read-only (null)*	An indication of whether performance has degraded.
PredictedMediaLifeLeftPercent *(v1.1+)*	number (%)	*read-only (null)*	The percentage of reads and writes that are predicted to still be available for the media.
RemainingSpareBlockPercentage	number (%)	*read-only (null)*	The remaining spare blocks, as a percentage.
}			
LifeTime {	object		The memory metrics for the lifetime of the memory.
BlocksRead	integer	*read-only (null)*	The number of blocks read for the lifetime of the memory.
BlocksWritten	integer	*read-only (null)*	The number of blocks written for the lifetime of the memory.
CorrectableECCErrorCount *(v1.4+)*	integer	*read-only (null)*	The number of correctable errors for the lifetime of the memory.
IndeterminateCorrectableErrorCount *(v1.5+)*	integer	*read-only (null)*	The number of indeterminate correctable errors for the lifetime of the memory.
IndeterminateUncorrectableErrorCount *(v1.5+)*	integer	*read-only (null)*	The number of indeterminate uncorrectable errors for the lifetime of the memory.
UncorrectableECCErrorCount *(v1.4+)*	integer	*read-only (null)*	The number of uncorrectable errors for the lifetime of the memory.
}			
OperatingSpeedMHz *(v1.3+)*	integer (MHz)	*read-only (null)*	Operating speed of memory in MHz or MT/s as appropriate.

6.78.4 Actions

6.78.4.1 ClearCurrentPeriod

Description

This action sets the `CurrentPeriod` property's values to 0.

Action URI

{Base URI of target resource}/Actions/MemoryMetrics.ClearCurrentPeriod

Action parameters

This action takes no parameters.

6.78.5 Example response

```
{
    "@odata.type": "#MemoryMetrics.v1_7_3.MemoryMetrics",
    "Name": "Memory Metrics",
    "Id": "Metrics",
    "BlockSizeBytes": 4096,
    "CurrentPeriod": {
        "BlocksRead": 0,
        "BlocksWritten": 0
    },
    "LifeTime": {
        "BlocksRead": 0,
        "BlocksWritten": 0
    },
    "HealthData": {
        "RemainingSpareBlockPercentage": 50,
        "LastShutdownSuccess": true,
        "DataLossDetected": false,
        "PerformanceDegraded": false,
        "AlarmTrips": {
            "Temperature": true,
            "SpareBlock": false,
            "UncorrectableECCError": false,
            "CorrectableECCError": false
        }
    },
    "Actions": {
        "#MemoryMetrics.ClearCurrentPeriod": {
            "target": "/redfish/v1/Systems/1/Memory/1/Actions/MemoryMetrics.ClearCurrentPeriod"
        }
    },
    "@odata.id": "/redfish/v1/Systems/1/Memory/1/MemoryMetrics"
}
```

6.79 MemoryRegion 1.0.3

Version	*v1.0*
Release	2023.2

6.79.1 Description

The `MemoryRegion` schema contains the definition of a memory region and its configuration.

6.79.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/PCIeDevices/*{PCIeDeviceId}*/CXLLogicalDevices/*{CXLLogicalDeviceId}*/MemoryRegions/*{MemoryRegionId}*

6.79.3 Properties

Property	Type	Attributes	Notes
BlockSizeMiB	integer (mebibytes)	*read-write*	The memory region block size in mebibytes (MiB).
ExtentsCount	integer	*read-only (null)*	The number of extents defined for this memory region.
HardwareManagedCoherencyRegion	boolean	*read-only (null)*	An indication of whether the device manages the cache coherency across hosts for this memory region.
MemoryChunks [{	array		The set of memory chunks providing capacity for this memory region.
ChunkLink {	object		The link to the memory chunk providing capacity to the memory region. See the *MemoryChunks* schema for details on this property.
@odata.id	string	*read-only*	Link to a MemoryChunks resource. See the Links section and the *MemoryChunks* schema for details.
}			
ChunkOffsetMiB	integer (mebibytes)	*read-only*	Offset of the memory chunk within the memory region in mebibytes (MiB).
}]			
MemoryExtents [{	array		The set of memory extents defined for this memory region.
ExtentOffsetMiB	integer (mebibytes)	*read-only*	Offset of the memory extent within the memory region in mebibytes (MiB).
ExtentSizeMiB	integer (mebibytes)	*read-only*	Size of the memory extent in mebibytes (MiB).
SequenceNumber	integer	*read-only (null)*	The memory extent sequence number.

Property	Type	Attributes	Notes
Tag	string	*read-only*	The tag of this memory extent.
}]			
NonVolatileRegion	boolean	*read-only (null)*	An indication of whether this memory region represents non-volatile memory.
RegionBaseOffsetMiB	integer (mebibytes)	*read-only*	The offset of the memory region in the device address range in mebibytes (MiB).
RegionNumber	integer	*read-only*	The memory region number.
RegionSizeMiB	integer (mebibytes)	*read-only*	The size of the memory region in mebibytes (MiB).
RegionType	string (enum)	*read-only required*	The type of memory region. *For the possible property values, see RegionType in Property details.*
SanitizeOnRelease	boolean	*read-write (null)*	An indication of whether the capacity released from this memory region will be sanitized before it is made available to any host.
ShareableRegion	boolean	*read-only (null)*	An indication of whether this memory region can be shared across multiple hosts.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.79.4 Property details

6.79.4.1 RegionType

The type of memory region.

string	Description
Dynamic	Dynamic memory region. The address range coverage may be changed in the runtime.
Static	Static memory region. The whole address range is always covered by memory.

6.79.5 Example response

```
{
    "@odata.type": "#MemoryRegion.v1_0_3.MemoryRegion",
```

```
    "Id": "1",
    "Name": "Dynamic Memory Region 1",
    "Description": "CXL Dynamic Memory Region 1 of LD 1 in Device 1",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollup": "OK"
    },
    "RegionType": "Dynamic",
    "RegionNumber": 0,
    "RegionBaseOffsetMiB": 0,
    "RegionSizeMiB": 65536,
    "ShareableRegion": false,
    "SanitizeOnRelease": true,
    "BlockSizeMiB": 128,
    "ExtentsCount": 1,
    "MemoryExtents": [
        {
            "ExtentOffsetMiB": 0,
            "ExtentSizeMiB": 4096,
            "Tag": "User Defined Tag",
            "SequenceNumber": 0
        }
    ],
    "MemoryChunks": [
        {
            "ChunkOffsetMiB": 0,
            "ChunkLink": {
                "@odata.id": "/redfish/v1/Chassis/1/MemoryDomains/1/MemoryChunks/1"
            }
        }
    ],
    "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/1/CXLLogicalDevices/1/MemoryRegions/1"
}
```


6.80 MessageRegistry 1.6.3

Version	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2022.3	2021.3	2020.1	2019.1	2018.2	2017.1	1.0

6.80.1 Description

The `MessageRegistry` schema describes all message registries. It represents the properties for the message registries themselves.

6.80.2 Properties

Property	Type	Attributes	Notes
Language	string	*read-only required*	The RFC5646-conformant language code for the message registry.
Messages {	object	*required*	The message keys contained in the message registry.
(pattern) {	object		Property names follow regular expression pattern "[A-Za-z0-9]+"
ArgDescriptions *(v1.3+)* [ ]	array (string, null)	*read-only*	The `MessageArgs` descriptions, in order, used for this message.
ArgLongDescriptions *(v1.3+)* [ ]	array (string, null)	*read-only*	The `MessageArgs` normative descriptions, in order, used for this message.
ClearingLogic *(v1.2+)* {	object		The clearing logic associated with this message. The properties within indicate the events, specified by message keys for other messages in this registry, that are cleared by this message with optional conditions.
ClearsAll *(v1.2+)*	boolean	*read-only (null)*	Indicates whether all logged events containing messages from this message registry are cleared when this message is received. If conditional properties are present, such as the `ClearsIf` property, the specified conditions shall be required to clear the logged events.
ClearsIf *(v1.2+)*	string (enum)	*read-only (null)*	The condition required to clear the logged events specified by other properties in this object when this message is received. *For the possible property values, see ClearsIf in Property details.*
ClearsMessage *(v1.2+)* [ ]	array (string, null)	*read-only*	An array of message keys for logged events that are cleared when this message is received. If conditional properties are present, such as the `ClearsIf` property, the specified conditions are required to clear the logged events with these message keys.
}			
Deprecated *(v1.5+)*	string	*read-only (null)*	The reason the message has been deprecated.
Description	string	*read-only required*	A short description of how and when to use this message.
LongDescription *(v1.3+)*	string	*read-only (null)*	The normative language that describes this message's usage.
MapsToGeneralMessages *(v1.6+)* [ ]	array (string, null)	*read-only*	The general or less-specific messages related to this message.
Message	string	*read-only required*	The actual message.

Property	Type	Attributes	Notes
MessageSeverity *(v1.4+)*	string (enum)	*read-only required (null)*	The severity of the message. *For the possible property values, see MessageSeverity in Property details.*
NumberOfArgs	integer	*read-only required*	The number of arguments in the message.
Oem {}	object		See the Oem object definition in the Common properties section.
ParamTypes [ ]	array (string (enum))	*read-only*	The data types of the message arguments, prior to conversion to strings for inclusion in a message. *For the possible property values, see ParamTypes in Property details.*
ReplacedBy *(v1.6+)*	string	*read-only (null)*	The message identifier that replaces this message.
Resolution	string	*read-only required*	Used to provide suggestions on how to resolve the situation that caused the error.
Severity *(deprecated v1.4)*	string	*read-only required*	The severity of the message. *Deprecated in v1.4 and later. This property has been deprecated in favor of* `MessageSeverity`*, which ties the values to the enumerations defined for the* `Health` *property within* `Status`*.*
VersionAdded *(v1.5+)*	string	*read-only (null)*	The registry version which added this message.
VersionDeprecated *(v1.5+)*	string	*read-only (null)*	The registry version when the message was deprecated.
}			
}			
OwningEntity	string	*read-only required*	The organization or company that publishes this message registry.
RegistryPrefix	string	*read-only required*	The single-word prefix that is used in forming and decoding `MessageId` values.
RegistryVersion	string	*read-only required*	The message registry version in the middle portion of a `MessageId`.

6.80.3 Property details

6.80.3.1 ClearsIf

The condition required to clear the logged events specified by other properties in this object when this message is received.

string	Description
SameOriginOfCondition	Indicates that a logged event is cleared by a message if the `OriginOfCondition` for both events are the same.

6.80.3.2 MessageSeverity

The severity of the message.

string	Description
Critical	A critical condition requires immediate attention.
OK	Normal.
Warning	A condition requires attention.

6.80.3.3 ParamTypes

The data types of the message arguments, prior to conversion to strings for inclusion in a message.

string	Description
number	The argument is a number converted to a string.
string	The argument is a string.

6.80.4 Example response


```
{
    "@odata.type": "#MessageRegistry.v1_3_1.MessageRegistry",
    "Id": "Basic.1.2.0",
    "Name": "Simple Message Registry",
    "Language": "en",
    "Description": "Collection of Basic messages for numerous use cases",
    "RegistryPrefix": "Basic",
    "RegistryVersion": "1.2.0",
    "OwningEntity": "Contoso",
    "Messages": {
        "Success": {
            "Description": "Indicates that all conditions of a successful operation have been met.",
            "Message": "Successfully Completed Request",
            "Severity": "OK",
```

```
            "NumberOfArgs": 0,
            "Resolution": "None"
        },
        "GeneralError": {
            "Description": "Indicates that a general error has occurred.",
            "Message": "A general error has occurred. See ExtendedInfo for more information.",
            "Severity": "Critical",
            "NumberOfArgs": 0,
            "Resolution": "See ExtendedInfo for more information."
        },
        "ResourceAtUriUnauthorized": {
            "Description": "Indicates that the attempt to access the resource/file/image at the URI was
         unauthorized.",
            "Message": "While accessing the resource at %1, the service received an authorization error
         %2.",
            "Severity": "Critical",
            "NumberOfArgs": 2,
            "ParamTypes": [
                "string",
                "string"
            ],
            "Resolution": "Ensure that the appropriate access is provided for the service in order for it
         to access the URI."
        }
    }
}
```


6.81 MessageRegistryFile 1.1.5

Version	*v1.1*	*v1.0*
Release	2017.1	2016.1

6.81.1 Description

The `MessageRegistryFile` schema describes the registry file locator resource. This referenced registry file can be any type of registry, such as a message registry, privilege registry, or attribute registry.

6.81.2 URIs

/redfish/v1/Registries/*{MessageRegistryFileId}*

6.81.3 Properties

Property	Type	Attributes	Notes
Languages [ ]	array (string)	*read-only* *required*	The RFC5646-conformant language codes for the available registries.
Location [{	array	*required*	The location information for this registry file.
ArchiveFile	string	*read-only*	If the service hosts the registry in an archive file, the name of the file within the archive.
ArchiveUri	string (URI)	*read-only*	If the registry is hosted on the service in an archive file, the link to the archive file.
Language	string	*read-only*	The language code for the registry file.
PublicationUri	string (URI)	*read-only*	The link to publicly available (canonical) URI for the registry.
Uri	string (URI)	*read-only*	The link to locally available URI for the registry.
}]			
Registry	string	*read-only* *required*	The registry name and its major and minor versions. This registry can be any type of registry, such as a message registry, privilege registry, or attribute registry.

6.81.4 Example response


```
{
    "@odata.type": "#MessageRegistryFile.v1_1_5.MessageRegistryFile",
    "Id": "Base.1.0.0",
    "Name": "Base Message Registry File",
    "Description": "Base Message Registry File locations",
    "Languages": [
        "en"
    ],
    "Registry": "Base.1.0",
    "Location": [
        {
            "Language": "en",
            "ArchiveUri": "/FileRepo/Registries.gz",
            "PublicationUri": "https://redfish.contoso.org/registries/v1/Base.1.0.0.json",
            "ArchiveFile": "Base.1.0.0.json"
        },
        {
            "Language": "zh",
```

```
            "ArchiveUri": "/FileRepo/Registries.zh.gz",
            "PublicationUri": "https://redfish.contoso.org/registries/v1/zh/Base.1.0.0.zh.json",
            "ArchiveFile": "Base.1.0.0.zh.json"
        }
    ],
    "@odata.id": "/redfish/v1/Registries/Base.1.0.0"
}
```


6.82 MetricDefinition 1.3.5

Version	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2022.1	2021.1	2020.3	2018.2

6.82.1 Description

The `MetricDefinition` schema describes the metadata information for a metric.

6.82.2 URIs

/redfish/v1/TelemetryService/MetricDefinitions/*{MetricDefinitionId}*

6.82.3 Properties

Property	Type	Attributes	Notes
Accuracy	number	*read-only (null)*	The estimated percent error of measured versus actual values.
Calculable	string (enum)	*read-write (null)*	An indication of whether the metric can be used in a calculation. *For the possible property values, see Calculable in Property details.*
CalculationAlgorithm	string (enum)	*read-only (null)*	The calculation that is performed on a source metric to obtain the metric being defined. *For the possible property values, see CalculationAlgorithm in Property details.*
CalculationParameters [{	array		The metric properties that are part of a calculation that this metric definition defines.
ResultMetric	string	*read-only (null)*	The URI with wildcards and property identifiers of the metric property that stores the result of the calculation. If the URI has wildcards, the wildcards are substituted as specified in the `Wildcards` property.

Property	Type	Attributes	Notes
SourceMetric	string	*read-only (null)*	The URI with wildcards and property identifiers of the metric property used as the input into the calculation. If the URI has wildcards, the wildcards are substituted as specified in the `Wildcards` property.
}]			
CalculationTimeInterval	string (duration)	*read-write (null)*	The time interval over which the metric calculation is performed.
Calibration	number	*read-only (null)*	The calibration offset added to the metric reading.
DiscreteValues [ ]	array (string, null)	*read-write*	This array property specifies possible values of a discrete metric.
Implementation	string (enum)	*read-only (null)*	The implementation of the metric. *For the possible property values, see Implementation in Property details.*
IsLinear	boolean	*read-write (null)*	An indication of whether the metric values are linear versus non-linear.
LogicalContexts *(v1.3+)* [ ]	array (string (enum))	*read-only*	The logical contexts related to the metric. *For the possible property values, see LogicalContexts in Property details.*
MaxReadingRange	number	*read-only (null)*	Maximum value for metric reading.
MetricDataType	string (enum)	*read-write (null)*	The data type of the metric. *For the possible property values, see MetricDataType in Property details.*
MetricProperties [ ]	array (URI) (string, null)	*read-write*	The list of URIs with wildcards and property identifiers that this metric definition defines. If a URI has wildcards, the wildcards are substituted as specified in the `Wildcards` property.
MetricType	string (enum)	*read-write (null)*	The type of metric. *For the possible property values, see MetricType in Property details.*
MinReadingRange	number	*read-only (null)*	Minimum value for metric reading.
OEMCalculationAlgorithm *(v1.1+)*	string	*read-only (null)*	The OEM-defined calculation that is performed on a source metric to obtain the metric being defined.
PhysicalContext	string (enum)	*read-only (null)*	The physical context of the metric. *For the possible property values, see PhysicalContext in Property details.*
Precision	integer	*read-only (null)*	Number of significant digits in the metric reading.
SensingInterval	string (duration)	*read-write (null)*	The time interval between when a metric is updated.

Property	Type	Attributes	Notes
TimestampAccuracy	string (duration)	*read-only (null)*	The accuracy of the timestamp.
Units	string	*read-write (null)*	The units of measure for this metric.
Wildcards [{	array		The wildcards and their substitution values for the entries in the `MetricProperties` array property.
Name	string	*read-only (null)*	The string used as a wildcard.
Values [ ]	array (string, null)	*read-only*	An array of values to substitute for the wildcard. `*` indicates all possible values for the wildcard.
}]			

6.82.4 Property details

6.82.4.1 Calculable

An indication of whether the metric can be used in a calculation.

string	Description
NonCalculatable	No calculations should be performed on the metric reading.
NonSummable	The sum of the metric reading across multiple instances is not meaningful.
Summable	The sum of the metric reading across multiple instances is meaningful.

6.82.4.2 CalculationAlgorithm

The calculation that is performed on a source metric to obtain the metric being defined.

string	Description
Average	The metric is calculated as the average metric reading over a sliding time interval.
Maximum	The metric is calculated as the maximum metric reading over during a time interval.
Minimum	The metric is calculated as the minimum metric reading over a sliding time interval.
OEM *(v1.1+)*	The metric is calculated as specified by an OEM.

6.82.4.3 Implementation

The implementation of the metric.

string	Description
Calculated	The metric is implemented by applying a calculation on another metric property. The calculation is specified in the `CalculationAlgorithm` property.
DigitalMeter	The metric is implemented as digital meter.
PhysicalSensor	The metric is implemented as a physical sensor.
Synthesized	The metric is implemented by applying a calculation on one or more metric properties. The calculation is not provided.

6.82.4.4 LogicalContexts

The logical contexts related to the metric.

string	Description
Capacity	Capacity-related logical context.
Environment	Environment-related logical context.
Network	Network-related logical context.
Performance	Performance-related logical context.
Security	Security-related logical context.
Storage	Storage-related logical context.

6.82.4.5 MetricDataType

The data type of the metric.

string	Description
Boolean	The JSON boolean definition.
DateTime	The JSON string definition with the date-time format.
Decimal	The JSON decimal definition.

string	Description
Enumeration	The JSON string definition with a set of defined enumerations.
Integer	The JSON integer definition.
String	The JSON string definition.

6.82.4.6 MetricType

The type of metric.

string	Description
Countdown	The metric is a countdown metric. The metric reading is a non-negative integer that decreases monotonically. When a counter reaches its minimum, the value resets to preset value and resumes counting down.
Counter	The metric is a counter metric. The metric reading is a non-negative integer that increases monotonically. When a counter reaches its maximum, the value resets to 0 and resumes counting.
Discrete	The metric is a discrete metric. The metric value is discrete. The possible values are listed in the `DiscreteValues` property.
Gauge	The metric is a gauge metric. The metric value is a real number. When the metric value reaches the gauge's extrema, it stays at that value, until the reading falls within the extrema.
Numeric	The metric is a numeric metric. The metric value is any real number.
String *(v1.2+)*	The metric is a non-discrete string metric. The metric reading is a non-discrete string that displays some non-discrete, non-numeric data.

6.82.4.7 PhysicalContext

The physical context of the metric.

string	Description
Accelerator	An accelerator.
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.
ACOutput	An AC electrical output or output-related circuit.
ACStaticBypassInput	An AC electrical static bypass input.

string	Description
ACUtilityInput	An AC electrical utility input.
ASIC	An ASIC device, such as a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.
Chassis	The entire chassis.
ComputeBay	A compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Manager	A management controller, such as a BMC (baseboard management controller).

string	Description
Memory	A memory device.
MemorySubsystem	The entire memory subsystem.
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	A power supply bay.
Pump	A pump.
Rectifier	A rectifier device.
Reservoir	A reservoir.
Room	The room.
StorageBay	A storage bay.
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

6.82.5 Example response


```
{
```

```
    "@odata.type": "#MetricDefinition.v1_3_5.MetricDefinition",
    "Id": "PowerConsumedWatts",
    "Name": "Power Consumed Watts Metric Definition",
    "MetricType": "Numeric",
    "Implementation": "PhysicalSensor",
    "PhysicalContext": "PowerSupply",
    "MetricDataType": "Decimal",
    "Units": "W",
    "Precision": 4,
    "Accuracy": 1,
    "Calibration": 2,
    "MinReadingRange": 0,
    "MaxReadingRange": 50,
    "SensingInterval": "PT1S",
    "TimestampAccuracy": "PT1S",
    "Wildcards": [
        {
            "Name": "ChassisID",
            "Values": [
                "1"
            ]
        }
    ],
    "MetricProperties": [
        "/redfish/v1/Chassis/{ChassisID}/Power#/PowerControl/0/PowerConsumedWatts"
    ],
    "@odata.id": "/redfish/v1/TelemetryService/MetricDefinitions/PowerConsumedWatts"
}
```


6.83 MetricReport 1.5.2

Version	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2022.2	2020.2	2019.4	2019.2	2018.3	2018.2

6.83.1 Description

The `MetricReport` schema represents a set of collected metrics.

6.83.2 URIs

/redfish/v1/TelemetryService/MetricReports/*{MetricReportId}*

6.83.3 Properties

Property	Type	Attributes	Notes
Context *(v1.4+)*	string	*read-only*	A context can be supplied at subscription time. This property is the context value supplied by the subscriber.
MetricReportDefinition {	object		The link to the definition of this metric report. See the *MetricReportDefinition* schema for details on this property.
@odata.id	string	*read-only*	Link to a MetricReportDefinition resource. See the Links section and the *MetricReportDefinition* schema for details.
}			
MetricValues [{	array		An array of metric values for the metered items of this metric report.
MetricDefinition *(deprecated v1.5)* {	object		The link to the metric definition for this metric. See the *MetricDefinition* schema for details on this property. *Deprecated in v1.5 and later. This property has been deprecated in favor of the* `MetricId` *property.*
@odata.id	string	*read-only*	Link to a MetricDefinition resource. See the Links section and the *MetricDefinition* schema for details.
}			
MetricId	string	*read-only* *(null)*	The metric definitions identifier that contains additional information for the source metric.
MetricProperty	string (URI)	*read-only* *(null)*	The URI for the property from which this metric is derived.
MetricValue	string	*read-only* *(null)*	The metric value, as a string.
Oem *(v1.2+)* {}	object		See the Oem object definition in the Common properties section.
Timestamp	string (date-time)	*read-only* *(null)*	The date and time when the metric is obtained. A management application can establish a time series of metric data by retrieving the instances of metric value and sorting them according to their timestamp.
}]			
ReportSequence *(deprecated v1.3)*	string	*read-only*	The current sequence identifier for this metric report. *Deprecated in v1.3 and later. This property has been deprecated due to specification changes with regards to Server-Sent Events.*
Timestamp *(v1.1+)*	string (date-time)	*read-only* *(null)*	The time associated with the metric report in its entirety. The time of the metric report can be relevant when the time of individual metrics are minimally different.

6.83.4 Example response


```
{
    "@odata.type": "#MetricReport.v1_5_2.MetricReport",
    "Id": "AvgPlatformPowerUsage",
    "Name": "Average Platform Power Usage metric report",
    "MetricReportDefinition": {
        "@odata.id": "/redfish/v1/TelemetryService/MetricReportDefinitions/AvgPlatformPowerUsage"
    },
    "MetricValues": [
        {
            "MetricId": "AverageConsumedWatts",
            "MetricValue": "100",
            "Timestamp": "2016-11-08T12:25:00-05:00",
            "MetricProperty": "/redfish/v1/Chassis/Tray_1/Power#/0/PowerConsumedWatts"
        },
        {
            "MetricId": "AverageConsumedWatts",
            "MetricValue": "94",
            "Timestamp": "2016-11-08T13:25:00-05:00",
            "MetricProperty": "/redfish/v1/Chassis/Tray_1/Power#/0/PowerConsumedWatts"
        },
        {
            "MetricId": "AverageConsumedWatts",
            "MetricValue": "100",
            "Timestamp": "2016-11-08T14:25:00-05:00",
            "MetricProperty": "/redfish/v1/Chassis/Tray_1/Power#/0/PowerConsumedWatts"
        }
    ],
    "@odata.id": "/redfish/v1/TelemetryService/MetricReports/AvgPlatformPowerUsage"
}
```


6.84 MetricReportDefinition 1.4.7

Version	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2020.4	2019.2	2019.1	2018.3	2018.2

6.84.1 Description

The `MetricReportDefinition` schema describes set of metrics that are collected into a metric report.

6.84.2 URIs

/redfish/v1/TelemetryService/MetricReportDefinitions/*{MetricReportDefinitionId}*

6.84.3 Properties

Property	Type	Attributes	Notes
AppendLimit	integer	*read-only*	The maximum number of entries that can be appended to a metric report. When the metric report reaches its limit, its behavior is dictated by the `ReportUpdates` property.
Links *(v1.2+)* {	object		The links to other resources that are related to this resource.
Oem {}	object		See the Oem object definition in the Common properties section.
Triggers *(v1.2+)* [{	array		The triggers that cause this metric report definition to generate a new metric report upon a trigger occurrence when the `TriggerActions` property contains `RedfishMetricReport`.
@odata.id	string	*read-only*	Link to a Triggers resource. See the Links section and the *Triggers* schema for details.
}]			
}			
MetricProperties [ ]	array (URI) (string, null)	*read-write*	The list of URIs with wildcards and property identifiers to include in the metric report. If a URI has wildcards, the wildcards are substituted as specified in the `Wildcards` property.
MetricReport {	object		The most recent metric report produced by this metric report definition. See the *MetricReport* schema for details on this property.
@odata.id	string	*read-only*	Link to a MetricReport resource. See the Links section and the *MetricReport* schema for details.
}			
MetricReportDefinitionEnabled *(v1.2+)*	boolean	*read-write (null)*	An indication of whether the generation of new metric reports is enabled.
MetricReportDefinitionType	string (enum)	*read-write (null)*	Specifies when the metric report is generated. *For the possible property values, see MetricReportDefinitionType in Property details.*

Property	Type	Attributes	Notes
MetricReportHeartbeatInterval *(v1.2+)*	string (duration)	*read-write (null)*	The interval at which to send the complete metric report because the Redfish client wants refreshed metric data even when the data has not changed. This property value is always greater than the recurrence interval of a metric report, and it only applies when the `SuppressRepeatedMetricValue` property is `true`.
Metrics [{	array		The list of metrics to include in the metric report. The metrics might include calculations to apply to metric properties.
CollectionDuration	string (duration)	*read-write (null)*	The duration over which the function is computed.
CollectionFunction	string (enum)	*read-write (null)*	Specifies the function to perform on each of the metric properties listed in the `MetricProperties` property or the metric properties specified in the `MetricDefinition` referenced by the `MetricId` property. If not specified, calculations are not performed on the metric properties. *For the possible property values, see CollectionFunction in Property details.*
CollectionTimeScope	string (enum)	*read-write (null)*	The scope of time over which the function is applied. *For the possible property values, see CollectionTimeScope in Property details.*
MetricId	string	*read-write (null)*	The metric definition identifier that contains the metric properties to include in the metric report.
MetricProperties [ ]	array (URI) (string, null)	*read-write*	The list of URIs with wildcards and property identifiers to include in the metric report. If a URI has wildcards, the wildcards are substituted as specified in the `Wildcards` property.
Oem *(v1.4+)* {}	object		See the Oem object definition in the Common properties section.
}]			
ReportActions [ ]	array (string (enum))	*read-write*	The set of actions to perform when a metric report is generated. *For the possible property values, see ReportActions in Property details.*
ReportTimespan *(v1.3+)*	string (duration)	*read-write (null)*	The maximum timespan that a metric report can cover.
ReportUpdates	string (enum)	*read-write*	The behavior for how subsequent metric reports are handled in relationship to an existing metric report created from the metric report definition. Namely, whether to overwrite, append, or create a metric report. *For the possible property values, see ReportUpdates in Property details.*
Schedule {}	object		The schedule for generating the metric report. For property details, see Schedule.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

Property	Type	Attributes	Notes
SuppressRepeatedMetricValue *(v1.2+)*	boolean	*read-write (null)*	An indication of whether any metrics are suppressed from the generated metric report. If `true`, any metric that equals the same value in the previously generated metric report is suppressed from the current report. Also, duplicate metrics are suppressed. If `false`, no metrics are suppressed from the current report. The current report might contain no metrics if all metrics equal the values in the previously generated metric report.
Wildcards [{	array		The set of wildcards and their substitution values for the entries in the `MetricProperties` property.
Keys *(deprecated v1.1)* [ ]	array (string, null)	*read-write*	An array of values to substitute for the wildcard. *Deprecated in v1.1 and later. This property has been deprecated in favor of using the property Values.*
Name	string	*read-write (null)*	The string used as a wildcard.
Values *(v1.1+)* [ ]	array (string, null)	*read-write*	An array of values to substitute for the wildcard. `*` indicates all possible values for the wildcard.
}]			

6.84.4 Property details

6.84.4.1 CollectionFunction

Specifies the function to perform on each of the metric properties listed in the `MetricProperties` property or the metric properties specified in the `MetricDefinition` referenced by the `MetricId` property. If not specified, calculations are not performed on the metric properties.

string	Description
Average	The metric is calculated as the average metric reading over a duration.
Maximum	The metric is calculated as the maximum metric reading over a duration.
Minimum	The metric is calculated as the minimum metric reading over a duration.
Summation	The metric is calculated as the sum of the values over a duration.

6.84.4.2 CollectionTimeScope

The scope of time over which the function is applied.

string	Description
Interval	The corresponding metric values apply to a time interval. On the corresponding metric value instances, the `Timestamp` property value in the metric report specifies the end of the time interval and the `CollectionDuration` property specifies its duration.
Point	The corresponding metric values apply to a point in time. On the corresponding metric value instances, the `Timestamp` property value in the metric report specifies the point in time.
StartupInterval	The corresponding metric values apply to a time interval that began at the startup of the measured resource. On the corresponding metric value instances, the `Timestamp` property value in the metric report specifies the end of the time interval. The `CollectionDuration` property value specifies the duration between the startup of the resource and timestamp.

6.84.4.3 MetricReportDefinitionType

Specifies when the metric report is generated.

string	Description
OnChange	The metric report is generated when any of the metric values change.
OnRequest	The metric report is generated when an HTTP `GET` is performed on the specified metric report.
Periodic	The metric report is generated at a periodic time interval, specified in the `Schedule` property.

6.84.4.4 ReportActions

The set of actions to perform when a metric report is generated.

string	Description
LogToMetricReportsCollection	Record the occurrence to the metric report collection.
RedfishEvent	Send a Redfish event message containing the metric report.

6.84.4.5 ReportUpdates

The behavior for how subsequent metric reports are handled in relationship to an existing metric report created from the metric report definition. Namely, whether to overwrite, append, or create a metric report.

string	Description
AppendStopsWhenFull	New information is appended to the metric report. The service stops adding entries when the metric report has reached its maximum capacity.
AppendWrapsWhenFull	New information is appended to the metric report. The metric report entries are overwritten with new entries when the metric report has reached its maximum capacity.
NewReport	A new metric report is created, whose identifier is a service-defined identifier concatenated with the timestamp.
Overwrite	Overwrite the metric report.

6.84.5 Example response


```
{
    "@odata.type": "#MetricReportDefinition.v1_4_7.MetricReportDefinition",
    "Id": "PlatformPowerUsage",
    "Name": "Transmit and Log Platform Power Usage",
    "MetricReportDefinitionType": "Periodic",
    "Schedule": {
        "RecurrenceInterval": "PT1H"
    },
    "ReportActions": [
        "RedfishEvent",
        "LogToMetricReportsCollection"
    ],
    "ReportUpdates": "AppendWrapsWhenFull",
    "AppendLimit": 256,
    "MetricReport": {
        "@odata.id": "/redfish/v1/TelemetryService/MetricReports/PlatformPowerUsage"
    },
    "Status": {
        "State": "Enabled"
    },
    "Wildcards": [
        {
            "Name": "PWild",
            "Values": [
                "0"
            ]
        },
        {
            "Name": "TWild",
            "Values": [
                "Tray_1",
                "Tray_2"
            ]
        }
```

```
        ],
        "MetricProperties": [
            "/redfish/v1/Chassis/{TWild}/Power#/PowerControl/{PWild}/PowerConsumedWatts"
        ],
        "@odata.id": "/redfish/v1/TelemetryService/MetricReportDefinitions/PlatformPowerUsage"
    }
```

6.85 NetworkAdapter 1.12.1

Version	*v1.12*	*v1.11*	*v1.10*	*v1.9*	*v1.8*	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	...
Release	2025.2	2024.1	2023.3	2021.4	2021.2	2021.1	2020.4	2020.3	2020.2	2019.2	2018.2	...

6.85.1 Description

The `NetworkAdapter` schema represents a physical network adapter capable of connecting to a computer network. Examples include but are not limited to Ethernet, Fibre Channel, and converged network adapters.

6.85.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*

6.85.3 Properties

Property	Type	Attributes	Notes
Assembly *(v1.1+)* {	object		The link to the assembly resource associated with this adapter. See the *Assembly* schema for details on this property.
@odata.id	string	*read-only*	Link to a Assembly resource. See the Links section and the *Assembly* schema for details.
}			
Certificates *(v1.6+)* {	object		The link to a collection of certificates for device identity and attestation. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			

Property	Type	Attributes	Notes
Controllers [{	array		The set of network controllers ASICs that make up this NetworkAdapter.
ControllerCapabilities {	object		The capabilities of this controller.
DataCenterBridging {	object		Data center bridging (DCB) for this controller.
Capable	boolean	*read-only (null)*	An indication of whether this controller is capable of data center bridging (DCB).
}			
NetworkDeviceFunctionCount	integer	*read-only (null)*	The maximum number of physical functions available on this controller.
NetworkPortCount	integer	*read-only (null)*	The number of physical ports on this controller.
NPAR *(v1.2+)* {	object		NIC Partitioning (NPAR) capabilities for this controller.
NparCapable *(v1.2+)*	boolean	*read-only (null)*	An indication of whether the controller supports NIC function partitioning.
NparEnabled *(v1.2+)*	boolean	*read-write (null)*	An indication of whether NIC function partitioning is active on this controller.
}			
NPIV {	object		N_Port ID Virtualization (NPIV) capabilities for this controller.
MaxDeviceLogins	integer	*read-only (null)*	The maximum number of N_Port ID Virtualization (NPIV) logins allowed simultaneously from all ports on this controller.
MaxPortLogins	integer	*read-only (null)*	The maximum number of N_Port ID Virtualization (NPIV) logins allowed per physical port on this controller.
}			
VirtualizationOffload {	object		Virtualization offload for this controller.
SRIOV {	object		Single-root input/output virtualization (SR-IOV) capabilities.
SRIOVEnabled *(v1.12+)*	boolean	*read-write*	An indication of whether single root input/output virtualization (SR-IOV) is enabled for this controller.
SRIOVVEPACapable	boolean	*read-only (null)*	An indication of whether this controller supports single root input/output virtualization (SR-IOV) in Virtual Ethernet Port Aggregator (VEPA) mode.
}			

Property	Type	Attributes	Notes
VirtualFunction {	object		The virtual function of the controller.
DeviceMaxCount	integer	*read-only (null)*	The maximum number of virtual functions supported by this controller.
MinAssignmentGroupSize	integer	*read-only (null)*	The minimum number of virtual functions that can be allocated or moved between physical functions for this controller.
NetworkPortMaxCount	integer	*read-only (null)*	The maximum number of virtual functions supported per network port for this controller.
}			
}			
}			
FirmwarePackageVersion	string	*read-only (null)*	The version of the user-facing firmware package.
Identifiers *(v1.3+)* [{ }]	array (object)		The durable names for the network adapter controller. For property details, see Identifier.
Links {	object		The links to other resources that are related to this resource.
ActiveSoftwareImage *(v1.10+)* {	object		The link to the software inventory resource that represents the active firmware image for this controller. See the *SoftwareInventory* schema for details on this property.
@odata.id	string	*read-write*	Link to a SoftwareInventory resource. See the Links section and the *SoftwareInventory* schema for details.
}			
NetworkDeviceFunctions [{	array		An array of links to the network device functions associated with this network controller.
@odata.id	string	*read-only*	Link to a NetworkDeviceFunction resource. See the Links section and the *NetworkDeviceFunction* schema for details.
}]			
NetworkPorts *(deprecated v1.5)* [{	array		An array of links to the network ports associated with this network controller. *Deprecated in v1.5 and later. This property has been deprecated in favor of the* `Ports` *property.*
@odata.id	string	*read-only*	Link to a NetworkPort resource. See the Links section and the *NetworkPort* schema for details.
}]			

Property	Type	Attributes	Notes
Oem {}	object		See the Oem object definition in the Common properties section.
PCIeDevices [{	array		An array of links to the PCIe devices associated with this network controller.
@odata.id	string	*read-only*	Link to a PCIeDevice resource. See the Links section and the *PCIeDevice* schema for details.
}]			
Ports *(v1.5+)* [{	array		An array of links to the ports associated with this network controller.
@odata.id	string	*read-only*	Link to a Port resource. See the Links section and the *Port* schema for details.
}]			
SoftwareImages *(v1.10+)* [{	array		The images that are associated with this controller.
@odata.id	string	*read-only*	Link to a SoftwareInventory resource. See the Links section and the *SoftwareInventory* schema for details.
}]			
}			
Location *(v1.1+)* {}	object		The location of the network adapter controller. For property details, see Location.
PCIeInterface *(v1.2+)* {	object		The PCIe interface details for this controller.
LanesInUse *(v1.3+)*	integer	*read-only (null)*	The number of PCIe lanes in use by this device.
MaxLanes *(v1.3+)*	integer	*read-only (null)*	The number of PCIe lanes supported by this device.
MaxPCIeType *(v1.3+)*	string (enum)	*read-only (null)*	The highest version of the PCIe specification supported by this device. *For the possible property values, see MaxPCIeType in Property details.*
Oem *(v1.3+)* {}	object		See the Oem object definition in the Common properties section.
PCIeType *(v1.3+)*	string (enum)	*read-only (null)*	The version of the PCIe specification in use by this device. *For the possible property values, see PCIeType in Property details.*
}			
}]			

Property	Type	Attributes	Notes
EnvironmentMetrics *(v1.7+)* {	object		The link to the environment metrics for this network adapter. See the *EnvironmentMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a EnvironmentMetrics resource. See the Links section and the *EnvironmentMetrics* schema for details.
}			
Identifiers *(v1.4+)* [{ }]	array (object)		The durable names for the network adapter. For property details, see Identifier.
LLDPEnabled *(v1.7+)*	boolean	*read-write*	Enable or disable LLDP globally for an adapter.
Location *(v1.4+)* {}	object		The location of the network adapter. For property details, see Location.
Manufacturer	string	*read-only (null)*	The manufacturer or OEM of this network adapter.
Measurements *(v1.6+, deprecated v1.9)* [{	array		An array of DSP0274-defined measurement blocks. *Deprecated in v1.9 and later. This property has been deprecated in favor of the* `ComponentIntegrity` *resource.*
@odata.id	string	*read-only*	Link to a MeasurementBlock resource. See the Links section and the *SoftwareInventory* schema for details.
}]			
Metrics *(v1.7+)* {	object	*(null)*	The link to the metrics associated with this adapter. See the *NetworkAdapterMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a NetworkAdapterMetrics resource. See the Links section and the *NetworkAdapterMetrics* schema for details.
}			
Model	string	*read-only (null)*	The model string for this network adapter.
NetworkDeviceFunctions {	object		The link to the collection of network device functions associated with this network adapter. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *NetworkDeviceFunction*. See the NetworkDeviceFunction schema for details.
}			
NetworkPorts *(deprecated v1.5)* {	object		The link to the collection of network ports associated with this network adapter. Contains a link to a resource. *Deprecated in v1.5 and later. This property has been deprecated in favor of the* `Ports` *property.*

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to Collection of *NetworkPort*. See the NetworkPort schema for details.
}			
PartNumber	string	*read-only* *(null)*	Part number for this network adapter.
Ports *(v1.5+)* {	object		The link to the collection of ports associated with this network adapter. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Port*. See the Port schema for details.
}			
Processors *(v1.8+)* {	object		The link to the collection of offload processors contained in this network adapter. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Processor*. See the Processor schema for details.
}			
SerialNumber	string	*read-only* *(null)*	The serial number for this network adapter.
SKU	string	*read-only* *(null)*	The manufacturer SKU for this network adapter.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.85.4 Actions

6.85.4.1 Reset *(v1.11+)*

Description

This action resets the network adapter.

Action URI

{Base URI of target resource}/Actions/NetworkAdapter.Reset

Action parameters

Parameter Name	Type	Attributes	Notes
ResetType	string (enum)	*optional*	The type of reset. *For the possible property values, see ResetType in Property details.*

Request Example

```
{
    "ResetType": "ForceRestart"
}
```

6.85.4.2 ResetSettingsToDefault

Description

This action is to clear the settings back to factory defaults.

Action URI

{Base URI of target resource}/Actions/NetworkAdapter.ResetSettingsToDefault

Action parameters

This action takes no parameters.

6.85.5 Property details

6.85.5.1 MaxPCIeType

The highest version of the PCIe specification supported by this device.

string	Description
Gen1	A PCIe v1.0 slot.
Gen2	A PCIe v2.0 slot.
Gen3	A PCIe v3.0 slot.
Gen4	A PCIe v4.0 slot.
Gen5	A PCIe v5.0 slot.

string	Description
Gen6 *(v1.16+)*	A PCIe v6.0 slot.

6.85.5.2 PCIeType

The version of the PCIe specification in use by this device.

string	Description
Gen1	A PCIe v1.0 slot.
Gen2	A PCIe v2.0 slot.
Gen3	A PCIe v3.0 slot.
Gen4	A PCIe v4.0 slot.
Gen5	A PCIe v5.0 slot.
Gen6 *(v1.16+)*	A PCIe v6.0 slot.

6.85.5.3 ResetType

The type of reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the unit.
FullPowerCycle	Full power cycle the unit. Behaves like removing utility lines, followed by restoring utility lines to the resource.
GracefulRestart	Shut down gracefully and restart the unit.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.

string	Description
Pause	Pause execution on the unit but do not remove power. This is typically a feature of virtual machine hypervisors.
PowerCycle	Power cycle the unit. Behaves like a power removal, followed by a power restore to the resource.
PushPowerButton	Simulate the pressing of the physical power button on this unit.
Resume	Resume execution on the paused unit. This is typically a feature of virtual machine hypervisors.
Suspend	Write the state of the unit to disk before powering off. This allows for the state to be restored when powered back on.

6.85.6 Example response


```
{
    "@odata.type": "#NetworkAdapter.v1_12_1.NetworkAdapter",
    "Id": "9fa725a1",
    "Name": "Network Adapter View",
    "Manufacturer": "Contoso",
    "Model": "599TPS-T",
    "SKU": "Contoso TPS-Net 2-Port Base-T",
    "SerialNumber": "003BFLRT00023234",
    "PartNumber": "975421-B20",
    "Ports": {
        "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/Ports"
    },
    "NetworkDeviceFunctions": {
        "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/NetworkDeviceFunctions"
    },
    "Controllers": [
        {
            "FirmwarePackageVersion": "7.4.10",
            "Links": {
                "PCIeDevices": [
                    {
                        "@odata.id": "/redfish/v1/Systems/1/PCIeDevices/NIC"
                    }
                ],
                "Ports": [
                    {
                        "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/Ports/1"
                    }
                ],
                "NetworkDeviceFunctions": [
                    {
                        "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/
     NetworkDeviceFunctions/111111111100"
```

```
                }
            ]
        },
        "ControllerCapabilities": {
            "NetworkPortCount": 2,
            "NetworkDeviceFunctionCount": 8,
            "DataCenterBridging": {
                "Capable": true
            },
            "VirtualizationOffload": {
                "VirtualFunction": {
                    "DeviceMaxCount": 256,
                    "NetworkPortMaxCount": 128,
                    "MinAssignmentGroupSize": 4
                },
                "SRIOV": {
                    "SRIOVEnabled": true,
                    "SRIOVVEPACapable": true
                }
            },
            "NPIV": {
                "MaxDeviceLogins": 4,
                "MaxPortLogins": 2
            },
            "NPAR": {
                "NparCapable": true,
                "NparEnabled": false
            }
        },
        "PCIeInterface": {
            "PCIeType": "Gen2",
            "MaxPCIeType": "Gen3",
            "LanesInUse": 1,
            "MaxLanes": 4
        },
        "Location": {
            "PartLocation": {
                "ServiceLabel": "Slot 1",
                "LocationType": "Slot",
                "LocationOrdinalValue": 0,
                "Reference": "Rear",
                "Orientation": "LeftToRight"
            }
        }
    }
],
"Actions": {
    "#NetworkAdapter.ResetSettingsToDefault": {
        "target": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/Actions/
     NetworkAdapter.ResetSettingsToDefault"
    }
```

```
    },
    "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1"
}
```

6.86 NetworkAdapterMetrics 1.1.0

Version	*v1.1*	*v1.0*
Release	2024.1	2021.1

6.86.1 Description

The NetworkAdapterMetrics schema contains usage and health statistics for a network adapter.

6.86.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Metrics

6.86.3 Properties

Property	Type	Attributes	Notes
CPUCorePercent	number (%)	*read-only (null)*	The device CPU core utilization as a percentage.
HostBusRXPercent	number (%)	*read-only (null)*	The host bus, such as PCIe, RX utilization as a percentage.
HostBusTXPercent	number (%)	*read-only (null)*	The host bus, such as PCIe, TX utilization as a percentage.
NCSIRXBytes	integer (bytes)	*read-only (null)*	The total number of NC-SI bytes received since reset.
NCSIRXFrames	integer	*read-only (null)*	The total number of NC-SI frames received since reset.
NCSITXBytes	integer (bytes)	*read-only (null)*	The total number of NC-SI bytes sent since reset.
NCSITXFrames	integer	*read-only (null)*	The total number of NC-SI frames sent since reset.

Property	Type	Attributes	Notes
RXBytes	integer (bytes)	*read-only (null)*	The total number of bytes received since reset.
RXMulticastFrames	integer	*read-only (null)*	The total number of good multicast frames received since reset.
RXUnicastFrames	integer	*read-only (null)*	The total number of good unicast frames received since reset.
TXBytes	integer (bytes)	*read-only (null)*	The total number of bytes transmitted since reset.
TXMulticastFrames	integer	*read-only (null)*	The total number of good multicast frames transmitted since reset.
TXUnicastFrames	integer	*read-only (null)*	The total number of good unicast frames transmitted since reset.

6.86.4 Actions

6.86.4.1 ResetMetrics *(v1.1+)*

Description

This action resets the summary metrics related to this device.

Action URI

{Base URI of target resource}/Actions/NetworkAdapterMetrics.ResetMetrics

Action parameters

This action takes no parameters.

6.86.5 Example response


```
{
    "@odata.type": "#NetworkAdapterMetrics.v1_1_0.NetworkAdapterMetrics",
    "Id": "NetworkAdapterMetrics",
    "Name": "Network Adapter Metrics",
    "HostBusRXPercent": 35.53,
    "HostBusTXPercent": 14.17,
    "CPUCorePercent": 8.35,
```

```
    "NCSIRXFrames": 0,
    "NCSITXFrames": 0,
    "NCSIRXBytes": 0,
    "NCSITXBytes": 0,
    "RXBytes": 7754199970,
    "RXMulticastFrames": 1941,
    "RXUnicastFrames": 27193387,
    "TXBytes": 9436506547,
    "TXMulticastFrames": 153,
    "TXUnicastFrames": 18205770,
    "@odata.id": "/redfish/v1/Chassis/1U/NetworkAdapters/Slot1/Metrics"
}
```


6.87 NetworkDeviceFunction 1.11.0

Version	*v1.11*	*v1.10*	*v1.9*	*v1.8*	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	...
Release	2025.2	2025.1	2022.2	2021.4	2021.2	2021.1	2020.3	2020.1	2018.2	2017.3	2017.1	...

6.87.1 Description

The `NetworkDeviceFunction` schema represents a logical interface that a network adapter exposes.

6.87.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/NetworkDeviceFunctions/*{NetworkDeviceFunctionId}*

6.87.3 Properties

Property	Type	Attributes	Notes
AllowDeny *(v1.7+)* {	object		The link to the collection of allow and deny permissions for packets leaving and arriving to this network device function. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *AllowDeny*. See the AllowDeny schema for details.
}			
AssignablePhysicalNetworkPorts *(v1.5+)* [{	array		An array of physical ports to which this network device function can be assigned.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a Port resource. See the Links section and the *Port* schema for details.
}]			
AssignablePhysicalPorts *(deprecated v1.5)* [{	array		An array of physical ports to which this network device function can be assigned. *Deprecated in v1.5 and later. This property has been deprecated in favor of the* `AssignablePhysicalNetworkPorts` *property.*
@odata.id	string	*read-only*	Link to a NetworkPort resource. See the Links section and the *NetworkPort* schema for details.
}]			
BootMode	string (enum)	*read-write (null)*	The boot mode configured for this network device function. *For the possible property values, see BootMode in Property details.*
DeviceEnabled	boolean	*read-write (null)*	An indication of whether the network device function is enabled.
Ethernet {	object		The Ethernet capabilities, status, and configuration values for this network device function.
AdditionalProtocols *(v1.10+)* [ ]	array (string (enum))	*read-only*	The protocols supported by the hardware or firmware on the device. *For the possible property values, see AdditionalProtocols in Property details.*
EthernetInterfaces *(v1.7+)* {	object	*(null)*	The Ethernet interface collection that contains the interfaces on this network device function. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *EthernetInterface*. See the EthernetInterface schema for details.
}			
MACAddress	string	*read-write (null)*	The currently configured MAC address.
MTUSize	integer	*read-write (null)*	The hardware maximum transmission unit (MTU) configured for this network device function.
MTUSizeMaximum *(v1.5+)*	integer	*read-only (null)*	The largest maximum transmission unit (MTU) size supported for this network device function.
PermanentMACAddress	string	*read-only (null)*	The permanent MAC address assigned to this function.
VLAN *(v1.3+)* {	object		The VLAN information for this interface. If this network interface supports more than one VLAN, this property is not present.

Property	Type	Attributes	Notes
Tagged *(v1.3+)*	boolean	*read-write (null)*	An indication of whether this VLAN is tagged or untagged for this interface.
VLANEnable	boolean	*read-write required on create (null)*	An indication of whether this VLAN is enabled for this VLAN network interface.
VLANId	integer	*read-write required on create (null)*	The ID for this VLAN.
VLANPriority *(v1.2+)*	integer	*read-write (null)*	The priority for this VLAN.
}			
VLANs *(v1.3+, deprecated v1.7)* {	object		The link to a collection of VLANs. This property is used only if the interface supports more than one VLAN. Contains a link to a resource. *Deprecated in v1.7 and later. This property has been deprecated in favor of representing multiple VLANs as* `EthernetInterface` *resources.*
@odata.id	string	*read-only*	Link to Collection of *VLanNetworkInterface*. See the VLanNetworkInterface schema for details.
}			
}			
FibreChannel {	object		The Fibre Channel capabilities, status, and configuration values for this network device function.
AllowFIPVLANDiscovery	boolean	*read-write (null)*	An indication of whether the FCoE Initialization Protocol (FIP) populates the FCoE VLAN ID.
BootTargets [{	array		An array of Fibre Channel boot targets configured for this network device function.
BootPriority	integer	*read-write (null)*	The relative priority for this entry in the boot targets array.
LUNID	string	*read-write (null)*	The logical unit number (LUN) ID from which to boot on the device to which the corresponding WWPN refers.
WWPN	string	*read-write (null)*	The World Wide Port Name (WWPN) from which to boot.
}]			

Property	Type	Attributes	Notes
FCoEActiveVLANId	integer	*read-only (null)*	The active FCoE VLAN ID.
FCoELocalVLANId	integer	*read-write (null)*	The locally configured FCoE VLAN ID.
FibreChannelId *(v1.3+)*	string	*read-only (null)*	The Fibre Channel ID that the switch assigns for this interface.
PermanentWWNN	string	*read-only (null)*	The permanent World Wide Node Name (WWNN) address assigned to this function.
PermanentWWPN	string	*read-only (null)*	The permanent World Wide Port Name (WWPN) address assigned to this function.
WWNN	string	*read-write (null)*	The currently configured World Wide Node Name (WWNN) address of this function.
WWNSource	string (enum)	*read-write (null)*	The configuration source of the World Wide Names (WWN) for this World Wide Node Name (WWNN) and World Wide Port Name (WWPN) connection. *For the possible property values, see WWNSource in Property details.*
WWPN	string	*read-write (null)*	The currently configured World Wide Port Name (WWPN) address of this function.
}			
HTTPBoot *(v1.9+)* {	object		The HTTP and HTTPS boot capabilities, status, and configuration values for this network device function.
BootMediaURI *(v1.9+)*	string (URI)	*read-write (null)*	The URI of the boot media loaded with this network device function.
}			
InfiniBand *(v1.5+)* {	object		The InfiniBand capabilities, status, and configuration values for this network device function.
MTUSize *(v1.5+)*	integer	*read-write (null)*	The maximum transmission unit (MTU) configured for this network device function.
NodeGUID *(v1.5+)*	string	*read-only (null)*	This is the currently configured node GUID of the network device function.
PermanentNodeGUID *(v1.5+)*	string	*read-only (null)*	The permanent node GUID assigned to this network device function.
PermanentPortGUID *(v1.5+)*	string	*read-only (null)*	The permanent port GUID assigned to this network device function.

Property	Type	Attributes	Notes
PermanentSystemGUID *(v1.5+)*	string	*read-only (null)*	The permanent system GUID assigned to this network device function.
PortGUID *(v1.5+)*	string	*read-only (null)*	The currently configured port GUID of the network device function.
SupportedMTUSizes *(v1.5+)* [ ]	array (integer, null)	*read-only*	The maximum transmission unit (MTU) sizes supported for this network device function.
SystemGUID *(v1.5+)*	string	*read-only (null)*	This is the currently configured system GUID of the network device function.
}			
iSCSIBoot {	object		The iSCSI boot capabilities, status, and configuration values for this network device function.
AuthenticationMethod	string (enum)	*read-write (null)*	The iSCSI boot authentication method for this network device function. *For the possible property values, see AuthenticationMethod in Property details.*
CHAPSecret	string	*read-write (null)*	The shared secret for CHAP authentication.
CHAPUsername	string	*read-write (null)*	The username for CHAP authentication.
InitiatorDefaultGateway	string	*read-write (null)*	The IPv6 or IPv4 iSCSI boot default gateway.
InitiatorIPAddress	string	*read-write (null)*	The IPv6 or IPv4 address of the iSCSI initiator.
InitiatorName	string	*read-write (null)*	The iSCSI initiator name.
InitiatorNetmask	string	*read-write (null)*	The IPv6 or IPv4 netmask of the iSCSI boot initiator.
IPAddressType	string (enum)	*read-write (null)*	The type of IP address being populated in the iSCSIBoot IP address fields. *For the possible property values, see IPAddressType in Property details.*
IPMaskDNSViaDHCP	boolean	*read-write (null)*	An indication of whether the iSCSI boot initiator uses DHCP to obtain the initiator name, IP address, and netmask.
MutualCHAPSecret	string	*read-write (null)*	The CHAP secret for two-way CHAP authentication.

Property	Type	Attributes	Notes
MutualCHAPUsername	string	*read-write (null)*	The CHAP username for two-way CHAP authentication.
PrimaryDNS	string	*read-write (null)*	The IPv6 or IPv4 address of the primary DNS server for the iSCSI boot initiator.
PrimaryLUN	integer	*read-write (null)*	The logical unit number (LUN) for the primary iSCSI boot target.
PrimaryTargetIPAddress	string	*read-write (null)*	The IPv4 or IPv6 address for the primary iSCSI boot target.
PrimaryTargetName	string	*read-write (null)*	The name of the iSCSI primary boot target.
PrimaryTargetTCPPort	integer	*read-write (null)*	The TCP port for the primary iSCSI boot target.
PrimaryVLANEnable	boolean	*read-write (null)*	An indication of whether the primary VLAN is enabled.
PrimaryVLANId	integer	*read-write (null)*	The 802.1q VLAN ID to use for iSCSI boot from the primary target.
RouterAdvertisementEnabled	boolean	*read-write (null)*	An indication of whether IPv6 router advertisement is enabled for the iSCSI boot target.
SecondaryDNS	string	*read-write (null)*	The IPv6 or IPv4 address of the secondary DNS server for the iSCSI boot initiator.
SecondaryLUN	integer	*read-write (null)*	The logical unit number (LUN) for the secondary iSCSI boot target.
SecondaryTargetIPAddress	string	*read-write (null)*	The IPv4 or IPv6 address for the secondary iSCSI boot target.
SecondaryTargetName	string	*read-write (null)*	The name of the iSCSI secondary boot target.
SecondaryTargetTCPPort	integer	*read-write (null)*	The TCP port for the secondary iSCSI boot target.
SecondaryVLANEnable	boolean	*read-write (null)*	An indication of whether the secondary VLAN is enabled.
SecondaryVLANId	integer	*read-write (null)*	The 802.1q VLAN ID to use for iSCSI boot from the secondary target.
TargetInfoViaDHCP	boolean	*read-write (null)*	An indication of whether the iSCSI boot target name, LUN, IP address, and netmask should be obtained from DHCP.

Property	Type	Attributes	Notes
}			
Limits *(v1.7+)* [{	array		The byte and packet limits for this network device function.
BurstBytesPerSecond *(v1.7+)*	integer	*read-write (null)*	The maximum number of bytes per second in a burst for this network device function.
BurstPacketsPerSecond *(v1.7+)*	integer	*read-write (null)*	The maximum number of packets per second in a burst for this network device function.
Direction *(v1.7+)*	string (enum)	*read-write (null)*	Indicates the direction of the data to which this limit applies. *For the possible property values, see Direction in Property details.*
SustainedBytesPerSecond *(v1.7+)*	integer	*read-write (null)*	The maximum number of sustained bytes per second for this network device function.
SustainedPacketsPerSecond *(v1.7+)*	integer	*read-write (null)*	The maximum number of sustained packets per second for this network device function.
}]			
Links {	object		The links to other resources that are related to this resource.
Endpoints *(v1.2+)* [{	array		An array of links to endpoints associated with this network device function.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
EthernetInterface *(v1.4+, deprecated v1.7)* {	object		The link to a virtual Ethernet interface that was created when one of the network device function VLANs is represented as a virtual NIC for the purpose of showing the IP address associated with that VLAN. See the *EthernetInterface* schema for details on this property. *Deprecated in v1.7 and later. This property has been deprecated in favor of* `EthernetInterfaces` *as each* `NetworkDeviceFunction` *could have more than one* `EthernetInterface`.
@odata.id	string	*read-only*	Link to a EthernetInterface resource. See the Links section and the *EthernetInterface* schema for details.
}			
EthernetInterfaces *(v1.7+)* [{	array		The system Ethernet interfaces that use this network device function. This includes physical Ethernet interfaces or VLANs. Each member of this property is subordinate a `ComputerSystem` resource.
@odata.id	string	*read-only*	Link to a EthernetInterface resource. See the Links section and the *EthernetInterface* schema for details.

Property	Type	Attributes	Notes
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
OffloadProcessors *(v1.7+)* [{	array		The processors that perform offload computation for this network function, such as with a SmartNIC.
@odata.id	string	*read-only*	Link to a Processor resource. See the Links section and the *Processor* schema for details.
}]			
OffloadSystem *(v1.7+)* {	object		The system that performs offload computation for this network function, such as with a SmartNIC. See the *ComputerSystem* schema for details on this property.
@odata.id	string	*read-only*	Link to a ComputerSystem resource. See the Links section and the *ComputerSystem* schema for details.
}			
PCIeFunction {	object		The link to the PCIe function associated with this network device function. See the *PCIeFunction* schema for details on this property.
@odata.id	string	*read-only*	Link to a PCIeFunction resource. See the Links section and the *PCIeFunction* schema for details.
}			
PhysicalNetworkPortAssignment *(v1.5+)* {	object		The physical port to which this network device function is currently assigned. See the *Port* schema for details on this property.
@odata.id	string	*read-only*	Link to a Port resource. See the Links section and the *Port* schema for details.
}			
PhysicalPortAssignment *(v1.3+, deprecated v1.5)* {	object		The physical port to which this network device function is currently assigned. See the *NetworkPort* schema for details on this property. *Deprecated in v1.5 and later. This property has been deprecated in favor of the* `PhysicalNetworkPortAssignment` *property.*
@odata.id	string	*read-only*	Link to a NetworkPort resource. See the Links section and the *NetworkPort* schema for details.
}			
}			
MaxVirtualFunctions	integer	*read-only* *(null)*	The number of virtual functions that are available for this network device function.

Property	Type	Attributes	Notes
Metrics *(v1.6+)* {	object	*(null)*	The link to the metrics associated with this network function. See the *NetworkDeviceFunctionMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a NetworkDeviceFunctionMetrics resource. See the Links section and the *NetworkDeviceFunctionMetrics* schema for details.
}			
NetDevFuncCapabilities [ ]	array (string (enum))	*read-only* *(null)*	An array of capabilities for this network device function. *For the possible property values, see NetDevFuncCapabilities in Property details.*
NetDevFuncType	string (enum)	*read-write* *(null)*	The configured capability of this network device function. *For the possible property values, see NetDevFuncType in Property details.*
PhysicalNetworkPortAssignment *(v1.5+, deprecated v1.8)* {	object		The physical port to which this network device function is currently assigned. See the *Port* schema for details on this property. *Deprecated in v1.8 and later. This property has been deprecated in favor of* `PhysicalNetworkPortAssignment` *within* `Links` *to avoid loops on expand.*
@odata.id	string	*read-only*	Link to a Port resource. See the Links section and the *Port* schema for details.
}			
PhysicalPortAssignment *(deprecated v1.3)* {	object		The physical port to which this network device function is currently assigned. See the *NetworkPort* schema for details on this property. *Deprecated in v1.3 and later. This property has been deprecated and moved to the* `Links` *property to avoid loops on expand.*
@odata.id	string	*read-only*	Link to a NetworkPort resource. See the Links section and the *NetworkPort* schema for details.
}			
SAVIEnabled *(v1.7+)*	boolean	*read-write* *(null)*	Indicates if Source Address Validation Improvement (SAVI) is enabled for this network device function.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
VirtualFunctionAllocation *(v1.11+)*	integer	*read-write*	The number of virtual functions allocated to this device.
VirtualFunctionsEnabled	boolean	*read-only* *(null)*	An indication of whether single root input/output virtualization (SR-IOV) virtual functions are enabled for this network device function.

6.87.4 Property details

6.87.4.1 AdditionalProtocols

The protocols supported by the hardware or firmware on the device.

string	Description
AHCI	Advanced Host Controller Interface (AHCI).
CXL	Compute Express Link.
DisplayPort	DisplayPort.
DVI	DVI.
eMMC	Embedded MultiMediaCard (e.MMC).
Ethernet	Ethernet.
FC	Fibre Channel.
FCoE	Fibre Channel over Ethernet (FCoE).
FCP	Fibre Channel Protocol for SCSI.
FICON	FIbre CONnection (FICON).
FTP	File Transfer Protocol (FTP).
GenZ	GenZ.
HDMI	HDMI.
HTTP	Hypertext Transport Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
I2C	Inter-Integrated Circuit Bus.
InfiniBand	InfiniBand.
iSCSI	Internet SCSI.
iWARP	Internet Wide Area RDMA Protocol (iWARP).
MultiProtocol	Multiple Protocols.
NFSv3	Network File System (NFS) version 3.
NFSv4	Network File System (NFS) version 4.

string	Description
NVLink	NVLink.
NVMe	Non-Volatile Memory Express (NVMe).
NVMeOverFabrics	NVMe over Fabrics.
OEM	OEM-specific.
PCIe	PCI Express.
QPI	Intel QuickPath Interconnect (QPI).
RoCE	RDMA over Converged Ethernet Protocol.
RoCEv2	RDMA over Converged Ethernet Protocol Version 2.
SAS	Serial Attached SCSI.
SATA	Serial AT Attachment.
SFTP	SSH File Transfer Protocol (SFTP).
SMB	Server Message Block (SMB). Also known as the Common Internet File System (CIFS).
TCP	Transmission Control Protocol (TCP).
TFTP	Trivial File Transfer Protocol (TFTP).
UDP	User Datagram Protocol (UDP).
UET	Ultra Ethernet Transport.
UHCI	Universal Host Controller Interface (UHCI).
UPI	Intel UltraPath Interconnect (UPI).
USB	Universal Serial Bus (USB).
VGA	VGA.

6.87.4.2 AuthenticationMethod

The iSCSI boot authentication method for this network device function.

string	Description
CHAP	iSCSI Challenge Handshake Authentication Protocol (CHAP) authentication is used.
MutualCHAP	iSCSI Mutual Challenge Handshake Authentication Protocol (CHAP) authentication is used.

string	Description
None	No iSCSI authentication is used.

6.87.4.3 BootMode

The boot mode configured for this network device function.

string	Description
Disabled	Do not indicate to UEFI/BIOS that this device is bootable.
FibreChannel	Boot this device by using the embedded Fibre Channel support and configuration. Only applicable if the `NetDevFuncType` is `FibreChannel`.
FibreChannelOverEthernet	Boot this device by using the embedded Fibre Channel over Ethernet (FCoE) boot support and configuration. Only applicable if the `NetDevFuncType` is `FibreChannelOverEthernet`.
HTTP *(v1.9+)*	Boot this device by using the embedded HTTP/HTTPS support. Only applicable if the `NetDevFuncType` is `Ethernet`.
iSCSI	Boot this device by using the embedded iSCSI boot support and configuration. Only applicable if the `NetDevFuncType` is `iSCSI` or `Ethernet`.
PXE	Boot this device by using the embedded PXE support. Only applicable if the `NetDevFuncType` is `Ethernet` or `InfiniBand`.

6.87.4.4 Direction

Indicates the direction of the data to which this limit applies.

string	Description
Egress	Indicates that this limit is enforced on packets and bytes transmitted by the network device function.
Ingress	Indicates that this limit is enforced on packets and bytes received by the network device function.
None	Indicates that this limit not enforced.

6.87.4.5 IPAddressType

The type of IP address being populated in the iSCSIBoot IP address fields.

string	Description
IPv4	IPv4 addressing is used for all IP-fields in this object.
IPv6	IPv6 addressing is used for all IP-fields in this object.

6.87.4.6 NetDevFuncCapabilities

An array of capabilities for this network device function.

string	Description
Disabled	Neither enumerated nor visible to the operating system.
Ethernet	Appears to the operating system as an Ethernet device.
FibreChannel	Appears to the operating system as a Fibre Channel device.
FibreChannelOverEthernet	Appears to the operating system as an FCoE device.
InfiniBand	Appears to the operating system as an InfiniBand device.
iSCSI	Appears to the operating system as an iSCSI device.

6.87.4.7 NetDevFuncType

The configured capability of this network device function.

string	Description
Disabled	Neither enumerated nor visible to the operating system.
Ethernet	Appears to the operating system as an Ethernet device.
FibreChannel	Appears to the operating system as a Fibre Channel device.
FibreChannelOverEthernet	Appears to the operating system as an FCoE device.
InfiniBand *(v1.5+)*	Appears to the operating system as an InfiniBand device.
iSCSI	Appears to the operating system as an iSCSI device.

6.87.4.8 WWNSource

The configuration source of the World Wide Names (WWN) for this World Wide Node Name (WWNN) and World Wide Port Name (WWPN) connection.

string	Description
ConfiguredLocally	The set of FC/FCoE boot targets was applied locally through API or UI.
ProvidedByFabric	The set of FC/FCoE boot targets was applied by the Fibre Channel fabric.

6.87.5 Example response


```
{
    "@odata.type": "#NetworkDeviceFunction.v1_11_0.NetworkDeviceFunction",
    "Id": "111111111100",
    "Name": "Network Device Function View",
    "NetDevFuncType": "Ethernet",
    "DeviceEnabled": true,
    "NetDevFuncCapabilities": [
        "Ethernet",
        "FibreChannel"
    ],
    "Ethernet": {
        "PermanentMACAddress": "00:0C:29:9A:98:ED",
        "MACAddress": "00:0C:29:9A:98:ED",
        "MTUSize": 1500,
        "VLAN": {
            "VLANEnable": true,
            "VLANId": 101
        }
    },
    "iSCSIBoot": {
        "IPAddressType": "IPv4",
        "InitiatorIPAddress": "16.0.11.6",
        "InitiatorName": "iqn.2005-03.com.acme:database-server",
        "InitiatorDefaultGateway": "169.0.16.1",
        "InitiatorNetmask": "255.255.252.0",
        "TargetInfoViaDHCP": false,
        "PrimaryTargetName": "iqn.2005-03.com.acme:image-server",
        "PrimaryTargetIPAddress": "169.0.15.1",
        "PrimaryTargetTCPPort": 3260,
        "PrimaryLUN": 5,
        "PrimaryVLANEnable": true,
        "PrimaryVLANId": 1001,
        "PrimaryDNS": "16.0.10.21",
        "SecondaryTargetName": "iqn.2005-03.com.acme:image-server",
        "SecondaryTargetIPAddress": "16.0.11.5",
        "SecondaryTargetTCPPort": 3260,
        "SecondaryLUN": 5,
        "SecondaryVLANEnable": true,
        "SecondaryVLANId": 1002,
        "SecondaryDNS": "169.0.10.22",
```

```
        "IPMaskDNSViaDHCP": false,
        "RouterAdvertisementEnabled": false,
        "AuthenticationMethod": "CHAP",
        "CHAPUsername": "yosemite",
        "CHAPSecret": "usrpasswd",
        "MutualCHAPUsername": "yosemite",
        "MutualCHAPSecret": "usrpasswd"
    },
    "FibreChannel": {
        "PermanentWWPN": "10:00:B0:5A:DD:BB:74:E0",
        "PermanentWWNN": "10:00:B0:5A:DD:BB:A1:B3",
        "WWPN": "10:00:B0:5A:DD:BB:74:E0",
        "WWNN": "10:00:B0:5A:DD:C4:D3:BB",
        "WWNSource": "ConfiguredLocally",
        "FCoELocalVLANId": 1001,
        "AllowFIPVLANDiscovery": true,
        "FCoEActiveVLANId": 2001,
        "BootTargets": [
            {
                "WWPN": "10:00:B0:5A:DD:BB:74:FA",
                "LUNID": "3",
                "BootPriority": 0
            }
        ]
    },
    "AssignablePhysicalNetworkPorts": [
        {
            "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/Ports/1"
        }
    ],
    "BootMode": "Disabled",
    "VirtualFunctionsEnabled": true,
    "MaxVirtualFunctions": 16,
    "VirtualFunctionAllocation": 8,
    "Links": {
        "PCIeFunction": {
            "@odata.id": "/redfish/v1/Systems/1/PCIeDevices/NIC/PCIeFunctions/1"
        },
        "PhysicalNetworkPortAssignment": {
            "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/Ports/1"
        }
    },
    "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/NetworkDeviceFunctions/111111111100"
}
```

6.88 NetworkDeviceFunctionMetrics 1.2.0

Version	*v1.2*	*v1.1*	*v1.0*
Release	2024.1	2021.2	2021.1

6.88.1 Description

The `NetworkDeviceFunctionMetrics` schema contains usage and health statistics for a network function of a network adapter.

6.88.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/NetworkDeviceFunctions/*{NetworkDeviceFunctionId}*/Metrics

6.88.3 Properties

Property	Type	Attributes	Notes
Ethernet {	object		The network function metrics specific to Ethernet adapters.
NumOffloadedIPv4Conns	integer	*read-only (null)*	The total number of offloaded TCP/IPv4 connections.
NumOffloadedIPv6Conns	integer	*read-only (null)*	The total number of offloaded TCP/IPv6 connections.
}			
FibreChannel *(v1.1+)* {	object		The network function metrics specific to Fibre Channel adapters.
PortLoginAccepts *(v1.1+)*	integer	*read-only (null)*	The total number of port login (PLOGI) accept (ACC) responses.
PortLoginRejects *(v1.1+)*	integer	*read-only (null)*	The total number of port login (PLOGI) reject (RJT) responses.
PortLoginRequests *(v1.1+)*	integer	*read-only (null)*	The total number of port login (PLOGI) requests transmitted.
RXCongestionFPINs *(v1.1+)*	integer	*read-only (null)*	The total number of Congestion Fabric Performance Impact Notifications (FPINs) received.

Property	Type	Attributes	Notes
RXDeliveryFPINs *(v1.1+)*	integer	*read-only (null)*	The total number of Delivery Fabric Performance Impact Notifications (FPINs) received.
RXExchanges *(v1.1+)*	integer	*read-only (null)*	The total number of Fibre Channel exchanges received.
RXLinkIntegrityFPINs *(v1.1+)*	integer	*read-only (null)*	The total number of Link Integrity Fabric Performance Impact Notifications (FPINs) received.
RXPeerCongestionFPINs *(v1.1+)*	integer	*read-only (null)*	The total number of Peer Congestion Fabric Performance Impact Notifications (FPINs) received.
RXSequences *(v1.1+)*	integer	*read-only (null)*	The total number of Fibre Channel sequences received.
TXCongestionFPINs *(v1.1+)*	integer	*read-only (null)*	The total number of Congestion Fabric Performance Impact Notifications (FPINs) sent.
TXDeliveryFPINs *(v1.1+)*	integer	*read-only (null)*	The total number of Delivery Fabric Performance Impact Notifications (FPINs) sent.
TXExchanges *(v1.1+)*	integer	*read-only (null)*	The total number of Fibre Channel exchanges transmitted.
TXLinkIntegrityFPINs *(v1.1+)*	integer	*read-only (null)*	The total number of Link Integrity Fabric Performance Impact Notifications (FPINs) sent.
TXPeerCongestionFPINs *(v1.1+)*	integer	*read-only (null)*	The total number of Peer Congestion Fabric Performance Impact Notifications (FPINs) sent.
TXSequences *(v1.1+)*	integer	*read-only (null)*	The total number of Fibre Channel sequences transmitted.
}			
RXAvgQueueDepthPercent	number (%)	*read-only (null)*	The average RX queue depth as the percentage.
RXBytes	integer (bytes)	*read-only (null)*	The total number of bytes received on a network function.
RXFrames	integer	*read-only (null)*	The total number of frames received on a network function.
RXMulticastFrames	integer	*read-only (null)*	The total number of good multicast frames received on a network function since reset.
RXQueuesEmpty	boolean	*read-only (null)*	Whether nothing is in a network function's RX queues to DMA.

Property	Type	Attributes	Notes
RXQueuesFull	integer	*read-only (null)*	The number of RX queues that are full.
RXUnicastFrames	integer	*read-only (null)*	The total number of good unicast frames received on a network function since reset.
TXAvgQueueDepthPercent	number (%)	*read-only (null)*	The average TX queue depth as the percentage.
TXBytes	integer (bytes)	*read-only (null)*	The total number of bytes sent on a network function.
TXFrames	integer	*read-only (null)*	The total number of frames sent on a network function.
TXMulticastFrames	integer	*read-only (null)*	The total number of good multicast frames transmitted on a network function since reset.
TXQueuesEmpty	boolean	*read-only (null)*	Whether all TX queues for a network function are empty.
TXQueuesFull	integer	*read-only (null)*	The number of TX queues that are full.
TXUnicastFrames	integer	*read-only (null)*	The total number of good unicast frames transmitted on a network function since reset.

6.88.4 Actions

6.88.4.1 ResetMetrics *(v1.2+)*

Description

This action resets the summary metrics related to this device.

Action URI

{Base URI of target resource}/Actions/NetworkDeviceFunctionMetrics.ResetMetrics

Action parameters

This action takes no parameters.

6.88.5 Example response


```
{
    "@odata.type": "#NetworkDeviceFunctionMetrics.v1_2_0.NetworkDeviceFunctionMetrics",
    "Id": "NetworkDeviceFunctionMetrics",
    "Name": "Network Device Function Metrics",
    "TXAvgQueueDepthPercent": 13.7,
    "RXAvgQueueDepthPercent": 21.2,
    "RXFrames": 27193387,
    "RXBytes": 7754199970,
    "RXUnicastFrames": 26193387,
    "RXMulticastFrames": 1000000,
    "TXFrames": 18205770,
    "TXBytes": 9436506547,
    "TXUnicastFrames": 17205770,
    "TXMulticastFrames": 1000000,
    "TXQueuesEmpty": false,
    "RXQueuesEmpty": false,
    "TXQueuesFull": 0,
    "RXQueuesFull": 0,
    "Ethernet": {
        "NumOffloadedIPv4Conns": 0,
        "NumOffloadedIPv6Conns": 0
    },
    "@odata.id": "/redfish/v1/Chassis/1U/NetworkAdapters/Slot1/NetworkDeviceFunctions/SC2KP1F0/Metrics"
}
```


6.89 NetworkInterface 1.2.3

Version	*v1.2*	*v1.1*	*v1.0*
Release	2020.3	2017.1	2016.3

6.89.1 Description

The `NetworkInterface` schema describes links to the network adapters, network ports, and network device functions, and represents the functionality available to the containing system.

6.89.2 URIs

/redfish/v1/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.89.3 Properties

Property	Type	Attributes	Notes
Links {	object		The links to other resources that are related to this resource.
NetworkAdapter {	object		The link to the network adapter that contains this network interface. See the *NetworkAdapter* schema for details on this property.
@odata.id	string	*read-only*	Link to a NetworkAdapter resource. See the Links section and the *NetworkAdapter* schema for details.
}			
Oem {}	object		See the Oem object definition in the Common properties section.
}			
NetworkDeviceFunctions {	object		The link to the network device functions associated with this network interface. This does not include Ethernet network device functions. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *NetworkDeviceFunction*. See the NetworkDeviceFunction schema for details.
}			
NetworkPorts *(deprecated v1.2)* {	object		The link to the network ports associated with this network interface. Contains a link to a resource. *Deprecated in v1.2 and later. This property has been deprecated in favor of the* `Ports` *property.*
@odata.id	string	*read-only*	Link to Collection of *NetworkPort*. See the NetworkPort schema for details.
}			
Ports *(v1.2+)* {	object		The link to the ports associated with this network interface. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Port*. See the Port schema for details.
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.89.4 Example response

```
{
```

```
    "@odata.type": "#NetworkInterface.v1_2_3.NetworkInterface",
    "Id": "9fa725a1",
    "Name": "Network Device View",
    "NetworkPorts": {
        "@odata.id": "/redfish/v1/Systems/1/NetworkInterfaces/9fd725a1/NetworkPorts"
    },
    "NetworkDeviceFunctions": {
        "@odata.id": "/redfish/v1/Systems/1/NetworkInterfaces/9fd725a1/NetworkDeviceFunctions"
    },
    "Links": {
        "NetworkAdapter": {
            "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1"
        }
    },
    "@odata.id": "/redfish/v1/Systems/1/NetworkInterfaces/9fd725a1"
}
```


6.90 NetworkPort 1.4.3 (deprecated)

Version	*v1.4 Deprecated*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2020.4	2020.3	2018.2	2017.1	2016.3

This schema has been deprecated and use in new implementations is discouraged except to retain compatibility with existing products. This schema has been deprecated in favor of the `Port` schema.

6.90.1 Description

The `NetworkPort` schema describes a network port, which is a discrete physical port that can connect to a network.

6.90.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/NetworkPorts/*{NetworkPortId}* (deprecated)

6.90.3 Properties

Property	Type	Attributes	Notes
ActiveLinkTechnology	string (enum)	*read-write (null)*	Network port active link technology. *For the possible property values, see ActiveLinkTechnology in Property details.*

Property	Type	Attributes	Notes
AssociatedNetworkAddresses [ ]	array (string, null)	*read-only*	An array of configured MAC or WWN network addresses that are associated with this network port, including the programmed address of the lowest-numbered network device function, the configured but not active address, if applicable, the address for hardware port teaming, or other network addresses.
CurrentLinkSpeedMbps *(v1.2+)*	integer (Mbit/s)	*read-write (null)*	Network port current link speed.
EEEEnabled	boolean	*read-write (null)*	An indication of whether IEEE 802.3az Energy-Efficient Ethernet (EEE) is enabled for this network port.
FCFabricName *(v1.2+)*	string	*read-only (null)*	The FC Fabric Name provided by the switch.
FCPortConnectionType *(v1.2+)*	string (enum)	*read-only (null)*	The connection type of this port. *For the possible property values, see FCPortConnectionType in Property details.*
FlowControlConfiguration	string (enum)	*read-write (null)*	The locally configured 802.3x flow control setting for this network port. *For the possible property values, see FlowControlConfiguration in Property details.*
FlowControlStatus	string (enum)	*read-only (null)*	The 802.3x flow control behavior negotiated with the link partner for this network port (Ethernet-only). *For the possible property values, see FlowControlStatus in Property details.*
LinkStatus	string (enum)	*read-only (null)*	The status of the link between this port and its link partner. *For the possible property values, see LinkStatus in Property details.*
MaxFrameSize *(v1.2+)*	integer (bytes)	*read-only (null)*	The maximum frame size supported by the port.
NetDevFuncMaxBWAlloc [{	array		An array of maximum bandwidth allocation percentages for the network device functions associated with this port.
MaxBWAllocPercent	integer (%)	*read-write (null)*	The maximum bandwidth allocation percentage allocated to the corresponding network device function instance.
NetworkDeviceFunction {	object		The link to the network device function associated with this bandwidth setting of this network port. See the *NetworkDeviceFunction* schema for details on this property.
@odata.id	string	*read-only*	Link to a NetworkDeviceFunction resource. See the Links section and the *NetworkDeviceFunction* schema for details.
}			
}]			
NetDevFuncMinBWAlloc [{	array		An array of minimum bandwidth allocation percentages for the network device functions associated with this port.

Property	Type	Attributes	Notes
MinBWAllocPercent	integer (%)	*read-write (null)*	The minimum bandwidth allocation percentage allocated to the corresponding network device function instance.
NetworkDeviceFunction {	object		The link to the network device function associated with this bandwidth setting of this network port. See the *NetworkDeviceFunction* schema for details on this property.
@odata.id	string	*read-only*	Link to a NetworkDeviceFunction resource. See the Links section and the *NetworkDeviceFunction* schema for details.
}			
}]			
NumberDiscoveredRemotePorts *(v1.2+)*	integer	*read-only (null)*	The number of ports not on this adapter that this port has discovered.
PhysicalPortNumber	string	*read-only (null)*	The physical port number label for this port.
PortMaximumMTU	integer	*read-only (null)*	The largest maximum transmission unit (MTU) that can be configured for this network port.
SignalDetected	boolean	*read-only (null)*	An indication of whether the port has detected enough signal on enough lanes to establish a link.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
SupportedEthernetCapabilities [ ]	array (string (enum))	*read-only (null)*	The set of Ethernet capabilities that this port supports. *For the possible property values, see SupportedEthernetCapabilities in Property details.*
SupportedLinkCapabilities [{	array		The link capabilities of this port.
AutoSpeedNegotiation *(v1.2+)*	boolean	*read-only (null)*	An indication of whether the port is capable of autonegotiating speed.
CapableLinkSpeedMbps *(v1.2+)* [ ]	array (integer, null)	*read-only*	The set of link speed capabilities of this port.
LinkNetworkTechnology	string (enum)	*read-only (null)*	The link network technology capabilities of this port. *For the possible property values, see LinkNetworkTechnology in Property details.*
LinkSpeedMbps *(deprecated v1.2)*	integer (Mbit/s)	*read-only (null)*	The speed of the link in Mbit/s when this link network technology is active. *Deprecated in v1.2 and later. This property has been deprecated in favor of the* `CapableLinkSpeedMbps` *property.*
}]			

Property	Type	Attributes	Notes
VendorId *(v1.2+)*	string	*read-only (null)*	The vendor Identification for this port.
WakeOnLANEnabled	boolean	*read-write (null)*	An indication of whether Wake on LAN (WoL) is enabled for this network port.

6.90.4 Property details

6.90.4.1 ActiveLinkTechnology

Network port active link technology.

string	Description
Ethernet	The port is capable of connecting to an Ethernet network.
FibreChannel	The port is capable of connecting to a Fibre Channel network.
InfiniBand	The port is capable of connecting to an InfiniBand network.

6.90.4.2 FCPortConnectionType

The connection type of this port.

string	Description
ExtenderFabric	This port connection type is an extender fabric port.
Generic	This port connection type is a generic fabric port.
NotConnected	This port is not connected.
NPort	This port connects through an N-port to a switch.
PointToPoint	This port connects in a point-to-point configuration.
PrivateLoop	This port connects in a private loop configuration.
PublicLoop	This port connects in a public configuration.

6.90.4.3 FlowControlConfiguration

The locally configured 802.3x flow control setting for this network port.

string	Description
None	No IEEE 802.3x flow control is enabled on this port.
RX	The link partner can initiate IEEE 802.3x flow control.
TX	This station can initiate IEEE 802.3x flow control.
TX_RX	This station or the link partner can initiate IEEE 802.3x flow control.

6.90.4.4 FlowControlStatus

The 802.3x flow control behavior negotiated with the link partner for this network port (Ethernet-only).

string	Description
None	No IEEE 802.3x flow control is enabled on this port.
RX	The link partner can initiate IEEE 802.3x flow control.
TX	This station can initiate IEEE 802.3x flow control.
TX_RX	This station or the link partner can initiate IEEE 802.3x flow control.

6.90.4.5 LinkNetworkTechnology

The link network technology capabilities of this port.

string	Description
Ethernet	The port is capable of connecting to an Ethernet network.
FibreChannel	The port is capable of connecting to a Fibre Channel network.
InfiniBand	The port is capable of connecting to an InfiniBand network.

6.90.4.6 LinkStatus

The status of the link between this port and its link partner.

string	Description
Down	The port is enabled but link is down.

string	Description
Starting *(v1.3+)*	This link on this interface is starting. A physical link has been established, but the port is not able to transfer data.
Training *(v1.3+)*	This physical link on this interface is training.
Up	The port is enabled and link is good (up).

6.90.4.7 SupportedEthernetCapabilities

The set of Ethernet capabilities that this port supports.

string	Description
EEE	IEEE 802.3az Energy-Efficient Ethernet (EEE) is supported on this port.
WakeOnLAN	Wake on LAN (WoL) is supported on this port.

6.90.5 Example response

```
{
    "@odata.type": "#NetworkPort.v1_4_3.NetworkPort",
    "Id": "1",
    "Name": "Network Port View",
    "PhysicalPortNumber": "1",
    "LinkStatus": "Up",
    "SupportedLinkCapabilities": [
        {
            "AutoSpeedNegotiation": true,
            "LinkNetworkTechnology": "Ethernet",
            "CapableLinkSpeedMbps": [
                10,
                100,
                10000
            ]
        }
    ],
    "ActiveLinkTechnology": "Ethernet",
    "SupportedEthernetCapabilities": [
        "WakeOnLAN",
        "EEE"
    ],
    "NetDevFuncMinBWAlloc": [
        {
            "NetworkDeviceFunction": {
```

```
                "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/NetworkDeviceFunctions/
         111111111100"
            },
            "MinBWAllocPercent": 25
        }
    ],
    "NetDevFuncMaxBWAlloc": [
        {
            "NetworkDeviceFunction": {
                "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/NetworkDeviceFunctions/
         111111111100"
            },
            "MaxBWAllocPercent": 100
        }
    ],
    "AssociatedNetworkAddresses": [
        "00:0C:29:9A:98:ED",
        "00:0C:29:9A:98:EF"
    ],
    "EEEEnabled": true,
    "WakeOnLANEnabled": true,
    "PortMaximumMTU": 1500,
    "FlowControlStatus": "None",
    "FlowControlConfiguration": "None",
    "SignalDetected": true,
    "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/NetworkPorts/1"
}
```


6.91 OperatingConfig 1.0.4

Version	*v1.0*
Release	2020.2

6.91.1 Description

The `OperatingConfig` schema specifies a configuration that can be used when the processor is operational.

6.91.2 URIs

/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/OperatingConfigs/*{OperatingConfigId}*

6.91.3 Properties

Property	Type	Attributes	Notes
BaseSpeedMHz	integer (MHz)	*read-only (null)*	The base (nominal) clock speed of the processor in MHz.
BaseSpeedPrioritySettings [{	array		The clock speed for sets of cores when the configuration is operational.
BaseSpeedMHz	integer (MHz)	*read-only (null)*	The clock speed to configure the set of cores in MHz.
CoreCount	integer	*read-only (null)*	The number of cores to configure with a specified speed.
CoreIDs [ ]	array (integer, null)	*read-only*	The identifier of the cores to configure with the specified speed.
}]			
MaxJunctionTemperatureCelsius	integer (Celsius)	*read-only (null)*	The maximum temperature of the junction in degree Celsius units.
MaxSpeedMHz	integer (MHz)	*read-only (null)*	The maximum clock speed to which the processor can be configured in MHz.
TDPWatts	integer (Watts)	*read-only (null)*	The thermal design point of the processor in watt units.
TotalAvailableCoreCount	integer	*read-only (null)*	The number of cores in the processor that can be configured.
TurboProfile [{	array		The turbo profiles for the processor. A turbo profile is the maximum turbo clock speed as a function of the number of active cores.
ActiveCoreCount	integer	*read-only (null)*	The number of active cores to be configured with the specified maximum clock speed.
MaxSpeedMHz	integer (MHz)	*read-only (null)*	The maximum turbo clock speed that correspond to the number of active cores in MHz.
}]			

6.91.4 Example response

```
{
    "@odata.type": "#OperatingConfig.v1_0_4.OperatingConfig",
```

```
    "Id": "0",
    "Name": "Processor Profile",
    "TotalAvailableCoreCount": 28,
    "TDPWatts": 150,
    "BaseSpeedMHz": 2500,
    "MaxSpeedMHz": 4100,
    "MaxJunctionTemperatureCelsius": 90,
    "TurboProfile": [
        {
            "ActiveCoreCount": 2,
            "MaxSpeedMHz": 4100
        },
        {
            "ActiveCoreCount": 4,
            "MaxSpeedMHz": 4000
        },
        {
            "ActiveCoreCount": 8,
            "MaxSpeedMHz": 3800
        },
        {
            "ActiveCoreCount": 28,
            "MaxSpeedMHz": 3200
        }
    ],
    "BaseSpeedPrioritySettings": [
        {
            "CoreCount": 8,
            "CoreIDs": [
                0,
                2,
                3,
                4,
                5,
                6,
                7,
                8
            ],
            "BaseSpeedMHz": 2900
        },
        {
            "CoreCount": 20,
            "BaseSpeedMHz": 2200
        }
    ],
    "@odata.id": "/redfish/v1/Systems/operating-config-example/Processors/CPU1/OperatingConfigs/0"
}
```

6.92 OperatingSystem 1.0.2

Version	*v1.0*
Release	2023.2

6.92.1 Description

The `OperatingSystem` schema represents the operating system and software running on a computer system.

6.92.2 URIs

/redfish/v1/Systems/*{ComputerSystemId}*/OperatingSystem
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.92.3 Properties

Property	Type	Attributes	Notes
Applications {	object		The link to the collection of applications running under this operating system. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Application*. See the Application schema for details.
}			
ContainerEngines [{	array		The container engines running in this operating system.
ManagementURIs [ ]	array (URI) (string, null)	*read-only*	The URIs to manage this container engine.
SupportedImageTypes [ ]	array (string (enum))	*read-only (null)*	The supported image types for this container engine. *For the possible property values, see SupportedImageTypes in Property details.*
Type	string (enum)	*read-only (null)*	The type of container engine. *For the possible property values, see Type in Property details.*
Version	string	*read-only (null)*	The version of this container engine.
}]			

Property	Type	Attributes	Notes
ContainerImages {	object		The link to the collection of container images available to container engines on this operating system. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *ContainerImage*. See the ContainerImage schema for details.
}			
Containers {	object		The link to the collection of containers running under this operating system. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Container*. See the Container schema for details.
}			
Kernel {	object	*(null)*	The kernel information for this operating system.
Machine	string	*read-only* *(null)*	The machine hardware name of the kernel.
Name	string	*read-only* *(null)*	The name of the kernel.
Release	string	*read-only* *(null)*	The release of the kernel.
Version	string	*read-only* *(null)*	The version of the kernel.
}			
Links {	object		The links to other resources that are related to this resource.
Oem {}	object		See the Oem object definition in the Common properties section.
SoftwareImage {	object		The link to the software image for this operating system. See the *SoftwareInventory* schema for details on this property.
@odata.id	string	*read-only*	Link to a SoftwareInventory resource. See the Links section and the *SoftwareInventory* schema for details.
}			
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
Type	string (enum)	*read-only* *(null)*	The type of operating system. *For the possible property values, see Type in Property details.*

Property	Type	Attributes	Notes
UptimeSeconds	integer	*read-only (null)*	The wall-clock time this operating system has been running in seconds.
VirtualMachineEngines [{	array		The virtual machine engines running in this operating system.
ManagementURIs [ ]	array (URI) (string, null)	*read-only*	The URIs to manage this virtual machine engine.
SupportedImageTypes [ ]	array (string (enum))	*read-only (null)*	The supported image types for this container engine. *For the possible property values, see SupportedImageTypes in Property details.*
Type	string (enum)	*read-only (null)*	The type of virtual machine engine. *For the possible property values, see Type in Property details.*
Version	string	*read-only (null)*	The version of this virtual machine engine.
}]			

6.92.4 Property details

6.92.4.1 SupportedImageTypes

6.92.4.1.1 In ContainerEngines:

The supported image types for this container engine.

string	Description
DockerV1	Docker V1.
DockerV2	Docker V2.
OCI	OCI (Open Container Initiative).

6.92.4.1.2 In VirtualMachineEngines:

The supported image types for this container engine.

string	Description
OVA	OVA (Open Virtual Appliance).

string	Description
OVF	OVF (Open Virtualization Format).
QCOW	QCOW (QEMU Copy-on-Write).
QCOW2	QCOW2 (QEMU Copy-on-Write version 2).
Raw	Raw disk image.
VDI	VDI (Virtual Disk Image).
VHD	VHD (Virtual Hard Disk).
VMDK	VMDK (Virtual Machine Disk).

6.92.4.2 Type

6.92.4.2.1 In top level:

The type of operating system.

string	Description
AIX	IBM AIX.
BSD	Berkeley Software Distribution.
HPUX	HPE HP-UX.
Hypervisor	A bare-metal hypervisor.
IBMi	IBM i.
Linux	Linux.
macOS	Apple macOS.
Solaris	Oracle Solaris.
Windows	Microsoft Windows.

6.92.4.2.2 In ContainerEngines:

The type of container engine.

string	Description
containerd	containerd.
CRIO	CRI-O.
Docker	Docker.

6.92.4.2.3 In VirtualMachineEngines:

The type of virtual machine engine.

string	Description
HyperV	Microsoft Hyper-V.
KVM	KVM (Kernel-based Virtual Machine).
PowerVM	IBM PowerVM.
QEMU	QEMU (Quick Emulator).
VirtualBox	Oracle VM VirtualBox.
VMwareESX	VMware ESX or ESXi.
Xen	Xen.

6.92.5 Example response


```
{
    "@odata.type": "#OperatingSystem.v1_0_2.OperatingSystem",
    "Id": "OperatingSystem",
    "Name": "OperatingSystem running on web-srv344",
    "UptimeSeconds": 6720,
    "Kernel": {
        "Name": "Linux",
        "Release": "5.10.13-x86_64",
        "Version": "#1 SMP Thu Feb 4 13:56:42 EST 2021",
        "Machine": "x86_64"
    },
    "Type": "Linux",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
```

```
    "Applications": {
        "@odata.id": "/redfish/v1/Systems/VM1/OperatingSystem/Applications"
    },
    "ContainerEngines": [
        {
            "Type": "Docker",
            "Version": "20.10.5",
            "SupportedImageTypes": [
                "DockerV1",
                "DockerV2",
                "OCI"
            ],
            "ManagementURIs": [
                "https://192.168.0.12:5555"
            ]
        }
    ],
    "ContainerImages": {
        "@odata.id": "/redfish/v1/Systems/VM1/OperatingSystem/ContainerImages"
    },
    "Containers": {
        "@odata.id": "/redfish/v1/Systems/VM1/OperatingSystem/Containers"
    },
    "Links": {
        "SoftwareImage": {
            "@odata.id": "/redfish/v1/UpdateService/SoftwareInventory/ContosoLinux"
        }
    },
    "@odata.id": "/redfish/v1/Systems/VM1/OperatingSystem"
}
```


6.93 OutboundConnection 1.0.2

Version	*v1.0*
Release	2023.2

6.93.1 Description

The `OutboundConnection` schema defines how the Redfish service connects to a remote client over a WebSocket connection. This allows a service behind a firewall to establish a connection to a remote client outside of the firewall.

6.93.2 URIs

/redfish/v1/AccountService/OutboundConnections/*{OutboundConnectionId}*

6.93.3 Properties

Property	Type	Attributes	Notes
Authentication	string (enum)	*read-only required on create (null)*	The authentication mechanism for the WebSocket connection. *For the possible property values, see Authentication in Property details.*
Certificates {	object		The link to a collection of server certificates for the remote client referenced by the `EndpointURI` property. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
ClientCertificates {	object		The link to a collection of client identity certificates provided to the remote client referenced by the `EndpointURI` property. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
ConnectionEnabled	boolean	*read-write (null)*	Indicates if the outbound connection is enabled.
EndpointURI	string (URI)	*read-only required on create*	The URI of the WebSocket connection to the remote client.
Links {	object		The links to other resources that are related to this resource.
Oem {}	object		See the Oem object definition in the Common properties section.
Session {	object	*(null)*	The link to the session for this outbound connection. See the *Session* schema for details on this property.
@odata.id	string	*read-only*	Link to a Session resource. See the Links section and the *Session* schema for details.
}			
}			

Property	Type	Attributes	Notes
PreUpgradeHTTPHeaders {	object		The HTTP headers to send to the remote client during the initial connection prior to the WebSocket upgrade. This property is an empty object in responses.
(pattern)	string	*read-write*	Property names follow regular expression pattern "^[^:\\s]+$"
}			
RetryPolicy {	object		The retry policy for this outbound connection.
ConnectionRetryPolicy	string (enum)	*read-only (null)*	The type of retry policy for this outbound connection. *For the possible property values, see ConnectionRetryPolicy in Property details.*
RetryCount	integer	*read-write (null)*	The number of retries to attempt if the retry policy specifies a maximum number of retries.
RetryIntervalMinutes	integer	*read-write (null)*	The retry interval in minutes.
}			
Roles [ ]	array (string, null)	*read-only required on create*	The Redfish roles that contain the privileges of the remote client for the outbound connection.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
WebSocketPingIntervalMinutes	integer	*read-write required on create (null)*	Interval for sending the WebSocket ping opcode in minutes. The value `0` indicates the ping opcode is not sent.

6.93.4 Property details

6.93.4.1 Authentication

The authentication mechanism for the WebSocket connection.

string	Description
JWT	JSON Web Token.
MTLS	Mutual TLS.
None	No authentication.

string	Description
OEM	OEM-specific.

6.93.4.2 ConnectionRetryPolicy

The type of retry policy for this outbound connection.

string	Description
None	No retries.
RetryCount	Retry until a maximum count is reached.
RetryForever	Retry forever.

6.93.5 Example response

```
{
    "@odata.type": "#OutboundConnection.v1_0_2.OutboundConnection",
    "Id": "1",
    "Name": "Outbound Connection to contoso app",
    "Status": {
        "Health": "OK",
        "HealthRollup": "OK",
        "State": "Enabled"
    },
    "Authentication": "MTLS",
    "Certificates": {
        "@odata.id": "/redfish/v1/AccountService/OutboundConnections/1/Certificates"
    },
    "ClientCertificates": {
        "@odata.id": "/redfish/v1/AccountService/OutboundConnections/1/ClientCertificates"
    },
    "ConnectionEnabled": true,
    "EndpointURI": "wss://ws.contoso.com:443",
    "RetryPolicy": {
        "ConnectionRetryPolicy": "RetryCount",
        "RetryIntervalMinutes": 5,
        "RetryCount": 60
    },
    "Roles": [
        "Administrator"
    ],
    "WebSocketPingIntervalMinutes": 10,
    "@odata.id": "/redfish/v1/AccountService/OutboundConnections/1"
```

```
}
```

6.94 Outlet 1.4.4

Version	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2021.4	2021.3	2021.2	2020.3	2019.4

6.94.1 Description

The `Outlet` schema contains a definition for an electrical outlet.

6.94.2 URIs

/redfish/v1/PowerEquipment/ElectricalBuses/*{PowerDistributionId}*/Outlets/*{OutletId}*
/redfish/v1/PowerEquipment/FloorPDUs/*{PowerDistributionId}*/Outlets/*{OutletId}*
/redfish/v1/PowerEquipment/PowerShelves/*{PowerDistributionId}*/Outlets/*{OutletId}*
/redfish/v1/PowerEquipment/RackPDUs/*{PowerDistributionId}*/Outlets/*{OutletId}*
/redfish/v1/PowerEquipment/TransferSwitches/*{PowerDistributionId}*/Outlets/*{OutletId}*

6.94.3 Properties

Property	Type	Attributes	Notes
ConfigurationLocked *(v1.4+)*	boolean	*read-write*	Indicates whether the configuration is locked.
CurrentAmps {}	object		The current (A) for this outlet. For more information about this property, see SensorCurrentExcerpt in Property Details.
ElectricalConsumerNames *(v1.3+)* [ ]	array (string, null)	*read-write*	An array of names of downstream devices that are powered by this outlet.
ElectricalContext	string (enum)	*read-only (null)*	The combination of current-carrying conductors. *For the possible property values, see ElectricalContext in Property details.*
EnergykWh {	object (excerpt)		The energy (kWh) for this outlet. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
ApparentkVAh *(v1.5+)*	number (kV.A.h)	*read-only (null)*	Apparent energy (kVAh).

Property	Type	Attributes	Notes
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
LifetimeReading *(v1.1+)*	number	*read-only (null)*	The total accumulation value for this sensor.
ReactivekVARh *(v1.5+)*	number (kV.A.h)	*read-only (null)*	Reactive energy (kVARh).
Reading	number	*read-only (null)*	The sensor value.
SensorResetTime	string (date-time)	*read-only (null)*	The date and time when the time-based properties were last reset.
}			
FrequencyHz {	object (excerpt)		The frequency (Hz) for this outlet. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
}			
IndicatorLED *(deprecated v1.1)*	string (enum)	*read-write (null)*	The state of the indicator LED, which identifies the outlet. *For the possible property values, see IndicatorLED in Property details. Deprecated in v1.1 and later. This property has been deprecated in favor of the* `LocationIndicatorActive` *property.*
Links {	object		The links to other resources that are related to this resource.
BranchCircuit {	object	*(null)*	A reference to the branch circuit related to this outlet. See the *Circuit* schema for details on this property.
@odata.id	string	*read-only*	Link to a Circuit resource. See the Links section and the *Circuit* schema for details.
}			
Chassis *(v1.3+)* [{	array		Any array of links to chassis connected to this outlet.
@odata.id	string	*read-write*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}]			

Property	Type	Attributes	Notes
DistributionCircuits *(v1.3+)* [{	array		An array of links to mains or input circuits powered by this outlet.
@odata.id	string	*read-write*	Link to a Circuit resource. See the Links section and the *Circuit* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
PowerSupplies *(v1.3+)* [{	array		An array of links to the power supplies connected to this outlet.
@odata.id	string	*read-write*	Link to a PowerSupply resource. See the Links section and the *PowerSupply* schema for details.
}]			
}			
LocationIndicatorActive *(v1.1+)*	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
NominalVoltage	string (enum)	*read-only (null)*	The nominal voltage for this outlet. *For the possible property values, see NominalVoltage in Property details.*
OutletType	string (enum)	*read-only (null)*	The type of receptacle according to NEMA, IEC, or regional standards. *For the possible property values, see OutletType in Property details.*
PhaseWiringType	string (enum)	*read-only (null)*	The number of ungrounded current-carrying conductors (phases) and the total number of conductors (wires). *For the possible property values, see PhaseWiringType in Property details.*
PolyPhaseCurrentAmps {	object	*(null)*	The current readings for this outlet.
Line1 {}	object		Line 1 current (A). For more information about this property, see SensorCurrentExcerpt in Property Details.
Line2 {}	object		Line 2 current (A). For more information about this property, see SensorCurrentExcerpt in Property Details.
Line3 {}	object		Line 3 current (A). For more information about this property, see SensorCurrentExcerpt in Property Details.
Neutral {}	object		Neutral line current (A). For more information about this property, see SensorCurrentExcerpt in Property Details.
}			
PolyPhaseVoltage {	object	*(null)*	The voltage readings for this outlet.

Property	Type	Attributes	Notes
Line1ToLine2 {}	object		The Line 1 to Line 2 voltage (V) for this outlet. For more information about this property, see SensorVoltageExcerpt in Property Details.
Line1ToNeutral {}	object		The Line 1 to Neutral voltage (V) for this outlet. For more information about this property, see SensorVoltageExcerpt in Property Details.
Line2ToLine3 {}	object		The Line 2 to Line 3 voltage (V) for this outlet. For more information about this property, see SensorVoltageExcerpt in Property Details.
Line2ToNeutral {}	object		The Line 2 to Neutral voltage (V) for this outlet. For more information about this property, see SensorVoltageExcerpt in Property Details.
Line3ToLine1 {}	object		The Line 3 to Line 1 voltage (V) for this outlet. For more information about this property, see SensorVoltageExcerpt in Property Details.
Line3ToNeutral {}	object		The Line 3 to Neutral voltage (V) for this outlet. For more information about this property, see SensorVoltageExcerpt in Property Details.
}			
PowerControlLocked *(v1.4+)*	boolean	*read-write*	Indicates whether power control requests are locked.
PowerCycleDelaySeconds	number	*read-write (null)*	The number of seconds to delay power on after a `PowerControl` action to cycle power. Zero seconds indicates no delay.
PowerEnabled	boolean	*read-only (null)*	Indicates if the outlet can be powered.
PowerLoadPercent *(v1.2+)* {	object (excerpt)		The power load (percent) for this outlet. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
}			
PowerOffDelaySeconds	number	*read-write (null)*	The number of seconds to delay power off after a `PowerControl` action. Zero seconds indicates no delay to power off.
PowerOnDelaySeconds	number	*read-write (null)*	The number of seconds to delay power up after a power cycle or a `PowerControl` action. Zero seconds indicates no delay to power up.
PowerRestoreDelaySeconds	number	*read-write (null)*	The number of seconds to delay power on after power has been restored. Zero seconds indicates no delay.
PowerRestorePolicy	string (enum)	*read-write*	The desired power state of the outlet when power is restored after a power loss. *For the possible property values, see PowerRestorePolicy in Property details.*

Property	Type	Attributes	Notes
PowerState	string (enum)	*read-only (null)*	The power state of the outlet. *For the possible property values, see PowerState in Property details.*
PowerStateInTransition *(v1.4+)*	boolean	*read-only*	Indicates whether the power state is undergoing a delayed transition.
PowerWatts {	object (excerpt)		The power (W) for this outlet. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
ApparentVA	number (V.A)	*read-only (null)*	The product of voltage and current for an AC circuit, in volt-ampere units.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
PhaseAngleDegrees *(v1.5+)*	number	*read-only (null)*	The phase angle (degrees) between the current and voltage waveforms.
PowerFactor	number	*read-only (null)*	The power factor for this sensor.
ReactiveVAR	number (V.A)	*read-only (null)*	The square root of the difference term of squared apparent VA and squared power (Reading) for a circuit, in VAR units.
Reading	number	*read-only (null)*	The sensor value.
}			
RatedCurrentAmps	number (A)	*read-only (null)*	The rated maximum current allowed for this outlet.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
UserLabel *(v1.3+)*	string	*read-write*	A user-assigned label.
Voltage {}	object		The voltage (V) for this outlet. For more information about this property, see SensorVoltageExcerpt in Property Details.
VoltageType	string (enum)	*read-only (null)*	The type of voltage applied to the outlet. *For the possible property values, see VoltageType in Property details.*

6.94.4 Actions

6.94.4.1 PowerControl

Description

This action turns the outlet on or off.

Action URI

{Base URI of target resource}/Actions/Outlet.PowerControl

Action parameters

Parameter Name	Type	Attributes	Notes
PowerState	string (enum)	*optional*	The desired power state of the outlet. *For the possible property values, see PowerState in Property details.*

Request Example

```
{
    "PowerState": "PowerCycle"
}
```

6.94.4.2 ResetMetrics

Description

This action resets metrics related to this outlet.

Action URI

{Base URI of target resource}/Actions/Outlet.ResetMetrics

Action parameters

This action takes no parameters.

6.94.5 Property details

6.94.5.1 ElectricalContext

The combination of current-carrying conductors.

string	Description
Line1	The circuits that share the L1 current-carrying conductor.
Line1ToLine2	The circuit formed by L1 and L2 current-carrying conductors.
Line1ToNeutral	The circuit formed by L1 and neutral current-carrying conductors.
Line1ToNeutralAndL1L2	The circuit formed by L1, L2, and neutral current-carrying conductors.
Line2	The circuits that share the L2 current-carrying conductor.
Line2ToLine3	The circuit formed by L2 and L3 current-carrying conductors.
Line2ToNeutral	The circuit formed by L2 and neutral current-carrying conductors.
Line2ToNeutralAndL1L2	The circuit formed by L1, L2, and Neutral current-carrying conductors.
Line2ToNeutralAndL2L3	The circuits formed by L2, L3, and neutral current-carrying conductors.
Line3	The circuits that share the L3 current-carrying conductor.
Line3ToLine1	The circuit formed by L3 and L1 current-carrying conductors.
Line3ToNeutral	The circuit formed by L3 and neutral current-carrying conductors.
Line3ToNeutralAndL3L1	The circuit formed by L3, L1, and neutral current-carrying conductors.
LineToLine	The circuit formed by two current-carrying conductors.
LineToNeutral	The circuit formed by a line and neutral current-carrying conductor.
Neutral	The grounded current-carrying return circuit of current-carrying conductors.
Total	The circuit formed by all current-carrying conductors.

6.94.5.2 IndicatorLED

The state of the indicator LED, which identifies the outlet.

string	Description
Blinking	The indicator LED is blinking.
Lit	The indicator LED is lit.
Off	The indicator LED is off.

6.94.5.3 NominalVoltage

The nominal voltage for this outlet.

string	Description
AC100To127V	AC 100-127V nominal.
AC100To240V	AC 100-240V nominal.
AC100To277V	AC 100-277V nominal.
AC120V	AC 120V nominal.
AC200To240V	AC 200-240V nominal.
AC200To277V	AC 200-277V nominal.
AC208V	AC 208V nominal.
AC230V	AC 230V nominal.
AC240AndDC380V	AC 200-240V and DC 380V.
AC240V	AC 240V nominal.
AC277AndDC380V	AC 200-277V and DC 380V.
AC277V	AC 277V nominal.
AC400V	AC 400V or 415V nominal.
AC480V	AC 480V nominal.
DC12V	DC 12V nominal.
DC16V	DC 16V nominal.
DC1_8V	DC 1.8V nominal.
DC240V	DC 240V nominal.
DC380V	High-voltage DC (380V).
DC3_3V	DC 3.3V nominal.
DC48V	DC 48V nominal.
DC5V	DC 5V nominal.
DC9V	DC 9V nominal.

string	Description
DCNeg48V	-48V DC.

6.94.5.4 OutletType

The type of receptacle according to NEMA, IEC, or regional standards.

string	Description
BS_1363_Type_G	BS 1363 Type G (250V; 13A).
BusConnection *(v1.3+)*	Electrical bus connection.
CEE_7_Type_E	CEE 7/7 Type E (250V; 16A).
CEE_7_Type_F	CEE 7/7 Type F (250V; 16A).
IEC_60320_C13	IEC C13 (250V; 10A or 15A).
IEC_60320_C19	IEC C19 (250V; 16A or 20A).
NEMA_5_15R	NEMA 5-15R (120V; 15A).
NEMA_5_20R	NEMA 5-20R (120V; 20A).
NEMA_L5_20R	NEMA L5-20R (120V; 20A).
NEMA_L5_30R	NEMA L5-30R (120V; 30A).
NEMA_L6_20R	NEMA L6-20R (250V; 20A).
NEMA_L6_30R	NEMA L6-30R (250V; 30A).
SEV_1011_TYPE_12	SEV 1011 Type 12 (250V; 10A).
SEV_1011_TYPE_23	SEV 1011 Type 23 (250V; 16A).

6.94.5.5 PhaseWiringType

The number of ungrounded current-carrying conductors (phases) and the total number of conductors (wires).

string	Description
OneOrTwoPhase3Wire	Single or two-phase / 3-wire (Line1, Line2 or Neutral, Protective Earth).
OnePhase3Wire	Single-phase / 3-wire (Line1, Neutral, Protective Earth).

string	Description
ThreePhase4Wire	Three-phase / 4-wire (Line1, Line2, Line3, Protective Earth).
ThreePhase5Wire	Three-phase / 5-wire (Line1, Line2, Line3, Neutral, Protective Earth).
TwoPhase3Wire	Two-phase / 3-wire (Line1, Line2, Protective Earth).
TwoPhase4Wire	Two-phase / 4-wire (Line1, Line2, Neutral, Protective Earth).

6.94.5.6 PowerRestorePolicy

The desired power state of the outlet when power is restored after a power loss.

string	Description
AlwaysOff	Always remain powered off when external power is applied.
AlwaysOn	Always power on when external power is applied.
LastState	Return to the last power state (on or off) when external power is applied.

6.94.5.7 PowerState

6.94.5.7.1 In top level:

The power state of the outlet.

string	Description
Off	The resource is powered off. The components within the resource might continue to have AUX power.
On	The resource is powered on.
Paused	The resource is paused.
PoweringOff	A temporary state between on and off. The components within the resource can take time to process the power off action.
PoweringOn	A temporary state between off and on. The components within the resource can take time to process the power on action.

6.94.5.7.2 In Actions: PowerControl:

The desired power state of the outlet.

string	Description
Off	Power off.
On	Power on.
PowerCycle	Power cycle.

6.94.5.8 SensorCurrentExcerpt

The `Sensor` schema describes a sensor and its properties. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.

CrestFactor *(v1.1+)*	number	*read-only (null)*	The crest factor for this sensor.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
THDPercent *(v1.1+)*	number (%)	*read-only (null)*	The total harmonic distortion percent (% THD).

6.94.5.9 SensorVoltageExcerpt

The `Sensor` schema describes a sensor and its properties. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.

CrestFactor *(v1.1+)*	number	*read-only (null)*	The crest factor for this sensor.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.

THDPercent *(v1.1+)*	number (%)	*read-only (null)*	The total harmonic distortion percent (% THD).

6.94.5.10 VoltageType

The type of voltage applied to the outlet.

string	Description
AC	Alternating Current (AC) outlet.
DC	Direct Current (DC) outlet.

6.94.6 Example response


```
{
    "@odata.type": "#Outlet.v1_4_4.Outlet",
    "Id": "A1",
    "Name": "Outlet A1, Branch Circuit A",
    "Status": {
        "Health": "OK",
        "State": "Enabled"
    },
    "PhaseWiringType": "OnePhase3Wire",
    "VoltageType": "AC",
    "OutletType": "NEMA_5_20R",
    "RatedCurrentAmps": 20,
    "NominalVoltage": "AC120V",
    "LocationIndicatorActive": true,
    "PowerOnDelaySeconds": 4,
    "PowerOffDelaySeconds": 0,
    "PowerState": "On",
    "PowerEnabled": true,
    "Voltage": {
        "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/VoltageA1",
        "Reading": 117.5
    },
    "PolyPhaseVoltage": {
        "Line1ToNeutral": {
            "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/VoltageA1",
            "Reading": 117.5
        }
    },
    "CurrentAmps": {
```

```
        "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/CurrentA1",
        "Reading": 1.68
    },
    "PolyPhaseCurrentAmps": {
        "Line1": {
            "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/CurrentA1",
            "Reading": 1.68
        }
    },
    "PowerWatts": {
        "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/PowerA1",
        "Reading": 197.4,
        "ApparentVA": 197.4,
        "ReactiveVAR": 0,
        "PowerFactor": 1
    },
    "FrequencyHz": {
        "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/FrequencyA1",
        "Reading": 60
    },
    "EnergykWh": {
        "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/EnergyA1",
        "Reading": 36166
    },
    "Actions": {
        "#Outlet.PowerControl": {
            "target": "/redfish/v1/PowerEquipment/RackPDUs/1/Outlets/A1/Outlet.PowerControl"
        },
        "#Outlet.ResetMetrics": {
            "target": "/redfish/v1/PowerEquipment/RackPDUs/1/Outlets/A1/Outlet.ResetMetrics"
        }
    },
    "Links": {
        "BranchCircuit": {
            "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs/1/Branches/A"
        }
    },
    "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs/1/Outlets/A1"
}
```


6.95 OutletGroup 1.2.0

Version	*v1.2*	*v1.1*	*v1.0*
Release	2024.1	2021.4	2019.4

6.95.1 Description

The `OutletGroup` schema contains definitions for an electrical outlet group.

6.95.2 URIs

/redfish/v1/PowerEquipment/ElectricalBuses/*{PowerDistributionId}*/OutletGroups/*{OutletGroupId}*
/redfish/v1/PowerEquipment/PowerShelves/*{PowerDistributionId}*/OutletGroups/*{OutletGroupId}*
/redfish/v1/PowerEquipment/RackPDUs/*{PowerDistributionId}*/OutletGroups/*{OutletGroupId}*
/redfish/v1/PowerEquipment/TransferSwitches/*{PowerDistributionId}*/OutletGroups/*{OutletGroupId}*

6.95.3 Properties

Property	Type	Attributes	Notes
ConfigurationLocked *(v1.1+)*	boolean	*read-write*	Indicates whether the configuration is locked.
CreatedBy	string	*read-write (null)*	The creator of this outlet group.
EnergykWh {	object (excerpt)		The energy (kWh) for this outlet group. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
ApparentkVAh *(v1.5+)*	number (kV.A.h)	*read-only (null)*	Apparent energy (kVAh).
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
LifetimeReading *(v1.1+)*	number	*read-only (null)*	The total accumulation value for this sensor.
ReactivekVARh *(v1.5+)*	number (kV.A.h)	*read-only (null)*	Reactive energy (kVARh).
Reading	number	*read-only (null)*	The sensor value.
SensorResetTime	string (date-time)	*read-only (null)*	The date and time when the time-based properties were last reset.
}			
Links {	object		The links to other resources that are related to this resource.
Oem {}	object		See the Oem object definition in the Common properties section.
OutletGroups *(v1.2+)* [{	array		The set of outlet groups in this outlet group.

Property	Type	Attributes	Notes
@odata.id	string	*read-write*	Link to another OutletGroup resource.
}]			
Outlets [{	array		The set of outlets in this outlet group.
@odata.id	string	*read-write*	Link to a Outlet resource. See the Links section and the *Outlet* schema for details.
}]			
}			
OutletGroupType *(v1.2+)*	string (enum)	*read-only*	The type of outlet group that this resource represents. *For the possible property values, see OutletGroupType in Property details.*
PowerControlLocked *(v1.1+)*	boolean	*read-write*	Indicates whether power control requests are locked.
PowerCycleDelaySeconds	number	*read-write (null)*	The number of seconds to delay power on after a `PowerControl` action to cycle power. Zero seconds indicates no delay.
PowerEnabled	boolean	*read-only (null)*	Indicates if the outlet group can be powered.
PowerOffDelaySeconds	number	*read-write (null)*	The number of seconds to delay power off after a `PowerControl` action. Zero seconds indicates no delay to power off.
PowerOnDelaySeconds	number	*read-write (null)*	The number of seconds to delay power up after a power cycle or a `PowerControl` action. Zero seconds indicates no delay to power up.
PowerRestoreDelaySeconds	number	*read-write (null)*	The number of seconds to delay power on after power has been restored. Zero seconds indicates no delay.
PowerRestorePolicy	string (enum)	*read-write*	The desired power state of the outlet group when power is restored after a power loss. *For the possible property values, see PowerRestorePolicy in Property details.*
PowerState	string (enum)	*read-only (null)*	The power state of the outlet group. *For the possible property values, see PowerState in Property details.*
PowerStateInTransition *(v1.1+)*	boolean	*read-only*	Indicates whether the power state is undergoing a delayed transition.
PowerWatts {	object (excerpt)		The power (W) for this outlet group. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
ApparentVA	number (V.A)	*read-only (null)*	The product of voltage and current for an AC circuit, in volt-ampere units.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.

Property	Type	Attributes	Notes
PhaseAngleDegrees *(v1.5+)*	number	*read-only (null)*	The phase angle (degrees) between the current and voltage waveforms.
PowerFactor	number	*read-only (null)*	The power factor for this sensor.
ReactiveVAR	number (V.A)	*read-only (null)*	The square root of the difference term of squared apparent VA and squared power (Reading) for a circuit, in VAR units.
Reading	number	*read-only (null)*	The sensor value.
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.95.4 Actions

6.95.4.1 PowerControl

Description

This action turns the outlet group on or off.

Action URI

{Base URI of target resource}/Actions/OutletGroup.PowerControl

Action parameters

Parameter Name	Type	Attributes	Notes
PowerState	string (enum)	*optional*	The desired power state of the outlet group. *For the possible property values, see PowerState in Property details.*

Request Example

```
{
    "PowerState": "Off"
}
```

6.95.4.2 ResetMetrics

Description

This action resets metrics related to this outlet group.

Action URI

{Base URI of target resource}/Actions/OutletGroup.ResetMetrics

Action parameters

This action takes no parameters.

6.95.5 Property details

6.95.5.1 OutletGroupType

The type of outlet group that this resource represents.

string	Description
HardwareDefined	A group that is hardware-defined.
UserDefined	A group that is user-defined.

6.95.5.2 PowerRestorePolicy

The desired power state of the outlet group when power is restored after a power loss.

string	Description
AlwaysOff	Always remain powered off when external power is applied.
AlwaysOn	Always power on when external power is applied.
LastState	Return to the last power state (on or off) when external power is applied.

6.95.5.3 PowerState

6.95.5.3.1 In top level:

The power state of the outlet group.

string	Description
Off	The resource is powered off. The components within the resource might continue to have AUX power.
On	The resource is powered on.
Paused	The resource is paused.
PoweringOff	A temporary state between on and off. The components within the resource can take time to process the power off action.
PoweringOn	A temporary state between off and on. The components within the resource can take time to process the power on action.

6.95.5.3.2 In Actions: PowerControl:

The desired power state of the outlet group.

string	Description
Off	Power off.
On	Power on.
PowerCycle	Power cycle.

6.95.6 Example response

```
{
    "@odata.type": "#OutletGroup.v1_2_0.OutletGroup",
    "Id": "Rack5Storage",
    "Name": "Outlet Group Rack5Storage",
    "Status": {
        "Health": "OK",
        "State": "Enabled"
    },
    "CreatedBy": "Bob",
    "PowerOnDelaySeconds": 4,
```

```
    "PowerOffDelaySeconds": 0,
    "PowerState": "On",
    "PowerEnabled": true,
    "PowerWatts": {
        "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/GroupPowerA",
        "Reading": 412.36
    },
    "EnergykWh": {
        "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/GroupEnergyA",
        "Reading": 26880
    },
    "Links": {
        "Outlets": [
            {
                "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs/1/Outlets/A1"
            },
            {
                "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs/1/Outlets/A2"
            },
            {
                "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs/1/Outlets/A3"
            }
        ]
    },
    "Actions": {
        "#OutletGroup.PowerControl": {
            "target": "/redfish/v1/PowerEquipment/RackPDUs/1/OutletGroups/Rack5Storage/
         OutletGroup.PowerControl"
        },
        "#OutletGroup.ResetMetrics": {
            "target": "/redfish/v1/PowerEquipment/RackPDUs/1/OutletGroups/Rack5Storage/
         OutletGroup.ResetMetrics"
        }
    },
    "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs/1/OutletGroups/Rack5Storage"
}
```


6.96 PCIeDevice 1.19.0

Version	*v1.19*	*v1.18*	*v1.17*	*v1.16*	*v1.15*	*v1.14*	*v1.13*	*v1.12*	*v1.11*	*v1.10*	*v1.9*	...
Release	2025.2	2025.1	2024.4	2024.3	2024.2	2024.1	2023.3	2023.2	2022.3	2022.2	2021.4	...

6.96.1 Description

The `PCIeDevice` schema describes the properties of a PCIe device that is attached to a system. It also describes the

location, such as a slot, socket, or bay, where a unit can be installed, by populating a resource instance with an absent state if a unit is not present.

6.96.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/PCIeDevices/*{PCIeDeviceId}*
/redfish/v1/Systems/*{ComputerSystemId}*/PCIeDevices/*{PCIeDeviceId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.96.3 Properties

Property	Type	Attributes	Notes
Assembly *(v1.2+)* {	object		The link to the assembly associated with this PCIe device. See the *Assembly* schema for details on this property.
@odata.id	string	*read-only*	Link to a Assembly resource. See the Links section and the *Assembly* schema for details.
}			
AssetTag	string	*read-write (null)*	The user-assigned asset tag for this PCIe device.
CXLDevice *(v1.11+)* {	object	*(null)*	The CXL-specific properties of this PCIe device.
CapableProtocolVersions *(v1.18+)* [ ]	array (string (enum))	*read-only (null)*	An array of the CXL specification revisions supported by this device. *For the possible property values, see CapableProtocolVersions in Property details.*
CurrentProtocolVersion *(v1.18+)*	string (enum)	*read-only (null)*	The revision of the CXL specification in use by this device. *For the possible property values, see CurrentProtocolVersion in Property details.*
DeviceType *(v1.11+)*	string (enum)	*read-only (null)*	The CXL device type. *For the possible property values, see DeviceType in Property details.*
DynamicCapacity *(v1.12+)* {	object	*(null)*	The CXL dynamic capacity device (DCD) information for this CXL device.
AddCapacityPoliciesSupported *(v1.12+)* [ ]	array (string (enum))	*read-only (null)*	The set of selection policies supported by the CXL device when dynamic capacity is added. *For the possible property values, see AddCapacityPoliciesSupported in Property details.*
MaxDynamicCapacityRegions *(v1.12+)*	integer	*read-only (null)*	The maximum number of dynamic capacity memory regions available per host from this CXL device.

Property	Type	Attributes	Notes
MaxHosts *(v1.12+)*	integer	*read-only (null)*	The maximum number of hosts supported by this CXL device.
MemoryBlockSizesSupported *(v1.12+)* [{	array		The set of memory block sizes supported by memory regions in this CXL device.
BlockSizeMiB *(v1.12+)* [ ]	array (mebibytes) (integer, null)	*read-only*	Set of memory block sizes supported by this memory region defined in mebibytes (MiB).
RegionNumber *(v1.12+)*	integer	*read-only (null)*	The memory region number.
}]			
ReleaseCapacityPoliciesSupported *(v1.12+)* [ ]	array (string (enum))	*read-only (null)*	The set of removal policies supported by the CXL device when dynamic capacity is released. *For the possible property values, see ReleaseCapacityPoliciesSupported in Property details.*
SanitizationOnReleaseSupport *(v1.12+)* [{	array		An indication of whether the sanitization on capacity release is configurable for the memory regions in this CXL device.
RegionNumber *(v1.12+)*	integer	*read-only (null)*	The memory region number.
SanitizationOnReleaseSupported *(v1.12+)*	boolean	*read-only (null)*	An indication of whether the sanitization on capacity release is configurable for this memory region.
}]			
TotalDynamicCapacityMiB *(v1.12+)*	integer (mebibytes)	*read-only (null)*	The total memory media capacity of the CXL device available for dynamic assignment in mebibytes (MiB).
}			
EgressPortCongestionSupport *(v1.11+)*	boolean	*read-only (null)*	Indicates whether the CXL device supports egress port congestion management.
MaxNumberLogicalDevices *(v1.11+)*	integer	*read-only (null)*	The maximum number of logical devices supported by this CXL device.
TemporaryThroughputReductionEnabled *(v1.14+)*	boolean	*read-write (null)*	Indicates whether temporary throughput reduction is enabled.
TemporaryThroughputReductionSupported *(v1.14+)*	boolean	*read-only (null)*	Indicates whether temporary throughput reduction is supported.

Property	Type	Attributes	Notes
ThroughputReductionSupport *(v1.11+, deprecated v1.14)*	boolean	*read-only (null)*	Indicates whether the CXL device supports throughput reduction. *Deprecated in v1.14 and later. This property has been deprecated in favor of* `TemporaryThroughputReductionSupported` *to align with the CXL Specification-defined FMAPI command.*
Timestamp *(v1.11+)*	string (date-time)	*read-write*	The timestamp set on the CXL device.
}			
CXLLogicalDevices *(v1.11+)* {	object		The link to the collection of CXL logical devices within this PCIe device. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *CXLLogicalDevice*. See the CXLLogicalDevice schema for details.
}			
DeviceType	string (enum)	*read-only*	The device type for this PCIe device. *For the possible property values, see DeviceType in Property details.*
EnvironmentMetrics *(v1.7+)* {	object		The link to the environment metrics for this PCIe device. See the *EnvironmentMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a EnvironmentMetrics resource. See the Links section and the *EnvironmentMetrics* schema for details.
}			
FirmwareVersion	string	*read-only (null)*	The version of firmware for this PCIe device.
Links {	object		The links to other resources that are related to this resource.
Chassis [{	array		An array of links to the chassis in which the PCIe device is contained.
@odata.id	string	*read-only*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}]			
ConnectedPCIePorts *(v1.19+)* [{	array		An array of links to the remote PCIe ports to which this device is connected.
@odata.id	string	*read-only*	Link to a Port resource. See the Links section and the *Port* schema for details.
}]			

Property	Type	Attributes	Notes
Oem {}	object		See the Oem object definition in the Common properties section.
PCIeFunctions *(deprecated v1.4)* [{	array		An array of links to PCIe functions exposed by this device. *Deprecated in v1.4 and later. This property has been deprecated in favor of the* `PCIeFunctions` *property in the root that provides a link to a resource collection.*
@odata.id	string	*read-only*	Link to a PCIeFunction resource. See the Links section and the *PCIeFunction* schema for details.
}]			
Processors *(v1.12+)* [{	array		An array of links to the processors that are directly connected or directly bridged to this PCIe device.
@odata.id	string	*read-only*	Link to a Processor resource. See the Links section and the *Processor* schema for details.
}]			
Switch *(v1.10+)* {	object	*(null)*	The link to a switch that is associated with this PCIe device. See the *Switch* schema for details on this property.
@odata.id	string	*read-only*	Link to a Switch resource. See the Links section and the *Switch* schema for details.
}			
}			
LocationIndicatorActive *(v1.12+)*	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
Manufacturer	string	*read-only (null)*	The manufacturer of this PCIe device.
Model	string	*read-only (null)*	The model number for the PCIe device.
PartNumber	string	*read-only (null)*	The part number for this PCIe device.
PCIeFunctions *(v1.4+)* {	object		The link to the collection of PCIe functions associated with this PCIe device. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *PCIeFunction*. See the PCIeFunction schema for details.
}			

Property	Type	Attributes	Notes
PCIeInterface *(v1.3+)* {	object		The PCIe interface details for this PCIe device.
LanesInUse *(v1.3+)*	integer	*read-only (null)*	The number of PCIe lanes in use by this device.
MaxLanes *(v1.3+)*	integer	*read-only (null)*	The number of PCIe lanes supported by this device.
MaxPCIeType *(v1.3+)*	string (enum)	*read-only (null)*	The highest version of the PCIe specification supported by this device. *For the possible property values, see MaxPCIeType in Property details.*
Oem *(v1.3+)* {}	object		See the Oem object definition in the Common properties section.
PCIeType *(v1.3+)*	string (enum)	*read-only (null)*	The version of the PCIe specification in use by this device. *For the possible property values, see PCIeType in Property details.*
}			
ReadyToRemove *(v1.7+)*	boolean	*read-write (null)*	An indication of whether the PCIe device is prepared by the system for removal.
SerialNumber	string	*read-only (null)*	The serial number for this PCIe device.
SKU	string	*read-only (null)*	The SKU for this PCIe device.
Slot *(v1.9+)* {	object	*(null)*	Information about the slot for this PCIe device.
HotPluggable *(v1.12+)*	boolean	*read-only (null)*	An indication of whether this PCIe slot supports hotplug.
Lanes *(v1.9+)*	integer	*read-only (null)*	The number of PCIe lanes supported by this slot.
LaneSplitting *(v1.9+)*	string (enum)	*read-only (null)*	The lane splitting strategy used in the PCIe slot. *For the possible property values, see LaneSplitting in Property details.*
Location *(v1.9+)* {}	object		The location of the PCIe slot. For property details, see Location.
PCIeType *(v1.9+)*	string (enum)	*read-only (null)*	The PCIe specification this slot supports. *For the possible property values, see PCIeType in Property details.*
SlotType *(v1.9+)*	string (enum)	*read-only (null)*	The PCIe slot type. *For the possible property values, see SlotType in Property details.*

Property	Type	Attributes	Notes
}			
SparePartNumber *(v1.6+)*	string	*read-only (null)*	The spare part number of the PCIe device.
StagedVersion *(v1.11+)*	string	*read-only*	The staged firmware version for this PCIe device; this firmware is not yet active.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
UUID *(v1.5+)*	string (uuid)	*read-only (null)*	The UUID for this PCIe device.

6.96.4 Property details

6.96.4.1 AddCapacityPoliciesSupported

The set of selection policies supported by the CXL device when dynamic capacity is added.

string	Description
Contiguous	Contiguous add capacity policy.
Free	Free add capacity policy.
Prescriptive	Prescriptive add or release policy.
TagBased	Tag-based release policy.

6.96.4.2 CapableProtocolVersions

An array of the CXL specification revisions supported by this device.

string	Description
CXL1_1	CXL protocol specification revision 1.1.
CXL2_0	CXL protocol specification revision 2.0.
CXL3_0	CXL protocol specification revision 3.0.
CXL3_1	CXL protocol specification revision 3.1.

string	Description
CXL3_2	CXL protocol specification revision 3.2.

6.96.4.3 CurrentProtocolVersion

The revision of the CXL specification in use by this device.

string	Description
CXL1_1	CXL protocol specification revision 1.1.
CXL2_0	CXL protocol specification revision 2.0.
CXL3_0	CXL protocol specification revision 3.0.
CXL3_1	CXL protocol specification revision 3.1.
CXL3_2	CXL protocol specification revision 3.2.

6.96.4.4 DeviceType

6.96.4.4.1 In top level:

The device type for this PCIe device.

string	Description
MultiFunction	A multi-function PCIe device.
Retimer *(v1.10+)*	A PCIe retimer device.
Simulated	A PCIe device that is not currently physically present, but is being simulated by the PCIe infrastructure.
SingleFunction	A single-function PCIe device.

6.96.4.4.2 In CXLDevice:

The CXL device type.

string	Description
Type1	A CXL Type 1 device.

string	Description
Type2	A CXL Type 2 device.
Type3	A CXL Type 3 device.

6.96.4.5 LaneSplitting

The lane splitting strategy used in the PCIe slot.

string	Description
Bifurcated	The slot is bifurcated to split the lanes with associated devices.
Bridged	The slot has a bridge to share the lanes with associated devices.
None	The slot has no lane splitting.

6.96.4.6 MaxPCIeType

The highest version of the PCIe specification supported by this device.

string	Description
Gen1	A PCIe v1.0 slot.
Gen2	A PCIe v2.0 slot.
Gen3	A PCIe v3.0 slot.
Gen4	A PCIe v4.0 slot.
Gen5	A PCIe v5.0 slot.
Gen6 *(v1.16+)*	A PCIe v6.0 slot.

6.96.4.7 PCIeType

The version of the PCIe specification in use by this device.

string	Description
Gen1	A PCIe v1.0 slot.

string	Description
Gen2	A PCIe v2.0 slot.
Gen3	A PCIe v3.0 slot.
Gen4	A PCIe v4.0 slot.
Gen5	A PCIe v5.0 slot.
Gen6 *(v1.16+)*	A PCIe v6.0 slot.

6.96.4.8 ReleaseCapacityPoliciesSupported

The set of removal policies supported by the CXL device when dynamic capacity is released.

string	Description
Contiguous	Contiguous add capacity policy.
Free	Free add capacity policy.
Prescriptive	Prescriptive add or release policy.
TagBased	Tag-based release policy.

6.96.4.9 SlotType

The PCIe slot type.

string	Description
EDSFF *(v1.17+)*	EDSFF slot.
FullLength	Full-Length PCIe slot.
HalfLength	Half-Length PCIe slot.
LowProfile	Low-Profile or Slim PCIe slot.
M2	PCIe M.2 slot.
Mini	Mini PCIe slot.
OCP3Large	Open Compute Project 3.0 large form factor slot.
OCP3Small	Open Compute Project 3.0 small form factor slot.

string	Description
OEM	An OEM-specific slot.
U2	U.2 / SFF-8639 slot or bay.

6.96.5 Example response


```
{
    "@odata.type": "#PCIeDevice.v1_19_0.PCIeDevice",
    "Id": "NIC",
    "Name": "Simple Two-Port NIC",
    "Description": "Simple Two-Port NIC PCIe Device",
    "AssetTag": "ORD-4302015-18432RS",
    "Manufacturer": "Contoso",
    "Model": "SuperNIC 2000",
    "SKU": "89587433",
    "SerialNumber": "2M220100SL",
    "PartNumber": "232-4598D7",
    "DeviceType": "MultiFunction",
    "FirmwareVersion": "12.342-343",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollup": "OK"
    },
    "PCIeInterface": {
        "PCIeType": "Gen2",
        "MaxPCIeType": "Gen3",
        "LanesInUse": 4,
        "MaxLanes": 4
    },
    "PCIeFunctions": {
        "@odata.id": "/redfish/v1/Systems/1/PCIeDevices/NIC/PCIeFunctions"
    },
    "Links": {
        "Chassis": [
            {
                "@odata.id": "/redfish/v1/Chassis/1"
            }
        ]
    },
    "@odata.id": "/redfish/v1/Systems/1/PCIeDevices/NIC"
}
```

6.97 PCIeFunction 1.6.0

Version	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2024.1	2022.3	2022.2	2021.1	2018.1	2017.1	2016.2

6.97.1 Description

The `PCIeFunction` schema describes the properties of a PCIe function that is attached to a system.

6.97.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/PCIeDevices/*{PCIeDeviceId}*/PCIeFunctions/*{PCIeFunctionId}*
/redfish/v1/Systems/*{ComputerSystemId}*/PCIeDevices/*{PCIeDeviceId}*/PCIeFunctions/*{PCIeFunctionId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.97.3 Properties

Property	Type	Attributes	Notes
BusNumber *(v1.6+)*	string	*read-only (null)*	The bus number of this PCIe function.
ClassCode	string	*read-only (null)*	The Class Code of this PCIe function.
DeviceClass	string (enum)	*read-only*	The class for this PCIe function. *For the possible property values, see DeviceClass in Property details.*
DeviceId	string	*read-only (null)*	The Device ID of this PCIe function.
DeviceNumber *(v1.6+)*	string	*read-only (null)*	The device number of this PCIe function.
Enabled *(v1.3+)*	boolean	*read-write*	An indication of whether this PCIe device function is enabled.
FunctionId	integer	*read-only (null)*	The PCIe function number.
FunctionNumber *(v1.6+)*	string	*read-only (null)*	The function number of this PCIe function.

Property	Type	Attributes	Notes
FunctionProtocol *(v1.5+)*	string (enum)	*read-only* *(null)*	The PCIe function protocol. *For the possible property values, see FunctionProtocol in Property details.*
FunctionType	string (enum)	*read-only*	The type of the PCIe function. *For the possible property values, see FunctionType in Property details.*
Links {	object		The links to other resources that are related to this resource.
CXLLogicalDevice *(v1.5+)* {	object	*(null)*	The link to the CXL logical device to which this function is assigned. See the *CXLLogicalDevice* schema for details on this property.
@odata.id	string	*read-only*	Link to a CXLLogicalDevice resource. See the Links section and the *CXLLogicalDevice* schema for details.
}			
Drives [{	array		An array of links to the drives that this PCIe function produces.
@odata.id	string	*read-only*	Link to a Drive resource. See the Links section and the *Drive* schema for details.
}]			
EthernetInterfaces [{	array		An array of links to the Ethernet interfaces that this PCIe function produces.
@odata.id	string	*read-only*	Link to a EthernetInterface resource. See the Links section and the *EthernetInterface* schema for details.
}]			
MemoryDomains *(v1.5+)* [{	array		An array of links to the memory domains that the PCIe function produces.
@odata.id	string	*read-only*	Link to a MemoryDomain resource. See the Links section and the *MemoryDomain* schema for details.
}]			
NetworkDeviceFunctions *(v1.2+)* [{	array		An array of links to the network device functions that the PCIe function produces.
@odata.id	string	*read-only*	Link to a NetworkDeviceFunction resource. See the Links section and the *NetworkDeviceFunction* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
PCIeDevice {	object		The link to the PCIe device on which this function resides. See the *PCIeDevice* schema for details on this property.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a PCIeDevice resource. See the Links section and the *PCIeDevice* schema for details.
}			
Processor *(v1.4+)* {	object	*(null)*	The link to a processor that is hosted on this PCIe function. See the *Processor* schema for details on this property.
@odata.id	string	*read-only*	Link to a Processor resource. See the Links section and the *Processor* schema for details.
}			
StorageControllers [{	array		An array of links to the storage controllers that this PCIe function produces.
@odata.id	string	*read-only*	Link to a StorageController resource. See the Links section and the *Storage* schema for details.
}]			
}			
RevisionId	string	*read-only* *(null)*	The Revision ID of this PCIe function.
SegmentNumber *(v1.6+)*	string	*read-only* *(null)*	The segment number of this PCIe function.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
SubsystemId	string	*read-only* *(null)*	The Subsystem ID of this PCIe function.
SubsystemVendorId	string	*read-only* *(null)*	The Subsystem Vendor ID of this PCIe function.
VendorId	string	*read-only* *(null)*	The Vendor ID of this PCIe function.

6.97.4 Property details

6.97.4.1 DeviceClass

The class for this PCIe function.

string	Description
Bridge	A bridge.
CommunicationController	A communication controller.
Coprocessor	A coprocessor.
DisplayController	A display controller.
DockingStation	A docking station.
EncryptionController	An encryption controller.
GenericSystemPeripheral	A generic system peripheral.
InputDeviceController	An input device controller.
IntelligentController	An intelligent controller.
MassStorageController	A mass storage controller.
MemoryController	A memory controller.
MultimediaController	A multimedia controller.
NetworkController	A network controller.
NonEssentialInstrumentation	A non-essential instrumentation.
Other	Other class. The function Class Code needs to be verified.
ProcessingAccelerators	A processing accelerators.
Processor	A processor.
SatelliteCommunicationsController	A satellite communications controller.
SerialBusController	A serial bus controller.
SignalProcessingController	A signal processing controller.
UnassignedClass	An unassigned class.
UnclassifiedDevice	An unclassified device.
WirelessController	A wireless controller.

6.97.4.2 FunctionProtocol

The PCIe function protocol.

string	Description
CXL	A PCIe function supporting CXL extensions.
PCIe	A standard PCIe function.

6.97.4.3 FunctionType

The type of the PCIe function.

string	Description
Physical	A physical PCIe function.
Virtual	A virtual PCIe function.

6.97.5 Example response

```
{
    "@odata.type": "#PCIeFunction.v1_6_0.PCIeFunction",
    "Id": "2",
    "Name": "FC Port 2",
    "Description": "FC Port 2",
    "FunctionId": 2,
    "FunctionType": "Physical",
    "DeviceClass": "NetworkController",
    "DeviceId": "0xABCD",
    "VendorId": "0xABCD",
    "ClassCode": "0x010802",
    "RevisionId": "0x00",
    "SubsystemId": "0xABCD",
    "SubsystemVendorId": "0xABCD",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollup": "OK"
    },
    "Links": {
        "PCIeDevice": {
            "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/FC"
        }
    },
    "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/FC/PCIeFunctions/2"
}
```

6.98 PCIeSlots 1.6.1 (deprecated)

Version	*v1.6 Deprecated*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2023.2	2021.3	2020.3	2020.1	2019.4	2019.1	2018.2

This schema has been deprecated and use in new implementations is discouraged except to retain compatibility with existing products. This schema has been deprecated in favor of the `PCIeDevice` schema. Empty PCIe slots should be represented by `PCIeDevice` resources using the `Absent` value of the `State` property within `Status`.

6.98.1 Description

The `PCIeSlots` schema describes PCIe slot properties.

6.98.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/PCIeSlots

6.98.3 Properties

Property	Type	Attributes	Notes
Slots [{	array		An array of PCI Slot information.
HotPluggable *(v1.1+)*	boolean	*read-only (null)*	An indication of whether this PCIe slot supports hotplug.
Lanes	integer	*read-only (null)*	The number of PCIe lanes supported by this slot.
Links {	object		The links to other resources that are related to this resource.
Oem {}	object		See the Oem object definition in the Common properties section.
PCIeDevice [{	array		An array of links to the PCIe devices contained in this slot.
@odata.id	string	*read-only*	Link to a PCIeDevice resource. See the Links section and the *PCIeDevice* schema for details.
}]			
Processors *(v1.5+)* [{	array		An array of links to the processors that are directly connected or directly bridged to this PCIe slot.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a Processor resource. See the Links section and the *Processor* schema for details.
}]			
}			
Location {}	object		The location of the PCIe slot. For property details, see Location.
LocationIndicatorActive *(v1.4+)*	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
Oem {}	object		See the Oem object definition in the Common properties section.
PCIeType	string (enum)	*read-only (null)*	The PCIe specification supported by this slot. *For the possible property values, see PCIeType in Property details.*
SlotType	string (enum)	*read-only (null)*	The PCIe slot type for this slot. *For the possible property values, see SlotType in Property details.*
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
}]			

6.98.4 Property details

6.98.4.1 PCIeType

The PCIe specification supported by this slot.

string	Description
Gen1	A PCIe v1.0 slot.
Gen2	A PCIe v2.0 slot.
Gen3	A PCIe v3.0 slot.
Gen4	A PCIe v4.0 slot.
Gen5	A PCIe v5.0 slot.
Gen6	A PCIe v6.0 slot.

6.98.4.2 SlotType

The PCIe slot type for this slot.

string	Description
FullLength	Full-Length PCIe slot.
HalfLength	Half-Length PCIe slot.
LowProfile	Low-Profile or Slim PCIe slot.
M2	PCIe M.2 slot.
Mini	Mini PCIe slot.
OCP3Large *(v1.2+)*	Open Compute Project 3.0 large form factor slot.
OCP3Small *(v1.2+)*	Open Compute Project 3.0 small form factor slot.
OEM	An OEM-specific slot.
U2 *(v1.3+)*	U.2 / SFF-8639 slot or bay.

6.98.5 Example response

```
{
    "@odata.type": "#PCIeSlots.v1_6_1.PCIeSlots",
    "Id": "1",
    "Name": "PCIe Slot Information",
    "Slots": [
        {
            "PCIeType": "Gen3",
            "Lanes": 16,
            "SlotType": "FullLength",
            "Status": {
                "State": "Enabled"
            },
            "Location": {
                "PartLocation": {
                    "ServiceLabel": "Slot 1",
                    "LocationOrdinalValue": 1,
                    "LocationType": "Slot",
                    "Orientation": "LeftToRight",
                    "Reference": "Rear"
                }
            },
```

```
            "Links": {
                "PCIeDevice": [
                    {
                        "@odata.id": "/redfish/v1/Systems/1/PCIeDevices/NIC"
                    }
                ]
            }
        },
        {
            "PCIeType": "Gen4",
            "Lanes": 4,
            "SlotType": "FullLength",
            "Status": {
                "State": "Absent"
            },
            "Location": {
                "PartLocation": {
                    "ServiceLabel": "Slot 2",
                    "LocationOrdinalValue": 2,
                    "LocationType": "Slot",
                    "Orientation": "LeftToRight",
                    "Reference": "Rear"
                }
            }
        },
        {
            "PCIeType": "Gen3",
            "Lanes": 1,
            "SlotType": "HalfLength",
            "Status": {
                "State": "Absent"
            },
            "Location": {
                "PartLocation": {
                    "ServiceLabel": "Slot 3",
                    "LocationOrdinalValue": 3,
                    "LocationType": "Slot",
                    "Orientation": "LeftToRight",
                    "Reference": "Rear"
                }
            }
        }
    ],
    "@odata.id": "/redfish/v1/Chassis/1/PCIeSlots"
}
```

6.99 Port 1.16.0

Version	*v1.16*	*v1.15*	*v1.14*	*v1.13*	*v1.12*	*v1.11*	*v1.10*	*v1.9*	*v1.8*	*v1.7*	*v1.6*	...
Release	2025.1	2024.4	2024.3	2024.2	2024.1	2023.3	2023.2	2023.1	2022.3	2022.2	2021.4	...

6.99.1 Description

The `Port` schema contains properties that describe a port of a switch, controller, chassis, or any other device that could be connected to another entity.

6.99.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*
/redfish/v1/Chassis/*{ChassisId}*/MediaControllers/*{MediaControllerId}*/Ports/*{PortId}*
/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Ports/*{PortId}*
/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*
/redfish/v1/Managers/*{ManagerId}*/DedicatedNetworkPorts/*{PortId}*
/redfish/v1/Managers/*{ManagerId}*/USBPorts/*{PortId}*
/redfish/v1/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Ports/*{PortId}*
/redfish/v1/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports/*{PortId}*
/redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*
/redfish/v1/Systems/*{ComputerSystemId}*/GraphicsControllers/*{GraphicsControllerId}*/Ports/*{PortId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/Ports/*{PortId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Ports/*{PortId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports/*{PortId}*
/redfish/v1/Systems/*{ComputerSystemId}*/USBControllers/*{USBControllerId}*/Ports/*{PortId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.99.3 Properties

Property	Type	Attributes	Notes
ActiveWidth *(v1.2+)*	integer	*read-only*	The number of active lanes for this interface.
CapableProtocolVersions *(v1.4+)* [ ]	array (string, null)	*read-only*	The protocol versions capable of being sent over this port.

Property	Type	Attributes	Notes
ConfiguredSpeedGbps *(v1.16+)*	number (Gbit/s)	*read-write (null)*	The speed to which this port is configured to train when autonegotiation is disabled.
ConfiguredWidth *(v1.16+)*	integer	*read-write (null)*	The number of lanes, phys, or other physical transport links to which this port is configured to train when autonegotiation is disabled.
CurrentProtocolVersion *(v1.4+)*	string	*read-only (null)*	The protocol version being sent over this port.
CurrentSpeedGbps	number (Gbit/s)	*read-only (null)*	The current speed of this port.
CXL *(v1.8+)* {	object	*(null)*	CXL properties for this port.
Congestion *(v1.8+)* {	object	*(null)*	The congestion properties for this CXL port.
BackpressureSampleInterval *(v1.8+)*	integer	*read-write (null)*	The interval for the CXL Specification-defined 'Egress Port Congestion' mechanism to take samples in nanoseconds.
CompletionCollectionInterval *(v1.8+)*	integer	*read-write (null)*	The interval for the CXL Specification-defined 'Completion Counting' mechanism to collect the number of transmitted responses in a single counter in nanoseconds.
CongestionTelemetryEnabled *(v1.8+)*	boolean	*read-write (null)*	Indicates whether congestion telemetry collection is enabled for this port.
EgressModeratePercentage *(v1.8+)*	integer (%)	*read-write (null)*	The threshold for moderate egress port congestion as a percentage.
EgressSeverePercentage *(v1.8+)*	integer (%)	*read-write (null)*	The threshold for severe egress port congestion as a percentage.
MaxSustainedRequestCmpBias *(v1.8+)*	integer	*read-write (null)*	The estimated maximum sustained sum of requests and recent responses across the entire device, serving as the basis for the CXL Specification-defined 'QoS Limit Fraction'.
}			
ConnectedDeviceMode *(v1.8+)*	string (enum)	*read-only (null)*	The connected device mode. *For the possible property values, see ConnectedDeviceMode in Property details.*
ConnectedDeviceType *(v1.8+)*	string (enum)	*read-only (null)*	The connected device type. *For the possible property values, see ConnectedDeviceType in Property details.*
CurrentPortConfigurationState *(v1.8+)*	string (enum)	*read-only (null)*	The current port configuration state. *For the possible property values, see CurrentPortConfigurationState in Property details.*

Property	Type	Attributes	Notes
MaxLogicalDeviceCount *(v1.8+)*	integer	*read-only (null)*	The maximum number of logical devices supported.
QoSTelemetryCapabilities *(v1.8+)* {	object	*(null)*	The quality of service telemetry capabilities for this CXL port.
EgressPortBackpressureSupported *(v1.8+)*	boolean	*read-only (null)*	Indicates whether the port supports the CXL Specification-defined 'Egress Port Backpressure' mechanism.
TemporaryThroughputReductionSupported *(v1.8+, deprecated v1.12)*	boolean	*read-only (null)*	Indicates whether the port supports the CXL Specification-defined 'Temporary Throughput Reduction' mechanism. *Deprecated in v1.12 and later. This property has been deprecated in favor of* `TemporaryThroughputReductionSupported` *in* `PCIeDevice`.
}			
SupportedCXLModes *(v1.11+)* [ ]	array (string (enum))	*read-only (null)*	The supported device modes. *For the possible property values, see SupportedCXLModes in Property details.*
TemporaryThroughputReductionEnabled *(v1.8+, deprecated v1.12)*	boolean	*read-write (null)*	Indicates whether temporary throughput reduction is enabled. *Deprecated in v1.12 and later. This property has been deprecated in favor of* `TemporaryThroughputReductionEnabled` *in* `PCIeDevice`.
}			
Enabled *(v1.4+, deprecated v1.10)*	boolean	*read-write*	An indication of whether this port is enabled. *Deprecated in v1.10 and later. This property has been deprecated in favor of* `InterfaceEnabled`.
EnvironmentMetrics *(v1.4+)* {	object		The link to the environment metrics for this port or any attached small form-factor pluggable (SFP) device. See the *EnvironmentMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a EnvironmentMetrics resource. See the Links section and the *EnvironmentMetrics* schema for details.
}			
Ethernet *(v1.3+)* {	object	*(null)*	Ethernet properties for this port.
AssociatedMACAddresses *(v1.4+)* [ ]	array (string, null)	*read-only*	An array of configured MAC addresses that are associated with this network port, including the programmed address of the lowest-numbered network device function, the configured but not active address, if applicable, the address for hardware port teaming, or other network addresses.

Property	Type	Attributes	Notes
EEEEnabled *(v1.5+)*	boolean	*read-write (null)*	Indicates whether IEEE 802.3az Energy-Efficient Ethernet (EEE) is enabled on this port.
FlowControlConfiguration *(v1.3+)*	string (enum)	*read-write (null)*	The locally configured 802.3x flow control setting for this port. *For the possible property values, see FlowControlConfiguration in Property details.*
FlowControlStatus *(v1.3+)*	string (enum)	*read-only (null)*	The 802.3x flow control behavior negotiated with the link partner for this port. *For the possible property values, see FlowControlStatus in Property details.*
LLDPEnabled *(v1.4+)*	boolean	*read-write*	Enable/disable LLDP for this port.
LLDPReceive *(v1.4+)* {	object	*(null)*	LLDP data being received on this link.
ChassisId *(v1.4+)*	string	*read-only (null)*	Link Layer Data Protocol (LLDP) chassis ID received from the remote partner across this link.
ChassisIdSubtype *(v1.4+)*	string (enum)	*read-only (null)*	The type of identifier used for the chassis ID received from the remote partner across this link. *For the possible property values, see ChassisIdSubtype in Property details.*
ManagementAddressIPv4 *(v1.4+)*	string	*read-only (null)*	The IPv4 management address received from the remote partner across this link.
ManagementAddressIPv6 *(v1.4+)*	string	*read-only (null)*	The IPv6 management address received from the remote partner across this link.
ManagementAddressMAC *(v1.4+)*	string	*read-only (null)*	The management MAC address received from the remote partner across this link.
ManagementVlanId *(v1.4+)*	integer	*read-only (null)*	The management VLAN ID received from the remote partner across this link.
PortId *(v1.4+)*	string	*read-only (null)*	A colon-delimited string of hexadecimal octets identifying a port.
PortIdSubtype *(v1.4+)*	string (enum)	*read-only (null)*	The port ID subtype received from the remote partner across this link. *For the possible property values, see PortIdSubtype in Property details.*
SystemCapabilities *(v1.8+)* [ ]	array (string (enum))	*read-only (null)*	The system capabilities received from the remote partner across this link. *For the possible property values, see SystemCapabilities in Property details.*
SystemDescription *(v1.8+)*	string	*read-only (null)*	The system description received from the remote partner across this link.
SystemName *(v1.8+)*	string	*read-only (null)*	The system name received from the remote partner across this link.

Property	Type	Attributes	Notes
}			
LLDPTransmit *(v1.4+)* {	object	*(null)*	LLDP data being transmitted on this link.
ChassisId *(v1.4+)*	string	*read-write (null)*	Link Layer Data Protocol (LLDP) chassis ID.
ChassisIdSubtype *(v1.4+)*	string (enum)	*read-write (null)*	The type of identifier used for the chassis ID. *For the possible property values, see ChassisIdSubtype in Property details.*
ManagementAddressIPv4 *(v1.4+)*	string	*read-write (null)*	The IPv4 management address to be transmitted from this endpoint.
ManagementAddressIPv6 *(v1.4+)*	string	*read-write (null)*	The IPv6 management address to be transmitted from this endpoint.
ManagementAddressMAC *(v1.4+)*	string	*read-write (null)*	The management MAC address to be transmitted from this endpoint.
ManagementVlanId *(v1.4+)*	integer	*read-write (null)*	The management VLAN ID to be transmitted from this endpoint.
PortId *(v1.4+)*	string	*read-write (null)*	A colon-delimited string of hexadecimal octets identifying a port to be transmitted from this endpoint.
PortIdSubtype *(v1.4+)*	string (enum)	*read-write (null)*	The port ID subtype to be transmitted from this endpoint. *For the possible property values, see PortIdSubtype in Property details.*
SystemCapabilities *(v1.8+)* [ ]	array (string (enum))	*read-write (null)*	The system capabilities to be transmitted from this endpoint. *For the possible property values, see SystemCapabilities in Property details.*
SystemDescription *(v1.8+)*	string	*read-write (null)*	The system description to be transmitted from this endpoint.
SystemName *(v1.8+)*	string	*read-write (null)*	The system name to be transmitted from this endpoint.
}			
SupportedEthernetCapabilities *(v1.3+, deprecated v1.5)* [ ]	array (string (enum))	*read-only (null)*	The set of Ethernet capabilities that this port supports. *For the possible property values, see SupportedEthernetCapabilities in Property details. Deprecated in v1.5 and later. This property has been deprecated in favor of individual fields for the various properties.*

Property	Type	Attributes	Notes
WakeOnLANEnabled *(v1.5+)*	boolean	*read-write (null)*	Indicates whether Wake on LAN (WoL) is enabled on this port.
}			
FibreChannel *(v1.3+)* {	object	*(null)*	Fibre Channel properties for this port.
AssociatedWorldWideNames *(v1.4+)* [ ]	array (string, null)	*read-only*	An array of configured World Wide Names (WWN) that are associated with this network port, including the programmed address of the lowest-numbered network device function, the configured but not active address, if applicable, the address for hardware port teaming, or other network addresses.
FabricName *(v1.3+)*	string	*read-only (null)*	The Fibre Channel Fabric Name provided by the switch.
NumberDiscoveredRemotePorts *(v1.3+)*	integer	*read-only (null)*	The number of ports not on the associated device that the associated device has discovered through this port.
PortConnectionType *(v1.3+)*	string (enum)	*read-only (null)*	The connection type of this port. *For the possible property values, see PortConnectionType in Property details.*
}			
FunctionMaxBandwidth *(v1.4+)* [{	array		An array of maximum bandwidth allocation percentages for the functions associated with this port.
AllocationPercent *(v1.4+)*	integer (%)	*read-write (null)*	The maximum bandwidth allocation percentage allocated to the corresponding network device function instance.
NetworkDeviceFunction *(v1.4+)* {	object		The link to the network device function associated with this bandwidth setting of this network port. See the *NetworkDeviceFunction* schema for details on this property.
@odata.id	string	*read-only*	Link to a NetworkDeviceFunction resource. See the Links section and the *NetworkDeviceFunction* schema for details.
}			
}]			
FunctionMinBandwidth *(v1.4+)* [{	array		An array of minimum bandwidth allocation percentages for the functions associated with this port.
AllocationPercent *(v1.4+)*	integer (%)	*read-write (null)*	The minimum bandwidth allocation percentage allocated to the corresponding network device function instance.
NetworkDeviceFunction *(v1.4+)* {	object		The link to the network device function associated with this bandwidth setting of this network port. See the *NetworkDeviceFunction* schema for details on this property.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a NetworkDeviceFunction resource. See the Links section and the *NetworkDeviceFunction* schema for details.
}			
}]			
GenZ *(v1.2+)* {	object		Gen-Z specific properties.
LPRT *(v1.2+)* {	object		The Linear Packet Relay Table for the port. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *RouteEntry*. See the RouteEntry schema for details.
}			
MPRT *(v1.2+)* {	object		The Multi-subnet Packet Relay Table for the port. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *RouteEntry*. See the RouteEntry schema for details.
}			
VCAT *(v1.2+)* {	object		The Virtual Channel Action Table for the port. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *VCATEntry*. See the VCATEntry schema for details.
}			
}			
HostDevice *(v1.15+)*	string (enum)	*read-write (null)*	The current host device for this port. *For the possible property values, see HostDevice in Property details.*
InfiniBand *(v1.6+)* {	object	*(null)*	InfiniBand properties for this port.
AssociatedNodeGUIDs *(v1.6+)* [ ]	array (string, null)	*read-only*	An array of configured node GUIDs that are associated with this network port, including the programmed address of the lowest-numbered network device function, the configured but not active address, if applicable, the address for hardware port teaming, or other network addresses.

Property	Type	Attributes	Notes
AssociatedPortGUIDs *(v1.6+)* [ ]	array (string, null)	*read-only*	An array of configured port GUIDs that are associated with this network port, including the programmed address of the lowest-numbered network device function, the configured but not active address, if applicable, the address for hardware port teaming, or other network addresses.
AssociatedSystemGUIDs *(v1.6+)* [ ]	array (string, null)	*read-only*	An array of configured system GUIDs that are associated with this network port, including the programmed address of the lowest-numbered network device function, the configured but not active address, if applicable, the address for hardware port teaming, or other network addresses.
}			
InterfaceEnabled *(v1.2+)*	boolean	*read-write (null)*	An indication of whether the port is enabled.
LinkConfiguration *(v1.3+)* [{	array		The link configuration of this port.
AutoSpeedNegotiationCapable *(v1.3+)*	boolean	*read-only (null)*	An indication of whether the port is capable of autonegotiating speed.
AutoSpeedNegotiationEnabled *(v1.3+)*	boolean	*read-write (null)*	Controls whether this port is configured to enable autonegotiating speed.
CapableLinkSpeedGbps *(v1.3+)* [ ]	array (Gbit/s) (number, null)	*read-only*	The set of link speed capabilities of this port.
ConfiguredNetworkLinks *(v1.3+)* [{	array		The set of link speed and width pairs this port is configured to use for autonegotiation.
ConfiguredLinkSpeedGbps *(v1.3+)*	number (Gbit/s)	*read-write (null)*	The link speed per lane this port is configured to use for autonegotiation.
ConfiguredWidth *(v1.3+)*	integer	*read-write (null)*	The link width this port is configured to use for autonegotiation in conjunction with the link speed.
}]			
LinkNetworkTechnology *(v1.16+)*	string (enum)	*read-only (null)*	The link network technology for this link configuration. *For the possible property values, see LinkNetworkTechnology in Property details.*
}]			
LinkNetworkTechnology *(v1.2+)*	string (enum)	*read-only (null)*	The current link network technology for this port. *For the possible property values, see LinkNetworkTechnology in Property details.*

Property	Type	Attributes	Notes
Links {	object		The links to other resources that are related to this resource.
AssociatedEndpoints [{	array		An array of links to the endpoints at the other end of the link.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
Cables *(v1.5+)* [{	array		An array of links to the cables connected to this port.
@odata.id	string	*read-only*	Link to a Cable resource. See the Links section and the *Cable* schema for details.
}]			
ConnectedPorts *(v1.2+)* [{	array		An array of links to the remote device ports at the other end of the link.
@odata.id	string	*read-only*	Link to another Port resource.
}]			
ConnectedSwitches [{	array		An array of links to the switches at the other end of the link.
@odata.id	string	*read-only*	Link to a Switch resource. See the Links section and the *Switch* schema for details.
}]			
ConnectedSwitchPorts [{	array		An array of links to the switch ports at the other end of the link.
@odata.id	string	*read-only*	Link to another Port resource.
}]			
EthernetInterfaces *(v1.7+)* [{	array		The links to the Ethernet interfaces this port provides.
@odata.id	string	*read-only*	Link to a EthernetInterface resource. See the Links section and the *EthernetInterface* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
}			
LinkState *(v1.2+)*	string (enum)	*read-write*	The desired link state for this interface. *For the possible property values, see LinkState in Property details.*

Property	Type	Attributes	Notes
LinkStatus *(v1.2+)*	string (enum)	*read-only*	The link status for this interface. *For the possible property values, see LinkStatus in Property details.*
LinkTransitionIndicator *(v1.2+)*	integer	*read-write*	The number of link state transitions for this interface.
Location *(v1.1+)* {}	object		The location of the port. For property details, see Location.
LocationIndicatorActive *(v1.3+)*	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
MaxFrameSize *(v1.3+)*	integer (bytes)	*read-only (null)*	The maximum frame size supported by the port.
MaxSpeedGbps	number (Gbit/s)	*read-only (null)*	The maximum speed of this port as currently configured.
Metrics *(v1.2+)* {	object	*(null)*	The link to the metrics associated with this port. See the *PortMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a PortMetrics resource. See the Links section and the *PortMetrics* schema for details.
}			
PortId	string	*read-only (null)*	The hardware-defined identifier of this port.
PortMedium *(v1.2+)*	string (enum)	*read-only (null)*	The physical connection medium for this port. *For the possible property values, see PortMedium in Property details.*
PortProtocol	string (enum)	*read-only (null)*	The protocol being sent over this port. *For the possible property values, see PortProtocol in Property details.*
PortType	string (enum)	*read-write (null)*	The type of this port. *For the possible property values, see PortType in Property details.*
RemotePortId *(v1.8+)*	string	*read-only (null)*	The identifier of the remote port to which this port is connected.
SFP *(v1.4+)* {	object	*(null)*	The small form-factor pluggable (SFP) device associated with this port.
DateCode *(v1.14+)*	string	*read-only (null)*	The manufacturing date code for this SFP.
FiberConnectionType *(v1.4+)*	string (enum)	*read-only (null)*	The type of fiber connection currently used by this SFP. *For the possible property values, see FiberConnectionType in Property details.*

Property	Type	Attributes	Notes
Manufacturer *(v1.4+)*	string	*read-only (null)*	The manufacturer of this SFP.
MediumType *(v1.4+)*	string (enum)	*read-only (null)*	The medium type connected to this SFP. *For the possible property values, see MediumType in Property details.*
PartNumber *(v1.4+)*	string	*read-only (null)*	The part number for this SFP.
SerialNumber *(v1.4+)*	string	*read-only (null)*	The serial number for this SFP.
Status *(v1.4+)* {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
SupportedSFPTypes *(v1.4+)* [ ]	array (string (enum))	*read-only (null)*	The types of SFP devices that can be attached to this port. *For the possible property values, see SupportedSFPTypes in Property details.*
Type *(v1.4+)*	string (enum)	*read-only (null)*	The type of SFP device that is attached to this port. *For the possible property values, see Type in Property details.*
VendorOUI *(v1.13+)*	string	*read-only (null)*	The IEEE OUI of the vendor of this SFP.
Version *(v1.13+)*	string	*read-only (null)*	The hardware version of this SFP.
}			
SignalDetected *(v1.2+)*	boolean	*read-only (null)*	An indication of whether a signal is detected on this interface.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
Width	integer	*read-only (null)*	The number of lanes, phys, or other physical transport links that this port contains.

6.99.4 Actions

6.99.4.1 Reset

Description

This action resets this port.

Action URI

{Base URI of target resource}/Actions/Port.Reset

Action parameters

Parameter Name	Type	Attributes	Notes
ResetType	string (enum)	*optional*	The type of reset. *For the possible property values, see ResetType in Property details.*

Request Example

```
{
    "ResetType": "ForceRestart"
}
```

6.99.4.2 ResetPPB *(v1.8+)*

Description

This action resets the PCI-to-PCI bridge (PPB) for this port.

Action URI

{Base URI of target resource}/Actions/Port.ResetPPB

Action parameters

This action takes no parameters.

6.99.5 Property details

6.99.5.1 ChassisIdSubtype

The type of identifier used for the chassis ID received from the remote partner across this link.

string	Description
AgentId	Agent circuit ID, based on the agent-local identifier of the circuit as defined in RFC3046.
ChassisComp	Chassis component, based on the value of entPhysicalAlias in RFC4133.

string	Description
IfAlias	Interface alias, based on the ifAlias MIB object.
IfName	Interface name, based on the ifName MIB object.
LocalAssign	Locally assigned, based on an alphanumeric value locally assigned.
MacAddr	MAC address, based on an agent-detected unicast source address as defined in IEEE standard 802.
NetworkAddr	Network address, based on an agent-detected network address.
NotTransmitted	No data to be sent to/received from remote partner.
PortComp	Port component, based on the value of entPhysicalAlias in RFC4133.

6.99.5.2 ConnectedDeviceMode

The connected device mode.

string	Description
CXL68BFlitAndVH	CXL 68B flit and VH.
CXLLatencyOptimized256BFlit	CXL latency-optimized 256B flit.
Disconnected	The connection is not CXL or is disconnected.
PBR	Port-based routing (PBR).
RCD	Restricted CXL device (RCD).
Standard256BFlit	Standard 256B flit.

6.99.5.3 ConnectedDeviceType

The connected device type.

string	Description
None	No device detected.
PCIeDevice	PCIe device.
Type1	CXL Type 1 device.
Type2	CXL Type 2 device.

string	Description
Type3MLD	CXL Type 3 multi-logical device (MLD).
Type3SLD	CXL Type 3 single logical device (SLD).

6.99.5.4 CurrentPortConfigurationState

The current port configuration state.

string	Description
BindInProgress	Bind in progress.
Disabled	Disabled.
DSP	Downstream port (DSP).
FabricLink *(v1.11+)*	Fabric link.
Reserved *(deprecated v1.11)*	Reserved. *Deprecated in v1.11 and later. This value has been deprecated in favor of* `FabricLink`.
UnbindInProgress	Unbind in progress.
USP	Upstream port (USP).

6.99.5.5 FiberConnectionType

The type of fiber connection currently used by this SFP.

string	Description
MultiMode	The connection is using multi mode operation.
SingleMode	The connection is using single mode operation.

6.99.5.6 FlowControlConfiguration

The locally configured 802.3x flow control setting for this port.

string	Description
None	No IEEE 802.3x flow control is enabled on this port.

string	Description
RX	IEEE 802.3x flow control might be initiated by the link partner.
TX	IEEE 802.3x flow control might be initiated by this station.
TX_RX	IEEE 802.3x flow control might be initiated by this station or the link partner.

6.99.5.7 FlowControlStatus

The 802.3x flow control behavior negotiated with the link partner for this port.

string	Description
None	No IEEE 802.3x flow control is enabled on this port.
RX	IEEE 802.3x flow control might be initiated by the link partner.
TX	IEEE 802.3x flow control might be initiated by this station.
TX_RX	IEEE 802.3x flow control might be initiated by this station or the link partner.

6.99.5.8 HostDevice

The current host device for this port.

string	Description
Manager	The port is connected to a manager device.
None	The port is not connected to any host device.
System	The port is connected to a computer system device.

6.99.5.9 LinkNetworkTechnology

The link network technology for this link configuration.

string	Description
Ethernet	The port is capable of connecting to an Ethernet network.
FibreChannel	The port is capable of connecting to a Fibre Channel network.

string	Description
GenZ	The port is capable of connecting to a Gen-Z fabric.
InfiniBand	The port is capable of connecting to an InfiniBand network.
PCIe	The port is capable of connecting to PCIe and CXL fabrics.

6.99.5.10 LinkState

The desired link state for this interface.

string	Description
Disabled	The link is disabled and not operational.
Enabled	The link is enabled and operational.

6.99.5.11 LinkStatus

The link status for this interface.

string	Description
LinkDown	The link on this interface is down.
LinkUp	This link on this interface is up.
NoLink	No physical link detected on this interface.
Starting	This link on this interface is starting. A physical link has been established, but the port is not able to transfer data.
Training	This physical link on this interface is training.

6.99.5.12 MediumType

The medium type connected to this SFP.

string	Description
Copper	The medium connected is copper.

string	Description
FiberOptic	The medium connected is fiber optic.

6.99.5.13 PortConnectionType

The connection type of this port.

string	Description
DPort *(v1.5+)*	This port connection type is a diagnostic port.
EPort *(v1.5+)*	This port connection type is an extender fabric port.
EXPort *(v1.5+)*	This port connection type is an external fabric port.
ExtenderFabric	This port connection type is an extender fabric port.
FLPort *(v1.5+)*	This port connects in a fabric loop configuration.
FPort *(v1.5+)*	This port connection type is a fabric port.
Generic	This port connection type is a generic fabric port.
GPort *(v1.5+)*	This port connection type is a generic fabric port.
NLPort *(v1.5+)*	This port connects in a node loop configuration.
NotConnected	This port is not connected.
NPort	This port connects through an N-port to a switch.
NPPort *(v1.5+)*	This port connection type is a proxy N-port for N-port virtualization.
PointToPoint	This port connects in a point-to-point configuration.
PrivateLoop	This port connects in a private loop configuration.
PublicLoop	This port connects in a public configuration.
TEPort *(v1.5+)*	This port connection type is a trunking extender fabric port.
UPort *(v1.5+)*	This port connection type is unassigned.

6.99.5.14 PortIdSubtype

The port ID subtype received from the remote partner across this link.

string	Description
AgentId	Agent circuit ID, based on the agent-local identifier of the circuit as defined in RFC3046.
ChassisComp	Chassis component, based on the value of entPhysicalAlias in RFC4133.
IfAlias	Interface alias, based on the ifAlias MIB object.
IfName	Interface name, based on the ifName MIB object.
LocalAssign	Locally assigned, based on an alphanumeric value locally assigned.
MacAddr	MAC address, based on an agent-detected unicast source address as defined in IEEE standard 802.
NetworkAddr	Network address, based on an agent-detected network address.
NotTransmitted	No data to be sent to/received from remote partner.
PortComp	Port component, based on the value of entPhysicalAlias in RFC4133.

6.99.5.15 PortMedium

The physical connection medium for this port.

string	Description
Electrical	This port has an electrical cable connection.
Optical	This port has an optical cable connection.

6.99.5.16 PortProtocol

The protocol being sent over this port.

string	Description
AHCI	Advanced Host Controller Interface (AHCI).
CXL	Compute Express Link.
DisplayPort	DisplayPort.
DVI	DVI.
eMMC	Embedded MultiMediaCard (e.MMC).
Ethernet	Ethernet.

string	Description
FC	Fibre Channel.
FCoE	Fibre Channel over Ethernet (FCoE).
FCP	Fibre Channel Protocol for SCSI.
FICON	FIbre CONnection (FICON).
FTP	File Transfer Protocol (FTP).
GenZ	GenZ.
HDMI	HDMI.
HTTP	Hypertext Transport Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
I2C	Inter-Integrated Circuit Bus.
InfiniBand	InfiniBand.
iSCSI	Internet SCSI.
iWARP	Internet Wide Area RDMA Protocol (iWARP).
MultiProtocol	Multiple Protocols.
NFSv3	Network File System (NFS) version 3.
NFSv4	Network File System (NFS) version 4.
NVLink	NVLink.
NVMe	Non-Volatile Memory Express (NVMe).
NVMeOverFabrics	NVMe over Fabrics.
OEM	OEM-specific.
PCIe	PCI Express.
QPI	Intel QuickPath Interconnect (QPI).
RoCE	RDMA over Converged Ethernet Protocol.
RoCEv2	RDMA over Converged Ethernet Protocol Version 2.
SAS	Serial Attached SCSI.
SATA	Serial AT Attachment.

string	Description
SFTP	SSH File Transfer Protocol (SFTP).
SMB	Server Message Block (SMB). Also known as the Common Internet File System (CIFS).
TCP	Transmission Control Protocol (TCP).
TFTP	Trivial File Transfer Protocol (TFTP).
UDP	User Datagram Protocol (UDP).
UET	Ultra Ethernet Transport.
UHCI	Universal Host Controller Interface (UHCI).
UPI	Intel UltraPath Interconnect (UPI).
USB	Universal Serial Bus (USB).
VGA	VGA.

6.99.5.17 PortType

The type of this port.

string	Description
BidirectionalPort	This port connects to any type of device.
DownstreamPort	This port connects to a target device.
InterswitchPort	This port connects to another switch.
ManagementPort	This port connects to a switch manager.
UnconfiguredPort	This port has not yet been configured.
UpstreamPort	This port connects to a host device.

6.99.5.18 ResetType

The type of reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).

string	Description
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the unit.
FullPowerCycle	Full power cycle the unit. Behaves like removing utility lines, followed by restoring utility lines to the resource.
GracefulRestart	Shut down gracefully and restart the unit.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
Pause	Pause execution on the unit but do not remove power. This is typically a feature of virtual machine hypervisors.
PowerCycle	Power cycle the unit. Behaves like a power removal, followed by a power restore to the resource.
PushPowerButton	Simulate the pressing of the physical power button on this unit.
Resume	Resume execution on the paused unit. This is typically a feature of virtual machine hypervisors.
Suspend	Write the state of the unit to disk before powering off. This allows for the state to be restored when powered back on.

6.99.5.19 SupportedCXLModes

The supported device modes.

string	Description
CXL68BFlitAndVH	CXL 68B flit and VH.
CXLLatencyOptimized256BFlit	CXL latency-optimized 256B flit.
Disconnected	The connection is not CXL or is disconnected.
PBR	Port-based routing (PBR).
RCD	Restricted CXL device (RCD).
Standard256BFlit	Standard 256B flit.

6.99.5.20 SupportedEthernetCapabilities

The set of Ethernet capabilities that this port supports.

string	Description
EEE	IEEE 802.3az Energy-Efficient Ethernet (EEE) is supported on this port.
WakeOnLAN	Wake on LAN (WoL) is supported on this port.

6.99.5.21 SupportedSFPTypes

The types of SFP devices that can be attached to this port.

string	Description
cSFP	The SFP conforms to the CSFP MSA Specification.
MiniSASHD	The SFP conforms to the SFF Specification SFF-8644.
OSFP	The SFP conforms to the OSFP Specification.
QSFP	The SFP conforms to the SFF Specification for QSFP.
QSFP14	The SFP conforms to the SFF Specification for QSFP14.
QSFP28	The SFP conforms to the SFF Specification for QSFP28.
QSFP56	The SFP conforms to the SFF Specification for QSFP56.
QSFPDD	The SFP conforms to the QSFP Double Density Specification.
QSFPPlus	The SFP conforms to the SFF Specification for QSFP+.
SFP	The SFP conforms to the SFF Specification for SFP.
SFP28	The SFP conforms to the SFF Specification for SFP+ and IEEE 802.3by Specification.
SFPDD	The SFP conforms to the SFP-DD MSA Specification.
SFPPlus	The SFP conforms to the SFF Specification for SFP+.

6.99.5.22 SystemCapabilities

The system capabilities received from the remote partner across this link.

string	Description
Bridge	Bridge.
DOCSISCableDevice	DOCSIS cable device.
None	The system capabilities are transmitted, but no capabilities are set.
Other	Other.
Repeater	Repeater.
Router	Router.
Station	Station.
Telephone	Telephone.
WLANAccessPoint	WLAN access point.

6.99.5.23 Type

The type of SFP device that is attached to this port.

string	Description
cSFP	The SFP conforms to the CSFP MSA Specification.
MiniSASHD	The SFP conforms to the SFF Specification SFF-8644.
OSFP *(v1.9+)*	The SFP conforms to the OSFP Specification.
QSFP	The SFP conforms to the SFF Specification for QSFP.
QSFP14	The SFP conforms to the SFF Specification for QSFP14.
QSFP28	The SFP conforms to the SFF Specification for QSFP28.
QSFP56	The SFP conforms to the SFF Specification for QSFP56.
QSFPDD *(v1.9+)*	The SFP conforms to the QSFP Double Density Specification.
QSFPPlus	The SFP conforms to the SFF Specification for QSFP+.
SFP	The SFP conforms to the SFF Specification for SFP.
SFP28	The SFP conforms to the SFF Specification for SFP+ and IEEE 802.3by Specification.
SFPDD	The SFP conforms to the SFP-DD MSA Specification.
SFPPlus	The SFP conforms to the SFF Specification for SFP+.

6.99.6 Example response


```
{
    "@odata.type": "#Port.v1_16_0.Port",
    "Id": "1",
    "Name": "SAS Port 1",
    "Description": "SAS Port 1",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "PortId": "1",
    "PortProtocol": "SAS",
    "PortType": "BidirectionalPort",
    "CurrentSpeedGbps": 48,
    "Width": 4,
    "ConfiguredSpeedGbps": 48,
    "ConfiguredWidth": 4,
    "MaxSpeedGbps": 48,
    "Links": {
        "AssociatedEndpoints": [
            {
                "@odata.id": "/redfish/v1/Fabrics/SAS/Endpoints/Initiator1"
            }
        ]
    },
    "@odata.id": "/redfish/v1/Fabrics/SAS/Switches/Switch1/Ports/1"
}
```


6.100 PortMetrics 1.7.0

Version	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2024.3	2024.1	2023.2	2022.3	2022.1	2021.2	2021.1	2019.4

6.100.1 Description

The `PortMetrics` schema contains usage and health statistics for a switch device or component port summary.

6.100.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/Metrics
/redfish/v1/Chassis/*{ChassisId}*/MediaControllers/*{MediaControllerId}*/Ports/*{PortId}*/Metrics

/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Ports/*{PortId}*/Metrics
/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*/Metrics
/redfish/v1/Managers/*{ManagerId}*/DedicatedNetworkPorts/*{PortId}*/Metrics
/redfish/v1/Managers/*{ManagerId}*/USBPorts/*{PortId}*/Metrics
/redfish/v1/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Ports/*{PortId}*/Metrics
/redfish/v1/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports/*{PortId}*/Metrics
/redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/Metrics
/redfish/v1/Systems/*{ComputerSystemId}*/GraphicsControllers/*{GraphicsControllerId}*/Ports/*{PortId}*/Metrics
/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/Ports/*{PortId}*/Metrics
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Ports/*{PortId}*/Metrics
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports/*{PortId}*/Metrics
/redfish/v1/Systems/*{ComputerSystemId}*/USBControllers/*{USBControllerId}*/Ports/*{PortId}*/Metrics
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.100.3 Properties

Property	Type	Attributes	Notes
CXL *(v1.4+)* {	object		The port metrics specific to CXL ports.
BackpressureAveragePercentage *(v1.4+)*	integer (%)	*read-only*	The average congestion of the port as a percentage.
}			
FibreChannel *(v1.2+)* {	object		The Fibre Channel-specific port metrics for network ports.
CorrectableFECErrors *(v1.2+)*	integer	*read-only (null)*	The total number of correctable forward error correction (FEC) errors.
InvalidCRCs *(v1.2+)*	integer	*read-only (null)*	The total number of invalid cyclic redundancy checks (CRCs).
InvalidTXWords *(v1.2+)*	integer	*read-only (null)*	The total number of invalid transmission words.
LinkFailures *(v1.2+)*	integer	*read-only (null)*	The total number of link failures.
LossesOfSignal *(v1.2+)*	integer	*read-only (null)*	The total number of losses of signal.
LossesOfSync *(v1.2+)*	integer	*read-only (null)*	The total number of losses of sync.
RXBBCreditZero *(v1.2+)*	integer	*read-only (null)*	The number of times the receive buffer-to-buffer credit count transitioned to zero.

Property	Type	Attributes	Notes
RXExchanges *(v1.2+)*	integer	*read-only (null)*	The total number of Fibre Channel exchanges received.
RXSequences *(v1.2+)*	integer	*read-only (null)*	The total number of Fibre Channel sequences received.
TXBBCredits *(v1.2+)*	integer	*read-only (null)*	The number of transmit buffer-to-buffer credits the port is configured to use.
TXBBCreditZero *(v1.2+)*	integer	*read-only (null)*	The number of times the transmit buffer-to-buffer credit count transitioned to zero.
TXBBCreditZeroDurationMilliseconds *(v1.2+)*	integer (ms)	*read-only (null)*	The total amount of time the port has been blocked from transmitting due to lack of buffer credits.
TXExchanges *(v1.2+)*	integer	*read-only (null)*	The total number of Fibre Channel exchanges transmitted.
TXSequences *(v1.2+)*	integer	*read-only (null)*	The total number of Fibre Channel sequences transmitted.
UncorrectableFECErrors *(v1.2+)*	integer	*read-only (null)*	The total number of uncorrectable forward error correction (FEC) errors.
}			
GenZ {	object		The port metrics specific to Gen-Z ports.
AccessKeyViolations	integer	*read-only (null)*	The total number of Access Key Violations detected.
EndToEndCRCErrors	integer	*read-only (null)*	The total number of ECRC transient errors detected.
LinkNTE	integer	*read-only (null)*	The total number of link-local non-transient errors detected.
LLRRecovery	integer	*read-only (null)*	The total number of times Link-Level Reliability (LLR) recovery has been initiated.
MarkedECN	integer	*read-only (null)*	The number of packets with the Congestion ECN bit set.
NonCRCTransientErrors	integer	*read-only (null)*	The total number transient errors detected that are unrelated to CRC validation.
PacketCRCErrors	integer	*read-only (null)*	The total number of PCRC transient errors detected.
PacketDeadlineDiscards	integer	*read-only (null)*	The number of packets discarded due to the Congestion Deadline subfield reaching zero.

Property	Type	Attributes	Notes
ReceivedECN	integer	*read-only (null)*	The number of packets received on this interface with the Congestion ECN bit set.
RXStompedECRC	integer	*read-only (null)*	The total number of packets received with a stomped ECRC field.
TXStompedECRC	integer	*read-only (null)*	The total number of packets that this interface stomped the ECRC field.
}			
Networking *(v1.1+)* {	object		The port metrics for network ports, including Ethernet, Fibre Channel, and InfiniBand, that are not specific to one of these protocols.
RDMAProtectionErrors *(v1.1+)*	integer	*read-only (null)*	The total number of RDMA protection errors.
RDMAProtocolErrors *(v1.1+)*	integer	*read-only (null)*	The total number of RDMA protocol errors.
RDMARXBytes *(v1.1+)*	integer	*read-only (null)*	The total number of RDMA bytes received on a port since reset.
RDMARXRequests *(v1.1+)*	integer	*read-only (null)*	The total number of RDMA requests received on a port since reset.
RDMATXBytes *(v1.1+)*	integer	*read-only (null)*	The total number of RDMA bytes transmitted on a port since reset.
RDMATXReadRequests *(v1.1+)*	integer	*read-only (null)*	The total number of RDMA read requests transmitted on a port since reset.
RDMATXRequests *(v1.1+)*	integer	*read-only (null)*	The total number of RDMA requests transmitted on a port since reset.
RDMATXSendRequests *(v1.1+)*	integer	*read-only (null)*	The total number of RDMA send requests transmitted on a port since reset.
RDMATXWriteRequests *(v1.1+)*	integer	*read-only (null)*	The total number of RDMA write requests transmitted on a port since reset.
RXBroadcastFrames *(v1.1+)*	integer	*read-only (null)*	The total number of valid broadcast frames received on a port since reset.
RXDiscards *(v1.1+)*	integer	*read-only (null)*	The total number of frames discarded in a port's receive path since reset.
RXFalseCarrierErrors *(v1.1+)*	integer	*read-only (null)*	The total number of false carrier errors received from phy on a port since reset.

Property	Type	Attributes	Notes
RXFCSErrors *(v1.1+)*	integer	*read-only (null)*	The total number of frames received with frame check sequence (FCS) errors on a port since reset.
RXFrameAlignmentErrors *(v1.1+)*	integer	*read-only (null)*	The total number of frames received with alignment errors on a port since reset.
RXFrames *(v1.1+)*	integer	*read-only (null)*	The total number of frames received on a port since reset.
RXMulticastFrames *(v1.1+)*	integer	*read-only (null)*	The total number of valid multicast frames received on a port since reset.
RXOversizeFrames *(v1.1+)*	integer	*read-only (null)*	The total number of frames that exceed the maximum frame size.
RXPauseXOFFFrames *(v1.1+)*	integer	*read-only (null)*	The total number of flow control frames from the network to pause transmission.
RXPauseXONFrames *(v1.1+)*	integer	*read-only (null)*	The total number of flow control frames from the network to resume transmission.
RXPFCFrames *(v1.1+)*	integer	*read-only (null)*	The total number of priority flow control (PFC) frames received on a port since reset.
RXUndersizeFrames *(v1.1+)*	integer	*read-only (null)*	The total number of frames that are smaller than the minimum frame size of 64 bytes.
RXUnicastFrames *(v1.1+)*	integer	*read-only (null)*	The total number of valid unicast frames received on a port since reset.
TXBroadcastFrames *(v1.1+)*	integer	*read-only (null)*	The total number of good broadcast frames transmitted on a port since reset.
TXDiscards *(v1.1+)*	integer	*read-only (null)*	The total number of frames discarded in a port's transmit path since reset.
TXExcessiveCollisions *(v1.1+)*	integer	*read-only (null)*	The number of times a single transmitted frame encountered more than 15 collisions.
TXFrames *(v1.1+)*	integer	*read-only (null)*	The total number of frames transmitted on a port since reset.
TXLateCollisions *(v1.1+)*	integer	*read-only (null)*	The total number of collisions that occurred after one slot time as defined by IEEE 802.3.
TXMulticastFrames *(v1.1+)*	integer	*read-only (null)*	The total number of good multicast frames transmitted on a port since reset.
TXMultipleCollisions *(v1.1+)*	integer	*read-only (null)*	The times that a transmitted frame encountered 2-15 collisions.

Property	Type	Attributes	Notes
TXPauseXOFFFrames *(v1.1+)*	integer	*read-only (null)*	The total number of XOFF frames transmitted to the network.
TXPauseXONFrames *(v1.1+)*	integer	*read-only (null)*	The total number of XON frames transmitted to the network.
TXPFCFrames *(v1.1+)*	integer	*read-only (null)*	The total number of priority flow control (PFC) frames sent on a port since reset.
TXSingleCollisions *(v1.1+)*	integer	*read-only (null)*	The times that a successfully transmitted frame encountered a single collision.
TXUnicastFrames *(v1.1+)*	integer	*read-only (null)*	The total number of good unicast frames transmitted on a port since reset.
}			
PCIeErrors *(v1.3+)* {	object		The PCIe errors associated with this port.
BadDLLPCount *(v1.15+)*	integer	*read-only (null)*	The total number of Bad DLLPs issued on the PCIe link by the receiver.
BadTLPCount *(v1.15+)*	integer	*read-only (null)*	The total number of Bad TLPs issued on the PCIe link by the receiver.
CorrectableErrorCount *(v1.8+)*	integer	*read-only (null)*	The total number of PCIe correctable errors for this device.
FatalErrorCount *(v1.8+)*	integer	*read-only (null)*	The total number of PCIe fatal errors for this device.
L0ToRecoveryCount *(v1.8+)*	integer	*read-only (null)*	The total number of times the PCIe link states transitioned from L0 to the recovery state for this device.
NAKReceivedCount *(v1.8+)*	integer	*read-only (null)*	The total number of NAKs issued on the PCIe link by the receiver.
NAKSentCount *(v1.8+)*	integer	*read-only (null)*	The total number of NAKs issued on the PCIe link by this device.
NonFatalErrorCount *(v1.8+)*	integer	*read-only (null)*	The total number of PCIe non-fatal errors for this device.
ReplayCount *(v1.8+)*	integer	*read-only (null)*	The total number of PCIe replays issued by this device.
ReplayRolloverCount *(v1.8+)*	integer	*read-only (null)*	The total number of PCIe replay rollovers issued by this device.
UnsupportedRequestCount *(v1.13+)*	integer	*read-only (null)*	The total number of PCIe unsupported requests received by this device.

Property	Type	Attributes	Notes
}			
RXBytes *(v1.1+)*	integer (bytes)	*read-only (null)*	The total number of bytes received on a port since reset.
RXErrors *(v1.1+)*	integer	*read-only (null)*	The total number of received errors on a port since reset.
SAS *(v1.1+)* [{	array		The physical (phy) metrics for Serial Attached SCSI (SAS). Each member represents a single phy.
InvalidDwordCount *(v1.1+)*	integer	*read-only (null)*	The number of invalid dwords that have been received by the phy outside of phy reset sequences.
LossOfDwordSynchronizationCount *(v1.1+)*	integer	*read-only (null)*	The number of times the phy has restarted the link reset sequence because it lost dword synchronization.
PhyResetProblemCount *(v1.5+)*	integer	*read-only (null)*	The number of times a phy reset problem has occurred.
RunningDisparityErrorCount *(v1.1+)*	integer	*read-only (null)*	The number of dwords containing running disparity errors that have been received by the phy outside of phy reset sequences.
}]			
Transceivers *(v1.1+)* [{	array		The metrics for the transceivers in this port. Each member represents a single transceiver.
RXInputPowerMilliWatts *(v1.1+)*	number (milliWatts)	*read-only (null)*	The RX input power value of a small form-factor pluggable (SFP) transceiver.
SupplyVoltage *(v1.1+)*	number (Volts)	*read-only (null)*	The supply voltage of a small form-factor pluggable (SFP) transceiver.
TXBiasCurrentMilliAmps *(v1.1+)*	number (mA)	*read-only (null)*	The TX bias current value of a small form-factor pluggable (SFP) transceiver.
TXOutputPowerMilliWatts *(v1.1+)*	number (milliWatts)	*read-only (null)*	The TX output power value of a small form-factor pluggable (SFP) transceiver.
WavelengthNanometers *(v1.7+)*	string (nm)	*read-only (null)*	The laser wavelength, in nanometers, for a small form-factor pluggable (SFP) transceiver.
}]			
TXBytes *(v1.1+)*	integer (bytes)	*read-only (null)*	The total number of bytes transmitted on a port since reset.
TXErrors *(v1.1+)*	integer	*read-only (null)*	The total number of transmission errors on a port since reset.

6.100.4 Actions

6.100.4.1 ResetMetrics *(v1.6+)*

Description

This action resets the summary metrics related to this device.

Action URI

{Base URI of target resource}/Actions/PortMetrics.ResetMetrics

Action parameters

This action takes no parameters.

6.100.5 Example response


```
{
    "@odata.type": "#PortMetrics.v1_7_0.PortMetrics",
    "Id": "Metrics",
    "Name": "Gen-Z Port 1 Metrics",
    "GenZ": {
        "PacketCRCErrors": 24,
        "EndToEndCRCErrors": 3,
        "RXStompedECRC": 1,
        "TXStompedECRC": 2,
        "NonCRCTransientErrors": 2,
        "LLRRecovery": 1,
        "MarkedECN": 1,
        "PacketDeadlineDiscards": 1,
        "AccessKeyViolations": 1,
        "LinkNTE": 1,
        "ReceivedECN": 1
    },
    "@odata.id": "/redfish/v1/Fabrics/GenZ/Switches/Switch1/Ports/1/Metrics"
}
```


6.101 Power 1.7.3 (deprecated)

Version	*v1.7 Deprecated*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*

Release	2020.4	2019.3	2017.3	2017.2	2017.1	2016.2	2016.1	1.0

This schema has been deprecated and use in new implementations is discouraged except to retain compatibility with existing products. This schema has been deprecated in favor of the `PowerSubsystem` schema.

6.101.1 Description

The `Power` schema describes power metrics and represents the properties for power consumption and power limiting.

6.101.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/Power (deprecated)

6.101.3 Properties

Property	Type	Attributes	Notes
PowerControl [{	array		The set of power control functions, including power reading and limiting.
@odata.id	string (URI)	*read-only required*	The unique identifier for a resource.
Actions *(v1.3+)* {}	object		The available actions for this resource.
MemberId	string	*read-only required*	The unique identifier for the member within an array.
Name	string	*read-only (null)*	The power control function name.
Oem {}	object		See the Oem object definition in the Common properties section.
PhysicalContext *(v1.4+)*	string (enum)	*read-only*	The area, device, or set of devices to which this power control applies. *For the possible property values, see PhysicalContext in Property details.*
PowerAllocatedWatts	number (Watts)	*read-only (null)*	The total amount of power that has been allocated or budgeted to chassis.
PowerAvailableWatts	number (Watts)	*read-only (null)*	The amount of reserve power capacity, in watt units, that remains. This value is the PowerCapacityWatts value minus the `PowerAllocatedWatts` value.
PowerCapacityWatts	number (Watts)	*read-only (null)*	The total amount of power that can be allocated to the chassis. This value can be either the power supply capacity or the power budget that an upstream chassis assigns to this chassis.

Property	Type	Attributes	Notes
PowerConsumedWatts	number (Watts)	*read-only (null)*	The actual power that the chassis consumes, in watt units.
PowerLimit {	object		The power limit status and configuration information for this chassis.
CorrectionInMs	integer (ms)	*read-write (null)*	The time required for the limiting process to reduce power consumption to below the limit.
LimitException	string (enum)	*read-write (null)*	The action that is taken if the power cannot be maintained below the `LimitInWatts`. *For the possible property values, see LimitException in Property details.*
LimitInWatts	number (Watts)	*read-write (null)*	The power limit, in watt units. If `null`, power capping is disabled.
}			
PowerMetrics {	object		The power readings for this chassis.
AverageConsumedWatts	number (Watts)	*read-only (null)*	The average power level over the measurement window over the last `IntervalInMin` minutes.
IntervalInMin	integer (min)	*read-only (null)*	The time interval, or window, over which the power metrics are measured.
MaxConsumedWatts	number (Watts)	*read-only (null)*	The highest power consumption level, in watt units, that has occurred over the measurement window within the last `IntervalInMin` minutes.
MinConsumedWatts	number (Watts)	*read-only (null)*	The lowest power consumption level, in watt units, over the measurement window that occurred within the last `IntervalInMin` minutes.
}			
PowerRequestedWatts	number (Watts)	*read-only (null)*	The potential power, in watt units, that the chassis requests, which might be higher than the current level being consumed because the requested power includes a budget that the chassis wants for future use.
RelatedItem [{	array		An array of links to resources or objects associated with this power limit.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
}]			
PowerSupplies [{	array		The set of power supplies associated with this system or device.

Property	Type	Attributes	Notes
@odata.id	string (URI)	*read-only required*	The unique identifier for a resource.
Actions *(v1.3+)* {}	object		The available actions for this resource.
Assembly *(v1.5+)* {	object		The link to the assembly resource associated with this power supply. See the *Assembly* schema for details on this property.
@odata.id	string	*read-only*	Link to a Assembly resource. See the Links section and the *Assembly* schema for details.
}			
EfficiencyPercent *(v1.5+)*	number (%)	*read-only (null)*	The measured efficiency of this power supply as a percentage.
FirmwareVersion	string	*read-only (null)*	The firmware version for this power supply.
HotPluggable *(v1.5+)*	boolean	*read-only (null)*	An indication of whether this device can be inserted or removed while the equipment is in operation.
IndicatorLED *(v1.2+)*	string (enum)	*read-write (null)*	The state of the indicator LED, which identifies the power supply. *For the possible property values, see IndicatorLED in Property details.*
InputRanges *(v1.1+)* [{	array		The input ranges that the power supply can use.
InputType *(v1.1+)*	string (enum)	*read-only (null)*	The Input type (AC or DC). *For the possible property values, see InputType in Property details.*
MaximumFrequencyHz *(v1.1+)*	number (Hz)	*read-only (null)*	The maximum line input frequency at which this power supply input range is effective.
MaximumVoltage *(v1.1+)*	number (Volts)	*read-only (null)*	The maximum line input voltage at which this power supply input range is effective.
MinimumFrequencyHz *(v1.1+)*	number (Hz)	*read-only (null)*	The minimum line input frequency at which this power supply input range is effective.
MinimumVoltage *(v1.1+)*	number (Volts)	*read-only (null)*	The minimum line input voltage at which this power supply input range is effective.
Oem *(v1.1+)* {}	object		See the Oem object definition in the Common properties section.
OutputWattage *(v1.1+)*	number (Watts)	*read-only (null)*	The maximum capacity of this power supply when operating in this input range.
}]			
LastPowerOutputWatts	number (Watts)	*read-only (null)*	The average power output of this power supply.

Property	Type	Attributes	Notes
LineInputVoltage	number (Volts)	*read-only (null)*	The line input voltage at which the power supply is operating.
LineInputVoltageType	string (enum)	*read-only (null)*	The line voltage type supported as an input to this power supply. *For the possible property values, see LineInputVoltageType in Property details.*
Location *(v1.5+)* {}	object		The location of the power supply. For property details, see Location.
Manufacturer *(v1.1+)*	string	*read-only (null)*	The manufacturer of this power supply.
MemberId	string	*read-only required*	The unique identifier for the member within an array.
Model	string	*read-only (null)*	The model number for this power supply.
Name	string	*read-only (null)*	The name of the power supply.
Oem {}	object		See the Oem object definition in the Common properties section.
PartNumber	string	*read-only (null)*	The part number for this power supply.
PowerCapacityWatts	number (Watts)	*read-only (null)*	The maximum capacity of this power supply.
PowerInputWatts *(v1.5+)*	number (Watts)	*read-only (null)*	The measured input power of this power supply.
PowerOutputWatts *(v1.5+)*	number (Watts)	*read-only (null)*	The measured output power of this power supply.
PowerSupplyType	string (enum)	*read-only (null)*	The power supply type (AC or DC). *For the possible property values, see PowerSupplyType in Property details.*
Redundancy [{ }]	array (object)		The set of redundancy groups for this power supply. For property details, see Redundancy.
RelatedItem [{	array		An array of links to resources or objects associated with this power supply.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
SerialNumber	string	*read-only (null)*	The serial number for this power supply.

Property	Type	Attributes	Notes
SparePartNumber	string	*read-only (null)*	The spare part number for this power supply.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
}]			
Redundancy [{ }]	array (object)		The redundancy information for the set of power supplies in this chassis. For property details, see Redundancy.
Voltages [{	array		The set of voltage sensors for this chassis.
@odata.id	string (URI)	*read-only required*	The unique identifier for a resource.
Actions *(v1.3+)* {}	object		The available actions for this resource.
LowerThresholdCritical	number (Volts)	*read-only (null)*	The value at which the reading is below normal range but not yet fatal.
LowerThresholdFatal	number (Volts)	*read-only (null)*	The value at which the reading is below normal range and fatal.
LowerThresholdNonCritical	number (Volts)	*read-only (null)*	The value at which the reading is below normal range.
MaxReadingRange	number (Volts)	*read-only (null)*	Maximum value for this sensor.
MemberId	string	*read-only required*	The unique identifier for the member within an array.
MinReadingRange	number (Volts)	*read-only (null)*	Minimum value for this sensor.
Name	string	*read-only (null)*	Voltage sensor name.
Oem {}	object		See the Oem object definition in the Common properties section.
PhysicalContext	string (enum)	*read-only*	The area or device to which this voltage measurement applies. *For the possible property values, see PhysicalContext in Property details.*
ReadingVolts	number (Volts)	*read-only (null)*	The reading of the voltage sensor.
RelatedItem [{	array		An array of links to resources or objects to which this voltage measurement applies.

Property	Type	Attributes	Notes
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
SensorNumber	integer	*read-only* *(null)*	A numerical identifier to represent the voltage sensor.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
UpperThresholdCritical	number (Volts)	*read-only* *(null)*	The value at which the reading is above normal range but not yet fatal.
UpperThresholdFatal	number (Volts)	*read-only* *(null)*	The value at which the reading is above normal range and fatal.
UpperThresholdNonCritical	number (Volts)	*read-only* *(null)*	The value at which the reading is above normal range.
}]			

6.101.4 Actions

6.101.4.1 PowerSupplyReset *(v1.6+)*

Description

This action resets the targeted power supply.

Action URI

{Base URI of target resource}/Actions/Power.PowerSupplyReset

Action parameters

Parameter Name	Type	Attributes	Notes
MemberId	string	*required*	The `MemberId` of the power supply within the `PowerSupplies` array on which to perform the reset.
ResetType	string (enum)	*optional*	The type of reset. *For the possible property values, see ResetType in Property details.*

Request Example

```
{
    "MemberId": "0",
    "ResetType": "ForceRestart"
}
```

6.101.5 Property details

6.101.5.1 IndicatorLED

The state of the indicator LED, which identifies the power supply.

string	Description
Blinking	The indicator LED is blinking.
Lit	The indicator LED is lit.
Off	The indicator LED is off.

6.101.5.2 InputType

The Input type (AC or DC).

string	Description
AC	Alternating Current (AC) input range.
DC	Direct Current (DC) input range.

6.101.5.3 LimitException

The action that is taken if the power cannot be maintained below the `LimitInWatts`.

string	Description
HardPowerOff	Turn the power off immediately when the limit is exceeded.
LogEventOnly	Log an event when the limit is exceeded, but take no further action.
NoAction	Take no action when the limit is exceeded.

string	Description
Oem	Take an OEM-defined action.

6.101.5.4 LineInputVoltageType

The line voltage type supported as an input to this power supply.

string	Description
AC120V *(v1.1+)*	AC 120V nominal input.
AC240V *(v1.1+)*	AC 240V nominal input.
AC277V *(v1.1+)*	AC 277V nominal input.
ACandDCWideRange *(v1.1+)*	Wide range AC or DC input.
ACHighLine *(deprecated v1.1)*	277V AC input. *Deprecated in v1.1 and later. This value has been deprecated in favor of AC277V.*
ACLowLine *(deprecated v1.1)*	100-127V AC input. *Deprecated in v1.1 and later. This value has been deprecated in favor of AC120V.*
ACMidLine *(deprecated v1.1)*	200-240V AC input. *Deprecated in v1.1 and later. This value has been deprecated in favor of AC240V.*
ACWideRange *(v1.1+)*	Wide range AC input.
DC240V *(v1.1+)*	DC 240V nominal input.
DC380V	High-voltage DC input (380V).
DCNeg48V	-48V DC input.
Unknown	The power supply line input voltage type cannot be determined.

6.101.5.5 PhysicalContext

The area, device, or set of devices to which this power control applies.

string	Description
Accelerator	An accelerator.
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.
ACOutput	An AC electrical output or output-related circuit.

string	Description
ACStaticBypassInput	An AC electrical static bypass input.
ACUtilityInput	An AC electrical utility input.
ASIC	An ASIC device, such as a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.
Chassis	The entire chassis.
ComputeBay	A compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.

string	Description
Manager	A management controller, such as a BMC (baseboard management controller).
Memory	A memory device.
MemorySubsystem	The entire memory subsystem.
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	A power supply bay.
Pump	A pump.
Rectifier	A rectifier device.
Reservoir	A reservoir.
Room	The room.
StorageBay	A storage bay.
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

6.101.5.6 PowerSupplyType

The power supply type (AC or DC).

string	Description
AC	Alternating Current (AC) power supply.
ACorDC	The power supply supports both DC and AC.
DC	Direct Current (DC) power supply.
Unknown	The power supply type cannot be determined.

6.101.5.7 ResetType

The type of reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the unit.
FullPowerCycle	Full power cycle the unit. Behaves like removing utility lines, followed by restoring utility lines to the resource.
GracefulRestart	Shut down gracefully and restart the unit.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
Pause	Pause execution on the unit but do not remove power. This is typically a feature of virtual machine hypervisors.
PowerCycle	Power cycle the unit. Behaves like a power removal, followed by a power restore to the resource.
PushPowerButton	Simulate the pressing of the physical power button on this unit.
Resume	Resume execution on the paused unit. This is typically a feature of virtual machine hypervisors.
Suspend	Write the state of the unit to disk before powering off. This allows for the state to be restored when powered back on.

6.101.6 Example response


```
{
    "@odata.type": "#Power.v1_7_3.Power",
    "Id": "Power",
    "Name": "Power",
    "PowerControl": [
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Power#/PowerControl/0",
            "MemberId": "0",
            "Name": "Server Power Control",
            "PowerConsumedWatts": 344,
            "PowerRequestedWatts": 800,
            "PowerAvailableWatts": 0,
            "PowerCapacityWatts": 800,
            "PowerAllocatedWatts": 800,
            "PowerMetrics": {
                "IntervalInMin": 30,
                "MinConsumedWatts": 271,
                "MaxConsumedWatts": 489,
                "AverageConsumedWatts": 319
            },
            "PowerLimit": {
                "LimitInWatts": 500,
                "LimitException": "LogEventOnly",
                "CorrectionInMs": 50
            },
            "RelatedItem": [
                {
                    "@odata.id": "/redfish/v1/Systems/437XR1138R2"
                },
                {
                    "@odata.id": "/redfish/v1/Chassis/1U"
                }
            ],
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            }
        }
    ],
    "Voltages": [
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Power#/Voltages/0",
            "MemberId": "0",
            "Name": "VRM1 Voltage",
            "SensorNumber": 11,
            "Status": {
                "State": "Enabled",
```

```
                "Health": "OK"
            },
            "ReadingVolts": 12,
            "UpperThresholdNonCritical": 12.5,
            "UpperThresholdCritical": 13,
            "UpperThresholdFatal": 15,
            "LowerThresholdNonCritical": 11.5,
            "LowerThresholdCritical": 11,
            "LowerThresholdFatal": 10,
            "MinReadingRange": 0,
            "MaxReadingRange": 20,
            "PhysicalContext": "VoltageRegulator",
            "RelatedItem": [
                {
                    "@odata.id": "/redfish/v1/Systems/437XR1138R2"
                },
                {
                    "@odata.id": "/redfish/v1/Chassis/1U"
                }
            ]
        },
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Power#/Voltages/1",
            "MemberId": "1",
            "Name": "VRM2 Voltage",
            "SensorNumber": 12,
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
            "ReadingVolts": 5,
            "UpperThresholdNonCritical": 5.5,
            "UpperThresholdCritical": 7,
            "LowerThresholdNonCritical": 4.75,
            "LowerThresholdCritical": 4.5,
            "MinReadingRange": 0,
            "MaxReadingRange": 20,
            "PhysicalContext": "VoltageRegulator",
            "RelatedItem": [
                {
                    "@odata.id": "/redfish/v1/Systems/437XR1138R2"
                },
                {
                    "@odata.id": "/redfish/v1/Chassis/1U"
                }
            ]
        }
    ],
    "PowerSupplies": [
        {
```

```
            "@odata.id": "/redfish/v1/Chassis/1U/Power#/PowerSupplies/0",
            "MemberId": "0",
            "Name": "Power Supply Bay",
            "Status": {
                "State": "Enabled",
                "Health": "Warning"
            },
            "PowerSupplyType": "AC",
            "LineInputVoltageType": "ACWideRange",
            "LineInputVoltage": 120,
            "PowerCapacityWatts": 800,
            "LastPowerOutputWatts": 325,
            "Model": "499253-B21",
            "Manufacturer": "ManufacturerName",
            "FirmwareVersion": "1.00",
            "SerialNumber": "1Z0000001",
            "PartNumber": "0000001A3A",
            "SparePartNumber": "0000001A3A",
            "InputRanges": [
                {
                    "InputType": "AC",
                    "MinimumVoltage": 100,
                    "MaximumVoltage": 120,
                    "OutputWattage": 800
                },
                {
                    "InputType": "AC",
                    "MinimumVoltage": 200,
                    "MaximumVoltage": 240,
                    "OutputWattage": 1300
                }
            ],
            "RelatedItem": [
                {
                    "@odata.id": "/redfish/v1/Chassis/1U"
                }
            ]
        }
    ],
    "Actions": {
        "#Power.PowerSupplyReset": {
            "target": "/redfish/v1/Chassis/1U/Power/Actions/Power.PowerSupplyReset"
        }
    },
    "@odata.id": "/redfish/v1/Chassis/1U/Power"
}
```

6.102 PowerDistribution 1.4.0

Version	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2024.1	2022.3	2021.3	2021.2	2019.4

6.102.1 Description

The `PowerDistribution` schema contains the definitions for a power distribution component or unit, such as a floor power distribution unit (PDU) or switchgear.

6.102.2 URIs

/redfish/v1/PowerEquipment/ElectricalBuses/*{PowerDistributionId}*
/redfish/v1/PowerEquipment/FloorPDUs/*{PowerDistributionId}*
/redfish/v1/PowerEquipment/PowerShelves/*{PowerDistributionId}*
/redfish/v1/PowerEquipment/RackPDUs/*{PowerDistributionId}*
/redfish/v1/PowerEquipment/Switchgear/*{PowerDistributionId}*
/redfish/v1/PowerEquipment/TransferSwitches/*{PowerDistributionId}*

6.102.3 Properties

Property	Type	Attributes	Notes
AssetTag	string	*read-write (null)*	The user-assigned asset tag for this equipment.
Branches {	object		A link to the branch circuits for this equipment. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Circuit*. See the Circuit schema for details.
}			
EquipmentType	string (enum)	*read-only required*	The type of equipment this resource represents. *For the possible property values, see EquipmentType in Property details.*
Feeders {	object		A link to the feeder circuits for this equipment. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Circuit*. See the Circuit schema for details.
}			

Property	Type	Attributes	Notes
FirmwareVersion	string	*read-only*	The firmware version of this equipment.
Links {	object		The links to other resources that are related to this resource.
Chassis [{	array		An array of links to the chassis that contain this equipment.
@odata.id	string	*read-only*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}]			
Facility {	object		A link to the facility that contains this equipment. See the *Facility* schema for details on this property.
@odata.id	string	*read-only*	Link to a Facility resource. See the Links section and the *Facility* schema for details.
}			
ManagedBy [{	array		An array of links to the managers responsible for managing this equipment.
@odata.id	string	*read-only*	Link to a Manager resource. See the Links section and the *Manager* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
}			
Location {}	object		The location of the equipment. For property details, see Location.
Mains {	object		A link to the power input circuits for this equipment. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Circuit*. See the Circuit schema for details.
}			
MainsRedundancy *(v1.1+)* {}	object		The redundancy information for the mains (input) circuits for this equipment. For property details, see RedundantGroup.
Manufacturer	string	*read-only* *(null)*	The manufacturer of this equipment.
Metrics {	object		A link to the summary metrics for this equipment. See the *PowerDistributionMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a PowerDistributionMetrics resource. See the Links section and the *PowerDistributionMetrics* schema for details.

Property	Type	Attributes	Notes
}			
Model	string	*read-only (null)*	The product model number of this equipment.
OutletGroups {	object		A link to the outlet groups for this equipment. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *OutletGroup*. See the OutletGroup schema for details.
}			
Outlets {	object		A link to the outlets for this equipment. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Outlet*. See the Outlet schema for details.
}			
PartNumber	string	*read-only (null)*	The part number for this equipment.
PowerCapacityVA *(v1.4+)*	integer (V.A)	*read-only (null)*	The maximum power capacity, rated as apparent power, of this equipment, in volt-ampere units.
PowerSupplies *(v1.1+, deprecated v1.3)* {	object		The link to the collection of power supplies for this equipment. Contains a link to a resource. *Deprecated in v1.3 and later. This property has been deprecated in favor of the* `PowerSupplies` *link in the* `Chassis` *resource.*
@odata.id	string	*read-only*	Link to Collection of *PowerSupply*. See the PowerSupply schema for details.
}			
PowerSupplyRedundancy *(v1.1+, deprecated v1.3)* [{ }]	array (object)		The redundancy information for the set of power supplies for this equipment. For property details, see RedundantGroup. *Deprecated in v1.3 and later. This property has been deprecated in favor of the* `PowerSupplyRedundancy` *property in the* `Chassis` *resource.*
ProductionDate	string (date-time)	*read-only (null)*	The production or manufacturing date of this equipment.
Sensors *(deprecated v1.3)* {	object		A link to the collection of sensors located in the equipment and sub-components. Contains a link to a resource. *Deprecated in v1.3 and later. This property has been deprecated in favor of the* `Sensors` *link in the* `Chassis` *resource.*
@odata.id	string	*read-only*	Link to Collection of *Sensor*. See the Sensor schema for details.
}			

Property	Type	Attributes	Notes
SerialNumber	string	*read-only* *(null)*	The serial number for this equipment.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
Subfeeds {	object		A link to the subfeed circuits for this equipment. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Circuit*. See the Circuit schema for details.
}			
TransferConfiguration {	object	*(null)*	The configuration settings for an automatic transfer switch.
ActiveMainsId	string	*read-write* *(null)*	The mains circuit that is switched on and qualified to supply power to the output circuit.
AutoTransferEnabled	boolean	*read-write* *(null)*	Indicates if the qualified alternate mains circuit is automatically switched on when the preferred mains circuit becomes unqualified and is automatically switched off.
ClosedTransitionAllowed	boolean	*read-write* *(null)*	Indicates if a make-before-break switching sequence of the mains circuits is permitted when they are both qualified and in synchronization.
ClosedTransitionTimeoutSeconds	integer	*read-write* *(null)*	The time in seconds to wait for a closed transition to occur.
PreferredMainsId	string	*read-write* *(null)*	The preferred source for the mains circuit to this equipment.
RetransferDelaySeconds	integer	*read-write* *(null)*	The time in seconds to delay the automatic transfer from the alternate mains circuit back to the preferred mains circuit.
RetransferEnabled	boolean	*read-write* *(null)*	Indicates if the automatic transfer is permitted from the alternate mains circuit back to the preferred mains circuit after the preferred mains circuit is qualified again and the retransfer delay time has expired.
TransferDelaySeconds	integer	*read-write* *(null)*	The time in seconds to delay the automatic transfer from the preferred mains circuit to the alternate mains circuit when the preferred mains circuit is disqualified.
TransferInhibit	boolean	*read-write* *(null)*	Indicates if any transfer is inhibited.
}			
TransferCriteria {	object	*(null)*	The criteria used to initiate a transfer for an automatic transfer switch.

Property	Type	Attributes	Notes
OverNominalFrequencyHz	number (Hz)	*read-write (null)*	The frequency in hertz units over the nominal value that satisfies a criterion for transfer.
OverVoltageRMSPercentage	number (%)	*read-write (null)*	The positive percentage of voltage RMS over the nominal value that satisfies a criterion for transfer.
TransferSensitivity	string (enum)	*read-write (null)*	The sensitivity to voltage waveform quality to satisfy the criterion for initiating a transfer. *For the possible property values, see TransferSensitivity in Property details.*
UnderNominalFrequencyHz	number (Hz)	*read-write (null)*	The frequency in hertz units under the nominal value that satisfies a criterion for transfer.
UnderVoltageRMSPercentage	number (%)	*read-write (null)*	The negative percentage of voltage RMS under the nominal value that satisfies a criterion for transfer.
}			
UserLabel *(v1.3+)*	string	*read-write*	A user-assigned label.
UUID	string (uuid)	*read-only (null)*	The UUID for this equipment.
Version	string	*read-only (null)*	The hardware version of this equipment.

6.102.4 Actions

6.102.4.1 TransferControl

Description

This action transfers control to the alternative input circuit.

Action URI

{Base URI of target resource}/Actions/PowerDistribution.TransferControl

Action parameters

This action takes no parameters.

6.102.5 Property details

6.102.5.1 EquipmentType

The type of equipment this resource represents.

string	Description
AutomaticTransferSwitch	An automatic power transfer switch.
BatteryShelf *(v1.3+)*	A battery shelf or battery-backed unit (BBU).
Bus *(v1.2+)*	An electrical bus.
FloorPDU	A power distribution unit providing feeder circuits for further power distribution.
ManualTransferSwitch	A manual power transfer switch.
PowerShelf *(v1.1+)*	A power shelf.
RackPDU	A power distribution unit providing outlets for a rack or similar quantity of devices.
Switchgear	Electrical switchgear.

6.102.5.2 TransferSensitivity

The sensitivity to voltage waveform quality to satisfy the criterion for initiating a transfer.

string	Description
High	High sensitivity for initiating a transfer.
Low	Low sensitivity for initiating a transfer.
Medium	Medium sensitivity for initiating a transfer.

6.102.6 Example response


```
{
    "@odata.type": "#PowerDistribution.v1_4_0.PowerDistribution",
    "Id": "1",
    "EquipmentType": "RackPDU",
    "Name": "RackPDU1",
```

```
    "FirmwareVersion": "4.3.0",
    "Version": "1.03b",
    "ProductionDate": "2017-01-11T08:00:00Z",
    "Manufacturer": "Contoso",
    "Model": "ZAP4000",
    "SerialNumber": "29347ZT536",
    "PartNumber": "AA-23",
    "UUID": "32354641-4135-4332-4a35-313735303734",
    "AssetTag": "PDX-92381",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Location": {
        "Placement": {
            "Row": "North 1"
        }
    },
    "Mains": {
        "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs/1/Mains"
    },
    "Branches": {
        "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs/1/Branches"
    },
    "Outlets": {
        "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs/1/Outlets"
    },
    "OutletGroups": {
        "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs/1/OutletGroups"
    },
    "Metrics": {
        "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs/1/Metrics"
    },
    "Links": {
        "Facility": {
            "@odata.id": "/redfish/v1/Facilities/Room237"
        },
        "Chassis": [
            {
                "@odata.id": "/redfish/v1/Chassis/PDU"
            }
        ]
    },
    "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs/1"
}
```

6.103 PowerDistributionMetrics 1.4.0

Version	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2025.1	2021.4	2021.2	2021.1	2019.4

6.103.1 Description

The `PowerDistributionMetrics` schema contains metrics of a power distribution component or unit, such as a floor power distribution unit (PDU) or switchgear.

6.103.2 URIs

/redfish/v1/PowerEquipment/ElectricalBuses/*{PowerDistributionId}*/Metrics
/redfish/v1/PowerEquipment/FloorPDUs/*{PowerDistributionId}*/Metrics
/redfish/v1/PowerEquipment/PowerShelves/*{PowerDistributionId}*/Metrics
/redfish/v1/PowerEquipment/RackPDUs/*{PowerDistributionId}*/Metrics
/redfish/v1/PowerEquipment/Switchgear/*{PowerDistributionId}*/Metrics
/redfish/v1/PowerEquipment/TransferSwitches/*{PowerDistributionId}*/Metrics

6.103.3 Properties

Property	Type	Attributes	Notes
AbsoluteHumidity *(v1.3+)* {}	object		Absolute humidity (g/m^3). For more information about this property, see SensorExcerpt in Property Details.
AmbientTemperatureCelsius *(v1.4+)* {}	object		Ambient temperature (Celsius). For more information about this property, see SensorExcerpt in Property Details.
EnergykWh {	object (excerpt)		Energy consumption (kWh). This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
ApparentkVAh *(v1.5+)*	number (kV.A.h)	*read-only (null)*	Apparent energy (kVAh).
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
LifetimeReading *(v1.1+)*	number	*read-only (null)*	The total accumulation value for this sensor.

Property	Type	Attributes	Notes
ReactivekVARh *(v1.5+)*	number (kV.A.h)	*read-only (null)*	Reactive energy (kVARh).
Reading	number	*read-only (null)*	The sensor value.
SensorResetTime	string (date-time)	*read-only (null)*	The date and time when the time-based properties were last reset.
}			
HumidityPercent *(v1.1+)* {}	object		Humidity (percent). For more information about this property, see SensorExcerpt in Property Details.
PowerLoadPercent *(v1.2+)* {}	object		The power load (percent) for this equipment. For more information about this property, see SensorExcerpt in Property Details.
PowerWatts {	object (excerpt)		Power consumption (W). This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
ApparentVA	number (V.A)	*read-only (null)*	The product of voltage and current for an AC circuit, in volt-ampere units.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
PhaseAngleDegrees *(v1.5+)*	number	*read-only (null)*	The phase angle (degrees) between the current and voltage waveforms.
PowerFactor	number	*read-only (null)*	The power factor for this sensor.
ReactiveVAR	number (V.A)	*read-only (null)*	The square root of the difference term of squared apparent VA and squared power (Reading) for a circuit, in VAR units.
Reading	number	*read-only (null)*	The sensor value.
}			
TemperatureCelsius *(v1.1+)* {}	object		Temperature (Celsius). For more information about this property, see SensorExcerpt in Property Details.

6.103.4 Actions

6.103.4.1 ResetMetrics

Description

This action resets the summary metrics related to this equipment.

Action URI

{Base URI of target resource}/Actions/PowerDistributionMetrics.ResetMetrics

Action parameters

This action takes no parameters.

6.103.5 Property details

6.103.5.1 SensorExcerpt

The `Sensor` schema describes a sensor and its properties. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.

DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.

6.103.6 Example response

```
{
    "@odata.type": "#PowerDistributionMetrics.v1_4_0.PowerDistributionMetrics",
    "Id": "Metrics",
    "Name": "Summary Metrics",
    "PowerWatts": {
        "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/PDUPower",
        "Reading": 6438,
        "ApparentVA": 6300,
        "ReactiveVAR": 100,
        "PowerFactor": 0.93
    },
    "EnergykWh": {
        "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/PDUEnergy",
        "Reading": 56438
    },
    "TemperatureCelsius": {
        "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/PDUTemp",
        "Reading": 26.3
```

```
    },
    "HumidityPercent": {
        "DataSourceUri": "/redfish/v1/Chassis/PDU/Sensors/PDUHumidity",
        "Reading": 52.7
    },
    "Actions": {
        "#PowerDistributionMetrics.ResetMetrics": {
            "target": "/redfish/v1/PowerEquipment/RackPDUs/1/Metrics/
         PowerDistributionMetrics.ResetMetrics"
        }
    },
    "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs/1/Metrics"
}
```

6.104 PowerDomain 1.2.2

Version	*v1.2*	*v1.1*	*v1.0*
Release	2021.3	2021.2	2019.4

6.104.1 Description

The `PowerDomain` schema contains the definition for the DCIM power domain.

6.104.2 URIs

/redfish/v1/Facilities/*{FacilityId}*/PowerDomains/*{PowerDomainId}*

6.104.3 Properties

Property	Type	Attributes	Notes
Links {	object		The links to other resources that are related to this resource.
ElectricalBuses *(v1.2+)* [{	array		An array of links to the electrical buses in this power domain.
@odata.id	string	*read-write*	Link to a PowerDistribution resource. See the Links section and the *PowerDistribution* schema for details.
}]			

Property	Type	Attributes	Notes
FloorPDUs [{	array		An array of links to the floor power distribution units in this power domain.
@odata.id	string	*read-write*	Link to a PowerDistribution resource. See the Links section and the *PowerDistribution* schema for details.
}]			
ManagedBy [{	array		An array of links to the managers responsible for managing this power domain.
@odata.id	string	*read-only*	Link to a Manager resource. See the Links section and the *Manager* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
PowerShelves *(v1.1+)* [{	array		An array of links to the power shelves in this power domain.
@odata.id	string	*read-write*	Link to a PowerDistribution resource. See the Links section and the *PowerDistribution* schema for details.
}]			
RackPDUs [{	array		An array of links to the rack-level power distribution units in this power domain.
@odata.id	string	*read-write*	Link to a PowerDistribution resource. See the Links section and the *PowerDistribution* schema for details.
}]			
Switchgear [{	array		An array of links to the switchgear in this power domain.
@odata.id	string	*read-write*	Link to a PowerDistribution resource. See the Links section and the *PowerDistribution* schema for details.
}]			
TransferSwitches [{	array		An array of links to the transfer switches in this power domain.
@odata.id	string	*read-write*	Link to a PowerDistribution resource. See the Links section and the *PowerDistribution* schema for details.
}]			
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.104.4 Example response


```
{
    "@odata.type": "#PowerDomain.v1_2_2.PowerDomain",
    "Id": "Row1",
    "Name": "Row #1 Domain",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Links": {
        "ManagedBy": [
            {
                "@odata.id": "/redfish/v1/Managers/BMC"
            }
        ],
        "RackPDUs": [
            {
                "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs/1"
            }
        ]
    },
    "@odata.id": "/redfish/v1/Facilities/Room237/PowerDomains/Row1"
}
```


6.105 PowerEquipment 1.2.3

Version	*v1.2*	*v1.1*	*v1.0*
Release	2021.3	2021.2	2019.4

6.105.1 Description

The `PowerEquipment` schema represents the set of power equipment managed by a Redfish service.

6.105.2 URIs

/redfish/v1/PowerEquipment

6.105.3 Properties

Property	Type	Attributes	Notes
ElectricalBuses *(v1.2+)* {	object		The link to a collection of electrical buses. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *PowerDistribution*. See the PowerDistribution schema for details.
}			
FloorPDUs {	object		A link to a collection of floor power distribution units. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *PowerDistribution*. See the PowerDistribution schema for details.
}			
Links {	object		The links to other resources that are related to this resource.
ManagedBy [{	array		An array of links to the managers responsible for managing this power equipment.
@odata.id	string	*read-only*	Link to a Manager resource. See the Links section and the *Manager* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
}			
PowerShelves *(v1.1+)* {	object		A link to a collection of power shelves. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *PowerDistribution*. See the PowerDistribution schema for details.
}			
RackPDUs {	object		A link to a collection of rack-level power distribution units. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *PowerDistribution*. See the PowerDistribution schema for details.
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
Switchgear {	object		A link to a collection of switchgear. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *PowerDistribution*. See the PowerDistribution schema for details.
}			

Property	Type	Attributes	Notes
TransferSwitches {	object		A link to a collection of transfer switches. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *PowerDistribution*. See the PowerDistribution schema for details.
}			

6.105.4 Example response

```
{
    "@odata.type": "#PowerEquipment.v1_2_3.PowerEquipment",
    "Id": "PowerEquipment",
    "Name": "DCIM Power Equipment",
    "Status": {
        "State": "Enabled",
        "HealthRollup": "OK"
    },
    "FloorPDUs": {
        "@odata.id": "/redfish/v1/PowerEquipment/FloorPDUs"
    },
    "RackPDUs": {
        "@odata.id": "/redfish/v1/PowerEquipment/RackPDUs"
    },
    "TransferSwitches": {
        "@odata.id": "/redfish/v1/PowerEquipment/TransferSwitches"
    },
    "@odata.id": "/redfish/v1/PowerEquipment"
}
```

6.106 PowerSubsystem 1.1.3

Version	*v1.1*	*v1.0*
Release	2021.2	2020.4

6.106.1 Description

This `PowerSubsystem schema` contains the definition for the power subsystem of a chassis.

6.106.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/PowerSubsystem

6.106.3 Properties

Property	Type	Attributes	Notes
Allocation {	object		Power allocation for this subsystem when it represents a subset of the power infrastructure for the chassis or its upstream chassis, such as a chassis containing multiple server blades.
AllocatedWatts	number (Watts)	*read-only (null)*	The total amount of power that has been allocated or budgeted to this subsystem.
RequestedWatts	number (Watts)	*read-only (null)*	The potential power, in watt units, that the subsystem requests, which might be higher than the current level being consumed because the requested power includes a budget that the subsystem wants for future use.
}			
Batteries *(v1.1+)* {	object		The link to the collection of batteries within this subsystem. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Battery*. See the Battery schema for details.
}			
CapacityWatts	number (Watts)	*read-only (null)*	The total amount of power that can be allocated to this subsystem. This value can be either the power supply capacity or the power budget that an upstream chassis assigns to this subsystem.
PowerSupplies {	object		The link to the collection of power supplies within this subsystem. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *PowerSupply*. See the PowerSupply schema for details.
}			
PowerSupplyRedundancy [{ }]	array (object)		The redundancy information for the set of power supplies in this subsystem. For property details, see RedundantGroup.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.106.4 Example response


```
{
    "@odata.type": "#PowerSubsystem.v1_1_3.PowerSubsystem",
    "Id": "PowerSubsystem",
    "Name": "Power Subsystem for Chassis",
    "CapacityWatts": 2000,
    "Allocation": {
        "RequestedWatts": 1500,
        "AllocatedWatts": 1200
    },
    "PowerSupplyRedundancy": [
        {
            "RedundancyType": "Failover",
            "MaxSupportedInGroup": 2,
            "MinNeededInGroup": 1,
            "RedundancyGroup": [
                {
                    "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem/PowerSupplies/Bay1"
                },
                {
                    "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem/PowerSupplies/Bay2"
                }
            ],
            "Status": {
                "State": "UnavailableOffline",
                "Health": "OK"
            }
        }
    ],
    "PowerSupplies": {
        "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem/PowerSupplies"
    },
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem"
}
```


6.107 PowerSupply 1.6.0

Version	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2024.1	2022.2	2022.1	2021.4	2021.3	2021.1	2020.4

6.107.1 Description

The `PowerSupply` schema describes a power supply unit. It also describes the location, such as a slot, socket, or bay, where a unit can be installed, by populating a resource instance with an absent state if a unit is not present.

6.107.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/PowerSubsystem/PowerSupplies/*{PowerSupplyId}*
/redfish/v1/PowerEquipment/PowerShelves/*{PowerDistributionId}*/PowerSupplies/*{PowerSupplyId}* (deprecated)

6.107.3 Properties

Property	Type	Attributes	Notes
Assembly {	object		The link to the assembly associated with this power supply. See the *Assembly* schema for details on this property.
@odata.id	string	*read-only*	Link to a Assembly resource. See the Links section and the *Assembly* schema for details.
}			
Certificates *(v1.6+)* {	object		The link to a collection of certificates for device identity and attestation. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
EfficiencyRatings [{	array		The efficiency ratings of this power supply.
EfficiencyPercent	number (%)	*read-only (null)*	The rated efficiency of this power supply at the specified load.
LoadPercent	number (%)	*read-only (null)*	The electrical load for this rating.
}]			
ElectricalSourceManagerURIs *(v1.2+)* [ ]	array (URI) (string, null)	*read-write*	The URIs of the management interfaces for the upstream electrical source connections for this power supply.
ElectricalSourceNames *(v1.2+)* [ ]	array (string, null)	*read-write*	The names of the upstream electrical sources, such as circuits or outlets, connected to this power supply.
FirmwareVersion	string	*read-only (null)*	The firmware version for this power supply.

Property	Type	Attributes	Notes
HotPluggable	boolean	*read-only (null)*	An indication of whether this device can be inserted or removed while the equipment is in operation.
InputNominalVoltageType	string (enum)	*read-only (null)*	The nominal voltage type that is detected on the line input to this power supply. *For the possible property values, see InputNominalVoltageType in Property details.*
InputRanges [{	array		The input ranges that the power supply can use.
CapacityWatts	number (Watts)	*read-only (null)*	The maximum capacity of this power supply when operating in this input range.
NominalVoltageType	string (enum)	*read-only (null)*	The input voltage range. *For the possible property values, see NominalVoltageType in Property details.*
}]			
LineInputStatus *(v1.3+)*	string (enum)	*read-only (null)*	The status of the line input. *For the possible property values, see LineInputStatus in Property details.*
Links {	object		The links to other resources that are related to this resource.
Oem {}	object		See the Oem object definition in the Common properties section.
Outlet *(deprecated v1.4)* {	object		A link to the outlet connected to this power supply. See the *Outlet* schema for details on this property. *Deprecated in v1.4 and later. This property has been deprecated in favor of the* `PowerOutlets` *property to allow for consistent modeling of power supplies with multiple outlet support.*
@odata.id	string	*read-write*	Link to a Outlet resource. See the Links section and the *Outlet* schema for details.
}			
PoweringChassis *(v1.4+)* [{	array		An array of links to the chassis that are directly powered by this power supply.
@odata.id	string	*read-only*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}]			
PowerOutlets *(v1.2+)* [{	array		An array of links to the outlets that provide power to this power supply.
@odata.id	string	*read-write*	Link to a Outlet resource. See the Links section and the *Outlet* schema for details.
}]			
}			

Property	Type	Attributes	Notes
Location {}	object		The location of the power supply. For property details, see Location.
LocationIndicatorActive	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
Manufacturer	string	*read-only (null)*	The manufacturer of this power supply.
Metrics {	object		The link to the power supply metrics resource associated with this power supply. See the *PowerSupplyMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a PowerSupplyMetrics resource. See the Links section and the *PowerSupplyMetrics* schema for details.
}			
Model	string	*read-only (null)*	The model number for this power supply.
OutputNominalVoltageType *(v1.5+)*	string (enum)	*read-only (null)*	The nominal output voltage type of this power supply. *For the possible property values, see OutputNominalVoltageType in Property details.*
OutputRails [{	array		The output power rails provided by this power supply.
NominalVoltage	number	*read-only (null)*	The nominal voltage of this output power rail.
PhysicalContext	string (enum)	*read-only*	The area or device to which this power rail applies. *For the possible property values, see PhysicalContext in Property details.*
}]			
PartNumber	string	*read-only (null)*	The part number for this power supply.
PhaseWiringType	string (enum)	*read-only (null)*	The number of ungrounded current-carrying conductors (phases) and the total number of conductors (wires) provided for the power supply input connector. *For the possible property values, see PhaseWiringType in Property details.*
PlugType	string (enum)	*read-only (null)*	The type of plug according to NEMA, IEC, or regional standards. *For the possible property values, see PlugType in Property details.*
PowerCapacityWatts	number (Watts)	*read-only (null)*	The maximum capacity of this power supply.
PowerSupplyType	string (enum)	*read-only (null)*	The power supply type (AC or DC). *For the possible property values, see PowerSupplyType in Property details.*
ProductionDate *(v1.1+)*	string (date-time)	*read-only (null)*	The production or manufacturing date of this power supply.

Property	Type	Attributes	Notes
Replaceable *(v1.5+)*	boolean	*read-only (null)*	An indication of whether this component can be independently replaced as allowed by the vendor's replacement policy.
SerialNumber	string	*read-only (null)*	The serial number for this power supply.
SparePartNumber	string	*read-only (null)*	The spare part number for this power supply.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
Version *(v1.1+)*	string	*read-only (null)*	The hardware version of this power supply.

6.107.4 Actions

6.107.4.1 Reset

Description

This action resets the power supply.

Action URI

{Base URI of target resource}/Actions/PowerSupply.Reset

Action parameters

Parameter Name	Type	Attributes	Notes
ResetType	string (enum)	*optional*	The type of reset. *For the possible property values, see ResetType in Property details.*

Request Example

```
{
    "ResetType": "ForceRestart"
}
```

6.107.5 Property details

6.107.5.1 InputNominalVoltageType

The nominal voltage type that is detected on the line input to this power supply.

string	Description
AC100To127V	AC 100-127V nominal.
AC100To240V	AC 100-240V nominal.
AC100To277V	AC 100-277V nominal.
AC120V	AC 120V nominal.
AC200To240V	AC 200-240V nominal.
AC200To277V	AC 200-277V nominal.
AC208V	AC 208V nominal.
AC230V	AC 230V nominal.
AC240AndDC380V	AC 200-240V and DC 380V.
AC240V	AC 240V nominal.
AC277AndDC380V	AC 200-277V and DC 380V.
AC277V	AC 277V nominal.
AC400V	AC 400V or 415V nominal.
AC480V	AC 480V nominal.
DC12V	DC 12V nominal.
DC16V	DC 16V nominal.
DC1_8V	DC 1.8V nominal.
DC240V	DC 240V nominal.
DC380V	High-voltage DC (380V).
DC3_3V	DC 3.3V nominal.
DC48V	DC 48V nominal.
DC5V	DC 5V nominal.

string	Description
DC9V	DC 9V nominal.
DCNeg48V	-48V DC.

6.107.5.2 LineInputStatus

The status of the line input.

string	Description
LossOfInput	No power detected at line input.
Normal	Line input is within normal operating range.
OutOfRange	Line input voltage or current is outside of normal operating range.

6.107.5.3 NominalVoltageType

The input voltage range.

string	Description
AC100To127V	AC 100-127V nominal.
AC100To240V	AC 100-240V nominal.
AC100To277V	AC 100-277V nominal.
AC120V	AC 120V nominal.
AC200To240V	AC 200-240V nominal.
AC200To277V	AC 200-277V nominal.
AC208V	AC 208V nominal.
AC230V	AC 230V nominal.
AC240AndDC380V	AC 200-240V and DC 380V.
AC240V	AC 240V nominal.
AC277AndDC380V	AC 200-277V and DC 380V.
AC277V	AC 277V nominal.

string	Description
AC400V	AC 400V or 415V nominal.
AC480V	AC 480V nominal.
DC12V	DC 12V nominal.
DC16V	DC 16V nominal.
DC1_8V	DC 1.8V nominal.
DC240V	DC 240V nominal.
DC380V	High-voltage DC (380V).
DC3_3V	DC 3.3V nominal.
DC48V	DC 48V nominal.
DC5V	DC 5V nominal.
DC9V	DC 9V nominal.
DCNeg48V	-48V DC.

6.107.5.4 OutputNominalVoltageType

The nominal output voltage type of this power supply.

string	Description
AC100To127V	AC 100-127V nominal.
AC100To240V	AC 100-240V nominal.
AC100To277V	AC 100-277V nominal.
AC120V	AC 120V nominal.
AC200To240V	AC 200-240V nominal.
AC200To277V	AC 200-277V nominal.
AC208V	AC 208V nominal.
AC230V	AC 230V nominal.
AC240AndDC380V	AC 200-240V and DC 380V.
AC240V	AC 240V nominal.

string	Description
AC277AndDC380V	AC 200-277V and DC 380V.
AC277V	AC 277V nominal.
AC400V	AC 400V or 415V nominal.
AC480V	AC 480V nominal.
DC12V	DC 12V nominal.
DC16V	DC 16V nominal.
DC1_8V	DC 1.8V nominal.
DC240V	DC 240V nominal.
DC380V	High-voltage DC (380V).
DC3_3V	DC 3.3V nominal.
DC48V	DC 48V nominal.
DC5V	DC 5V nominal.
DC9V	DC 9V nominal.
DCNeg48V	-48V DC.

6.107.5.5 PhaseWiringType

The number of ungrounded current-carrying conductors (phases) and the total number of conductors (wires) provided for the power supply input connector.

string	Description
OneOrTwoPhase3Wire	Single or two-phase / 3-wire (Line1, Line2 or Neutral, Protective Earth).
OnePhase3Wire	Single-phase / 3-wire (Line1, Neutral, Protective Earth).
ThreePhase4Wire	Three-phase / 4-wire (Line1, Line2, Line3, Protective Earth).
ThreePhase5Wire	Three-phase / 5-wire (Line1, Line2, Line3, Neutral, Protective Earth).
TwoPhase3Wire	Two-phase / 3-wire (Line1, Line2, Protective Earth).
TwoPhase4Wire	Two-phase / 4-wire (Line1, Line2, Neutral, Protective Earth).

6.107.5.6 PhysicalContext

The area or device to which this power rail applies.

string	Description
Accelerator	An accelerator.
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.
ACOutput	An AC electrical output or output-related circuit.
ACStaticBypassInput	An AC electrical static bypass input.
ACUtilityInput	An AC electrical utility input.
ASIC	An ASIC device, such as a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.
Chassis	The entire chassis.
ComputeBay	A compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.

string	Description
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Manager	A management controller, such as a BMC (baseboard management controller).
Memory	A memory device.
MemorySubsystem	The entire memory subsystem.
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	A power supply bay.
Pump	A pump.
Rectifier	A rectifier device.
Reservoir	A reservoir.
Room	The room.
StorageBay	A storage bay.
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).

string	Description
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

6.107.5.7 PlugType

The type of plug according to NEMA, IEC, or regional standards.

string	Description
California_CS8265	California Standard CS8265 (Single-phase 250V; 50A; 2P3W).
California_CS8365	California Standard CS8365 (Three-phase 250V; 50A; 3P4W).
Field_208V_3P4W_60A	Field-wired; Three-phase 200-250V; 60A; 3P4W.
Field_400V_3P5W_32A	Field-wired; Three-phase 200-240/346-415V; 32A; 3P5W.
IEC_60309_316P6	IEC 60309 316P6 (Single-phase 200-250V; 16A; 1P3W; Blue, 6-hour).
IEC_60309_332P6	IEC 60309 332P6 (Single-phase 200-250V; 32A; 1P3W; Blue, 6-hour).
IEC_60309_363P6	IEC 60309 363P6 (Single-phase 200-250V; 63A; 1P3W; Blue, 6-hour).
IEC_60309_460P9	IEC 60309 460P9 (Three-phase 200-250V; 60A; 3P4W; Blue; 9-hour).
IEC_60309_516P6	IEC 60309 516P6 (Three-phase 200-240/346-415V; 16A; 3P5W; Red; 6-hour).
IEC_60309_532P6	IEC 60309 532P6 (Three-phase 200-240/346-415V; 32A; 3P5W; Red; 6-hour).
IEC_60309_560P9	IEC 60309 560P9 (Three-phase 120-144/208-250V; 60A; 3P5W; Blue; 9-hour).
IEC_60309_563P6	IEC 60309 563P6 (Three-phase 200-240/346-415V; 63A; 3P5W; Red; 6-hour).
IEC_60320_C14	IEC C14 (Single-phase 250V; 10A; 1P3W).
IEC_60320_C20	IEC C20 (Single-phase 250V; 16A; 1P3W).
NEMA_5_15P	NEMA 5-15P (Single-phase 125V; 15A; 1P3W).
NEMA_5_20P	NEMA 5-20P (Single-phase 125V; 20A; 1P3W).
NEMA_6_15P	NEMA 6-15P (Single-phase 250V; 15A; 2P3W).

string	Description
NEMA_6_20P	NEMA 6-20P (Single-phase 250V; 20A; 2P3W).
NEMA_L14_20P	NEMA L14-20P (Split-phase 125/250V; 20A; 2P4W).
NEMA_L14_30P	NEMA L14-30P (Split-phase 125/250V; 30A; 2P4W).
NEMA_L15_20P	NEMA L15-20P (Three-phase 250V; 20A; 3P4W).
NEMA_L15_30P	NEMA L15-30P (Three-phase 250V; 30A; 3P4W).
NEMA_L21_20P	NEMA L21-20P (Three-phase 120/208V; 20A; 3P5W).
NEMA_L21_30P	NEMA L21-30P (Three-phase 120/208V; 30A; 3P5W).
NEMA_L22_20P	NEMA L22-20P (Three-phase 277/480V; 20A; 3P5W).
NEMA_L22_30P	NEMA L22-30P (Three-phase 277/480V; 30A; 3P5W).
NEMA_L5_15P	NEMA L5-15P (Single-phase 125V; 15A; 1P3W).
NEMA_L5_20P	NEMA L5-20P (Single-phase 125V; 20A; 1P3W).
NEMA_L5_30P	NEMA L5-30P (Single-phase 125V; 30A; 1P3W).
NEMA_L6_15P	NEMA L6-15P (Single-phase 250V; 15A; 2P3W).
NEMA_L6_20P	NEMA L6-20P (Single-phase 250V; 20A; 2P3W).
NEMA_L6_30P	NEMA L6-30P (Single-phase 250V; 30A; 2P3W).

6.107.5.8 PowerSupplyType

The power supply type (AC or DC).

string	Description
AC	Alternating Current (AC) power supply.
ACorDC	The power supply supports both DC and AC.
DC	Direct Current (DC) power supply.
DCRegulator *(v1.5+)*	Direct Current (DC) voltage regulator.

6.107.5.9 ResetType

The type of reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the unit.
FullPowerCycle	Full power cycle the unit. Behaves like removing utility lines, followed by restoring utility lines to the resource.
GracefulRestart	Shut down gracefully and restart the unit.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
Pause	Pause execution on the unit but do not remove power. This is typically a feature of virtual machine hypervisors.
PowerCycle	Power cycle the unit. Behaves like a power removal, followed by a power restore to the resource.
PushPowerButton	Simulate the pressing of the physical power button on this unit.
Resume	Resume execution on the paused unit. This is typically a feature of virtual machine hypervisors.
Suspend	Write the state of the unit to disk before powering off. This allows for the state to be restored when powered back on.

6.107.6 Example response


```
{
    "@odata.type": "#PowerSupply.v1_6_0.PowerSupply",
    "Id": "Bay1",
    "Name": "Power Supply Bay 1",
    "Status": {
        "State": "Enabled",
        "Health": "Warning"
    },
    "LineInputStatus": "Normal",
    "Model": "RKS-440DC",
    "Manufacturer": "Contoso Power",
    "FirmwareVersion": "1.00",
    "SerialNumber": "3488247",
    "PartNumber": "23456-133",
    "SparePartNumber": "93284-133",
    "LocationIndicatorActive": false,
```

```
    "HotPluggable": false,
    "PowerCapacityWatts": 400,
    "PhaseWiringType": "OnePhase3Wire",
    "PlugType": "IEC_60320_C14",
    "InputRanges": [
        {
            "NominalVoltageType": "AC200To240V",
            "CapacityWatts": 400
        },
        {
            "NominalVoltageType": "AC120V",
            "CapacityWatts": 350
        },
        {
            "NominalVoltageType": "DC380V",
            "CapacityWatts": 400
        }
    ],
    "EfficiencyRatings": [
        {
            "LoadPercent": 25,
            "EfficiencyPercent": 75
        },
        {
            "LoadPercent": 50,
            "EfficiencyPercent": 85
        },
        {
            "LoadPercent": 90,
            "EfficiencyPercent": 80
        }
    ],
    "OutputRails": [
        {
            "NominalVoltage": 3.3,
            "PhysicalContext": "SystemBoard"
        },
        {
            "NominalVoltage": 5,
            "PhysicalContext": "SystemBoard"
        },
        {
            "NominalVoltage": 12,
            "PhysicalContext": "StorageDevice"
        }
    ],
    "Location": {
        "PartLocation": {
            "ServiceLabel": "PSU 1",
            "LocationType": "Bay",
```

```
            "LocationOrdinalValue": 0
        }
    },
    "Links": {
        "Outlet": {
            "@odata.id": "https://redfishpdu.contoso.com/redfish/v1/PowerEquipment/RackPDUs/1/Outlets/A4"
        }
    },
    "Assembly": {
        "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem/PowerSupplies/Bay1/Assembly"
    },
    "Metrics": {
        "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem/PowerSupplies/Bay1/Metrics"
    },
    "Actions": {
        "#PowerSupply.Reset": {
            "target": "/redfish/v1/Chassis/1U/PowerSubsystem/PowerSupplies/Bay1/PowerSupply.Reset"
        }
    },
    "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem/PowerSupplies/Bay1"
}
```


6.108 PowerSupplyMetrics 1.1.2

Version	*v1.1*	*v1.0*
Release	2023.1	2020.4

6.108.1 Description

The `PowerSupplyMetrics` schema contains definitions for the metrics of a power supply.

6.108.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/PowerSubsystem/PowerSupplies/*{PowerSupplyId}*/Metrics
/redfish/v1/PowerEquipment/PowerShelves/*{PowerDistributionId}*/PowerSupplies/*{PowerSupplyId}*/Metrics

6.108.3 Properties

Property	Type	Attributes	Notes
EnergykWh {	object (excerpt)		The energy consumption (kWh) of this unit. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
ApparentkVAh *(v1.5+)*	number (kV.A.h)	*read-only (null)*	Apparent energy (kVAh).
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
LifetimeReading *(v1.1+)*	number	*read-only (null)*	The total accumulation value for this sensor.
ReactivekVARh *(v1.5+)*	number (kV.A.h)	*read-only (null)*	Reactive energy (kVARh).
Reading	number	*read-only (null)*	The sensor value.
SensorResetTime	string (date-time)	*read-only (null)*	The date and time when the time-based properties were last reset.
}			
FanSpeedPercent *(deprecated v1.1)* {	object (excerpt)		The fan speed (percent) for this power supply. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri. *Deprecated in v1.1 and later. This property has been deprecated in favor of* `FanSpeedsPercent` *to support multiple fans within a power supply.*
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
SpeedRPM *(v1.2+)*	number ({rev}/min)	*read-only (null)*	The rotational speed.
}			
FanSpeedsPercent *(v1.1+)* [{	array (excerpt)		Fan speeds (percent). This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
DeviceName *(v1.2+)*	string	*read-only (null)*	The name of the device.

Property	Type	Attributes	Notes
PhysicalContext	string (enum)	*read-write (null)*	The area or device to which this sensor measurement applies. *For the possible property values, see PhysicalContext in Property details.*
PhysicalSubContext	string (enum)	*read-write (null)*	The usage or location within a device to which this sensor measurement applies. *For the possible property values, see PhysicalSubContext in Property details.*
Reading	number	*read-only (null)*	The sensor value.
SpeedRPM *(v1.2+)*	number ({rev}/min)	*read-only (null)*	The rotational speed.
}]			
FrequencyHz {	object (excerpt)		The frequency (Hz) for this power supply. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
}			
InputCurrentAmps {	object (excerpt)		The input current (A) for this power supply. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
CrestFactor *(v1.1+)*	number	*read-only (null)*	The crest factor for this sensor.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
THDPercent *(v1.1+)*	number (%)	*read-only (null)*	The total harmonic distortion percent (% THD).
}			
InputPowerWatts {	object (excerpt)		The input power (W) for this power supply. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
ApparentVA	number (V.A)	*read-only (null)*	The product of voltage and current for an AC circuit, in volt-ampere units.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.

Property	Type	Attributes	Notes
PhaseAngleDegrees *(v1.5+)*	number	*read-only (null)*	The phase angle (degrees) between the current and voltage waveforms.
PowerFactor	number	*read-only (null)*	The power factor for this sensor.
ReactiveVAR	number (V.A)	*read-only (null)*	The square root of the difference term of squared apparent VA and squared power (Reading) for a circuit, in VAR units.
Reading	number	*read-only (null)*	The sensor value.
}			
InputVoltage {	object (excerpt)		The input voltage (V) for this power supply. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
CrestFactor *(v1.1+)*	number	*read-only (null)*	The crest factor for this sensor.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
THDPercent *(v1.1+)*	number (%)	*read-only (null)*	The total harmonic distortion percent (% THD).
}			
OutputPowerWatts {	object (excerpt)		The total power output (W) for this power supply. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
ApparentVA	number (V.A)	*read-only (null)*	The product of voltage and current for an AC circuit, in volt-ampere units.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
PhaseAngleDegrees *(v1.5+)*	number	*read-only (null)*	The phase angle (degrees) between the current and voltage waveforms.
PowerFactor	number	*read-only (null)*	The power factor for this sensor.
ReactiveVAR	number (V.A)	*read-only (null)*	The square root of the difference term of squared apparent VA and squared power (Reading) for a circuit, in VAR units.
Reading	number	*read-only (null)*	The sensor value.

Property	Type	Attributes	Notes
}			
RailCurrentAmps [{	array (excerpt)		The output currents (A) for this power supply. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
CrestFactor *(v1.1+)*	number	*read-only (null)*	The crest factor for this sensor.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
THDPercent *(v1.1+)*	number (%)	*read-only (null)*	The total harmonic distortion percent (% THD).
}]			
RailPowerWatts [{	array (excerpt)		The output power readings (W) for this power supply. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
ApparentVA	number (V.A)	*read-only (null)*	The product of voltage and current for an AC circuit, in volt-ampere units.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
PhaseAngleDegrees *(v1.5+)*	number	*read-only (null)*	The phase angle (degrees) between the current and voltage waveforms.
PowerFactor	number	*read-only (null)*	The power factor for this sensor.
ReactiveVAR	number (V.A)	*read-only (null)*	The square root of the difference term of squared apparent VA and squared power (Reading) for a circuit, in VAR units.
Reading	number	*read-only (null)*	The sensor value.
}]			
RailVoltage [{	array (excerpt)		The output voltages (V) for this power supply. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
CrestFactor *(v1.1+)*	number	*read-only (null)*	The crest factor for this sensor.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.

Property	Type	Attributes	Notes
Reading	number	*read-only (null)*	The sensor value.
THDPercent *(v1.1+)*	number (%)	*read-only (null)*	The total harmonic distortion percent (% THD).
}]			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
TemperatureCelsius {	object (excerpt)		The temperature (C) for this power supply. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
}			

6.108.4 Actions

6.108.4.1 ResetMetrics

Description

This action resets the summary metrics related to this equipment.

Action URI

{Base URI of target resource}/Actions/PowerSupplyMetrics.ResetMetrics

Action parameters

This action takes no parameters.

6.108.5 Property details

6.108.5.1 PhysicalContext

The area or device to which this sensor measurement applies.

string	Description
Accelerator	An accelerator.
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.
ACOutput	An AC electrical output or output-related circuit.
ACStaticBypassInput	An AC electrical static bypass input.
ACUtilityInput	An AC electrical utility input.
ASIC	An ASIC device, such as a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.
Chassis	The entire chassis.
ComputeBay	A compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.

string	Description
Intake	The air intake point or points or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Manager	A management controller, such as a BMC (baseboard management controller).
Memory	A memory device.
MemorySubsystem	The entire memory subsystem.
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	A power supply bay.
Pump	A pump.
Rectifier	A rectifier device.
Reservoir	A reservoir.
Room	The room.
StorageBay	A storage bay.
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.

string	Description
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

6.108.5.2 PhysicalSubContext

The usage or location within a device to which this sensor measurement applies.

string	Description
Input	The input.
Output	The output.

6.108.6 Example response

```
{
    "@odata.type": "#PowerSupplyMetrics.v1_1_2.PowerSupplyMetrics",
    "Id": "Metrics",
    "Name": "Metrics for Power Supply 1",
    "Status": {
        "State": "Enabled",
        "Health": "Warning"
    },
    "InputVoltage": {
        "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1InputVoltage",
        "Reading": 230.2
    },
    "InputCurrentAmps": {
        "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1InputCurrent",
        "Reading": 5.19
    },
    "InputPowerWatts": {
        "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1InputPower",
        "Reading": 937.4
    },
    "RailVoltage": [
        {
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1_3VOutput",
            "Reading": 3.31
        },
        {
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1_5VOutput",
            "Reading": 5.03
```

```
        },
        {
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1_12VOutput",
            "Reading": 12.06
        }
    ],
    "RailCurrentAmps": [
        {
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1_3VCurrent",
            "Reading": 9.84
        },
        {
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1_5VCurrent",
            "Reading": 1.25
        },
        {
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1_12Current",
            "Reading": 2.58
        }
    ],
    "OutputPowerWatts": {
        "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1OutputPower",
        "Reading": 937.4
    },
    "RailPowerWatts": [
        {
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1_3VPower",
            "Reading": 79.84
        },
        {
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1_5VPower",
            "Reading": 26.25
        },
        {
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1_12VPower",
            "Reading": 91.58
        }
    ],
    "EnergykWh": {
        "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1Energy",
        "Reading": 325675
    },
    "FrequencyHz": {
        "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1InputFrequency",
        "Reading": 60
    },
    "TemperatureCelsius": {
        "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1Temp",
        "Reading": 43.9
    },
```

```
    "FanSpeedPercent": {
        "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1Fan",
        "Reading": 68,
        "SpeedRPM": 3290
    },
    "Actions": {
        "#PowerSupplyMetrics.ResetMetrics": {
            "target": "/redfish/v1/Chassis/1U/PowerSubsystem/PowerSupplies/Bay1/Metrics/
         PowerSupplyMetrics.ResetMetrics"
        }
    },
    "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem/PowerSupplies/Bay1/Metrics"
}
```


6.109 PrivilegeRegistry 1.1.5

Version	*v1.1*	*v1.0*
Release	2017.1	2016.3

6.109.1 Description

The `PrivilegeRegistry` schema describes the operation-to-privilege mappings.

6.109.2 Properties

Property	Type	Attributes	Notes
Mappings [{	array		The mappings between entities and the relevant privileges that access those entities.
Entity	string	*read-only*	The resource name, such as `Manager`.
OperationMap {	object		List mapping between HTTP methods and privilege required for the resource.
DELETE [{	array		The privilege required to complete an HTTP `DELETE` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
GET [{	array		The privilege required to complete an HTTP `GET` operation.

Property	Type	Attributes	Notes
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
HEAD [{	array		The privilege required to complete an HTTP `HEAD` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
PATCH [{	array		The privilege required to complete an HTTP `PATCH` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
POST [{	array		The privilege required to complete an HTTP `POST` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
PUT [{	array		The privilege required to complete an HTTP `PUT` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
}			
PropertyOverrides [{	array		The privilege overrides of properties within a resource.
OperationMap {	object		The mapping between the HTTP operation and the privilege required to complete the operation.
DELETE [{	array		The privilege required to complete an HTTP `DELETE` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
GET [{	array		The privilege required to complete an HTTP `GET` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.

Property	Type	Attributes	Notes
}]			
HEAD [{	array		The privilege required to complete an HTTP `HEAD` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
PATCH [{	array		The privilege required to complete an HTTP `PATCH` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
POST [{	array		The privilege required to complete an HTTP `POST` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
PUT [{	array		The privilege required to complete an HTTP `PUT` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
}			
Targets [ ]	array (string, null)	*read-only*	The set of URIs, resource types, or properties.
}]			
ResourceURIOverrides [{	array		The privilege overrides of resource URIs.
OperationMap {	object		The mapping between the HTTP operation and the privilege required to complete the operation.
DELETE [{	array		The privilege required to complete an HTTP `DELETE` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
GET [{	array		The privilege required to complete an HTTP `GET` operation.

Property	Type	Attributes	Notes
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
HEAD [{	array		The privilege required to complete an HTTP `HEAD` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
PATCH [{	array		The privilege required to complete an HTTP `PATCH` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
POST [{	array		The privilege required to complete an HTTP `POST` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
PUT [{	array		The privilege required to complete an HTTP `PUT` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
}			
Targets [ ]	array (string, null)	*read-only*	The set of URIs, resource types, or properties.
}]			
SubordinateOverrides [{	array		The privilege overrides of the subordinate resource.
OperationMap {	object		The mapping between the HTTP operation and the privilege required to complete the operation.
DELETE [{	array		The privilege required to complete an HTTP `DELETE` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.

Property	Type	Attributes	Notes
}]			
GET [{	array		The privilege required to complete an HTTP `GET` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
HEAD [{	array		The privilege required to complete an HTTP `HEAD` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
PATCH [{	array		The privilege required to complete an HTTP `PATCH` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
POST [{	array		The privilege required to complete an HTTP `POST` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
PUT [{	array		The privilege required to complete an HTTP `PUT` operation.
Privilege [ ]	array (string)	*read-only*	An array of privileges that are required to complete a specific HTTP operation on a resource.
}]			
}			
Targets [ ]	array (string, null)	*read-only*	The set of URIs, resource types, or properties.
}]			
}]			
OEMPrivilegesUsed [ ]	array (string)	*read-only*	The set of OEM privileges used in this mapping.
PrivilegesUsed [ ]	array (string (enum))	*read-only*	The set of Redfish standard privileges used in this mapping. *For the possible property values, see PrivilegesUsed in Property details.*

6.109.3 Property details

6.109.3.1 PrivilegesUsed

The set of Redfish standard privileges used in this mapping.

string	Description
AdministrateStorage	Administrator for storage subsystems and storage systems found in the storage collection and storage system collection respectively.
AdministrateSystems	Administrator for systems found in the systems collection. Able to manage boot configuration, keys, and certificates for systems.
ConfigureComponents	Can configure components that this service manages.
ConfigureCompositionInfrastructure	Can view and configure composition service resources.
ConfigureManager	Can configure managers.
ConfigureSelf	Can change the password for the current user account, log out of their own sessions, and perform operations on resources they created. Services will need to be aware of resource ownership to map this privilege to an operation from a particular user.
ConfigureUsers	Can configure users and their accounts.
Login	Can log in to the service and read resources.
NoAuth	Authentication is not required.
OperateStorageBackup	Operator for storage backup functionality for storage subsystems and storage systems found in the storage collection and storage system collection respectively.
OperateSystems	Operator for systems found in the systems collection. Able to perform resets and configure interfaces.

6.109.4 Example response


```
{
    "@odata.type": "#PrivilegeRegistry.v1_1_4.PrivilegeRegistry",
    "Id": "Contoso_1.0.1_PrivilegeRegistry",
    "Name": "Privilege Map",
    "PrivilegesUsed": [
        "Login",
        "ConfigureManager",
        "ConfigureUsers",
        "ConfigureComponents",
```

```
        "ConfigureSelf"
    ],
    "OEMPrivilegesUsed": [],
    "Mappings": [
        {
            "Entity": "Manager",
            "OperationMap": {
                "GET": [
                    {
                        "Privilege": [
                            "Login"
                        ]
                    }
                ],
                "HEAD": [
                    {
                        "Privilege": [
                            "Login"
                        ]
                    }
                ],
                "PATCH": [
                    {
                        "Privilege": [
                            "ConfigureManager"
                        ]
                    }
                ],
                "POST": [
                    {
                        "Privilege": [
                            "ConfigureManager"
                        ]
                    }
                ],
                "PUT": [
                    {
                        "Privilege": [
                            "ConfigureManager"
                        ]
                    }
                ],
                "DELETE": [
                    {
                        "Privilege": [
                            "ConfigureManager"
                        ]
                    }
                ]
            }
```

```
        }
    ],
    "@odata.id": "/redfish/v1/JobService"
}
```


6.110 Processor 1.20.1

Version	*v1.20*	*v1.19*	*v1.18*	*v1.17*	*v1.16*	*v1.15*	*v1.14*	*v1.13*	*v1.12*	*v1.11*	*v1.10*	...
Release	2024.1	2023.3	2023.1	2022.3	2022.2	2022.1	2021.4	2021.2	2021.1	2020.4	2020.3	...

6.110.1 Description

The `Processor` schema describes the information about a single processor that a system contains. A processor includes both performance characteristics, clock speed, architecture, core count, and so on, and compatibility, such as the CPU ID instruction results. It also describes the location, such as a slot, socket, or bay, where a unit can be installed, by populating a resource instance with an absent state if a unit is not present.

6.110.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Processors/*{ProcessorId}*
/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*
/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/SubProcessors/*{ProcessorId3}*
/redfish/v1/Chassis/*{ChassisId}*/Processors/*{ProcessorId}*
/redfish/v1/Chassis/*{ChassisId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*
/redfish/v1/Chassis/*{ChassisId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/SubProcessors/*{ProcessorId3}*
/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*
/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/SubProcessors/*{ProcessorId3}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.110.3 Properties

Property	Type	Attributes	Notes
AccelerationFunctions *(v1.4+)* {	object		The link to the collection of acceleration functions associated with this processor. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *AccelerationFunction*. See the AccelerationFunction schema for details.
}			
AdditionalFirmwareVersions *(v1.15+)* {	object		The additional firmware versions of the processor.
Bootloader *(v1.7+)*	string	*read-only* *(null)*	The bootloader version contained in this software, such as U-Boot or UEFI.
BootParameters *(v1.11+)*	string	*read-only* *(null)*	The version of the configuration file that contains the initial boot parameters of this software, such as parameters for U-Boot.
FactoryConfiguration *(v1.11+)*	string	*read-only* *(null)*	The version of the configuration that contains the factory default runtime configuration parameters of this software.
Kernel *(v1.7+)*	string	*read-only* *(null)*	The kernel version contained in this software.
Microcode *(v1.7+)*	string	*read-only* *(null)*	The microcode version contained in this software, such as processor microcode.
Oem *(v1.7+)* {}	object		See the Oem object definition in the Common properties section.
OSDistribution *(v1.8+)*	string	*read-only* *(null)*	The operating system name of this software.
}			
AppliedOperatingConfig *(v1.9+)* {	object		The link to the operating configuration that is applied to this processor. See the *OperatingConfig* schema for details on this property.
@odata.id	string	*read-write*	Link to a OperatingConfig resource. See the Links section and the *OperatingConfig* schema for details.
}			
Assembly *(v1.2+)* {	object		The link to an assembly associated with this processor. See the *Assembly* schema for details on this property.
@odata.id	string	*read-only*	Link to a Assembly resource. See the Links section and the *Assembly* schema for details.

Property	Type	Attributes	Notes
}			
BaseSpeedMHz *(v1.10+)*	integer (MHz)	*read-only (null)*	The base (nominal) clock speed of the processor in MHz.
BaseSpeedPriorityState *(v1.9+)*	string (enum)	*read-only (null)*	The state of the base frequency settings of the operation configuration applied to this processor. *For the possible property values, see BaseSpeedPriorityState in Property details.*
CacheMemory *(v1.20+)* {	object		The link to the collection of cache memory associated with this processor. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Memory*. See the Memory schema for details.
}			
Certificates *(v1.11+)* {	object		The link to a collection of certificates for device identity and attestation. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
Enabled *(v1.12+)*	boolean	*read-write*	An indication of whether this processor is enabled.
EnvironmentMetrics *(v1.11+)* {	object		The link to the environment metrics for this processor. See the *EnvironmentMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a EnvironmentMetrics resource. See the Links section and the *EnvironmentMetrics* schema for details.
}			
Family *(v1.16+)*	string	*read-only (null)*	The processor family.
FirmwareVersion *(v1.7+)*	string	*read-only*	The firmware version of the processor.
FPGA *(v1.4+)* {	object		The properties for processors of the FPGA type.
ExternalInterfaces *(v1.4+)* [{	array		An array of the FPGA external interfaces.
Ethernet *(v1.4+)* {	object		The Ethernet-related information for this interface.
MaxLanes *(v1.4+)*	integer	*read-only (null)*	The number of lanes supported by this interface.
MaxSpeedMbps *(v1.4+)*	integer (Mbit/s)	*read-only (null)*	The maximum speed supported by this interface.
Oem *(v1.4+)* {}	object		See the Oem object definition in the Common properties section.

Property	Type	Attributes	Notes
}			
InterfaceType *(v1.4+)*	string (enum)	*read-only (null)*	The interface type. *For the possible property values, see InterfaceType in Property details.*
PCIe *(v1.4+)* {	object		The PCIe-related information for this interface.
LanesInUse *(v1.3+)*	integer	*read-only (null)*	The number of PCIe lanes in use by this device.
MaxLanes *(v1.3+)*	integer	*read-only (null)*	The number of PCIe lanes supported by this device.
MaxPCIeType *(v1.3+)*	string (enum)	*read-only (null)*	The highest version of the PCIe specification supported by this device. *For the possible property values, see MaxPCIeType in Property details.*
Oem *(v1.3+)* {}	object		See the Oem object definition in the Common properties section.
PCIeType *(v1.3+)*	string (enum)	*read-only (null)*	The version of the PCIe specification in use by this device. *For the possible property values, see PCIeType in Property details.*
}			
}]			
FirmwareId *(v1.4+)*	string	*read-only*	The FPGA firmware identifier.
FirmwareManufacturer *(v1.4+)*	string	*read-only*	The FPGA firmware manufacturer.
FirmwareVersion *(v1.4+, deprecated v1.9)*	string	*read-only*	The FPGA firmware version. *Deprecated in v1.9 and later. This property has been deprecated in favor of the* `FirmwareVersion` *property in the root of this resource.*
FpgaType *(v1.4+)*	string (enum)	*read-only*	The FPGA type. *For the possible property values, see FpgaType in Property details.*
HostInterface *(v1.4+, deprecated v1.8)* {	object		The FPGA interface to the host. *Deprecated in v1.8 and later. This property has been deprecated in favor of the* `SystemInterface` *property in the root of this resource.*
Ethernet *(v1.4+)* {	object		The Ethernet-related information for this interface.
MaxLanes *(v1.4+)*	integer	*read-only (null)*	The number of lanes supported by this interface.
MaxSpeedMbps *(v1.4+)*	integer (Mbit/s)	*read-only (null)*	The maximum speed supported by this interface.
Oem *(v1.4+)* {}	object		See the Oem object definition in the Common properties section.
}			

Property	Type	Attributes	Notes
InterfaceType *(v1.4+)*	string (enum)	*read-only (null)*	The interface type. *For the possible property values, see InterfaceType in Property details.*
PCIe *(v1.4+)* {	object		The PCIe-related information for this interface.
LanesInUse *(v1.3+)*	integer	*read-only (null)*	The number of PCIe lanes in use by this device.
MaxLanes *(v1.3+)*	integer	*read-only (null)*	The number of PCIe lanes supported by this device.
MaxPCIeType *(v1.3+)*	string (enum)	*read-only (null)*	The highest version of the PCIe specification supported by this device. *For the possible property values, see MaxPCIeType in Property details.*
Oem *(v1.3+)* {}	object		See the Oem object definition in the Common properties section.
PCIeType *(v1.3+)*	string (enum)	*read-only (null)*	The version of the PCIe specification in use by this device. *For the possible property values, see PCIeType in Property details.*
}			
}			
Model *(v1.4+)*	string	*read-only*	The FPGA model.
Oem *(v1.4+)* {}	object		See the Oem object definition in the Common properties section.
PCIeVirtualFunctions *(v1.4+)*	integer	*read-write*	The number of PCIe Virtual Functions.
ProgrammableFromHost *(v1.4+)*	boolean	*read-write (null)*	An indication of whether the FPGA firmware can be reprogrammed from the host by using system software.
ReconfigurationSlots *(v1.4+)* [{	array		An array of the FPGA reconfiguration slots. An FPGA uses a reconfiguration slot to contain an acceleration function that can change as the FPGA is provisioned.
AccelerationFunction *(v1.4+)* {	object		The link to the acceleration function that the code programmed into a reconfiguration slot provides. See the *AccelerationFunction* schema for details on this property.
@odata.id	string	*read-only*	Link to a AccelerationFunction resource. See the Links section and the *AccelerationFunction* schema for details.
}			
ProgrammableFromHost *(v1.4+)*	boolean	*read-write (null)*	An indication of whether the reconfiguration slot can be reprogrammed from the host by using system software.
SlotId *(v1.4+)*	string	*read-only (null)*	The FPGA reconfiguration slot identifier.

Property	Type	Attributes	Notes
UUID *(v1.4+)*	string (uuid)	*read-only (null)*	The UUID for this reconfiguration slot.
}]			
}			
HighSpeedCoreIDs *(v1.9+)* [ ]	array (integer, null)	*read-only*	The list of core identifiers corresponding to the cores that have been configured with the higher clock speed from the operating configuration applied to this processor.
InstructionSet	string (enum)	*read-only (null)*	The instruction set of the processor. *For the possible property values, see InstructionSet in Property details.*
Links *(v1.1+)* {	object		The links to other resources that are related to this resource.
Chassis *(v1.1+)* {	object		The link to the chassis that contains this processor. See the *Chassis* schema for details on this property.
@odata.id	string	*read-only*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}			
ConnectedProcessors *(v1.4+)* [{	array		An array of links to the processors directly connected to this processor.
@odata.id	string	*read-only*	Link to another Processor resource.
}]			
Endpoints *(v1.4+)* [{	array		An array of links to the endpoints that connect to this processor.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
FabricAdapters *(v1.17+)* [{	array		An array of links to the fabric adapters that present this processor to a fabric.
@odata.id	string	*read-only*	Link to a FabricAdapter resource. See the Links section and the *FabricAdapter* schema for details.
}]			
GraphicsController *(v1.12+)* {	object	*(null)*	A link to the graphics controller associated with this processor. See the *GraphicsController* schema for details on this property.
@odata.id	string	*read-only*	Link to a GraphicsController resource. See the Links section and the *GraphicsController* schema for details.

Property	Type	Attributes	Notes
}			
Memory *(v1.11+)* [{	array		An array of links to the memory associated with this processor.
@odata.id	string	*read-only*	Link to a Memory resource. See the Links section and the *Memory* schema for details.
}]			
NetworkDeviceFunctions *(v1.13+)* [{	array		The network device functions to which this processor performs offload computation, such as with a SmartNIC.
@odata.id	string	*read-only*	Link to a NetworkDeviceFunction resource. See the Links section and the *NetworkDeviceFunction* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
PCIeDevice *(v1.4+)* {	object		The link to the PCIe device associated with this processor. See the *PCIeDevice* schema for details on this property.
@odata.id	string	*read-only*	Link to a PCIeDevice resource. See the Links section and the *PCIeDevice* schema for details.
}			
PCIeFunctions *(v1.4+)* [{	array		An array of links to the PCIeFunctions associated with this processor.
@odata.id	string	*read-only*	Link to a PCIeFunction resource. See the Links section and the *PCIeFunction* schema for details.
}]			
}			
Location *(v1.2+)* {}	object		The location of the processor. For property details, see Location.
LocationIndicatorActive *(v1.10+)*	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
Manufacturer	string	*read-only (null)*	The processor manufacturer.
MaxSpeedMHz	integer (MHz)	*read-only (null)*	The maximum clock speed of the processor.
MaxTDPWatts *(v1.4+)*	integer (Watts)	*read-only (null)*	The maximum Thermal Design Power (TDP) in watt units.

Property	Type	Attributes	Notes
Measurements *(v1.11+, deprecated v1.14)* [{	array		An array of DSP0274-defined measurement blocks. *Deprecated in v1.14 and later. This property has been deprecated in favor of the* `ComponentIntegrity` *resource.*
@odata.id	string	*read-only*	Link to a MeasurementBlock resource. See the Links section and the *SoftwareInventory* schema for details.
}]			
MemorySummary *(v1.11+)* {	object		The summary of all memory associated with this processor.
ECCModeEnabled *(v1.13+)*	boolean	*read-write (null)*	An indication of whether memory ECC mode is enabled for this processor.
Metrics *(v1.11+)* {	object		The link to the memory metrics associated with all memory of this processor. See the *MemoryMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a MemoryMetrics resource. See the Links section and the *MemoryMetrics* schema for details.
}			
TotalCacheSizeMiB *(v1.11+)*	integer (mebibytes)	*read-only (null)*	Total size of cache memory of this processor.
TotalMemorySizeMiB *(v1.11+)*	integer (mebibytes)	*read-only (null)*	Total size of non-cache volatile or non-volatile memory attached to this processor. Examples include DRAMs and NV-DIMMs that are not configured as block storage.
}			
Metrics *(v1.4+)* {	object		The link to the metrics associated with this processor. See the *ProcessorMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a ProcessorMetrics resource. See the Links section and the *ProcessorMetrics* schema for details.
}			
MinSpeedMHz *(v1.8+)*	integer (MHz)	*read-only (null)*	The minimum clock speed of the processor in MHz.
Model	string	*read-only (null)*	The product model number of this device.
OperatingConfigs *(v1.9+)* {	object		The link to the collection of operating configurations that can be applied to this processor. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *OperatingConfig*. See the OperatingConfig schema for details.

Property	Type	Attributes	Notes
}			
OperatingSpeedMHz *(v1.8+)*	integer (MHz)	*read-only (null)*	Operating speed of the processor in MHz.
OperatingSpeedRangeMHz *(v1.13+)* {	object (excerpt)		Range of allowed operating speeds (MHz). This object is an excerpt of the *Control* resource located at the URI shown in DataSourceUri.
AllowableMax	number	*read-only (null)*	The maximum possible setting for this control.
AllowableMin	number	*read-only (null)*	The minimum possible setting for this control.
AllowableNumericValues [ ]	array (number, null)	*read-only*	The supported values for the set point.
ControlMode	string (enum)	*read-write (null)*	The current operating mode of the control. *For the possible property values, see ControlMode in Property details.*
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this control.
Reading	number	*read-only (null)*	The reading of the sensor associated with this control.
SettingMax	number	*read-write (null)*	The maximum set point in the allowed range.
SettingMin	number	*read-write (null)*	The minimum set point in the allowed range.
}			
PartNumber *(v1.7+)*	string	*read-only (null)*	The part number of the processor.
Ports *(v1.13+)* {	object		The link to the collection of ports for this processor. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Port*. See the Port schema for details.
}			
PowerState *(v1.17+)*	string (enum)	*read-only (null)*	The current power state of the processor. *For the possible property values, see PowerState in Property details.*
ProcessorArchitecture	string (enum)	*read-only (null)*	The architecture of the processor. *For the possible property values, see ProcessorArchitecture in Property details.*

Property	Type	Attributes	Notes
ProcessorId {	object		The identification information for this processor.
EffectiveFamily	string	*read-only (null)*	The effective family for this processor.
EffectiveModel	string	*read-only (null)*	The effective model for this processor.
IdentificationRegisters	string	*read-only (null)*	The raw manufacturer-provided processor identification registers for this processor.
MicrocodeInfo	string	*read-only (null)*	The microcode information for this processor.
ProtectedIdentificationNumber *(v1.10+)*	string	*read-only (null)*	The Protected Processor Identification Number (PPIN) for this processor.
Step	string	*read-only (null)*	The step value for this processor.
VendorId	string	*read-only (null)*	The vendor identification for this processor.
}			
ProcessorIndex *(v1.16+)*	integer	*read-only (null)*	The logical index of this processor within the system.
ProcessorMemory *(v1.4+)* [{	array		The memory directly attached or integrated within this processor. Examples include internal cache, dedicated memory for the processor, and system memory.
CapacityMiB *(v1.4+)*	integer (mebibytes)	*read-only (null)*	The memory capacity in MiB.
IntegratedMemory *(v1.4+)*	boolean	*read-only (null)*	An indication of whether this memory is integrated within the processor.
MemoryType *(v1.4+)*	string (enum)	*read-only (null)*	The type of memory used by this processor. *For the possible property values, see MemoryType in Property details.*
SpeedMHz *(v1.4+)*	integer	*read-only (null)*	The operating speed of the memory in MHz.
}]			
ProcessorType	string (enum)	*read-only (null)*	The type of processor. *For the possible property values, see ProcessorType in Property details.*
Replaceable *(v1.16+)*	boolean	*read-only (null)*	An indication of whether this component can be independently replaced as allowed by the vendor's replacement policy.

Property	Type	Attributes	Notes
SerialNumber *(v1.7+)*	string	*read-only (null)*	The serial number of the processor.
Socket	string	*read-only (null)*	The socket or location of the processor.
SparePartNumber *(v1.11+)*	string	*read-only (null)*	The spare part number of the processor.
SpeedLimitMHz *(v1.10+)*	integer (MHz)	*read-write (null)*	The clock limit of the processor in MHz.
SpeedLocked *(v1.10+)*	boolean	*read-write (null)*	Indicates whether the clock speed of the processor is fixed at the value specified in the `SpeedLimitMHz` property.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
SubProcessors *(v1.3+)* {	object		The link to the collection of sub-processors associated with this processor, such as cores or threads, that are part of a processor. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Processor*. See the Processor schema for details.
}			
SystemInterface *(v1.8+)* {	object		The interface between the system and the processor.
Ethernet *(v1.4+)* {	object		The Ethernet-related information for this interface.
MaxLanes *(v1.4+)*	integer	*read-only (null)*	The number of lanes supported by this interface.
MaxSpeedMbps *(v1.4+)*	integer (Mbit/s)	*read-only (null)*	The maximum speed supported by this interface.
Oem *(v1.4+)* {}	object		See the Oem object definition in the Common properties section.
}			
InterfaceType *(v1.4+)*	string (enum)	*read-only (null)*	The interface type. *For the possible property values, see InterfaceType in Property details.*
PCIe *(v1.4+)* {	object		The PCIe-related information for this interface.
LanesInUse *(v1.3+)*	integer	*read-only (null)*	The number of PCIe lanes in use by this device.
MaxLanes *(v1.3+)*	integer	*read-only (null)*	The number of PCIe lanes supported by this device.

Property	Type	Attributes	Notes
MaxPCIeType *(v1.3+)*	string (enum)	*read-only (null)*	The highest version of the PCIe specification supported by this device. *For the possible property values, see MaxPCIeType in Property details.*
Oem *(v1.3+)* {}	object		See the Oem object definition in the Common properties section.
PCIeType *(v1.3+)*	string (enum)	*read-only (null)*	The version of the PCIe specification in use by this device. *For the possible property values, see PCIeType in Property details.*
}			
}			
TDPWatts *(v1.4+)*	integer (Watts)	*read-only (null)*	The nominal Thermal Design Power (TDP) in watt units.
ThrottleCauses *(v1.16+)* [ ]	array (string (enum))	*read-only (null)*	The causes of the processor being throttled. *For the possible property values, see ThrottleCauses in Property details.*
Throttled *(v1.16+)*	boolean	*read-only (null)*	An indication of whether the processor is throttled.
TotalCores	integer	*read-only (null)*	The total number of cores that this processor contains.
TotalEnabledCores *(v1.5+)*	integer	*read-only (null)*	The total number of enabled cores that this processor contains.
TotalThreads	integer	*read-only (null)*	The total number of execution threads that this processor supports.
TurboState *(v1.9+)*	string (enum)	*read-only (null)*	The state of turbo for this processor. *For the possible property values, see TurboState in Property details.*
UUID *(v1.4+)*	string (uuid)	*read-only (null)*	The UUID for this processor.
Version *(v1.7+)*	string	*read-only (null)*	The hardware version of the processor.

6.110.4 Actions

6.110.4.1 Reset *(v1.6+)*

Description

This action resets the processor.

Action URI

{Base URI of target resource}/Actions/Processor.Reset

Action parameters

Parameter Name	Type	Attributes	Notes
ResetType	string (enum)	*optional*	The type of reset. *For the possible property values, see ResetType in Property details.*

Request Example

```
{
    "ResetType": "ForceRestart"
}
```

6.110.4.2 ResetToDefaults *(v1.15+)*

Description

The action resets the values of writable properties to factory defaults.

Action URI

{Base URI of target resource}/Actions/Processor.ResetToDefaults

Action parameters

This action takes no parameters.

6.110.5 Property details

6.110.5.1 BaseSpeedPriorityState

The state of the base frequency settings of the operation configuration applied to this processor.

string	Description
Disabled	Base speed priority is disabled.

string	Description
Enabled	Base speed priority is enabled.

6.110.5.2 ControlMode

The current operating mode of the control.

string	Description
Automatic	Automatically adjust control to meet the set point.
Disabled	The control has been disabled.
Manual	No automatic adjustments are made to the control.
Override	User override of the automatic set point value.

6.110.5.3 FpgaType

The FPGA type.

string	Description
Discrete	The discrete FPGA device.
Integrated	The FPGA device integrated with other processor in the single chip.

6.110.5.4 InstructionSet

The instruction set of the processor.

string	Description
ARM-A32	ARM 32-bit.
ARM-A64	ARM 64-bit.
IA-64	Intel IA-64.
MIPS32	MIPS 32-bit.
MIPS64	MIPS 64-bit.

string	Description
OEM	OEM-defined.
PowerISA *(v1.4+)*	PowerISA-64 or PowerISA-32.
RV32 *(v1.19+)*	RISC-V 32-bit.
RV64 *(v1.19+)*	RISC-V 64-bit.
x86	x86 32-bit.
x86-64	x86 64-bit.

6.110.5.5 InterfaceType

The interface type.

string	Description
AMBA *(v1.8+)*	The Arm Advanced Microcontroller Bus Architecture interface.
CCIX *(v1.8+)*	The Cache Coherent Interconnect for Accelerators interface.
CXL *(v1.8+)*	The Compute Express Link interface.
Ethernet	An Ethernet interface.
OEM	An OEM-defined interface.
PCIe	A PCI Express interface.
QPI	The Intel QuickPath Interconnect.
UPI	The Intel UltraPath Interconnect.

6.110.5.6 MaxPCIeType

The highest version of the PCIe specification supported by this device.

string	Description
Gen1	A PCIe v1.0 slot.
Gen2	A PCIe v2.0 slot.
Gen3	A PCIe v3.0 slot.

string	Description
Gen4	A PCIe v4.0 slot.
Gen5	A PCIe v5.0 slot.
Gen6 *(v1.16+)*	A PCIe v6.0 slot.

6.110.5.7 MemoryType

The type of memory used by this processor.

string	Description
Cache *(v1.17+)*	Processor cache, but no level is determined.
DDR	Double data rate synchronous dynamic random-access memory.
DDR2	Double data rate type two synchronous dynamic random-access memory.
DDR3	Double data rate type three synchronous dynamic random-access memory.
DDR4	Double data rate type four synchronous dynamic random-access memory.
DDR5	Double data rate type five synchronous dynamic random-access memory.
Flash	Flash memory.
GDDR	Synchronous graphics random-access memory.
GDDR2	Double data rate type two synchronous graphics random-access memory.
GDDR3	Double data rate type three synchronous graphics random-access memory.
GDDR4	Double data rate type four synchronous graphics random-access memory.
GDDR5	Double data rate type five synchronous graphics random-access memory.
GDDR5X	Double data rate type five X synchronous graphics random-access memory.
GDDR6	Double data rate type six synchronous graphics random-access memory.
HBM1	High Bandwidth Memory.
HBM2	The second generation of High Bandwidth Memory.
HBM2E *(v1.17+)*	An updated version of the second generation of High Bandwidth Memory.
HBM3	The third generation of High Bandwidth Memory.
L1Cache	L1 cache.

string	Description
L2Cache	L2 cache.
L3Cache	L3 cache.
L4Cache	L4 cache.
L5Cache	L5 cache.
L6Cache	L6 cache.
L7Cache	L7 cache.
OEM	OEM-defined.
SDRAM	Synchronous dynamic random-access memory.
SGRAM	Synchronous graphics RAM.
SRAM	Static random-access memory.

6.110.5.8 PCIeType

The version of the PCIe specification in use by this device.

string	Description
Gen1	A PCIe v1.0 slot.
Gen2	A PCIe v2.0 slot.
Gen3	A PCIe v3.0 slot.
Gen4	A PCIe v4.0 slot.
Gen5	A PCIe v5.0 slot.
Gen6 *(v1.16+)*	A PCIe v6.0 slot.

6.110.5.9 PowerState

The current power state of the processor.

string	Description
Off	The resource is powered off. The components within the resource might continue to have AUX power.

string	Description
On	The resource is powered on.
Paused	The resource is paused.
PoweringOff	A temporary state between on and off. The components within the resource can take time to process the power off action.
PoweringOn	A temporary state between off and on. The components within the resource can take time to process the power on action.

6.110.5.10 ProcessorArchitecture

The architecture of the processor.

string	Description
ARM	ARM.
IA-64	Intel Itanium.
MIPS	MIPS.
OEM	OEM-defined.
Power *(v1.4+)*	Power.
RISC-V *(v1.19+)*	RISC-V.
x86	x86 or x86-64.

6.110.5.11 ProcessorType

The type of processor.

string	Description
Accelerator	An accelerator.
Core *(v1.3+)*	A core in a processor.
CPU	A CPU.
DSP	A DSP.
FPGA	An FPGA.

string	Description
GPU	A GPU.
OEM	An OEM-defined processing unit.
Partition *(v1.19+)*	A partition in a single processor.
Thread *(v1.3+)*	A thread in a processor.

6.110.5.12 ResetType

The type of reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the unit.
FullPowerCycle	Full power cycle the unit. Behaves like removing utility lines, followed by restoring utility lines to the resource.
GracefulRestart	Shut down gracefully and restart the unit.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
Pause	Pause execution on the unit but do not remove power. This is typically a feature of virtual machine hypervisors.
PowerCycle	Power cycle the unit. Behaves like a power removal, followed by a power restore to the resource.
PushPowerButton	Simulate the pressing of the physical power button on this unit.
Resume	Resume execution on the paused unit. This is typically a feature of virtual machine hypervisors.
Suspend	Write the state of the unit to disk before powering off. This allows for the state to be restored when powered back on.

6.110.5.13 ThrottleCauses

The causes of the processor being throttled.

string	Description
ClockLimit	The cause of the processor being throttled is a clock limit.
ManagementDetectedFault	The cause of the processor being throttled is a fault detected by management hardware or firmware.
OEM	The cause of the processor being throttled is OEM-specific.
PowerLimit	The cause of the processor being throttled is a power limit.
ThermalLimit	The cause of the processor being throttled is a thermal limit.
Unknown	The cause of the processor being throttled is not known.

6.110.5.14 TurboState

The state of turbo for this processor.

string	Description
Disabled	Turbo is disabled.
Enabled	Turbo is enabled.

6.110.6 Example response

```
{
    "@odata.type": "#Processor.v1_20_1.Processor",
    "Name": "Processor",
    "Id": "1",
    "Socket": "CPU 1",
    "ProcessorType": "CPU",
    "ProcessorArchitecture": "x86",
    "InstructionSet": "x86-64",
    "Manufacturer": "Intel(R) Corporation",
    "Model": "Multi-Core Intel(R) Xeon(R) processor 7xxx Series",
    "ProcessorId": {
        "VendorId": "GenuineIntel",
        "IdentificationRegisters": "0x34AC34DC8901274A",
        "EffectiveFamily": "0x42",
        "EffectiveModel": "0x61",
        "Step": "0x1",
        "MicrocodeInfo": "0x429943"
    },
    "MaxSpeedMHz": 3700,
    "TotalCores": 8,
```

```
    "TotalThreads": 16,
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Location": {
        "PartLocation": {
            "ServiceLabel": "Processor 1",
            "LocationType": "Socket",
            "LocationOrdinalValue": 0
        }
    },
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/Processors/1"
}
```


6.111 ProcessorMetrics 1.6.4

Version	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2022.2	2022.1	2021.3	2021.2	2020.4	2020.1	2018.3

6.111.1 Description

The `ProcessorMetrics` schema contains usage and health statistics for a processor.

6.111.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Processors/*{ProcessorId}*/ProcessorMetrics
/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/ProcessorMetrics
/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/SubProcessors/*{ProcessorId3}*/ProcessorMetrics
/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/ProcessorMetrics
/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/ProcessorMetrics
/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/SubProcessors/*{ProcessorId3}*/ProcessorMetrics
/redfish/v1/Systems/*{ComputerSystemId}*/ProcessorSummary/ProcessorMetrics
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.111.3 Properties

Property	Type	Attributes	Notes
AverageFrequencyMHz *(deprecated v1.1)*	number (MHz)	*read-only (null)*	The average frequency of the processor. *Deprecated in v1.1 and later. This property has been deprecated in favor of the* `OperatingSpeedMHz` *property.*
BandwidthPercent	number (%)	*read-only (null)*	The bandwidth usage of this processor as a percentage.
Cache [{	array		The processor cache metrics.
CacheMiss	number	*read-only (null)*	The number of cache line misses in millions.
CacheMissesPerInstruction	number	*read-only (null)*	The number of cache misses per instruction.
HitRatio	number	*read-only (null)*	The cache line hit ratio.
Level	string	*read-only (null)*	The cache level.
OccupancyBytes	integer (bytes)	*read-only (null)*	The total cache level occupancy in bytes.
OccupancyPercent	number (%)	*read-only (null)*	The total cache occupancy percentage.
}]			
CacheMetricsTotal *(v1.2+)* {	object		The total cache metrics for this processor.
CurrentPeriod *(v1.2+)* {	object		The cache metrics since the last reset or `ClearCurrentPeriod` action for this processor.
CorrectableECCErrorCount *(v1.2+)*	integer	*read-only (null)*	The number of correctable errors of cache memory since reset or `ClearCurrentPeriod` action for this processor.
UncorrectableECCErrorCount *(v1.2+)*	integer	*read-only (null)*	The number of uncorrectable errors of cache memory since reset or `ClearCurrentPeriod` action for this processor.
}			
LifeTime *(v1.2+)* {	object		The cache metrics for the lifetime of this processor.
CorrectableECCErrorCount *(v1.2+)*	integer	*read-only (null)*	The number of correctable errors for the lifetime of the cache memory.

Property	Type	Attributes	Notes
UncorrectableECCErrorCount *(v1.2+)*	integer	*read-only (null)*	The number of uncorrectable errors for the lifetime of the cache memory.
}			
}			
ConsumedPowerWatt *(deprecated v1.2)*	number (Watts)	*read-only (null)*	The power, in watt units, that the processor has consumed. *Deprecated in v1.2 and later. This property has been deprecated in favor of the properties in* `EnvironmentMetrics`.
CoreMetrics [{	array		The processor core metrics.
CoreCache [{	array		The cache metrics of this core in the processor.
CacheMiss	number	*read-only (null)*	The number of cache line misses in millions.
CacheMissesPerInstruction	number	*read-only (null)*	The number of cache misses per instruction.
HitRatio	number	*read-only (null)*	The cache line hit ratio.
Level	string	*read-only (null)*	The cache level.
OccupancyBytes	integer (bytes)	*read-only (null)*	The total cache level occupancy in bytes.
OccupancyPercent	number (%)	*read-only (null)*	The total cache occupancy percentage.
}]			
CoreId	string	*read-only (null)*	The processor core identifier.
CorrectableCoreErrorCount *(v1.5+)*	integer	*read-only (null)*	The number of correctable core errors.
CorrectableOtherErrorCount *(v1.5+)*	integer	*read-only (null)*	The number of correctable errors of all other components.
CStateResidency [{	array		The C-state residency of this core in the processor.
Level	string	*read-only (null)*	The C-state level, such as C0, C1, or C2.
ResidencyPercent	number (%)	*read-only (null)*	The percentage of time that the processor or core has spent in this particular level of C-state.

Property	Type	Attributes	Notes
}]			
InstructionsPerCycle	number	*read-only (null)*	The number of instructions per clock cycle of this core.
IOStallCount	number	*read-only (null)*	The number of stalled cycles due to I/O operations.
MemoryStallCount	number	*read-only (null)*	The number of stalled cycles due to memory operations.
UncorrectableCoreErrorCount *(v1.5+)*	integer	*read-only (null)*	The number of uncorrectable core errors.
UncorrectableOtherErrorCount *(v1.5+)*	integer	*read-only (null)*	The number of uncorrectable errors of all other components.
UnhaltedCycles	number	*read-only (null)*	The unhalted cycles count of this core.
}]			
CoreVoltage *(v1.3+)* {	object (excerpt)		The core voltage (V) of this processor. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
CrestFactor *(v1.1+)*	number	*read-only (null)*	The crest factor for this sensor.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
THDPercent *(v1.1+)*	number (%)	*read-only (null)*	The total harmonic distortion percent (% THD).
}			
CorrectableCoreErrorCount *(v1.5+)*	integer	*read-only (null)*	The number of correctable core errors.
CorrectableOtherErrorCount *(v1.5+)*	integer	*read-only (null)*	The number of correctable errors of all other components.
FrequencyRatio	number	*read-only (null)*	The frequency relative to the nominal processor frequency ratio.
KernelPercent	number (%)	*read-only (null)*	The percentage of time spent in kernel mode.

Property	Type	Attributes	Notes
LocalMemoryBandwidthBytes	integer (bytes)	*read-only (null)*	The local memory bandwidth usage in bytes.
OperatingSpeedMHz *(v1.1+)*	integer (MHz)	*read-only (null)*	Operating speed of the processor in MHz.
PCIeErrors *(v1.4+)* {	object		The PCIe errors associated with this processor.
BadDLLPCount *(v1.15+)*	integer	*read-only (null)*	The total number of Bad DLLPs issued on the PCIe link by the receiver.
BadTLPCount *(v1.15+)*	integer	*read-only (null)*	The total number of Bad TLPs issued on the PCIe link by the receiver.
CorrectableErrorCount *(v1.8+)*	integer	*read-only (null)*	The total number of PCIe correctable errors for this device.
FatalErrorCount *(v1.8+)*	integer	*read-only (null)*	The total number of PCIe fatal errors for this device.
L0ToRecoveryCount *(v1.8+)*	integer	*read-only (null)*	The total number of times the PCIe link states transitioned from L0 to the recovery state for this device.
NAKReceivedCount *(v1.8+)*	integer	*read-only (null)*	The total number of NAKs issued on the PCIe link by the receiver.
NAKSentCount *(v1.8+)*	integer	*read-only (null)*	The total number of NAKs issued on the PCIe link by this device.
NonFatalErrorCount *(v1.8+)*	integer	*read-only (null)*	The total number of PCIe non-fatal errors for this device.
ReplayCount *(v1.8+)*	integer	*read-only (null)*	The total number of PCIe replays issued by this device.
ReplayRolloverCount *(v1.8+)*	integer	*read-only (null)*	The total number of PCIe replay rollovers issued by this device.
UnsupportedRequestCount *(v1.13+)*	integer	*read-only (null)*	The total number of PCIe unsupported requests received by this device.
}			
PowerLimitThrottleDuration *(v1.6+)*	string (duration)	*read-only (null)*	The total duration of throttling caused by a power limit of the processor since reset.
RemoteMemoryBandwidthBytes	integer (bytes)	*read-only (null)*	The remote memory bandwidth usage in bytes.

Property	Type	Attributes	Notes
TemperatureCelsius *(deprecated v1.2)*	number (Celsius)	*read-only (null)*	The temperature of the processor. *Deprecated in v1.2 and later. This property has been deprecated in favor of the properties in* `EnvironmentMetrics`.
ThermalLimitThrottleDuration *(v1.6+)*	string (duration)	*read-only (null)*	The total duration of throttling caused by a thermal limit of the processor since reset.
ThrottlingCelsius	number (Celsius)	*read-only (null)*	The CPU margin to throttle (temperature offset in degree Celsius units).
UncorrectableCoreErrorCount *(v1.5+)*	integer	*read-only (null)*	The number of uncorrectable core errors.
UncorrectableOtherErrorCount *(v1.5+)*	integer	*read-only (null)*	The number of uncorrectable errors of all other components.
UserPercent	number (%)	*read-only (null)*	The percentage of time spent in user mode.

6.111.4 Actions

6.111.4.1 ClearCurrentPeriod *(v1.2+)*

Description

This action sets the `CurrentPeriod` property's values to 0.

Action URI

{Base URI of target resource}/Actions/ProcessorMetrics.ClearCurrentPeriod

Action parameters

This action takes no parameters.

6.111.5 Example response


```
{
    "@odata.type": "#ProcessorMetrics.v1_6_4.ProcessorMetrics",
    "Id": "Metrics",
    "Name": "Processor Metrics",
    "BandwidthPercent": 62,
    "OperatingSpeedMHz": 2400,
```

```
"ThrottlingCelsius": 65,
"FrequencyRatio": 0.00432,
"Cache": [
    {
        "Level": "3",
        "CacheMiss": 0.12,
        "HitRatio": 0.719,
        "CacheMissesPerInstruction": 0.00088,
        "OccupancyBytes": 3030144,
        "OccupancyPercent": 90.1
    }
],
"LocalMemoryBandwidthBytes": 18253611008,
"RemoteMemoryBandwidthBytes": 81788928,
"KernelPercent": 2.3,
"UserPercent": 34.7,
"CoreMetrics": [
    {
        "CoreId": "core0",
        "InstructionsPerCycle": 1.16,
        "UnhaltedCycles": 6254383746,
        "MemoryStallCount": 58372,
        "IOStallCount": 2634872,
        "CoreCache": [
            {
                "Level": "2",
                "CacheMiss": 0.472,
                "HitRatio": 0.57,
                "CacheMissesPerInstruction": 0.00346,
                "OccupancyBytes": 198231,
                "OccupancyPercent": 77.4
            }
        ],
        "CStateResidency": [
            {
                "Level": "C0",
                "Residency": 1.13
            },
            {
                "Level": "C1",
                "Residency": 26
            },
            {
                "Level": "C3",
                "Residency": 0.00878
            },
            {
                "Level": "C6",
                "Residency": 0.361
            },
```

```
                {
                    "Level": "C7",
                    "Residency": 72.5
                }
            ]
        }
    ],
    "@odata.id": "/redfish/v1/Systems/1/Processors/FPGA1/ProcessorMetrics"
}
```


6.112 Pump 1.2.0

Version	*v1.2*	*v1.1*	*v1.0*
Release	2024.4	2024.1	2023.1

6.112.1 Description

The `Pump` schema describes a pump unit for a cooling system or similar device.

6.112.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem/Pumps/*{PumpId}*
/redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/Pumps/*{PumpId}*
/redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/Pumps/*{PumpId}*
/redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/Pumps/*{PumpId}*
/redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/Pumps/*{PumpId}*

6.112.3 Properties

Property	Type	Attributes	Notes
Assembly {	object		The link to the assembly associated with this pump. See the *Assembly* schema for details on this property.
@odata.id	string	*read-only*	Link to a Assembly resource. See the Links section and the *Assembly* schema for details.
}			

Property	Type	Attributes	Notes
AssetTag	string	*read-write (null)*	The user-assigned asset tag for this equipment.
Filters {	object		A link to a collection of filters. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Filter*. See the Filter schema for details.
}			
FirmwareVersion	string	*read-only*	The firmware version of this equipment.
InletPressurekPa *(v1.2+)* {	object (excerpt)		The inlet pressure (kPa). This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
}			
Location {}	object		The location of the pump. For property details, see Location.
LocationIndicatorActive	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
Manufacturer	string	*read-only (null)*	The manufacturer of this pump.
Model	string	*read-only (null)*	The model number for this pump.
PartNumber	string	*read-only (null)*	The part number for this pump.
PhysicalContext	string (enum)	*read-only*	The area or device associated with this pump. *For the possible property values, see PhysicalContext in Property details.*
ProductionDate	string (date-time)	*read-only (null)*	The production or manufacturing date of this equipment.
PumpSpeedPercent {	object (excerpt)		The pump speed (%). This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.

Property	Type	Attributes	Notes
SpeedRPM *(v1.2+)*	number ({rev}/min)	*read-only (null)*	The rotational speed.
}			
PumpType	string (enum)	*read-only (null)*	The type of pump. *For the possible property values, see PumpType in Property details.*
SerialNumber	string	*read-only (null)*	The serial number for this pump.
ServiceHours	number	*read-write (null)*	The hours of service this pump has provided.
SparePartNumber	string	*read-only (null)*	The spare part number for this pump.
SpeedControlPercent *(v1.1+)* {	object (excerpt)		The desired pump speed (%). This object is an excerpt of the *Control* resource located at the URI shown in DataSourceUri.
AllowableMax	number	*read-only (null)*	The maximum possible setting for this control.
AllowableMin	number	*read-only (null)*	The minimum possible setting for this control.
ControlLoop {	object		The control loop details.
CoefficientUpdateTime	string (date-time)	*read-only (null)*	The date and time that the control loop coefficients were changed.
Differential	number	*read-write (null)*	The differential coefficient.
Integral	number	*read-write (null)*	The integral coefficient.
Proportional	number	*read-write (null)*	The proportional coefficient.
}			
ControlMode	string (enum)	*read-write (null)*	The current operating mode of the control. *For the possible property values, see ControlMode in Property details.*
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this control.
Reading	number	*read-only (null)*	The reading of the sensor associated with this control.

Property	Type	Attributes	Notes
SetPoint	number	*read-write (null)*	The desired set point of the control.
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
UserLabel	string	*read-write*	A user-assigned label.
Version	string	*read-only (null)*	The hardware version of this equipment.

6.112.4 Actions

6.112.4.1 SetMode *(v1.2+)*

Description

This action sets the operating mode of the pump.

Action URI

{Base URI of target resource}/Actions/Pump.SetMode

Action parameters

Parameter Name	Type	Attributes	Notes
Mode	string (enum)	*optional*	The desired operating mode of the pump. *For the possible property values, see Mode in Property details.*

Request Example

```
{
    "Mode": "Disabled"
}
```

6.112.5 Property details

6.112.5.1 ControlMode

The current operating mode of the control.

string	Description
Automatic	Automatically adjust control to meet the set point.
Disabled	The control has been disabled.
Manual	No automatic adjustments are made to the control.
Override	User override of the automatic set point value.

6.112.5.2 Mode

The desired operating mode of the pump.

string	Description
Disabled	Disable the pump.
Enabled	Enable the pump.

6.112.5.3 PhysicalContext

The area or device associated with this pump.

string	Description
Accelerator	An accelerator.
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.
ACOutput	An AC electrical output or output-related circuit.
ACStaticBypassInput	An AC electrical static bypass input.
ACUtilityInput	An AC electrical utility input.

string	Description
ASIC	An ASIC device, such as a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.
Chassis	The entire chassis.
ComputeBay	A compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Manager	A management controller, such as a BMC (baseboard management controller).
Memory	A memory device.

string	Description
MemorySubsystem	The entire memory subsystem.
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	A power supply bay.
Pump	A pump.
Rectifier	A rectifier device.
Reservoir	A reservoir.
Room	The room.
StorageBay	A storage bay.
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

6.112.5.4 PumpType

The type of pump.

string	Description
Compressor	A compressor.
Liquid	A water or liquid pump.

6.112.6 Example response


```
{
    "@odata.type": "#Pump.v1_2_0.Pump",
    "Id": "1",
    "PumpType": "Liquid",
    "Name": "Immersion Unit Pump",
    "Version": "1.03b",
    "ProductionDate": "2021-06-24T08:00:00Z",
    "Manufacturer": "Contoso",
    "Model": "UP-JAM",
    "SerialNumber": "29347ZT599",
    "PartNumber": "MAARS",
    "AssetTag": "PDX5-92399",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "PumpSpeedPercent": {
        "Reading": 62,
        "SpeedRPM": 1800
    },
    "@odata.id": "/redfish/v1/ThermalEquipment/ImmersionUnits/1/Pumps/1"
}
```


6.113 RegisteredClient 1.1.2

Version	*v1.1*	*v1.0*
Release	2023.1	2021.4

6.113.1 Description

The `RegisteredClient` schema defines the record format for a registered client. It is designed to allow well-behaved clients to register with a Redfish service such that other clients are aware the service might be configured or monitored by the client.

6.113.2 URIs

/redfish/v1/RegisteredClients/*{RegisteredClientId}*

6.113.3 Properties

Property	Type	Attributes	Notes
ClientType	string (enum)	*read-write required*	The type of registered client. *For the possible property values, see ClientType in Property details.*
ClientURI	string (URI)	*read-write*	The URI of the registered client.
Context *(v1.1+)*	string	*read-write*	A client-supplied data for providing context for its own use.
CreatedDate	string (date-time)	*read-only*	The date and time when the client entry was created.
ExpirationDate	string (date-time)	*read-write*	The date and time when the client entry will expire.
ManagedResources [{	array		An array of resources that the registered client monitors or configures.
IncludesSubordinates	boolean	*read-write (null)*	Indicates whether the subordinate resources of the managed resource are also managed by the registered client.
ManagedResourceURI	string (URI)	*read-write (null)*	The URI of the resource or resource collection managed by the registered client.
PreferExclusive	boolean	*read-write (null)*	Indicates whether the registered client expects to have exclusive access to the managed resource.
}]			
SubContext *(v1.1+)*	string	*read-write*	Additional client-supplied data for providing contextual information for its own use.

6.113.4 Property details

6.113.4.1 ClientType

The type of registered client.

string	Description
Configure	The registered client performs update, create, and delete operations on the resources listed in the `ManagedResources` property as well as read operations on the service.
Monitor	The registered client only performs read operations on this service.

6.113.5 Example response

```
{
    "@odata.type": "#RegisteredClient.v1_1_2.RegisteredClient",
    "Id": "2",
    "Name": "ContosoConfigure",
    "ClientType": "Configure",
    "CreatedDate": "2021-09-25T20:12:24Z",
    "Description": "Contoso manager access",
    "ExpirationDate": "2022-10-03T20:00:00Z",
    "ManagedResources": [
        {
            "ManagedResourceURI": "/redfish/v1/Systems",
            "PreferExclusive": true,
            "IncludesSubordinates": true
        },
        {
            "ManagedResourceURI": "/redfish/v1/Chassis",
            "PreferExclusive": true,
            "IncludesSubordinates": true
        }
    ],
    "ClientURI": "https://4.5.6.2/ContosoManager",
    "@odata.id": "/redfish/v1/RegisteredClients/2"
}
```

6.114 Reservoir 1.0.2

Version	*v1.0*
Release	2023.1

6.114.1 Description

The `Reservoir` schema describes a reservoir unit for a cooling system or similar device.

6.114.2 URIs

/redfish/v1/ThermalEquipment/CDUs/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*
/redfish/v1/ThermalEquipment/HeatExchangers/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*
/redfish/v1/ThermalEquipment/ImmersionUnits/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*
/redfish/v1/ThermalEquipment/RPUs/*{CoolingUnitId}*/Reservoirs/*{ReservoirId}*

6.114.3 Properties

Property	Type	Attributes	Notes
Assembly {	object		The link to the assembly associated with this reservoir. See the *Assembly* schema for details on this property.
@odata.id	string	*read-only*	Link to a Assembly resource. See the Links section and the *Assembly* schema for details.
}			
CapacityLiters	number	*read-only* *(null)*	The capacity of the reservoir (L).
Coolant {	object		Details about the coolant used in this unit. See the *CoolingLoop* schema for details on this property.
@odata.id	string	*read-only*	Link to a Coolant resource. See the Links section and the *CoolingLoop* schema for details.
}			
Filters {	object		A link to a collection of filters. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Filter*. See the Filter schema for details.
}			
FluidLevelPercent {	object (excerpt)		The fluid capacity filled (percent). This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only* *(null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only* *(null)*	The sensor value.
}			
FluidLevelStatus	string (enum)	*read-only* *(null)*	The status of the fluid level in this reservoir. *For the possible property values, see FluidLevelStatus in Property details.*

Property	Type	Attributes	Notes
InternalPressurekPa {	object (excerpt)		The internal pressure (kPa) reading. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.
}			
Location {}	object		The location of the reservoir. For property details, see Location.
LocationIndicatorActive	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
Manufacturer	string	*read-only (null)*	The manufacturer of this reservoir.
Model	string	*read-only (null)*	The model number for this reservoir.
PartNumber	string	*read-only (null)*	The part number for this reservoir.
PhysicalContext	string (enum)	*read-only*	The area or device associated with this reservoir. *For the possible property values, see PhysicalContext in Property details.*
ReservoirType	string (enum)	*read-only (null)*	The type of reservoir. *For the possible property values, see ReservoirType in Property details.*
SerialNumber	string	*read-only (null)*	The serial number for this reservoir.
SparePartNumber	string	*read-only (null)*	The spare part number for this reservoir.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
UserLabel	string	*read-write*	A user-assigned label.

6.114.4 Property details

6.114.4.1 FluidLevelStatus

The status of the fluid level in this reservoir.

string	Description
Critical	A critical condition requires immediate attention.
OK	Normal.
Warning	A condition requires attention.

6.114.4.2 PhysicalContext

The area or device associated with this reservoir.

string	Description
Accelerator	An accelerator.
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.
ACOutput	An AC electrical output or output-related circuit.
ACStaticBypassInput	An AC electrical static bypass input.
ACUtilityInput	An AC electrical utility input.
ASIC	An ASIC device, such as a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.
Chassis	The entire chassis.
ComputeBay	A compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.

string	Description
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Manager	A management controller, such as a BMC (baseboard management controller).
Memory	A memory device.
MemorySubsystem	The entire memory subsystem.
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	A power supply bay.
Pump	A pump.
Rectifier	A rectifier device.
Reservoir	A reservoir.
Room	The room.
StorageBay	A storage bay.

string	Description
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

6.114.4.3 ReservoirType

The type of reservoir.

string	Description
Immersion	An immersion cooling tank.
Inline	An inline or integrated reservoir.
Overflow	An overflow reservoir for excess fluid.
Reserve	A reservoir providing reserve fluid capacity.

6.114.5 Example response


```
{
    "@odata.type": "#Reservoir.v1_0_2.Reservoir",
    "Id": "1",
    "ReservoirType": "Reserve",
    "Name": "Cooling Loop Reservoir",
    "Manufacturer": "Contoso",
    "Model": "Tarantino",
    "CapacityLiters": 10,
    "PartNumber": "Pink",
    "Status": {
        "State": "Enabled",
```

```
        "Health": "OK"
    },
    "Location": {
        "Placement": {
            "Row": "North 1"
        }
    },
    "FluidLevelPercent": {
        "Reading": 64.8
    },
    "InternalPressurekPa": {
        "Reading": 138.7
    },
    "@odata.id": "/redfish/v1/ThermalEquipment/CDUs/1/Reservoirs/1"
}
```


6.115 ResourceBlock 1.4.3

Version	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2020.4	2018.3	2018.2	2018.1	2017.1

6.115.1 Description

The `ResourceBlock` schema contains definitions of a resource block, its components, and affinity to composed devices.

6.115.2 URIs

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*
/redfish/v1/ResourceBlocks/*{ResourceBlockId}*

6.115.3 Properties

Property	Type	Attributes	Notes
Client *(v1.4+)*	string	*read-write (null)*	The client to which this resource block is assigned.
CompositionStatus {	object	*required*	The composition status details for this resource block.

Property	Type	Attributes	Notes
CompositionState	string (enum)	*read-only required (null)*	The current state of the resource block from a composition perspective. *For the possible property values, see CompositionState in Property details.*
MaxCompositions *(v1.1+)*	integer	*read-only (null)*	The maximum number of compositions in which this resource block can participate simultaneously.
NumberOfCompositions *(v1.1+)*	integer	*read-only (null)*	The number of compositions in which this resource block is currently participating.
Reserved	boolean	*read-write (null)*	An indication of whether any client has reserved the resource block.
SharingCapable *(v1.1+)*	boolean	*read-only (null)*	An indication of whether this resource block can participate in multiple compositions simultaneously.
SharingEnabled *(v1.1+)*	boolean	*read-write (null)*	An indication of whether this resource block is allowed to participate in multiple compositions simultaneously.
}			
ComputerSystems [{	array		An array of links to the computer systems available in this resource block.
@odata.id	string	*read-only*	Link to a ComputerSystem resource. See the Links section and the *ComputerSystem* schema for details.
}]			
Drives *(v1.3+)* [{	array		An array of links to the drives available in this resource block.
@odata.id	string	*read-only*	Link to a Drive resource. See the Links section and the *Drive* schema for details.
}]			
EthernetInterfaces [{	array		An array of links to the Ethernet interfaces available in this resource block.
@odata.id	string	*read-only*	Link to a EthernetInterface resource. See the Links section and the *EthernetInterface* schema for details.
}]			
Links {	object		The links to other resources that are related to this resource.
Chassis [{	array		An array of links to the chassis in which this resource block is contained.
@odata.id	string	*read-only*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}]			

Property	Type	Attributes	Notes
ComputerSystems [{	array		An array of links to the computer systems that are composed from this resource block.
@odata.id	string	*read-only*	Link to a ComputerSystem resource. See the Links section and the *ComputerSystem* schema for details.
}]			
ConsumingResourceBlocks *(v1.4+)* [{	array		An array of links to resource blocks that depend on this resource block.
@odata.id	string	*read-only*	Link to another ResourceBlock resource.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
SupplyingResourceBlocks *(v1.4+)* [{	array		An array of links to resource blocks that this resource block depends on.
@odata.id	string	*read-only*	Link to another ResourceBlock resource.
}]			
Zones [{	array		An array of links to the zones in which this resource block is bound.
@odata.id	string	*read-only*	Link to a Zone resource. See the Links section and the *Zone* schema for details.
}]			
}			
Memory [{	array		An array of links to the memory available in this resource block.
@odata.id	string	*read-only*	Link to a Memory resource. See the Links section and the *Memory* schema for details.
}]			
NetworkInterfaces [{	array		An array of links to the Network Interfaces available in this resource block.
@odata.id	string	*read-only*	Link to a NetworkInterface resource. See the Links section and the *NetworkInterface* schema for details.
}]			
Pool *(v1.4+)*	string (enum)	*read-write (null)*	The pool to which this resource block belongs. *For the possible property values, see Pool in Property details.*
Processors [{	array		An array of links to the processors available in this resource block.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a Processor resource. See the Links section and the *Processor* schema for details.
}]			
ResourceBlockType [ ]	array (string (enum))	*read-only required*	The types of resources available on this resource block. *For the possible property values, see ResourceBlockType in Property details.*
SimpleStorage [{	array		An array of links to the simple storage available in this resource block.
@odata.id	string	*read-only*	Link to a SimpleStorage resource. See the Links section and the *SimpleStorage* schema for details.
}]			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
Storage [{	array		An array of links to the storage available in this resource block.
@odata.id	string	*read-only*	Link to a Storage resource. See the Links section and the *Storage* schema for details.
}]			

6.115.4 Property details

6.115.4.1 CompositionState

The current state of the resource block from a composition perspective.

string	Description
Composed	Final successful state of a resource block that has participated in composition.
ComposedAndAvailable *(v1.1+)*	The resource block is currently participating in one or more compositions, and is available to use in more compositions.
Composing	Intermediate state indicating composition is in progress.
Failed	The final composition resulted in failure and manual intervention might be required to fix it.
Unavailable *(v1.2+)*	The resource block has been made unavailable by the service, such as due to maintenance being performed on the resource block.
Unused	The resource block is free and can participate in composition.

6.115.4.2 Pool

The pool to which this resource block belongs.

string	Description
Active	This resource block is in the active pool and is contributing to at least one composed resource as a result of a composition request.
Free	This resource block is in the free pool and is not contributing to any composed resources.
Unassigned	This resource block is not assigned to any pools.

6.115.4.3 ResourceBlockType

The types of resources available on this resource block.

string	Description
Compute	This resource block contains resources of type `Processor` and `Memory` in a manner that creates a compute complex.
ComputerSystem	This resource block contains resources of type `ComputerSystem`.
Expansion	This resource block is capable of changing over time based on its configuration. Different types of devices within this resource block can be added and removed over time.
IndependentResource	This resource block is capable of being consumed as a standalone component. This resource block can represent things such as a software platform on one or more computer systems or an appliance that provides composable resources and other services and can be managed independently of the Redfish service.
Memory	This resource block contains resources of type `Memory`.
Network	This resource block contains network resources, such as resources of type `EthernetInterface` and `NetworkInterface`.
Processor	This resource block contains resources of type `Processor`.
Storage	This resource block contains storage resources, such as resources of type `Storage` and `SimpleStorage`.

6.115.5 Example response

```
{
```

```
    "@odata.type": "#ResourceBlock.v1_4_3.ResourceBlock",
    "Id": "ComputeBlock1",
    "Name": "Compute Block 1",
    "ResourceBlockType": [
        "Compute",
        "Network"
    ],
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "CompositionStatus": {
        "Reserved": false,
        "CompositionState": "Composed",
        "SharingCapable": false,
        "MaxCompositions": 1,
        "NumberOfCompositions": 1
    },
    "Processors": [
        {
            "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/Processors/
         Block1CPU0"
        },
        {
            "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/Processors/
         Block1CPU1"
        }
    ],
    "Memory": [
        {
            "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/Memory/Block1DIMM0"
        },
        {
            "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/Memory/Block1DIMM1"
        },
        {
            "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/Memory/Block1DIMM2"
        },
        {
            "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/Memory/Block1DIMM3"
        }
    ],
    "EthernetInterfaces": [
        {
            "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/EthernetInterfaces/
         Block1OnboardNIC"
        }
    ],
    "ComputerSystems": [],
    "Links": {
        "ComputerSystems": [
```

```
            {
                "@odata.id": "/redfish/v1/Systems/ComposedSystem"
            }
        ],
        "Chassis": [
            {
                "@odata.id": "/redfish/v1/Chassis/ComposableModule1"
            }
        ],
        "Zones": [
            {
                "@odata.id": "/redfish/v1/CompositionService/ResourceZones/1"
            }
        ]
    },
    "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1"
}
```


6.116 Role 1.3.3

Version	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2020.4	2017.2	2017.1	1.0

6.116.1 Description

The `Role` schema contains a Redfish role to use in conjunction with a manager account.

6.116.2 URIs

/redfish/v1/AccountService/Roles/*{RoleId}*
/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/Roles/*{RoleId}*

6.116.3 Properties

Property	Type	Attributes	Notes
AlternateRoleId *(v1.3+)*	string	*read-only*	An equivalent role to use when this role is restricted.

Property	Type	Attributes	Notes
AssignedPrivileges [ ]	array (string (enum))	*read-write*	The Redfish privileges for this role. *For the possible property values, see AssignedPrivileges in Property details.*
IsPredefined	boolean	*read-only*	An indication of whether the role is predefined by Redfish or an OEM rather than a client-defined role.
OemPrivileges [ ]	array (string)	*read-write*	The OEM privileges for this role.
Restricted *(v1.3+)*	boolean	*read-only*	An indication of whether use of the role is restricted.
RoleId *(v1.2+)*	string	*read-only required*	The name of the role.

6.116.4 Property details

6.116.4.1 AssignedPrivileges

The Redfish privileges for this role.

string	Description
AdministrateStorage	Administrator for storage subsystems and storage systems found in the storage collection and storage system collection respectively.
AdministrateSystems	Administrator for systems found in the systems collection. Able to manage boot configuration, keys, and certificates for systems.
ConfigureComponents	Can configure components that this service manages.
ConfigureCompositionInfrastructure	Can view and configure composition service resources.
ConfigureManager	Can configure managers.
ConfigureSelf	Can change the password for the current user account, log out of their own sessions, and perform operations on resources they created. Services will need to be aware of resource ownership to map this privilege to an operation from a particular user.
ConfigureUsers	Can configure users and their accounts.
Login	Can log in to the service and read resources.
NoAuth	Authentication is not required.
OperateStorageBackup	Operator for storage backup functionality for storage subsystems and storage systems found in the storage collection and storage system collection respectively.
OperateSystems	Operator for systems found in the systems collection. Able to perform resets and configure interfaces.

6.116.5 Example response

```
{
    "@odata.type": "#Role.v1_3_3.Role",
    "Id": "Administrator",
    "Name": "User Role",
    "Description": "Admin User Role",
    "IsPredefined": true,
    "AssignedPrivileges": [
        "Login",
        "ConfigureManager",
        "ConfigureUsers",
        "ConfigureSelf",
        "ConfigureComponents"
    ],
    "OemPrivileges": [
        "OemClearLog",
        "OemPowerControl"
    ],
    "@odata.id": "/redfish/v1/AccountService/Roles/Administrator"
}
```

6.117 RouteEntry 1.0.2

Version	*v1.0*
Release	2019.4

6.117.1 Description

The `RouteEntry` schema describes the content of route entry rows. Each route entry contains route sets that list the possible routes for the route entry.

6.117.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/MSDT/*{MSDTId}*
/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/SSDT/*{SSDTId}*
/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/MSDT/*{MSDTId}* (deprecated)
/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/GenZ/LPRT/*{LPRTId}*
/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/GenZ/MPRT/*{MPRTId}*
/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/LPRT/*{LPRTId}* (deprecated)
/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/MPRT/*{MPRTId}* (deprecated)

/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/SSDT/*{SSDTId}* (deprecated)
/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*/GenZ/LPRT/*{LPRTId}*
/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*/GenZ/MPRT/*{MPRTId}*
/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*/LPRT/*{LPRTId}* (deprecated)
/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*/MPRT/*{MPRTId}* (deprecated)
/redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/MSDT/*{MSDTId}*
/redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/SSDT/*{SSDTId}*
/redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/MSDT/*{MSDTId}* (deprecated)
/redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/GenZ/LPRT/*{LPRTId}*
/redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/GenZ/MPRT/*{MPRTId}*
/redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/LPRT/*{LPRTId}*
(deprecated)
/redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/MPRT/*{MPRTId}*
(deprecated)
/redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/SSDT/*{SSDTId}* (deprecated)
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.117.3 Properties

Property	Type	Attributes	Notes
MinimumHopCount	integer	*read-write*	The minimum number of hops.
RawEntryHex	string	*read-write*	The raw data of route entry rows.
RouteSet {	object		The link to the collection of route set entries associated with this route. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *RouteSetEntry*. See the RouteSetEntry schema for details.
}			

6.117.4 Example response

```
{
    "@odata.type": "#RouteEntry.v1_0_2.RouteEntry",
    "Id": "0",
    "Name": "LPRT0",
    "Description": "Gen-Z Port 1 LPRT Entry 0",
    "RawEntryHex": "0x34EF124500000000",
    "RouteSet": {
        "@odata.id": "/redfish/v1/Fabrics/GenZ/Switches/Switch1/Ports/1/LPRT/0/RouteSet"
    },
    "MinimumHopCount": 1,
```

```
    "@odata.id": "/redfish/v1/Fabrics/GenZ/Switches/Switch1/Ports/1/LPRT/0"
}
```

6.118 RouteSetEntry 1.0.2

Version	*v1.0*
Release	2019.4

6.118.1 Description

The `RouteSetEntry` schema contains the information about a route. It is part of a larger set that contains possible routes for a particular route entry.

6.118.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/MSDT/*{MSDTId}*/RouteSet/*{RouteId}*
/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/LPRT/*{LPRTId}*/RouteSet/*{RouteId}*
/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/MPRT/*{MPRTId}*/RouteSet/*{RouteId}*
/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/SSDT/*{SSDTId}*/RouteSet/*{RouteId}*
/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*/LPRT/*{LPRTId}*/RouteSet/*{RouteId}*
/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*/MPRT/*{MPRTId}*/RouteSet/*{RouteId}*
/redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/MSDT/*{MSDTId}*/RouteSet/*{RouteId}*
/redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/LPRT/*{LPRTId}*/RouteSet/*{RouteId}*
/redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/MPRT/*{MPRTId}*/RouteSet/*{RouteId}*
/redfish/v1/Systems/*{ComputerSystemId}*/FabricAdapters/*{FabricAdapterId}*/SSDT/*{SSDTId}*/RouteSet/*{RouteId}*

6.118.3 Properties

Property	Type	Attributes	Notes
EgressIdentifier	integer	*read-write*	The egress interface identifier.
HopCount	integer	*read-write*	The number of hops.
Valid	boolean	*read-write*	An indication of whether the entry is valid.

Property	Type	Attributes	Notes
VCAction	integer	*read-write*	The Virtual Channel Action index.

6.118.4 Example response

```
{
    "@odata.type": "#RouteSetEntry.v1_0_2.RouteSetEntry",
    "Id": "0",
    "Name": "RouteSet0",
    "Description": "Gen-Z Port 1 LPRT Entry 0 Route 0",
    "Valid": false,
    "VCAction": 1,
    "HopCount": 2,
    "EgressIdentifier": 0,
    "@odata.id": "/redfish/v1/Fabrics/GenZ/Switches/Switch1/Ports/1/LPRT/0/RouteSet/0"
}
```

6.119 SecureBoot 1.1.2

Version	*v1.1*	*v1.0*
Release	2020.1	2016.1

6.119.1 Description

The `SecureBoot` schema contains UEFI Secure Boot information and represents properties for managing the UEFI Secure Boot functionality of a system.

6.119.2 URIs

/redfish/v1/Systems/*{ComputerSystemId}*/SecureBoot
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.119.3 Properties

Property	Type	Attributes	Notes
SecureBootCurrentBoot	string (enum)	*read-only (null)*	The UEFI Secure Boot state during the current boot cycle. *For the possible property values, see SecureBootCurrentBoot in Property details.*
SecureBootDatabases *(v1.1+)* {	object		A link to the collection of UEFI Secure Boot databases. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *SecureBootDatabase*. See the SecureBootDatabase schema for details.
}			
SecureBootEnable	boolean	*read-write (null)*	An indication of whether UEFI Secure Boot is enabled.
SecureBootMode	string (enum)	*read-only (null)*	The current UEFI Secure Boot Mode. *For the possible property values, see SecureBootMode in Property details.*

6.119.4 Actions

6.119.4.1 ResetKeys

Description

This action resets the UEFI Secure Boot keys.

Action URI

{Base URI of target resource}/Actions/SecureBoot.ResetKeys

Action parameters

Parameter Name	Type	Attributes	Notes
ResetKeysType	string (enum)	*required*	The type of reset or delete to perform on the UEFI Secure Boot databases. *For the possible property values, see ResetKeysType in Property details.*

Request Example

```
{
    "ResetKeysType": "DeleteAllKeys"
}
```

6.119.5 Property details

6.119.5.1 ResetKeysType

The type of reset or delete to perform on the UEFI Secure Boot databases.

string	Description
DeleteAllKeys	Delete the contents of all UEFI Secure Boot key databases, including the PK key database. This puts the system in Setup Mode.
DeletePK	Delete the contents of the PK UEFI Secure Boot database. This puts the system in Setup Mode.
ResetAllKeysToDefault	Reset the contents of all UEFI Secure Boot key databases, including the PK key database, to the default values.

6.119.5.2 SecureBootCurrentBoot

The UEFI Secure Boot state during the current boot cycle.

string	Description
Disabled	UEFI Secure Boot is currently disabled.
Enabled	UEFI Secure Boot is currently enabled.

6.119.5.3 SecureBootMode

The current UEFI Secure Boot Mode.

string	Description
AuditMode	UEFI Secure Boot is currently in Audit Mode.
DeployedMode	UEFI Secure Boot is currently in Deployed Mode.
SetupMode	UEFI Secure Boot is currently in Setup Mode.

string	Description
UserMode	UEFI Secure Boot is currently in User Mode.

6.119.6 Example response


```
{
    "@odata.type": "#SecureBoot.v1_1_2.SecureBoot",
    "Id": "SecureBoot",
    "Name": "UEFI Secure Boot",
    "Actions": {
        "#SecureBoot.ResetKeys": {
            "target": "/redfish/v1/Systems/1/SecureBoot/Actions/SecureBoot.ResetKeys",
            "ResetKeysType@Redfish.AllowableValues": [
                "ResetAllKeysToDefault",
                "DeleteAllKeys",
                "DeletePK"
            ]
        }
    },
    "SecureBootEnable": false,
    "SecureBootCurrentBoot": "Disabled",
    "SecureBootMode": "UserMode",
    "SecureBootDatabases": {
        "@odata.id": "/redfish/v1/Systems/1/SecureBoot/SecureBootDatabases"
    },
    "@odata.id": "/redfish/v1/Systems/1/SecureBoot"
}
```


6.120 SecureBootDatabase 1.0.3

Version	*v1.0*
Release	2020.1

6.120.1 Description

The `SecureBootDatabase` schema describes a UEFI Secure Boot database used to store certificates or hashes.

6.120.2 URIs

/redfish/v1/Systems/*{ComputerSystemId}*/SecureBoot/SecureBootDatabases/*{DatabaseId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.120.3 Properties

Property	Type	Attributes	Notes
Certificates {	object		A link to the collection of certificates contained in this UEFI Secure Boot database. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
DatabaseId	string	*read-only*	This property contains the name of the UEFI Secure Boot database.
Signatures {	object		A link to the collection of signatures contained in this UEFI Secure Boot database. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Signature*. See the Signature schema for details.
}			

6.120.4 Actions

6.120.4.1 ResetKeys

Description

This action is used to reset the UEFI Secure Boot keys of this database.

Action URI

{Base URI of target resource}/Actions/SecureBootDatabase.ResetKeys

Action parameters

Parameter Name	Type	Attributes	Notes
ResetKeysType	string (enum)	*required*	The type of reset or delete to perform on this UEFI Secure Boot database. *For the possible property values, see ResetKeysType in Property details.*

Request Example

```
{
    "ResetKeysType": "ResetAllKeysToDefault"
}
```

6.120.5 Property details

6.120.5.1 ResetKeysType

The type of reset or delete to perform on this UEFI Secure Boot database.

string	Description
DeleteAllKeys	Delete the contents of this UEFI Secure Boot key database.
ResetAllKeysToDefault	Reset the contents of this UEFI Secure Boot key database to the default values.

6.120.6 Example response

```
{
    "@odata.type": "#SecureBootDatabase.v1_0_3.SecureBootDatabase",
    "Id": "PK",
    "Name": "PK - Platform Key",
    "Description": "UEFI PK Secure Boot Database",
    "DatabaseId": "PK",
    "Certificates": {
        "@odata.id": "/redfish/v1/Systems/1/SecureBoot/SecureBootDatabases/PK/Certificates/"
    },
    "Actions": {
        "#SecureBootDatabase.ResetKeys": {
            "target": "/redfish/v1/Systems/1/SecureBoot/SecureBootDatabases/PK/Actions/
         SecureBootDatabase.ResetKeys",
            "ResetKeysType@Redfish.AllowableValues": [
                "ResetAllKeysToDefault",
                "DeleteAllKeys"
            ]
        }
    },
    "@odata.id": "/redfish/v1/Systems/1/SecureBoot/SecureBootDatabases/PK"
}
```

6.121 SecurityPolicy 1.0.3

Version	*v1.0*
Release	2022.2

6.121.1 Description

The `SecurityPolicy` resource provides a central point to configure the security policy of a manager.

6.121.2 URIs

/redfish/v1/Managers/*{ManagerId}*/SecurityPolicy

6.121.3 Properties

Property	Type	Attributes	Notes
OverrideParentManager	boolean	*read-write*	Override the security policy of the parent manager.
SPDM {	object		The SPDM policy.
Allowed {	object		The SPDM policy settings that are allowed, such as the allowable SPDM versions and algorithms.
Algorithms {	object		The SPDM algorithms.
AEAD [ ]	array (string, null)	*read-write*	The AEAD algorithms.
BaseAsym [ ]	array (string, null)	*read-write*	The asymmetric signature algorithms.
BaseHash [ ]	array (string, null)	*read-write*	The hash algorithms.
}			
Versions [ ]	array (string, null)	*read-write*	The SPDM versions.
}			

Property	Type	Attributes	Notes
AllowExtendedAlgorithms	boolean	*read-write (null)*	An indication of whether SPDM extended algorithms are allowed.
Denied {	object		The SPDM policy settings that are prohibited, such as the prohibited SPDM versions and algorithms.
Algorithms {	object		The SPDM algorithms.
AEAD [ ]	array (string, null)	*read-write*	The AEAD algorithms.
BaseAsym [ ]	array (string, null)	*read-write*	The asymmetric signature algorithms.
BaseHash [ ]	array (string, null)	*read-write*	The hash algorithms.
}			
Versions [ ]	array (string, null)	*read-write*	The SPDM versions.
}			
Enabled	boolean	*read-write (null)*	An indication of whether SPDM communication with devices is enabled.
RevokedCertificates {	object		The revoked SPDM device certificates. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
SecureSessionEnabled	boolean	*read-write (null)*	An indication of whether SPDM secure sessions with devices is enabled.
TrustedCertificates {	object		The trusted SPDM device certificates. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
VerifyCertificate	boolean	*read-write (null)*	An indication of whether the manager will verify the certificate of the SPDM endpoint.
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
TLS {	object		The TLS policy.

Property	Type	Attributes	Notes
Client {	object		The TLS policy where the manager acts as a TLS client for communication with servers.
Allowed {}	object		The TLS policy settings that are allowed, such as the allowable TLS versions and algorithms. For more information about this property, see TLSParameterSet in Property Details.
Denied {}	object		The TLS policy settings that are prohibited, such as the prohibited TLS versions and algorithms. For more information about this property, see TLSParameterSet in Property Details.
RevokedCertificates {	object		The revoked TLS server certificates. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
TrustedCertificates {	object		The trusted TLS server certificates. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
VerifyCertificate	boolean	*read-write (null)*	An indication of whether the manager will verify the certificate of the remote TLS endpoint.
}			
Server {	object		The TLS policy where the manager acts as a TLS server for communication with clients.
Allowed {}	object		The TLS policy settings that are allowed, such as the allowable TLS versions and algorithms. For more information about this property, see TLSParameterSet in Property Details.
Denied {}	object		The TLS policy settings that are prohibited, such as the prohibited TLS versions and algorithms. For more information about this property, see TLSParameterSet in Property Details.
RevokedCertificates {	object		The revoked TLS server certificates. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
TrustedCertificates {	object		The trusted TLS server certificates. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			

Property	Type	Attributes	Notes
VerifyCertificate	boolean	*read-write (null)*	An indication of whether the manager will verify the certificate of the remote TLS endpoint.
}			
}			

6.121.4 Property details

6.121.4.1 TLSParameterSet

The TLS policy settings.

Algorithms {	object		The TLS algorithms.
CipherSuites [ ]	array (string, null)	*read-write*	The TLS cipher suites.
SignatureAlgorithms [ ]	array (string, null)	*read-write*	The TLS signature algorithms.
}			
Versions [ ]	array (string, null)	*read-write*	The TLS versions.

6.121.5 Example response

```
{
    "@odata.type": "#SecurityPolicy.v1_0_3.SecurityPolicy",
    "Id": "ManagerGlobalSecurityPolicy",
    "Status": {
        "Health": "OK",
        "State": "Enabled"
    },
    "OverrideParentManager": true,
    "SPDM": {
        "Enabled": true,
        "SecureSessionEnabled": true,
        "VerifyCertificate": true,
```

```
        "TrustedCertificates": {
            "@odata.id": "/redfish/v1/Managers/BMC/SecurityPolicy/SPDM/TrustedCertificates"
        },
        "RevokedCertificates": {
            "@odata.id": "/redfish/v1/Managers/BMC/SecurityPolicy/SPDM/RevokedCertificates"
        },
        "Allowed": {
            "Versions": [
                "ALL"
            ],
            "Algorithms": {
                "AEAD": [
                    "AES-GCM-256",
                    "AES-GCM-128"
                ],
                "BaseAsym": [
                    "TPM_ALG_RSASSA_2048",
                    "TPM_ALG_ECDSA_ECC_NIST_P384",
                    "TPM_ALG_SM2_ECC_SM2_P256"
                ],
                "BaseHash": [
                    "TPM_ALG_SHA_512",
                    "TPM_ALG_SHA3_512"
                ]
            }
        },
        "Denied": {
            "Versions": [
                "NONE"
            ],
            "Algorithms": {
                "AEAD": [],
                "BaseAsym": [
                    "EdDSA ed25519"
                ],
                "BaseHash": [
                    "TPM_ALG_SHA_256"
                ]
            }
        },
        "AllowExtendedAlgorithms": false
    },
    "TLS": {
        "Client": {
            "VerifyCertificate": true,
            "TrustedCertificates": {
                "@odata.id": "/redfish/v1/Managers/BMC/SecurityPolicy/TLS/Server/TrustedCertificates"
            },
            "RevokedCertificates": {
                "@odata.id": "/redfish/v1/Managers/BMC/SecurityPolicy/TLS/Server/RevokedCertificates"
```

```
            },
            "Allowed": {
                "Versions": [
                    "1.2",
                    "1.3"
                ],
                "Algorithms": {
                    "CipherSuites": [
                        "TLS_AES_128_GCM_SHA256",
                        "TLS_AES_128_GCM_SHA384"
                    ],
                    "SignatureAlgorithms": []
                }
            },
            "Denied": {
                "Versions": [
                    "1.1"
                ],
                "Algorithms": {
                    "CipherSuites": [],
                    "SignatureAlgorithms": [
                        "rsa_pkcs1_sha1",
                        "ecdsa_sha1"
                    ]
                }
            }
        },
        "Server": {
            "VerifyCertificate": false,
            "TrustedCertificates": {
                "@odata.id": "/redfish/v1/Managers/BMC/SecurityPolicy/TLS/Client/TrustedCertificates"
            },
            "RevokedCertificates": {
                "@odata.id": "/redfish/v1/Managers/BMC/SecurityPolicy/TLS/Client/RevokedCertificates"
            },
            "Allowed": {
                "Versions": [
                    "1.3"
                ],
                "Algorithms": {
                    "CipherSuites": [
                        "TLS_AES_128_GCM_SHA256",
                        "TLS_AES_128_GCM_SHA384"
                    ],
                    "SignatureAlgorithms": []
                }
            },
            "Denied": {
                "Versions": [
                    "1.1",
```

```
                    "1.2"
                ],
                "Algorithms": {
                    "CipherSuites": [],
                    "SignatureAlgorithms": [
                        "rsa_pkcs1_sha1",
                        "ecdsa_sha1"
                    ]
                }
            }
        }
    },
    "@odata.id": "/redfish/v1/Managers/BMC/SecurityPolicy"
}
```


6.122 Sensor 1.11.0

Version	*v1.11*	*v1.10*	*v1.9*	*v1.8*	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	...
Release	2025.2	2024.2	2024.1	2023.2	2023.1	2022.2	2021.4	2021.2	2021.1	2020.4	2019.4	...

6.122.1 Description

The `Sensor` schema describes a sensor and its properties.

6.122.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/Sensors/*{SensorId}*
/redfish/v1/PowerEquipment/FloorPDUs/*{PowerDistributionId}*/Sensors/*{SensorId}* (deprecated)
/redfish/v1/PowerEquipment/PowerShelves/*{PowerDistributionId}*/Sensors/*{SensorId}* (deprecated)
/redfish/v1/PowerEquipment/RackPDUs/*{PowerDistributionId}*/Sensors/*{SensorId}* (deprecated)
/redfish/v1/PowerEquipment/Switchgear/*{PowerDistributionId}*/Sensors/*{SensorId}* (deprecated)
/redfish/v1/PowerEquipment/TransferSwitches/*{PowerDistributionId}*/Sensors/*{SensorId}* (deprecated)

6.122.3 Properties

Property	Type	Attributes	Notes
Accuracy *(deprecated v1.8)*	number (%)	*read-only (null)*	The estimated percent error of measured versus actual values. *Deprecated in v1.8 and later. This property has been deprecated in favor of ReadingAccuracy.*
AdjustedMaxAllowableOperatingValue	number	*read-only (null)*	The adjusted maximum allowable operating value for this equipment based on the environmental conditions.
AdjustedMinAllowableOperatingValue	number	*read-only (null)*	The adjusted minimum allowable operating value for this equipment based on the environmental conditions.
ApparentkVAh *(v1.5+)*	number (kV.A.h)	*read-only (null)*	Apparent energy (kVAh).
ApparentVA	number (V.A)	*read-only (null)*	The product of voltage and current for an AC circuit, in volt-ampere units.
AverageReading *(v1.4+)*	number	*read-only (null)*	The average sensor value.
AveragingInterval *(v1.4+)*	string (duration)	*read-write (null)*	The interval over which the average sensor value is calculated.
AveragingIntervalAchieved *(v1.4+)*	boolean	*read-only (null)*	Indicates that enough readings were collected to calculate the average sensor reading over the averaging interval time.
Calibration *(v1.4+)*	number	*read-write (null)*	The calibration offset applied to the Reading.
CalibrationTime *(v1.4+)*	string (date-time)	*read-write (null)*	The date and time that the sensor was last calibrated.
CrestFactor *(v1.1+)*	number	*read-only (null)*	The crest factor for this sensor.
ElectricalContext	string (enum)	*read-only (null)*	The combination of current-carrying conductors. *For the possible property values, see ElectricalContext in Property details.*
Enabled *(v1.10+)*	boolean	*read-write (null)*	Indicates whether the sensor is enabled and provides a reading.
Implementation *(v1.1+)*	string (enum)	*read-only (null)*	The implementation of the sensor. *For the possible property values, see Implementation in Property details.*
LifetimeReading *(v1.1+)*	number	*read-only (null)*	The total accumulation value for this sensor.

Property	Type	Attributes	Notes
LifetimeStartDateTime *(v1.9+)*	string (date-time)	*read-only (null)*	The date and time when the sensor started accumulating readings for the `LifetimeReading` property.
Links *(v1.3+)* {	object		The links to other resources that are related to this resource.
AssociatedControls *(v1.4+)* [{	array		An array of links to the controls that can affect this sensor.
@odata.id	string	*read-only*	Link to a Control resource. See the Links section and the *Control* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
}			
LoadPercent *(deprecated v1.1)*	number (%)	*read-only (null)*	The power load utilization for this sensor. *Deprecated in v1.1 and later. This property has been deprecated in favor of using a sensor instance with a `ReadingType` of `Percent` to show utilization values when needed.*
Location {}	object		The location information for this sensor. For property details, see Location.
LowestReading *(v1.4+)*	number	*read-only (null)*	The lowest sensor value.
LowestReadingTime *(v1.4+)*	string (date-time)	*read-only (null)*	The time when the lowest sensor value occurred.
Manufacturer *(v1.9+)*	string	*read-only (null)*	The manufacturer of this sensor.
MaxAllowableOperatingValue	number	*read-only (null)*	The maximum allowable operating value for this equipment.
MinAllowableOperatingValue	number	*read-only (null)*	The minimum allowable operating value for this equipment.
Model *(v1.9+)*	string	*read-only (null)*	The model number of the sensor.
PartNumber *(v1.9+)*	string	*read-only (null)*	The part number of the sensor.
PeakReading	number	*read-only (null)*	The peak sensor value.
PeakReadingTime	string (date-time)	*read-only (null)*	The time when the peak sensor value occurred.

Property	Type	Attributes	Notes
PhaseAngleDegrees *(v1.5+)*	number	*read-only (null)*	The phase angle (degrees) between the current and voltage waveforms.
PhysicalContext	string (enum)	*read-write (null)*	The area or device to which this sensor measurement applies. *For the possible property values, see PhysicalContext in Property details.*
PhysicalSubContext	string (enum)	*read-write (null)*	The usage or location within a device to which this sensor measurement applies. *For the possible property values, see PhysicalSubContext in Property details.*
PowerFactor	number	*read-only (null)*	The power factor for this sensor.
Precision	number	*read-only (null)*	The number of significant digits in the reading.
ReactivekVARh *(v1.5+)*	number (kV.A.h)	*read-only (null)*	Reactive energy (kVARh).
ReactiveVAR	number (V.A)	*read-only (null)*	The square root of the difference term of squared apparent VA and squared power (Reading) for a circuit, in VAR units.
Reading	number	*read-only (null)*	The sensor value.
ReadingAccuracy *(v1.8+)*	number	*read-only (null)*	Accuracy (+/-) of the reading.
ReadingBasis *(v1.7+)*	string (enum)	*read-only (null)*	The basis for the reading of this sensor. *For the possible property values, see ReadingBasis in Property details.*
ReadingRangeMax	number	*read-only (null)*	The maximum possible value for this sensor.
ReadingRangeMin	number	*read-only (null)*	The minimum possible value for this sensor.
ReadingTime *(v1.1+)*	string (date-time)	*read-only (null)*	The date and time that the reading was acquired from the sensor.
ReadingType	string (enum)	*read-only (null)*	The type of sensor. *For the possible property values, see ReadingType in Property details.*
ReadingUnits	string	*read-only (null)*	The units of the reading, thresholds, and other reading-related properties in UCUM c/s format.
RelatedItem *(v1.2+)* [{	array		An array of links to resources or objects that this sensor services.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.

Property	Type	Attributes	Notes
}]			
SensingFrequency *(deprecated v1.1)*	number	*read-only (null)*	The time interval between readings of the physical sensor. *Deprecated in v1.1 and later. This property has been deprecated in favor of the* `SensingInterval` *property, which uses the duration time format for interoperability.*
SensingInterval *(v1.1+)*	string (duration)	*read-only (null)*	The time interval between readings of the sensor.
SensorGroup *(v1.4+)* {}	object		The group of sensors that provide readings for this sensor. For property details, see RedundantGroup.
SensorResetTime	string (date-time)	*read-only (null)*	The date and time when the time-based properties were last reset.
SerialNumber *(v1.9+)*	string	*read-only (null)*	The serial number of the sensor.
SKU *(v1.9+)*	string	*read-only (null)*	The SKU of the sensor.
SparePartNumber *(v1.9+)*	string	*read-only (null)*	The spare part number of the sensor.
SpeedRPM *(v1.2+)*	number ({rev}/min)	*read-only (null)*	The rotational speed.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
THDPercent *(v1.1+)*	number (%)	*read-only (null)*	The total harmonic distortion percent (% THD).
Thresholds {	object		The set of thresholds defined for this sensor.
LowerCaution {}	object		The value at which the reading is below normal range. For more information about this property, see Threshold in Property Details.
LowerCautionUser *(v1.2+)* {}	object		A user-defined value at which the reading is considered below normal range. For more information about this property, see Threshold in Property Details.
LowerCritical {}	object		The value at which the reading is below normal range but not yet fatal. For more information about this property, see Threshold in Property Details.
LowerCriticalUser *(v1.2+)* {}	object		A user-defined value at which the reading is considered below normal range but not yet fatal. For more information about this property, see Threshold in Property Details.

Property	Type	Attributes	Notes
LowerFatal {}	object		The value at which the reading is below normal range and fatal. For more information about this property, see Threshold in Property Details.
UpperCaution {}	object		The value at which the reading is above normal range. For more information about this property, see Threshold in Property Details.
UpperCautionUser *(v1.2+)* {}	object		A user-defined value at which the reading is considered above normal range. For more information about this property, see Threshold in Property Details.
UpperCritical {}	object		The value at which the reading is above normal range but not yet fatal. For more information about this property, see Threshold in Property Details.
UpperCriticalUser *(v1.2+)* {}	object		A user-defined value at which the reading is considered above normal range but not yet fatal. For more information about this property, see Threshold in Property Details.
UpperFatal {}	object		The value at which the reading is above normal range and fatal. For more information about this property, see Threshold in Property Details.
}			
UserLabel *(v1.9+)*	string	*read-write*	A user-assigned label.
VoltageType	string (enum)	*read-only (null)*	The voltage type for this sensor. *For the possible property values, see VoltageType in Property details.*

6.122.4 Actions

6.122.4.1 ResetMetrics

Description

Resets metrics related to this sensor.

Action URI

{Base URI of target resource}/Actions/Sensor.ResetMetrics

Action parameters

This action takes no parameters.

6.122.4.2 ResetToDefaults *(v1.6+)*

Description

The action resets the values of writable properties to factory defaults.

Action URI

{Base URI of target resource}/Actions/Sensor.ResetToDefaults

Action parameters

This action takes no parameters.

6.122.5 Property details

6.122.5.1 Activation

The direction of crossing that activates this threshold.

string	Description
Decreasing	Value decreases below the threshold.
Disabled *(v1.7+)*	The threshold is disabled.
Either	Value crosses the threshold in either direction.
Increasing	Value increases above the threshold.

6.122.5.2 ElectricalContext

The combination of current-carrying conductors.

string	Description
Line1	The circuits that share the L1 current-carrying conductor.
Line1ToLine2	The circuit formed by L1 and L2 current-carrying conductors.
Line1ToNeutral	The circuit formed by L1 and neutral current-carrying conductors.
Line1ToNeutralAndL1L2	The circuit formed by L1, L2, and neutral current-carrying conductors.

string	Description
Line2	The circuits that share the L2 current-carrying conductor.
Line2ToLine3	The circuit formed by L2 and L3 current-carrying conductors.
Line2ToNeutral	The circuit formed by L2 and neutral current-carrying conductors.
Line2ToNeutralAndL1L2	The circuit formed by L1, L2, and Neutral current-carrying conductors.
Line2ToNeutralAndL2L3	The circuits formed by L2, L3, and neutral current-carrying conductors.
Line3	The circuits that share the L3 current-carrying conductor.
Line3ToLine1	The circuit formed by L3 and L1 current-carrying conductors.
Line3ToNeutral	The circuit formed by L3 and neutral current-carrying conductors.
Line3ToNeutralAndL3L1	The circuit formed by L3, L1, and neutral current-carrying conductors.
LineToLine	The circuit formed by two current-carrying conductors.
LineToNeutral	The circuit formed by a line and neutral current-carrying conductor.
Neutral	The grounded current-carrying return circuit of current-carrying conductors.
Total	The circuit formed by all current-carrying conductors.

6.122.5.3 Implementation

The implementation of the sensor.

string	Description
PhysicalSensor	The reading is acquired from a physical sensor.
Reported	The reading is obtained from software or a device.
Synthesized	The reading is obtained by applying a calculation on one or more properties or multiple sensors. The calculation is not provided.

6.122.5.4 PhysicalContext

The area or device to which this sensor measurement applies.

string	Description
Accelerator	An accelerator.
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.
ACOutput	An AC electrical output or output-related circuit.
ACStaticBypassInput	An AC electrical static bypass input.
ACUtilityInput	An AC electrical utility input.
ASIC	An ASIC device, such as a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.
Chassis	The entire chassis.
ComputeBay	A compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.

string	Description
Intake	The air intake point or points or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Manager	A management controller, such as a BMC (baseboard management controller).
Memory	A memory device.
MemorySubsystem	The entire memory subsystem.
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	A power supply bay.
Pump	A pump.
Rectifier	A rectifier device.
Reservoir	A reservoir.
Room	The room.
StorageBay	A storage bay.
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.

string	Description
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

6.122.5.5 PhysicalSubContext

The usage or location within a device to which this sensor measurement applies.

string	Description
Input	The input.
Output	The output.

6.122.5.6 ReadingBasis

The basis for the reading of this sensor.

string	Description
Delta	A reading that reports the difference between two measurements.
Headroom	A reading that decreases as it approaches a defined reference point.
Zero	A zero-based reading.

6.122.5.7 ReadingType

The type of sensor.

string	Description
AbsoluteHumidity *(v1.5+)*	Absolute humidity (g/m^3).
AirFlow *(deprecated v1.7)*	Air flow (cu ft/min). *Deprecated in v1.7 and later. This value has been deprecated in favor of* `AirFlowCMM` *for consistent use of SI units.*
AirFlowCMM *(v1.7+)*	Air flow (m^3/min).
Altitude	Altitude (m).

string	Description
Barometric	Barometric pressure (mm).
ChargeAh *(v1.4+)*	Charge (Ah).
Current	Current (A).
EnergyJoules	Energy (J).
EnergykWh	Energy (kWh).
EnergyWh *(v1.4+)*	Energy (Wh).
Frequency	Frequency (Hz).
Heat *(v1.7+)*	Heat (kW).
Humidity	Relative humidity (percent).
LinearAcceleration *(v1.11+)*	Linear acceleration (m/s^2).
LinearPosition *(v1.11+)*	Linear position or distance (m).
LinearVelocity *(v1.11+)*	Linear velocity (m/s).
LiquidFlow *(deprecated v1.7)*	Liquid flow (L/s). *Deprecated in v1.7 and later. This value has been deprecated in favor of* `LiquidFlowLPM` *for consistency of units typically expected or reported by* `Sensor` *and* `Control` *resources.*
LiquidFlowLPM *(v1.7+)*	Liquid flow (L/min).
LiquidLevel	Liquid level (cm).
Percent *(v1.1+)*	Percent (%).
Power	Power (W).
Pressure *(deprecated v1.7)*	Pressure (Pa). *Deprecated in v1.7 and later. This value has been deprecated in favor of* `PressurePa` *or* `PressurekPa` *for consistency of units between* `Sensor` *and* `Control` *resources.*
PressurekPa *(v1.5+)*	Pressure (kPa).
PressurePa *(v1.7+)*	Pressure (Pa).
Rotational	Rotational (RPM).
RotationalAcceleration *(v1.11+)*	Rotational acceleration (rad/s^2).
RotationalPosition *(v1.11+)*	Rotational position (rad).
RotationalVelocity *(v1.11+)*	Rotational velocity (rad/s).
Temperature	Temperature (C).

string	Description
Valve *(v1.11+)*	Valve (% open).
Voltage	Voltage (VAC or VDC).

6.122.5.8 Threshold

The threshold definition for a sensor.

Activation	string (enum)	*read-write (null)*	The direction of crossing that activates this threshold. *For the possible property values, see Activation in Property details.*
DwellTime	string (duration)	*read-write (null)*	The duration the sensor value must violate the threshold before the threshold is activated.
HysteresisDuration *(v1.7+)*	string (duration)	*read-write (null)*	The duration the sensor value must not violate the threshold before the threshold is deactivated.
HysteresisReading *(v1.7+)*	number	*read-write (null)*	The reading offset from the threshold value required to clear the threshold.
Reading	number	*read-write (null)*	The threshold value.

6.122.5.9 VoltageType

The voltage type for this sensor.

string	Description
AC	Alternating current.
DC	Direct current.

6.122.6 Example response

```
{
```

```
    "@odata.type": "#Sensor.v1_11_0.Sensor",
    "Id": "CabinetTemp",
    "Name": "Rack Temperature",
    "ReadingType": "Temperature",
    "ReadingTime": "2019-12-25T04:14:33+06:00",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Reading": 31.6,
    "ReadingUnits": "C",
    "ReadingRangeMin": 0,
    "ReadingRangeMax": 70,
    "Accuracy": 0.25,
    "Precision": 1,
    "SensingInterval": "PT3S",
    "PhysicalContext": "Chassis",
    "Thresholds": {
        "UpperCritical": {
            "Reading": 40,
            "Activation": "Increasing"
        },
        "UpperCaution": {
            "Reading": 35,
            "Activation": "Increasing"
        },
        "LowerCaution": {
            "Reading": 10,
            "Activation": "Increasing"
        }
    },
    "@odata.id": "/redfish/v1/Chassis/1/Sensors/CabinetTemp"
}
```


6.123 SerialInterface 1.3.0

Version	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2025.2	2023.2	2017.1	1.0

6.123.1 Description

The `SerialInterface` schema describes an asynchronous serial interface, such as an RS-232 interface, available to a system or device.

6.123.2 URIs

/redfish/v1/Managers/*{ManagerId}*/SerialInterfaces/*{SerialInterfaceId}*

6.123.3 Properties

Property	Type	Attributes	Notes
BitRate	string (enum)	*read-write*	The receive and transmit rate of data flow, typically in bits per second (bit/s), over the serial connection. *For the possible property values, see BitRate in Property details.*
ConnectorType	string (enum)	*read-only*	The type of connector used for this interface. *For the possible property values, see ConnectorType in Property details.*
DataBits	string (enum)	*read-write*	The number of data bits that follow the start bit over the serial connection. *For the possible property values, see DataBits in Property details.*
FlowControl	string (enum)	*read-write*	The type of flow control, if any, that is imposed on the serial connection. *For the possible property values, see FlowControl in Property details.*
InterfaceEnabled	boolean	*read-write (null)*	An indication of whether this interface is enabled.
Links *(v1.2+)* {	object		The links to other resources that are related to this resource.
Oem {}	object		See the Oem object definition in the Common properties section.
}			
Modbus *(v1.3+)* {	object		The Modbus settings for the serial interface.
ReadOnly *(v1.3+)*	boolean	*read-write (null)*	Indicates if the interface is read only.
Role *(v1.3+)*	string (enum)	*read-write*	The role of the serial interface. *For the possible property values, see Role in Property details.*
ServerId *(v1.3+)*	integer	*read-write (null)*	The server identifier for this Modbus RTU interface.
}			
Parity	string (enum)	*read-write*	The type of parity used by the sender and receiver to detect errors over the serial connection. *For the possible property values, see Parity in Property details.*
PinOut	string (enum)	*read-only (null)*	The physical pinout configuration for a serial connector. *For the possible property values, see PinOut in Property details.*
SignalType	string (enum)	*read-only*	The type of signal used for the communication connection. *For the possible property values, see SignalType in Property details.*

Property	Type	Attributes	Notes
StopBits	string (enum)	*read-write*	The period of time before the next start bit is transmitted. *For the possible property values, see StopBits in Property details.*

6.123.4 Property details

6.123.4.1 BitRate

The receive and transmit rate of data flow, typically in bits per second (bit/s), over the serial connection.

string	Description
115200	A bit rate of 115200 bit/s.
1200	A bit rate of 1200 bit/s.
19200	A bit rate of 19200 bit/s.
230400	A bit rate of 230400 bit/s.
2400	A bit rate of 2400 bit/s.
38400	A bit rate of 38400 bit/s.
4800	A bit rate of 4800 bit/s.
57600	A bit rate of 57600 bit/s.
9600	A bit rate of 9600 bit/s.

6.123.4.2 ConnectorType

The type of connector used for this interface.

string	Description
DB25 Female	A DB25 Female connector.
DB25 Male	A DB25 Male connector.
DB9 Female	A DB9 Female connector.
DB9 Male	A DB9 Male connector.
mUSB	A mUSB connector.

string	Description
RJ11	An RJ11 connector.
RJ45	An RJ45 connector.
USB	A USB connector.
uUSB	A uUSB connector.

6.123.4.3 DataBits

The number of data bits that follow the start bit over the serial connection.

string	Description
5	Five bits of data following the start bit.
6	Six bits of data following the start bit.
7	Seven bits of data following the start bit.
8	Eight bits of data following the start bit.

6.123.4.4 FlowControl

The type of flow control, if any, that is imposed on the serial connection.

string	Description
Hardware	Out-of-band flow control imposed.
None	No flow control imposed.
Software	XON/XOFF in-band flow control imposed.

6.123.4.5 Parity

The type of parity used by the sender and receiver to detect errors over the serial connection.

string	Description
Even	An even parity bit.

string	Description
Mark	A mark parity bit.
None	No parity bit.
Odd	An odd parity bit.
Space	A space parity bit.

6.123.4.6 PinOut

The physical pinout configuration for a serial connector.

string	Description
Cisco	The Cisco pinout configuration.
Cyclades	The Cyclades pinout configuration.
Digi	The Digi pinout configuration.
Modbus2Wire *(v1.3+)*	The Modbus 2 wire pinout configuration.
Modbus4Wire *(v1.3+)*	The Modbus 4 wire pinout configuration.
ModbusRs232 *(v1.3+)*	The Modbus RS232 pinout configuration.

6.123.4.7 Role

The role of the serial interface.

string	Description
Client	The serial interface is a client and connects to one or more servers across a serial bus.
Server	The serial interface is a server and allows one or more clients to connect across a serial bus.

6.123.4.8 SignalType

The type of signal used for the communication connection.

string	Description
Rs232	The serial interface follows RS232.
Rs485	The serial interface follows RS485.

6.123.4.9 StopBits

The period of time before the next start bit is transmitted.

string	Description
1	One stop bit following the data bits.
2	Two stop bits following the data bits.

6.123.5 Example response

```
{
    "@odata.type": "#SerialInterface.v1_3_0.SerialInterface",
    "Id": "TTY0",
    "Name": "Manager Serial Interface 1",
    "Description": "Management for Serial Interface",
    "InterfaceEnabled": true,
    "SignalType": "Rs232",
    "BitRate": "115200",
    "Parity": "None",
    "DataBits": "8",
    "StopBits": "1",
    "FlowControl": "None",
    "ConnectorType": "RJ45",
    "PinOut": "Cyclades",
    "@odata.id": "/redfish/v1/Managers/BMC/SerialInterfaces/TTY0"
}
```

6.124 ServiceConditions 1.0.1

Version	*v1.0*
Release	2021.4

6.124.1 Description

The `ServiceConditions` schema contains definitions for reporting the conditions present in the service that require attention.

6.124.2 URIs

/redfish/v1/ServiceConditions

6.124.3 Properties

Property	Type	Attributes	Notes
Conditions [{ }]	array (object)	*(null)*	Conditions reported by this service that require attention. For property details, see Condition.
HealthRollup	string (enum)	*read-only*	The health roll-up for all resources. *For the possible property values, see HealthRollup in Property details.*

6.124.4 Property details

6.124.4.1 HealthRollup

The health roll-up for all resources.

string	Description
Critical	A critical condition requires immediate attention.
OK	Normal.
Warning	A condition requires attention.

6.124.5 Example response

```
{
    "@odata.type": "#ServiceConditions.v1_0_1.ServiceConditions",
    "Name": "Redfish Service Conditions",
    "HealthRollup": "Warning",
    "Conditions": [
```

```
        {
            "MessageId": "ThermalEvents.1.0.OverTemperature",
            "Timestamp": "2020-11-08T12:25:00-05:00 ",
            "Message": "Temperature exceeds rated limit in power supply `A`.",
            "Severity": "Warning",
            "MessageArgs": [
                "A"
            ],
            "OriginOfCondition": {
                "@odata.id": "/redfish/v1/Chassis/1/Power"
            },
            "LogEntry": {
                "@odata.id": "/redfish/v1/Managers/1/LogServices/Log1/Entries/1"
            }
        },
        {
            "MessageId": "Base.1.9.ConditionInRelatedResource",
            "Message": "One or more conditions exist in a related resource. See the OriginOfCondition
         property.",
            "Severity": "Warning",
            "OriginOfCondition": {
                "@odata.id": "/redfish/v1/Systems/cpu-memory-example"
            }
        }
    ],
    "@odata.id": "/redfish/v1/ServiceConditions"
}
```


6.125 ServiceRoot 1.19.0

Version	*v1.19*	*v1.18*	*v1.17*	*v1.16*	*v1.15*	*v1.14*	*v1.13*	*v1.12*	*v1.11*	*v1.10*	*v1.9*	...
Release	2025.2	2025.1	2024.1	2023.1	2022.3	2022.1	2021.4	2021.3	2021.2	2021.1	2020.3	...

6.125.1 Description

The `ServiceRoot` schema describes the root of the Redfish service, located at the '/redfish/v1' URI. All other resources accessible through the Redfish interface on this device are linked directly or indirectly from the service root.

6.125.2 URIs

/redfish/v1
/redfish/v1/

6.125.3 Properties

Property	Type	Attributes	Notes
AccountService {	object		The link to the account service. See the *AccountService* schema for details on this property.
@odata.id	string	*read-only*	Link to a AccountService resource. See the Links section and the *AccountService* schema for details.
}			
AggregationService *(v1.8+)* {	object		The link to the aggregation service. See the *AggregationService* schema for details on this property.
@odata.id	string	*read-only*	Link to a AggregationService resource. See the Links section and the *AggregationService* schema for details.
}			
AutomationNodes *(v1.19+)* {	object		The link to a collection of automation nodes. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *AutomationNode*. See the AutomationNode schema for details.
}			
Cables *(v1.11+)* {	object		The link to a collection of cables. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Cable*. See the Cable schema for details.
}			
CertificateService *(v1.5+)* {	object		The link to the certificate service. See the *CertificateService* schema for details on this property.
@odata.id	string	*read-only*	Link to a CertificateService resource. See the Links section and the *CertificateService* schema for details.
}			
Chassis {	object		The link to a collection of chassis. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Chassis*. See the Chassis schema for details.
}			
ComponentIntegrity *(v1.13+)* {	object		The link to a collection of component integrity information. Contains a link to a resource.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to Collection of *ComponentIntegrity*. See the ComponentIntegrity schema for details.
}			
CompositionService *(v1.2+)* {	object		The link to the composition service. See the *CompositionService* schema for details on this property.
@odata.id	string	*read-only*	Link to a CompositionService resource. See the Links section and the *CompositionService* schema for details.
}			
EventService {	object		The link to the event service. See the *EventService* schema for details on this property.
@odata.id	string	*read-only*	Link to a EventService resource. See the Links section and the *EventService* schema for details.
}			
Fabrics *(v1.1+)* {	object		The link to a collection of fabrics. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Fabric*. See the Fabric schema for details.
}			
Facilities *(v1.6+)* {	object		The link to a collection of facilities. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Facility*. See the Facility schema for details.
}			
JobService *(v1.4+)* {	object		The link to the job service. See the *JobService* schema for details on this property.
@odata.id	string	*read-only*	Link to a JobService resource. See the Links section and the *JobService* schema for details.
}			
JsonSchemas {	object		The link to a collection of JSON Schema files. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *JsonSchemaFile*. See the JsonSchemaFile schema for details.
}			
KeyService *(v1.11+)* {	object		The link to the key service. See the *KeyService* schema for details on this property.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a KeyService resource. See the Links section and the *KeyService* schema for details.
}			
LicenseService *(v1.12+)* {	object		The link to the license service. See the *LicenseService* schema for details on this property.
@odata.id	string	*read-only*	Link to a LicenseService resource. See the Links section and the *LicenseService* schema for details.
}			
Links {	object	*required*	The links to other resources that are related to this resource.
ManagerProvidingService *(v1.15+)* {	object		The link to the manager that is providing this Redfish service. See the *Manager* schema for details on this property.
@odata.id	string	*read-only*	Link to a Manager resource. See the Links section and the *Manager* schema for details.
}			
Oem {}	object		See the Oem object definition in the Common properties section.
Sessions {	object	*required*	The link to a collection of sessions. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Session*. See the Session schema for details.
}			
}			
Managers {	object		The link to a collection of managers. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Manager*. See the Manager schema for details.
}			
NVMeDomains *(v1.10+)* {}	object		The link to a collection of NVMe domains.
PowerEquipment *(v1.6+)* {	object		The link to a set of power equipment. See the *PowerEquipment* schema for details on this property.
@odata.id	string	*read-only*	Link to a PowerEquipment resource. See the Links section and the *PowerEquipment* schema for details.
}			
Product *(v1.3+)*	string	*read-only (null)*	The product associated with this Redfish service.

Property	Type	Attributes	Notes
ProtocolFeaturesSupported *(v1.3+)* {	object		The information about protocol features that the service supports.
DeepOperations *(v1.7+)* {	object		The information about deep operations that the service supports.
DeepPATCH *(v1.7+)*	boolean	*read-only*	An indication of whether the service supports the deep `PATCH` operation.
DeepPOST *(v1.7+)*	boolean	*read-only*	An indication of whether the service supports the deep `POST` operation.
MaxLevels *(v1.7+)*	integer	*read-only*	The maximum levels of resources allowed in deep operations.
}			
ExcerptQuery *(v1.4+)*	boolean	*read-only*	An indication of whether the service supports the `excerpt` query parameter.
ExpandQuery *(v1.3+)* {	object		The information about the use of `$expand` in the service.
ExpandAll *(v1.3+)*	boolean	*read-only*	An indication of whether the service supports the asterisk (`*`) option of the `$expand` query parameter.
Levels *(v1.3+)*	boolean	*read-only*	An indication of whether the service supports the `$levels` option of the `$expand` query parameter.
Links *(v1.3+)*	boolean	*read-only*	An indication of whether this service supports the tilde (`~`) option of the `$expand` query parameter.
MaxLevels *(v1.3+)*	integer	*read-only*	The maximum `$levels` option value in the `$expand` query parameter.
NoLinks *(v1.3+)*	boolean	*read-only*	An indication of whether the service supports the period (`.`) option of the `$expand` query parameter.
}			
FilterQuery *(v1.3+)*	boolean	*read-only*	An indication of whether the service supports the `$filter` query parameter.
FilterQueryComparisonOperations *(v1.17+)*	boolean	*read-only*	An indication of whether the service supports the `eq` , `ge` , `gt` , `le` , `lt` , and `ne` options for the `$filter` query parameter.
FilterQueryCompoundOperations *(v1.17+)*	boolean	*read-only*	An indication of whether the service supports the `()` , `and` , `not` , and `or` options for the `$filter` query parameter.
IncludeOriginOfConditionQuery *(v1.18+)*	boolean	*read-only*	An indication of whether the service supports the `includeoriginofcondition` query parameter.
MultipleHTTPRequests *(v1.14+)*	boolean	*read-only*	An indication of whether the service supports multiple outstanding HTTP requests.
OnlyMemberQuery *(v1.4+)*	boolean	*read-only*	An indication of whether the service supports the `only` query parameter.

Property	Type	Attributes	Notes
SelectQuery *(v1.3+)*	boolean	*read-only*	An indication of whether the service supports the `$select` query parameter.
TopSkipQuery *(v1.17+)*	boolean	*read-only*	An indication of whether the service supports both the `$top` and `$skip` query parameters.
}			
RedfishVersion	string	*read-only*	The version of the Redfish service.
RegisteredClients *(v1.13+)* {	object		The link to a collection of registered clients. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *RegisteredClient*. See the RegisteredClient schema for details.
}			
Registries {	object		The link to a collection of registries. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *MessageRegistryFile*. See the MessageRegistryFile schema for details.
}			
ResourceBlocks *(v1.5+)* {	object		The link to a collection of resource blocks. This collection is intended for implementations that do not contain a composition service but that expose resources to an orchestrator that implements a composition service. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *ResourceBlock*. See the ResourceBlock schema for details.
}			
ServiceConditions *(v1.13+)* {	object		The link to the service conditions. See the *ServiceConditions* schema for details on this property.
@odata.id	string	*read-only*	Link to a ServiceConditions resource. See the Links section and the *ServiceConditions* schema for details.
}			
ServiceIdentification *(v1.14+)*	string	*read-only*	The vendor or user-provided product and service identifier.
SessionService {	object		The link to the sessions service. See the *SessionService* schema for details on this property.
@odata.id	string	*read-only*	Link to a SessionService resource. See the Links section and the *SessionService* schema for details.

Property	Type	Attributes	Notes
}			
Storage *(v1.9+)* {	object		The link to a collection of storage subsystems. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Storage*. See the Storage schema for details.
}			
StorageServices *(v1.1+)* {}	object		The link to a collection of storage services.
StorageSystems *(v1.1+)* {}	object		The link to a collection of storage systems.
Systems {	object		The link to a collection of systems. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *ComputerSystem*. See the ComputerSystem schema for details.
}			
Tasks {	object		The link to the task service. See the *TaskService* schema for details on this property.
@odata.id	string	*read-only*	Link to a TaskService resource. See the Links section and the *TaskService* schema for details.
}			
TelemetryService *(v1.4+)* {	object		The link to the telemetry service. See the *TelemetryService* schema for details on this property.
@odata.id	string	*read-only*	Link to a TelemetryService resource. See the Links section and the *TelemetryService* schema for details.
}			
ThermalEquipment *(v1.16+)* {	object		The link to a set of cooling equipment. See the *ThermalEquipment* schema for details on this property.
@odata.id	string	*read-only*	Link to a ThermalEquipment resource. See the Links section and the *ThermalEquipment* schema for details.
}			
UpdateService *(v1.1+)* {	object		The link to the update service. See the *UpdateService* schema for details on this property.
@odata.id	string	*read-only*	Link to a UpdateService resource. See the Links section and the *UpdateService* schema for details.
}			

Property	Type	Attributes	Notes
UUID	string (uuid)	*read-only (null)*	Unique identifier for a service instance. When SSDP is used, this value contains the same UUID returned in an HTTP `200 OK` response from an SSDP `M-SEARCH` request during discovery.
Vendor *(v1.5+)*	string	*read-only (null)*	The vendor or manufacturer associated with this Redfish service.

6.125.4 Property details

6.125.4.1 idRef

@odata.id	string (URI)	*read-only*	The unique identifier for a resource.

6.125.5 Example response

```
{
    "@odata.type": "#ServiceRoot.v1_19_0.ServiceRoot",
    "Id": "RootService",
    "Name": "Root Service",
    "RedfishVersion": "1.15.0",
    "UUID": "92384634-2938-2342-8820-489239905423",
    "Product": "UR99 1U Server",
    "ProtocolFeaturesSupported": {
        "ExpandQuery": {
            "ExpandAll": true,
            "Levels": true,
            "MaxLevels": 6,
            "Links": true,
            "NoLinks": true
        },
        "SelectQuery": false,
        "FilterQuery": false,
        "OnlyMemberQuery": true,
        "ExcerptQuery": true,
        "MultipleHTTPRequests": true
    },
    "ServiceConditions": {
        "@odata.id": "/redfish/v1/ServiceConditions"
    },
    "Systems": {
        "@odata.id": "/redfish/v1/Systems"
    },
```

```
    "Chassis": {
        "@odata.id": "/redfish/v1/Chassis"
    },
    "Managers": {
        "@odata.id": "/redfish/v1/Managers"
    },
    "UpdateService": {
        "@odata.id": "/redfish/v1/UpdateService"
    },
    "CompositionService": {
        "@odata.id": "/redfish/v1/CompositionService"
    },
    "Tasks": {
        "@odata.id": "/redfish/v1/TaskService"
    },
    "SessionService": {
        "@odata.id": "/redfish/v1/SessionService"
    },
    "AccountService": {
        "@odata.id": "/redfish/v1/AccountService"
    },
    "EventService": {
        "@odata.id": "/redfish/v1/EventService"
    },
    "Links": {
        "Sessions": {
            "@odata.id": "/redfish/v1/SessionService/Sessions"
        }
    },
    "@odata.id": "/redfish/v1/"
}
```


6.126 Session 1.8.0

Version	*v1.8*	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2024.4	2023.2	2022.3	2022.2	2022.1	2020.3	2019.1	2017.1	1.0

6.126.1 Description

The `Session` resource describes a single connection (session) between a client and a Redfish service instance.

6.126.2 URIs

/redfish/v1/SessionService/Sessions/*{SessionId}*

6.126.3 Properties

Property	Type	Attributes	Notes
ClientOriginIPAddress *(v1.3+)*	string	*read-only* *(null)*	The IP address of the client that created the session.
Context *(v1.5+)*	string	*read-only* *(null)*	A client-supplied string that is stored with the session.
CreatedTime *(v1.4+)*	string (date-time)	*read-only* *(null)*	The date and time when the session was created.
ExpirationTime *(v1.8+)*	string (date-time)	*read-only*	The date and time when the session expires regardless of session activity.
Links *(v1.7+)* {	object		The links to other resources that are related to this resource.
Oem {}	object		See the Oem object definition in the Common properties section.
OutboundConnection *(v1.7+)* {	object		The outbound connection associated with this session. See the *OutboundConnection* schema for details on this property.
@odata.id	string	*read-only*	Link to a OutboundConnection resource. See the Links section and the *OutboundConnection* schema for details.
}			
}			
OemSessionType *(v1.2+)*	string	*read-only* *(null)*	The active OEM-defined session type.
Password	string	*read-only* *required on create* *(null)*	The password for this session. The value is `null` in responses.
Roles *(v1.7+)* [ ]	array (string, null)	*read-only*	The Redfish roles that contain the privileges of this session.
SessionType *(v1.2+)*	string (enum)	*read-only* *(null)*	The active session type. *For the possible property values, see SessionType in Property details.*
Token *(v1.6+)*	string	*read-only* *(null)*	The multi-factor authentication token for this session. The value is `null` in responses.

Property	Type	Attributes	Notes
UserName	string	*read-only required on create (null)*	The username for the account for this session.

6.126.4 Property details

6.126.4.1 SessionType

The active session type.

string	Description
HostConsole	The host's console, which could be connected through Telnet, SSH, or another protocol.
IPMI	Intelligent Platform Management Interface.
KVMIP	A Keyboard-Video-Mouse over IP session.
ManagerConsole	The manager's console, which could be connected through Telnet, SSH, SM CLP, or another protocol.
OEM	OEM type. For OEM session types, see the `OemSessionType` property.
OutboundConnection *(v1.7+)*	A Redfish Specification-defined outbound connection. See the 'Outbound connections' clause of the Redfish Specification.
Redfish	A Redfish session.
VirtualMedia	Virtual media.
WebUI	A non-Redfish web user interface session, such as a graphical interface or another web-based protocol.

6.126.5 Example response

```
{
    "@odata.type": "#Session.v1_8_0.Session",
    "Id": "1234567890ABCDEF",
    "Name": "User Session",
    "Description": "Manager User Session",
    "UserName": "Administrator",
    "@odata.id": "/redfish/v1/SessionService/Sessions/1234567890ABCDEF"
}
```

6.127 SessionService 1.2.0

Version	*v1.2*	*v1.1*	*v1.0*
Release	2024.4	2016.2	1.0

6.127.1 Description

The `SessionService` schema describes the session service and its properties, with links to the actual list of sessions.

6.127.2 URIs

/redfish/v1/SessionService

6.127.3 Properties

Property	Type	Attributes	Notes
AbsoluteSessionTimeout *(v1.2+)*	integer (seconds)	*read-write*	The maximum number of seconds that a session is open before the service closes the session regardless of activity.
AbsoluteSessionTimeoutEnabled *(v1.2+)*	boolean	*read-write*	An indication of whether an absolute session timeout is applied to sessions.
ServiceEnabled	boolean	*read-write (null)*	An indication of whether this service is enabled. If `true`, this service is enabled. If `false`, it is disabled, and new sessions cannot be created, old sessions cannot be deleted, and established sessions can continue operating.
Sessions {	object		The link to a collection of sessions. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Session*. See the Session schema for details.
}			
SessionTimeout	integer (seconds)	*read-write*	The number of seconds of inactivity that a session can have before the session service closes the session due to inactivity.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.127.4 Example response


```
{
    "@odata.type": "#SessionService.v1_2_0.SessionService",
    "Id": "SessionService",
    "Name": "Session Service",
    "Description": "Session Service",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "ServiceEnabled": true,
    "SessionTimeout": 30,
    "Sessions": {
        "@odata.id": "/redfish/v1/SessionService/Sessions"
    },
    "@odata.id": "/redfish/v1/SessionService"
}
```


6.128 Signature 1.0.3

Version	*v1.0*
Release	2020.1

6.128.1 Description

The `Signature` schema describes a signature or a hash.

6.128.2 URIs

/redfish/v1/Systems/*{ComputerSystemId}*/SecureBoot/SecureBootDatabases/*{DatabaseId}*/Signatures/*{SignatureId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.128.3 Properties

Property	Type	Attributes	Notes
SignatureString	string	*read-only required on create (null)*	The string for the signature.
SignatureType	string	*read-only required on create (null)*	The format of the signature.
SignatureTypeRegistry	string (enum)	*read-only required on create (null)*	The type of the signature. *For the possible property values, see SignatureTypeRegistry in Property details.*
UefiSignatureOwner	string (uuid)	*read-only (null)*	The UEFI signature owner for this signature.

6.128.4 Property details

6.128.4.1 SignatureTypeRegistry

The type of the signature.

string	Description
UEFI	A signature defined in the UEFI Specification.

6.128.5 Example response


```
{
    "@odata.type": "#Signature.v1_0_3.Signature",
    "Id": "1",
    "Name": "SHA256 Signature",
    "SignatureString": "80B4D96931BF0D02FD91A61E19D14F1DA452E66DB2408CA8604D411F92659F0A",
    "SignatureTypeRegistry": "UEFI",
    "SignatureType": "EFI_CERT_SHA256_GUID",
    "UefiSignatureOwner": "28d5e212-165b-4ca0-909b-c86b9cee0112",
    "@odata.id": "/redfish/v1/Systems/1/SecureBoot/SecureBootDatabases/db/Signatures/1"
```

```
}
```

6.129 SimpleStorage 1.3.2

Version	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2020.3	2017.1	2016.1	1.0

6.129.1 Description

The `SimpleStorage` schema represents the properties of a storage controller and its directly-attached devices.

6.129.2 URIs

/redfish/v1/Systems/*{ComputerSystemId}*/SimpleStorage/*{SimpleStorageId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.129.3 Properties

Property	Type	Attributes	Notes
Devices [{	array		The storage devices.
CapacityBytes *(v1.1+)*	integer (bytes)	*read-only (null)*	The size, in bytes, of the storage device.
Manufacturer	string	*read-only (null)*	The name of the manufacturer of this device.
Model	string	*read-only (null)*	The product model number of this device.
Name	string	*read-only required*	The name of the resource or array member.
Oem {}	object		See the Oem object definition in the Common properties section.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
}]			

Property	Type	Attributes	Notes
Links *(v1.2+)* {	object		The links to other resources that are related to this resource.
Chassis *(v1.2+)* {	object		The link to the chassis that contains this simple storage. See the *Chassis* schema for details on this property.
@odata.id	string	*read-only*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}			
Oem {}	object		See the Oem object definition in the Common properties section.
Storage *(v1.3+)* {	object		The link to the storage instance that corresponds to this simple storage. See the *Storage* schema for details on this property.
@odata.id	string	*read-only*	Link to a Storage resource. See the Links section and the *Storage* schema for details.
}			
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
UefiDevicePath	string	*read-only* *(null)*	The UEFI device path to access this storage controller.

6.129.4 Example response

```
{
    "@odata.type": "#SimpleStorage.v1_3_2.SimpleStorage",
    "Id": "1",
    "Name": "Simple Storage Controller",
    "Description": "System SATA",
    "UefiDevicePath": "Acpi(PNP0A03,0)/Pci(1F|1)/Ata(Primary,Master)/HD(Part3, Sig00110011)",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollup": "Warning"
    },
    "Devices": [
        {
            "Name": "SATA Bay 1",
            "Manufacturer": "Contoso",
            "Model": "3000GT8",
            "CapacityBytes": 8000000000000,
            "Status": {
                "State": "Enabled",
```

```
                "Health": "OK"
            }
        },
        {
            "Name": "SATA Bay 2",
            "Manufacturer": "Contoso",
            "Model": "3000GT7",
            "CapacityBytes": 4000000000000,
            "Status": {
                "State": "Enabled",
                "Health": "Warning"
            }
        },
        {
            "Name": "SATA Bay 3",
            "Status": {
                "State": "Absent"
            }
        },
        {
            "Name": "SATA Bay 4",
            "Status": {
                "State": "Absent"
            }
        }
    ],
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/SimpleStorage/1"
}
```


6.130 SoftwareInventory 1.12.0

Version	*v1.12*	*v1.11*	*v1.10*	*v1.9*	*v1.8*	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	...
Release	2025.2	2025.1	2023.2	2022.3	2022.2	2022.1	2021.4	2021.2	2020.4	2020.1	2018.1	...

6.130.1 Description

The `SoftwareInventory` schema contains an inventory of software components. This can include software components such as BIOS, BMC firmware, firmware for other devices, system drivers, or provider software.

6.130.2 URIs

/redfish/v1/UpdateService/FirmwareInventory/*{SoftwareInventoryId}*
/redfish/v1/UpdateService/SoftwareInventory/*{SoftwareInventoryId}*

6.130.3 Properties

Property	Type	Attributes	Notes
Active *(v1.12+)*	boolean	*read-only (null)*	This image is active on one or more devices.
AdditionalVersions *(v1.7+)* {	object		The additional versions of this software.
Bootloader *(v1.7+)*	string	*read-only (null)*	The bootloader version contained in this software, such as U-Boot or UEFI.
BootParameters *(v1.11+)*	string	*read-only (null)*	The version of the configuration file that contains the initial boot parameters of this software, such as parameters for U-Boot.
FactoryConfiguration *(v1.11+)*	string	*read-only (null)*	The version of the configuration that contains the factory default runtime configuration parameters of this software.
Kernel *(v1.7+)*	string	*read-only (null)*	The kernel version contained in this software.
Microcode *(v1.7+)*	string	*read-only (null)*	The microcode version contained in this software, such as processor microcode.
Oem *(v1.7+)* {}	object		See the Oem object definition in the Common properties section.
OSDistribution *(v1.8+)*	string	*read-only (null)*	The operating system name of this software.
}			
AssociatedPhysicalContext *(v1.10+)*	string (enum)	*read-only*	The area or device to which the software applies. Used to distinguish when different parts of a device have different software components. *For the possible property values, see AssociatedPhysicalContext in Property details.*
Links *(v1.12+)* {	object		The links to other resources that are related to this resource.
ActiveTargets *(v1.12+)* [{	array		An array of devices where this software image is currently running.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
StagedTargets *(v1.12+)* [{	array		An array of devices where this software image is staged and ready to be activated.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			

Property	Type	Attributes	Notes
}			
LowestSupportedVersion *(v1.1+)*	string	*read-only (null)*	The lowest supported version of this software.
Manufacturer *(v1.2+)*	string	*read-only (null)*	The manufacturer or producer of this software.
Measurement *(v1.4+, deprecated v1.6)* {	object		A DSP0274-defined measurement block. *Deprecated in v1.6 and later. This property has been deprecated in favor of the* `ComponentIntegrity` *resource.*
Measurement *(v1.4+)*	string	*read-only (null)*	The hexadecimal string representation of the numeric value of the DSP0274-defined 'Measurement' field of the measurement block.
MeasurementIndex *(v1.5+)*	integer	*read-only (null)*	The DSP0274-defined 'Index' field of the measurement block.
MeasurementSize *(v1.4+)*	integer	*read-only (null)*	The DSP0274-defined 'MeasurementSize' field of the measurement block.
MeasurementSpecification *(v1.4+)*	integer	*read-only (null)*	The DSP0274-defined 'MeasurementSpecification' field of the measurement block.
}			
RelatedItem *(v1.1+)* [{	array		An array of links to resources or objects that represent devices to which this software inventory applies.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
ReleaseDate *(v1.2+)*	string (date-time)	*read-only (null)*	The release date of this software.
ReleaseType *(v1.10+)*	string (enum)	*read-only (null)*	The type of release. *For the possible property values, see ReleaseType in Property details.*
ResetRequiredOnUpdate *(v1.12+)*	boolean	*read-only (null)*	An indication of whether a reset is required to apply an update to this software.
SoftwareId *(v1.1+)*	string	*read-only*	The implementation-specific label that identifies this software.
Staged *(v1.12+)*	boolean	*read-only (null)*	This image is ready to be activated to one or more devices.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

Property	Type	Attributes	Notes
UefiDevicePaths *(v1.1+)* [ ]	array (string, null)	*read-only*	The list of UEFI device paths of the components associated with this software inventory item.
Updateable	boolean	*read-only (null)*	An indication of whether the update service can update this software.
Version	string	*read-only (null)*	The version of this software.
VersionScheme *(v1.9+)*	string (enum)	*read-only (null)*	The format of the version. *For the possible property values, see VersionScheme in Property details.*
WriteProtected *(v1.3+)*	boolean	*read-write (null)*	Indicates if the software is write-protected.

6.130.4 Actions

6.130.4.1 Activate *(v1.12+)*

Description

This action activates this software inventory instance.

Action URI

{Base URI of target resource}/Actions/SoftwareInventory.Activate

Action parameters

Parameter Name	Type	Attributes	Notes
Targets [{	array	*optional*	The target devices to activate this software image. If not specified, the service activates this software image on all applicable devices.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			

Request Example

```
{
```

```
    "Targets": [
        "/redfish/v1/Managers/1"
    ]
}
```

6.130.5 Property details

6.130.5.1 AssociatedPhysicalContext

The area or device to which the software applies. Used to distinguish when different parts of a device have different software components.

string	Description
Accelerator	An accelerator.
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.
ACOutput	An AC electrical output or output-related circuit.
ACStaticBypassInput	An AC electrical static bypass input.
ACUtilityInput	An AC electrical utility input.
ASIC	An ASIC device, such as a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.
Chassis	The entire chassis.
ComputeBay	A compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.

string	Description
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Manager	A management controller, such as a BMC (baseboard management controller).
Memory	A memory device.
MemorySubsystem	The entire memory subsystem.
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	A power supply bay.
Pump	A pump.
Rectifier	A rectifier device.
Reservoir	A reservoir.

string	Description
Room	The room.
StorageBay	A storage bay.
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

6.130.5.2 ReleaseType

The type of release.

string	Description
Other	The Redfish service does not have enough data to make a determination about this release.
Production	This release is ready for use in production environments.
Prototype	This release is intended for development or internal use.

6.130.5.3 VersionScheme

The format of the version.

string	Description
DotIntegerNotation	Version formatted as dot-separated integers.
OEM	Version follows OEM-defined format.
SemVer	Version follows Semantic Versioning 2.0 rules.

6.130.6 Example response


```
{
    "@odata.type": "#SoftwareInventory.v1_12_0.SoftwareInventory",
    "Id": "BMC",
    "Name": "Contoso BMC Firmware",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Updateable": true,
    "Manufacturer": "Contoso",
    "ReleaseDate": "2017-08-22T12:00:00",
    "Version": "1.45.455b66-rev4",
    "SoftwareId": "1624A9DF-5E13-47FC-874A-DF3AFF143089",
    "LowestSupportedVersion": "1.30.367a12-rev1",
    "UefiDevicePaths": [
        "BMC(0x1,0x0ABCDEF)"
    ],
    "RelatedItem": [
        {
            "@odata.id": "/redfish/v1/Managers/1"
        }
    ],
    "@odata.id": "/redfish/v1/UpdateService/FirmwareInventory/BMC"
}
```


6.131 Storage 1.19.0

Version	*v1.19*	*v1.18*	*v1.17*	*v1.16*	*v1.15*	*v1.14*	*v1.13*	*v1.12*	*v1.11*	*v1.10*	*v1.9*	...
Release	2025.2	2024.4	2024.2	2024.1	2023.1	2022.3	2022.1	2021.4	2021.2	2020.4	2020.3	...

6.131.1 Description

The `Storage` schema defines a storage subsystem and its respective properties. A storage subsystem represents a set of physical or virtual storage controllers and the resources, such as volumes, that can be accessed from that subsystem.

6.131.2 URIs

/redfish/v1/Storage/*{StorageId}*

/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.131.3 Properties

Property	Type	Attributes	Notes
AutoVolumeCreate *(v1.15+)*	string (enum)	*read-write (null)*	Indicates if this storage subsystem automatically creates new volumes for unassigned drives. *For the possible property values, see AutoVolumeCreate in Property details.*
BlockSecurityIDPolicy *(v1.18+)*	boolean	*read-write (null)*	Indicates if the storage controller sends a command to block establishment of a TCG-defined security ID (SID) during each drive boot sequence for drives that support it.
ConfigurationLock *(v1.16+)*	string (enum)	*read-write (null)*	Indicates whether in-band configuration requests to the storage subsystem are locked. Other properties, such as `ConfigurationLockState`, contain additional information regarding the status of the configuration lock. *For the possible property values, see ConfigurationLock in Property details.*
Connections *(v1.15+)* {	object		The collection of links to the connections that this storage subsystem contains. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Connection*. See the Connection schema for details.
}			
ConsistencyGroups *(v1.8+)* {}	object		The consistency groups, each of which contains a set of volumes that are treated by an application or set of applications as a single resource, that are managed by this storage subsystem.
Controllers *(v1.9+)* {	object		The set of controllers instantiated by this storage subsystem. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *StorageController*. See the StorageController schema for details.
}			
Drives [{	array		The set of drives attached to the storage controllers that this resource represents.
@odata.id	string	*read-only*	Link to a Drive resource. See the Links section and the *Drive* schema for details.

Property	Type	Attributes	Notes
}]			
EncryptionMode *(v1.14+)*	string (enum)	*read-write (null)*	The encryption mode of this storage subsystem. *For the possible property values, see EncryptionMode in Property details.*
EndpointGroups *(v1.8+)* {	object		All of the endpoint groups, each of which contains a set of endpoints that are used for a common purpose such as an ACL or logical identification, that belong to this storage subsystem. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *EndpointGroup*. See the EndpointGroup schema for details.
}			
FileSystems *(v1.8+)* {}	object		All file systems that are allocated by this storage subsystem.
HotspareActivationPolicy *(v1.14+)*	string (enum)	*read-write (null)*	The policy under which hot spare drives in this storage domain will activate. *For the possible property values, see HotspareActivationPolicy in Property details.*
Identifiers *(v1.9+)* [{ }]	array (object)		The durable names for the storage subsystem. For property details, see Identifier.
Links {	object		The links to other resources that are related to this resource.
BlockSecurityIDUnsupportedDrives *(v1.18+)* [{	array		The set of drives in this storage subsystem that do not support blocking of TCG-defined security ID (SID).
@odata.id	string	*read-only*	Link to a Drive resource. See the Links section and the *Drive* schema for details.
}]			
BlockSecurityIDUpdateUnsuccessfulDrives *(v1.18+)* [{	array		The set of drives in this storage subsystem for which the most recent attempt to block TCG-defined security ID (SID) failed.
@odata.id	string	*read-only*	Link to a Drive resource. See the Links section and the *Drive* schema for details.
}]			
Enclosures [{	array		An array of links to the chassis to which this storage subsystem is attached.
@odata.id	string	*read-only*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.

Property	Type	Attributes	Notes
}]			
HostingStorageSystems *(v1.11+)* [{	array		The storage systems that host this storage subsystem.
@odata.id	string	*read-only*	Link to a ComputerSystem resource. See the Links section and the *ComputerSystem* schema for details.
}]			
NVMeoFDiscoverySubsystems *(v1.15+)* [{	array		An array of links to the discovery subsystems that discovered this subsystem in an NVMe-oF environment.
@odata.id	string	*read-only*	Link to another Storage resource.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
SimpleStorage *(v1.9+)* {	object		The link to the simple storage instance that corresponds to this storage. See the *SimpleStorage* schema for details on this property.
@odata.id	string	*read-only*	Link to a SimpleStorage resource. See the Links section and the *SimpleStorage* schema for details.
}			
StorageServices *(v1.9+)* [{	array		An array of links to the storage services that connect to this storage subsystem.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
}			
LocalEncryptionKeyIdentifier *(v1.14+)*	string	*read-only (null)*	The local encryption key identifier used by the storage subsystem.
Metrics *(v1.18+)* {	object	*(null)*	The link to the metrics associated with this storage subsystem. See the *StorageMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a StorageMetrics resource. See the Links section and the *StorageMetrics* schema for details.
}			

Property	Type	Attributes	Notes
NVMeSubsystemProperties *(v1.16+)* {	object	*(null)*	Information specific to NVMe Subsystems.
ConfigurationLockState *(v1.17+)* {	object	*(null)*	The configurable features that are able to be locked from in-band usage on an NVMe subsystem and their current lock state.
FirmwareCommit *(v1.17+)*	string (enum)	*read-only* *(null)*	The lock state of the NVMe-defined Firmware Commit command. *For the possible property values, see FirmwareCommit in Property details.*
FirmwareImageDownload *(v1.17+)*	string (enum)	*read-only* *(null)*	The lock state of the NVMe-defined Firmware Image Download command. *For the possible property values, see FirmwareImageDownload in Property details.*
Lockdown *(v1.17+)*	string (enum)	*read-only* *(null)*	The lock state of the NVMe-defined Lockdown command. *For the possible property values, see Lockdown in Property details.*
SecuritySend *(v1.17+)*	string (enum)	*read-only* *(null)*	The lock state of the NVMe-defined Security Send command. *For the possible property values, see SecuritySend in Property details.*
VPDWrite *(v1.17+)*	string (enum)	*read-only* *(null)*	The lock state of the NVMe-MI-defined VPD Write command. *For the possible property values, see VPDWrite in Property details.*
}			
MaxNamespacesSupported *(v1.16+)*	number	*read-only* *(null)*	The maximum number of namespace attachments supported by this NVMe Subsystem.
SharedNamespaceControllerAttachmentSupported *(v1.16+)*	boolean	*read-only* *(null)*	Indicates whether the subsystem supports shared namespace controller attachment, allowing a shared namespace to be attached concurrently to two or more controllers in an NVMe Subsystem.
}			
Redundancy [{ }]	array (object)		Redundancy information for the storage subsystem. For property details, see Redundancy.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

Property	Type	Attributes	Notes
StorageControllers *(deprecated v1.13)* [{	array		The set of storage controllers that this resource represents. *Deprecated in v1.13 and later. This property has been deprecated in favor of* `Controllers` *to allow for storage controllers to be represented as their own resources.*
@odata.id	string (URI)	*read-only required*	The unique identifier for a resource.
Actions *(v1.2+)* {}	object		The available actions for this resource.
Assembly *(v1.4+)* {	object		The link to the assembly associated with this storage controller. See the *Assembly* schema for details on this property.
@odata.id	string	*read-only*	Link to a Assembly resource. See the Links section and the *Assembly* schema for details.
}			
AssetTag	string	*read-write (null)*	The user-assigned asset tag for this storage controller.
CacheSummary *(v1.5+)* {	object		The cache memory of the storage controller in general detail.
PersistentCacheSizeMiB *(v1.5+)*	integer (mebibytes)	*read-only (null)*	The portion of the cache memory that is persistent, measured in MiB.
Status *(v1.5+)* {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
TotalCacheSizeMiB *(v1.5+)*	integer (mebibytes)	*read-only required (null)*	The total configured cache memory, measured in MiB.
}			
Certificates *(v1.10+)* {	object		The link to a collection of certificates for device identity and attestation. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
ControllerRates *(v1.7+)* {	object		This property describes the various controller rates used for processes such as volume rebuild or consistency checks.

Property	Type	Attributes	Notes
ConsistencyCheckRatePercent *(v1.7+)*	integer	*read-write (null)*	The percentage of controller resources used for performing a data consistency check on volumes.
RebuildRatePercent *(v1.7+)*	integer	*read-write (null)*	The percentage of controller resources used for rebuilding/repairing volumes.
TransformationRatePercent *(v1.7+)*	integer	*read-write (null)*	The percentage of controller resources used for transforming volumes from one configuration to another.
}			
FirmwareVersion	string	*read-only (null)*	The firmware version of this storage controller.
Identifiers [{ }]	array (object)		The durable names for the storage controller. For property details, see Identifier.
Links *(v1.1+)* {	object		The links to other resources that are related to this resource.
Endpoints *(v1.1+)* [{	array		An array of links to the endpoints that connect to this controller.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
PCIeFunctions *(v1.7+)* [{	array		An array of links to the PCIe functions that the storage controller produces.
@odata.id	string	*read-only*	Link to a PCIeFunction resource. See the Links section and the *PCIeFunction* schema for details.
}]			
StorageServices *(v1.4+, deprecated v1.9)* [{	array		An array of links to the storage services that connect to this controller. *Deprecated in v1.9 and later. This property has been deprecated in favor of* `StorageServices` *within the* `Links` *property at the root level.*
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			

Property	Type	Attributes	Notes
}			
Location *(v1.4+)* {}	object		The location of the storage controller. For property details, see Location.
Manufacturer	string	*read-only (null)*	The manufacturer of this storage controller.
Measurements *(v1.10+, deprecated v1.12)* [{	array		An array of DSP0274-defined measurement blocks. *Deprecated in v1.12 and later. This property has been deprecated in favor of the* `ComponentIntegrity` *resource.*
@odata.id	string	*read-only*	Link to a MeasurementBlock resource. See the Links section and the *SoftwareInventory* schema for details.
}]			
MemberId	string	*read-only required*	The unique identifier for the member within an array.
Model	string	*read-only (null)*	The model number for the storage controller.
Name *(v1.3+)*	string	*read-only (null)*	The name of the storage controller.
Oem {}	object		See the Oem object definition in the Common properties section.
PartNumber	string	*read-only (null)*	The part number for this storage controller.
PCIeInterface *(v1.5+)* {	object		The PCIe interface details for this controller.
LanesInUse *(v1.3+)*	integer	*read-only (null)*	The number of PCIe lanes in use by this device.
MaxLanes *(v1.3+)*	integer	*read-only (null)*	The number of PCIe lanes supported by this device.
MaxPCIeType *(v1.3+)*	string (enum)	*read-only (null)*	The highest version of the PCIe specification supported by this device. *For the possible property values, see MaxPCIeType in Property details.*
Oem *(v1.3+)* {}	object		See the Oem object definition in the Common properties section.
PCIeType *(v1.3+)*	string (enum)	*read-only (null)*	The version of the PCIe specification in use by this device. *For the possible property values, see PCIeType in Property details.*

Property	Type	Attributes	Notes
}			
Ports *(v1.7+)* {	object		The link to the collection of ports that exist on the storage controller. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Port*. See the Port schema for details.
}			
SerialNumber	string	*read-only (null)*	The serial number for this storage controller.
SKU	string	*read-only (null)*	The SKU for this storage controller.
SpeedGbps	number (Gbit/s)	*read-only (null)*	The maximum speed of the storage controller's device interface.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
SupportedControllerProtocols [ ]	array (string (enum))	*read-only*	The supported set of protocols for communicating with this storage controller. *For the possible property values, see SupportedControllerProtocols in Property details.*
SupportedDeviceProtocols [ ]	array (string (enum))	*read-only*	The protocols that the storage controller can use to communicate with attached devices. *For the possible property values, see SupportedDeviceProtocols in Property details.*
SupportedRAIDTypes *(v1.6+)* [ ]	array (string (enum))	*read-only (null)*	The set of RAID types supported by the storage controller. *For the possible property values, see SupportedRAIDTypes in Property details.*
}]			
StorageGroups *(v1.8+, deprecated v1.15)* {}	object		All of the storage groups, each of which contains a set of volumes and endpoints that are managed as a group for mapping and masking, that belong to this storage subsystem. *Deprecated in v1.15 and later. This property was deprecated in favor of the* `Connections` *property.*
StoragePools *(v1.8+)* {}	object		The set of all storage pools that are allocated by this storage subsystem. A storage pool is the set of storage capacity that can be used to produce volumes or other storage pools.

Property	Type	Attributes	Notes
TargetConfigurationLockLevel *(v1.17+)*	string (enum)	*read-write (null)*	Indicates the target configuration lock level for the drive based upon the state of the `ConfigurationLock` property. Other properties, such as `ConfigurationLockState`, contain additional information regarding the status of the configuration lock. *For the possible property values, see TargetConfigurationLockLevel in Property details.*
Volumes {}	object		The set of volumes that the storage controllers produce.

6.131.4 Actions

6.131.4.1 ImportForeignDrives *(v1.19+)*

Description

This action imports encrypted foreign drives to a host-based storage controller by supplying encryption access credentials.

Action URI

{Base URI of target resource}/Actions/Storage.ImportForeignDrives

Action parameters

Parameter Name	Type	Attributes	Notes
ControllerPassword	string	*optional*	The current controller password. This parameter is not required if the controller does not currently have a password.
DriveEncryptionKey	string	*required*	The encryption key to unlock the drives.
DriveEncryptionKeyIdentifier	string	*optional*	An encryption key identifier to filter the drives that are imported. If not provided, the controller attempts to import all foreign drives.

Request Example

```
{
    "ControllerPassword": "P@ssw0rd",
    "DriveEncryptionKey": "566b523d3f955a7fba38a28ec708ca10"
}
```

6.131.4.2 RekeyExternalKey *(v1.16+)*

Description

This action causes the controllers of the storage subsystem to request new encryption keys managed by an external key service.

Action URI

{Base URI of target resource}/Actions/Storage.RekeyExternalKey

Action parameters

This action takes no parameters.

6.131.4.3 ResetToDefaults *(v1.11+)*

Description

The reset action resets the storage device to factory defaults. This can cause the loss of data.

Action URI

{Base URI of target resource}/Actions/Storage.ResetToDefaults

Action parameters

Parameter Name	Type	Attributes	Notes
ResetType	string (enum)	*required*	The type of reset to defaults. *For the possible property values, see ResetType in Property details.*

Request Example

```
{
    "ResetType": "ResetAll"
}
```

6.131.4.4 SetControllerPassword *(v1.17+)*

Description

This action sets the controller boot password for a host-based storage controller.

Action URI

{Base URI of target resource}/Actions/Storage.SetControllerPassword

Action parameters

Parameter Name	Type	Attributes	Notes
CurrentPassword	string	*optional*	The current controller password. This parameter is not needed if the controller does not currently have a password.
NewPassword	string	*required*	The new password to set for the controller.
SecurityKey	string	*optional*	The security key for the controller. This parameter is not needed if the controller does not have a security key.

Request Example

```
{
    "CurrentPassword": "MyC0nt0s0C0ntr0ller",
    "NewPassword": "MyNewC0nt0s0C0ntr0ller",
    "SecurityKey": "566b523d3f955a7fba38a28ec708ca10"
}
```

6.131.4.5 SetEncryptionKey

Description

This action sets the local encryption key for the storage subsystem.

Action URI

{Base URI of target resource}/Actions/Storage.SetEncryptionKey

Action parameters

Parameter Name	Type	Attributes	Notes
CurrentEncryptionKey *(v1.14+)*	string	*optional*	The current local encryption key on the storage subsystem. This parameter is not needed if the controller does not currently have an encryption key.
EncryptionKey	string	*required*	The local encryption key to set on the storage subsystem.

Parameter Name	Type	Attributes	Notes
EncryptionKeyIdentifier *(v1.14+)*	string	*optional*	The local encryption key identifier used by the storage subsystem.

Request Example

```
{
    "EncryptionKey": "566b523d3f955a7fba38a28ec708ca10"
}
```

6.131.5 Property details

6.131.5.1 AutoVolumeCreate

Indicates if this storage subsystem automatically creates new volumes for unassigned drives.

string	Description
Disabled	Do not automatically create volumes.
NonRAID	Automatically create non-RAID volumes.
RAID0	Automatically create RAID0 volumes.
RAID1	Automatically create RAID1 volumes.

6.131.5.2 ConfigurationLock

Indicates whether in-band configuration requests to the storage subsystem are locked. Other properties, such as `ConfigurationLockState`, contain additional information regarding the status of the configuration lock.

string	Description
Disabled	In-band configuration requests are not locked.
Enabled	In-band configuration requests are locked as specified by `TargetConfigurationLockLevel`.
Partial	Some in-band configuration requests are not locked while others are locked. This value is used for status reporting to indicate that the storage subsystem is partially locked and client action is recommended.

6.131.5.3 EncryptionMode

The encryption mode of this storage subsystem.

string	Description
Disabled	Encryption is disabled on the storage subsystem.
PasswordOnly *(v1.17+)*	The storage subsystem uses a password, but no keys for encryption.
PasswordWithExternalKey *(v1.17+)*	The storage subsystem uses a password and one or more external keys for encryption.
PasswordWithLocalKey *(v1.17+)*	The storage subsystem uses a password and a local key for encryption.
UseExternalKey	The storage subsystem uses one or more external keys for encryption.
UseLocalKey	The storage subsystem uses a local key for encryption.

6.131.5.4 FirmwareCommit

The lock state of the NVMe-defined Firmware Commit command.

string	Description
CommandUnsupported	The command is not supported, therefore lockdown does not apply.
LockdownUnsupported	The command is supported but is not able to be locked.
Locked	The command is supported and is currently locked.
Unlocked	The command is supported, able to be locked, and is currently unlocked.

6.131.5.5 FirmwareImageDownload

The lock state of the NVMe-defined Firmware Image Download command.

string	Description
CommandUnsupported	The command is not supported, therefore lockdown does not apply.
LockdownUnsupported	The command is supported but is not able to be locked.
Locked	The command is supported and is currently locked.

string	Description
Unlocked	The command is supported, able to be locked, and is currently unlocked.

6.131.5.6 HotspareActivationPolicy

The policy under which hot spare drives in this storage domain will activate.

string	Description
OEM	The hot spare drive will take over for the original drive in an algorithm custom to the OEM.
OnDriveFailure	The hot spare drive will take over for the original drive when the original drive has been marked as failed by the storage domain.
OnDrivePredictedFailure	The hot spare drive will take over for the original drive when the original drive has been predicted to fail in the future by the storage domain.

6.131.5.7 idRef

@odata.id	string (URI)	*read-only*	The unique identifier for a resource.

6.131.5.8 Lockdown

The lock state of the NVMe-defined Lockdown command.

string	Description
CommandUnsupported	The command is not supported, therefore lockdown does not apply.
LockdownUnsupported	The command is supported but is not able to be locked.
Locked	The command is supported and is currently locked.
Unlocked	The command is supported, able to be locked, and is currently unlocked.

6.131.5.9 MaxPCIeType

The highest version of the PCIe specification supported by this device.

string	Description
Gen1	A PCIe v1.0 slot.
Gen2	A PCIe v2.0 slot.
Gen3	A PCIe v3.0 slot.
Gen4	A PCIe v4.0 slot.
Gen5	A PCIe v5.0 slot.
Gen6 *(v1.16+)*	A PCIe v6.0 slot.

6.131.5.10 PCIeType

The version of the PCIe specification in use by this device.

string	Description
Gen1	A PCIe v1.0 slot.
Gen2	A PCIe v2.0 slot.
Gen3	A PCIe v3.0 slot.
Gen4	A PCIe v4.0 slot.
Gen5	A PCIe v5.0 slot.
Gen6 *(v1.16+)*	A PCIe v6.0 slot.

6.131.5.11 ResetType

The type of reset to defaults.

string	Description
PreserveVolumes	Reset all settings to factory defaults but preserve the configured volumes on the controllers.
ResetAll	Reset all settings to factory defaults and remove all volumes.

6.131.5.12 SecuritySend

The lock state of the NVMe-defined Security Send command.

string	Description
CommandUnsupported	The command is not supported, therefore lockdown does not apply.
LockdownUnsupported	The command is supported but is not able to be locked.
Locked	The command is supported and is currently locked.
Unlocked	The command is supported, able to be locked, and is currently unlocked.

6.131.5.13 SupportedControllerProtocols

The supported set of protocols for communicating with this storage controller.

string	Description
AHCI	Advanced Host Controller Interface (AHCI).
CXL	Compute Express Link.
DisplayPort	DisplayPort.
DVI	DVI.
eMMC	Embedded MultiMediaCard (e.MMC).
Ethernet	Ethernet.
FC	Fibre Channel.
FCoE	Fibre Channel over Ethernet (FCoE).
FCP	Fibre Channel Protocol for SCSI.
FICON	FIbre CONnection (FICON).
FTP	File Transfer Protocol (FTP).
GenZ	GenZ.
HDMI	HDMI.
HTTP	Hypertext Transport Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
I2C	Inter-Integrated Circuit Bus.
InfiniBand	InfiniBand.
iSCSI	Internet SCSI.

string	Description
iWARP	Internet Wide Area RDMA Protocol (iWARP).
MultiProtocol	Multiple Protocols.
NFSv3	Network File System (NFS) version 3.
NFSv4	Network File System (NFS) version 4.
NVLink	NVLink.
NVMe	Non-Volatile Memory Express (NVMe).
NVMeOverFabrics	NVMe over Fabrics.
OEM	OEM-specific.
PCIe	PCI Express.
QPI	Intel QuickPath Interconnect (QPI).
RoCE	RDMA over Converged Ethernet Protocol.
RoCEv2	RDMA over Converged Ethernet Protocol Version 2.
SAS	Serial Attached SCSI.
SATA	Serial AT Attachment.
SFTP	SSH File Transfer Protocol (SFTP).
SMB	Server Message Block (SMB). Also known as the Common Internet File System (CIFS).
TCP	Transmission Control Protocol (TCP).
TFTP	Trivial File Transfer Protocol (TFTP).
UDP	User Datagram Protocol (UDP).
UET	Ultra Ethernet Transport.
UHCI	Universal Host Controller Interface (UHCI).
UPI	Intel UltraPath Interconnect (UPI).
USB	Universal Serial Bus (USB).
VGA	VGA.

6.131.5.14 SupportedDeviceProtocols

The protocols that the storage controller can use to communicate with attached devices.

string	Description
AHCI	Advanced Host Controller Interface (AHCI).
CXL	Compute Express Link.
DisplayPort	DisplayPort.
DVI	DVI.
eMMC	Embedded MultiMediaCard (e.MMC).
Ethernet	Ethernet.
FC	Fibre Channel.
FCoE	Fibre Channel over Ethernet (FCoE).
FCP	Fibre Channel Protocol for SCSI.
FICON	FIbre CONnection (FICON).
FTP	File Transfer Protocol (FTP).
GenZ	GenZ.
HDMI	HDMI.
HTTP	Hypertext Transport Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
I2C	Inter-Integrated Circuit Bus.
InfiniBand	InfiniBand.
iSCSI	Internet SCSI.
iWARP	Internet Wide Area RDMA Protocol (iWARP).
MultiProtocol	Multiple Protocols.
NFSv3	Network File System (NFS) version 3.
NFSv4	Network File System (NFS) version 4.
NVLink	NVLink.
NVMe	Non-Volatile Memory Express (NVMe).
NVMeOverFabrics	NVMe over Fabrics.
OEM	OEM-specific.

string	Description
PCIe	PCI Express.
QPI	Intel QuickPath Interconnect (QPI).
RoCE	RDMA over Converged Ethernet Protocol.
RoCEv2	RDMA over Converged Ethernet Protocol Version 2.
SAS	Serial Attached SCSI.
SATA	Serial AT Attachment.
SFTP	SSH File Transfer Protocol (SFTP).
SMB	Server Message Block (SMB). Also known as the Common Internet File System (CIFS).
TCP	Transmission Control Protocol (TCP).
TFTP	Trivial File Transfer Protocol (TFTP).
UDP	User Datagram Protocol (UDP).
UET	Ultra Ethernet Transport.
UHCI	Universal Host Controller Interface (UHCI).
UPI	Intel UltraPath Interconnect (UPI).
USB	Universal Serial Bus (USB).
VGA	VGA.

6.131.5.15 SupportedRAIDTypes

The set of RAID types supported by the storage controller.

string	Description
None	A placement policy with no redundancy at the device level.
RAID0	A placement policy where consecutive logical blocks of data are uniformly distributed across a set of independent storage devices without offering any form of redundancy.
RAID00	A placement policy that creates a RAID 0 stripe set over two or more RAID 0 sets.
RAID01	A data placement policy that creates a mirrored device (RAID 1) over a set of striped devices (RAID 0).
RAID1	A placement policy where each logical block of data is stored on more than one independent storage device.

string	Description
RAID10	A placement policy that creates a striped device (RAID 0) over a set of mirrored devices (RAID 1).
RAID10E	A placement policy that uses a RAID 0 stripe set over two or more RAID 10 sets.
RAID10Triple	A placement policy that uses a striped device (RAID 0) over a set of triple mirrored devices (RAID 1Triple).
RAID1E	A placement policy that uses a form of mirroring implemented over a set of independent storage devices where logical blocks are duplicated on a pair of independent storage devices so that data is uniformly distributed across the storage devices.
RAID1Triple	A placement policy where each logical block of data is mirrored three times across a set of three independent storage devices.
RAID3	A placement policy using parity-based protection where logical bytes of data are uniformly distributed across a set of independent storage devices and where the parity is stored on a dedicated independent storage device.
RAID4	A placement policy using parity-based protection where logical blocks of data are uniformly distributed across a set of independent storage devices and where the parity is stored on a dedicated independent storage device.
RAID5	A placement policy using parity-based protection for storing stripes of 'n' logical blocks of data and one logical block of parity across a set of 'n+1' independent storage devices where the parity and data blocks are interleaved across the storage devices.
RAID50	A placement policy that uses a RAID 0 stripe set over two or more RAID 5 sets of independent storage devices.
RAID6	A placement policy using parity-based protection for storing stripes of 'n' logical blocks of data and two logical blocks of independent parity across a set of 'n+2' independent storage devices where the parity and data blocks are interleaved across the storage devices.
RAID60	A placement policy that uses a RAID 0 stripe set over two or more RAID 6 sets of independent storage devices.
RAID6TP	A placement policy that uses parity-based protection for storing stripes of 'n' logical blocks of data and three logical blocks of independent parity across a set of 'n+3' independent storage devices where the parity and data blocks are interleaved across the storage devices.

6.131.5.16 TargetConfigurationLockLevel

Indicates the target configuration lock level for the drive based upon the state of the `ConfigurationLock` property. Other properties, such as `ConfigurationLockState`, contain additional information regarding the status of the configuration lock.

string	Description
Baseline	The standard configuration lock level, corresponding to applying firmware, updating security keys, and modifying other hardware settings. It does not include managing the volumes or data within the storage subsystem.

6.131.5.17 VPDWrite

The lock state of the NVMe-MI-defined VPD Write command.

string	Description
CommandUnsupported	The command is not supported, therefore lockdown does not apply.
LockdownUnsupported	The command is supported but is not able to be locked.
Locked	The command is supported and is currently locked.
Unlocked	The command is supported, able to be locked, and is currently unlocked.

6.131.6 Example response

```
{
    "@odata.type": "#Storage.v1_19_0.Storage",
    "Id": "1",
    "Name": "Local Storage Controller",
    "Description": "Integrated RAID Controller",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollup": "OK"
    },
    "StorageControllers": [
        {
            "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1#/StorageControllers/0",
            "MemberId": "0",
            "Name": "Contoso Integrated RAID",
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
            "Identifiers": [
                {
                    "DurableNameFormat": "NAA",
                    "DurableName": "345C59DBD970859C"
                }
```

```
            ],
            "Manufacturer": "Contoso",
            "Model": "12Gbs Integrated RAID",
            "SerialNumber": "2M220100SL",
            "PartNumber": "CT18754",
            "SpeedGbps": 12,
            "FirmwareVersion": "1.0.0.7",
            "SupportedControllerProtocols": [
                "PCIe"
            ],
            "SupportedDeviceProtocols": [
                "SAS",
                "SATA"
            ]
        }
    ],
    "Drives": [
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Drives/35D38F11ACEF7BD3"
        },
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Drives/3F5A8C54207B7233"
        },
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Drives/32ADF365C6C1B7BD"
        },
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Drives/3D58ECBC375FD9F2"
        }
    ],
    "Volumes": {
        "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1/Volumes"
    },
    "Actions": {
        "#Storage.SetEncryptionKey": {
            "target": "/redfish/v1/Systems/437XR1138R2/Storage/1/Actions/Storage.SetEncryptionKey"
        }
    },
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1"
}
```


6.132 StorageController 1.9.1

Version	*v1.9*	*v1.8*	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2024.4	2024.3	2023.1	2022.1	2021.4	2021.3	2021.2	2021.1	2020.4	2020.3

6.132.1 Description

The `StorageController` schema describes a storage controller and its properties. A storage controller represents a physical or virtual storage device that produces volumes.

6.132.2 URIs

/redfish/v1/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.132.3 Properties

Property	Type	Attributes	Notes
Assembly {	object		The link to the assembly associated with this storage controller. See the *Assembly* schema for details on this property.
@odata.id	string	*read-only*	Link to a Assembly resource. See the Links section and the *Assembly* schema for details.
}			
AssetTag	string	*read-write (null)*	The user-assigned asset tag for this storage controller.
CacheSummary {	object		The cache memory of the storage controller in general detail.
PersistentCacheSizeMiB	integer (mebibytes)	*read-only (null)*	The portion of the cache memory that is persistent, measured in MiB.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
TotalCacheSizeMiB	integer (mebibytes)	*read-only required (null)*	The total configured cache memory, measured in MiB.
}			
Certificates *(v1.1+)* {	object		The link to a collection of certificates for device identity and attestation. Contains a link to a resource.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
ControllerRates {	object		This property describes the various controller rates used for processes such as volume rebuild or consistency checks.
ConsistencyCheckRatePercent	integer (%)	*read-write (null)*	The percentage of controller resources used for performing a data consistency check on volumes.
RebuildRatePercent	integer (%)	*read-write (null)*	The percentage of controller resources used for rebuilding/repairing volumes.
TransformationRatePercent	integer (%)	*read-write (null)*	The percentage of controller resources used for transforming volumes from one configuration to another.
}			
EnvironmentMetrics *(v1.2+)* {	object		The link to the environment metrics for this storage controller. See the *EnvironmentMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a EnvironmentMetrics resource. See the Links section and the *EnvironmentMetrics* schema for details.
}			
FirmwareVersion	string	*read-only (null)*	The firmware version of this storage controller.
Identifiers [{ }]	array (object)		The durable names for the storage controller. For property details, see Identifier.
Links {	object		The links to other resources that are related to this resource.
AttachedVolumes [{	array		An array of links to volumes that are attached to this controller instance.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
Batteries *(v1.6+)* [{	array		The batteries that provide power to this storage controller during a power-loss event.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a Battery resource. See the Links section and the *Battery* schema for details.
}]			
Endpoints [{	array		An array of links to the endpoints that connect to this controller.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
NetworkDeviceFunctions *(v1.3+)* [{	array		The network device functions that provide connectivity to this controller.
@odata.id	string	*read-only*	Link to a NetworkDeviceFunction resource. See the Links section and the *NetworkDeviceFunction* schema for details.
}]			
NVMeDiscoveredSubsystems *(v1.7+)* [{	array		The NVMe subsystems discovered by this discovery controller.
@odata.id	string	*read-only*	Link to a Storage resource. See the Links section and the *Storage* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
PCIeFunctions [{	array		An array of links to the PCIe functions that the storage controller produces.
@odata.id	string	*read-only*	Link to a PCIeFunction resource. See the Links section and the *PCIeFunction* schema for details.
}]			
}			
Location {}	object		The location of the storage controller. For property details, see Location.
Manufacturer	string	*read-only (null)*	The manufacturer of this storage controller.

Property	Type	Attributes	Notes
Measurements *(v1.1+, deprecated v1.5)* [{	array		An array of DSP0274-defined measurement blocks. *Deprecated in v1.5 and later. This property has been deprecated in favor of the* `ComponentIntegrity` *resource.*
@odata.id	string	*read-only*	Link to a MeasurementBlock resource. See the Links section and the *SoftwareInventory* schema for details.
}]			
Metrics *(v1.7+)* {	object	*(null)*	The link to the metrics associated with this storage controller. See the *StorageControllerMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a StorageControllerMetrics resource. See the Links section and the *StorageControllerMetrics* schema for details.
}			
Model	string	*read-only* *(null)*	The model number for the storage controller.
NVMeControllerProperties {	object		The NVMe-related properties for this storage controller.
AllocatedCompletionQueues *(v1.4+)*	integer	*read-only* *(null)*	The number of I/O completion queues allocated to this NVMe I/O controller.
AllocatedSubmissionQueues *(v1.4+)*	integer	*read-only* *(null)*	The number of I/O submission queues allocated to this NVMe I/O controller.
ANACharacteristics [{	array		The ANA characteristics and volume information.
AccessState	string (enum)	*read-only* *(null)*	Reported ANA access state. *For the possible property values, see AccessState in Property details.*
Volume {	object		The specified volume.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}			
}]			
ControllerType	string (enum)	*read-only* *(null)*	The type of NVMe controller. *For the possible property values, see ControllerType in Property details.*

Property	Type	Attributes	Notes
DiscoveryTransportServiceId *(v1.9+)*	integer	*read-only (null)*	The NVMe discovery transport service identifier for the discovery controller.
MaxAttachedNamespaces *(v1.8+)*	integer	*read-only (null)*	The maximum number of attached namespaces allowed by this NVMe I/O controller.
MaxQueueSize	integer	*read-only (null)*	The maximum individual queue size that an NVMe I/O controller supports.
NVMeControllerAttributes {	object	*(null)*	The NVMe controller attributes.
ReportsNamespaceGranularity	boolean	*read-only (null)*	Indicates whether or not the controller supports reporting of Namespace Granularity.
ReportsUUIDList	boolean	*read-only (null)*	Indicates whether or not the controller supports reporting of a UUID list.
Supports128BitHostId	boolean	*read-only (null)*	Indicates whether or not the controller supports a 128-bit Host Identifier.
SupportsEnduranceGroups	boolean	*read-only (null)*	Indicates whether or not the controller supports Endurance Groups.
SupportsExceedingPowerOfNonOperationalState	boolean	*read-only (null)*	Indicates whether or not the controller supports exceeding Power of Non-Operational State in order to execute controller-initiated background operations in a non-operational power state.
SupportsNVMSets	boolean	*read-only (null)*	Indicates whether or not the controller supports NVM Sets.
SupportsPredictableLatencyMode	boolean	*read-only (null)*	Indicates whether or not the controller supports Predictable Latency Mode.
SupportsReadRecoveryLevels	boolean	*read-only (null)*	Indicates whether or not the controller supports Read Recovery Levels.
SupportsReservations *(v1.2+)*	boolean	*read-only (null)*	Indicates if the controller supports reservations.
SupportsSQAssociations	boolean	*read-only (null)*	Indicates whether or not the controller supports SQ Associations.
SupportsTrafficBasedKeepAlive	boolean	*read-only (null)*	Indicates whether or not the controller supports restarting the Keep Alive Timer if traffic is processed from an admin command or I/O during a Keep Alive Timeout interval.
}			

Property	Type	Attributes	Notes
NVMeSMARTCriticalWarnings {	object	*(null)*	The NVMe SMART Critical Warnings for this storage controller. This property contains possible triggers for the predictive drive failure warning for the corresponding drive.
MediaInReadOnly	boolean	*read-only* *(null)*	Indicates the media has been placed in read-only mode.
OverallSubsystemDegraded	boolean	*read-only* *(null)*	Indicates that the NVM subsystem reliability has been compromised.
PMRUnreliable	boolean	*read-only* *(null)*	The Persistent Memory Region has become unreliable.
PowerBackupFailed	boolean	*read-only* *(null)*	Indicates that the volatile memory backup device has failed.
SpareCapacityWornOut	boolean	*read-only* *(null)*	Indicates that the available spare capacity has fallen below the threshold.
}			
NVMeVersion	string	*read-only* *(null)*	The version of the NVMe Base Specification supported.
}			
PartNumber	string	*read-only* *(null)*	The part number for this storage controller.
PCIeInterface {	object		The PCIe interface details for this controller.
LanesInUse *(v1.3+)*	integer	*read-only* *(null)*	The number of PCIe lanes in use by this device.
MaxLanes *(v1.3+)*	integer	*read-only* *(null)*	The number of PCIe lanes supported by this device.
MaxPCIeType *(v1.3+)*	string (enum)	*read-only* *(null)*	The highest version of the PCIe specification supported by this device. *For the possible property values, see MaxPCIeType in Property details.*
Oem *(v1.3+)* {}	object		See the Oem object definition in the Common properties section.
PCIeType *(v1.3+)*	string (enum)	*read-only* *(null)*	The version of the PCIe specification in use by this device. *For the possible property values, see PCIeType in Property details.*
}			

Property	Type	Attributes	Notes
Ports {	object		The link to the collection of ports that exist on the storage controller. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Port*. See the Port schema for details.
}			
SerialNumber	string	*read-only (null)*	The serial number for this storage controller.
SKU	string	*read-only (null)*	The SKU for this storage controller.
SpeedGbps	number (Gbit/s)	*read-only (null)*	The maximum speed of the storage controller's device interface.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
SupportedControllerProtocols [ ]	array (string (enum))	*read-only*	The supported set of protocols for communicating with this storage controller. *For the possible property values, see SupportedControllerProtocols in Property details.*
SupportedDeviceProtocols [ ]	array (string (enum))	*read-only*	The protocols that the storage controller can use to communicate with attached devices. *For the possible property values, see SupportedDeviceProtocols in Property details.*
SupportedRAIDTypes [ ]	array (string (enum))	*read-only (null)*	The set of RAID types supported by the storage controller. *For the possible property values, see SupportedRAIDTypes in Property details.*

6.132.4 Actions

6.132.4.1 AttachNamespaces *(v1.7+)*

Description

This action attaches referenced namespaces to the storage controller. Attached namespaces are added to the `AttachedVolumes` property in `Links`.

Action URI

{Base URI of target resource}/Actions/StorageController.AttachNamespaces

Action parameters

Parameter Name	Type	Attributes	Notes
Namespaces [{	array	*required*	The namespaces to attach to the storage controller.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			

Response Payload

{			
AttachedVolumes *(v1.7+)* [{	array	*required*	An array of links to volumes that are attached to this controller instance.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
}			

Request Example

```
{
    "Namespaces": [
        {
            "@odata.id": "/redfish/v1/Systems/1/Storage/NVMe/Volumes/Namespace5"
        }
    ]
}
```

Response Example

```
{
    "Volumes": [
        {
            "@odata.id": "/redfish/v1/Systems/1/Storage/NVMe/Volumes/Namespace1"
        },
        {
```

```
            "@odata.id": "/redfish/v1/Systems/1/Storage/NVMe/Volumes/Namespace2"
        },
        {
            "@odata.id": "/redfish/v1/Systems/1/Storage/NVMe/Volumes/Namespace5"
        }
    ]
}
```

6.132.4.2 DetachNamespaces *(v1.7+)*

Description

This action detaches referenced namespaces from the storage controller. Detached namespaces are removed from the `AttachedVolumes` property in `Links`.

Action URI

{Base URI of target resource}/Actions/StorageController.DetachNamespaces

Action parameters

Parameter Name	Type	Attributes	Notes
Namespaces [{	array	*required*	The namespaces to detach from the storage controller.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			

Response Payload

{			
AttachedVolumes *(v1.7+)* [{	array	*required*	An array of links to volumes that are attached to this controller instance.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
}			

Request Example

```
{
    "Namespaces": [
        {
            "@odata.id": "/redfish/v1/Systems/1/Storage/NVMe/Volumes/Namespace5"
        }
    ]
}
```

Response Example

```
{
    "Volumes": [
        {
            "@odata.id": "/redfish/v1/Systems/1/Storage/NVMe/Volumes/Namespace1"
        },
        {
            "@odata.id": "/redfish/v1/Systems/1/Storage/NVMe/Volumes/Namespace2"
        }
    ]
}
```

6.132.4.3 SecurityReceive *(v1.7+)*

Description

This action transfers security protocol data from the controller. The data transferred from the controller contains the status and data result of one or more `SecuritySend` action requests that were previously submitted to the controller.

Action URI

{Base URI of target resource}/Actions/StorageController.SecurityReceive

Action parameters

Parameter Name	Type	Attributes	Notes
AllocationLength	integer	*required*	Allocated size for received data.
SecurityProtocol	integer	*required*	The security protocol number.
SecurityProtocolSpecific	integer	*required*	The security protocol-specific parameter.

Response Payload

{			
Data *(v1.7+)*	string	*read-only*	The Base64-encoded security protocol data.
}			

Request Example

```
{
    "SecurityProtocol": 2,
    "SecurityProtocolSpecific": 4100,
    "AllocationLength": 48
}
```

Response Example

```
{
    "Data": "EAQAAAAAAAEAAAAiAAAAAgAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA"
}
```

6.132.4.4 SecuritySend *(v1.7+)*

Description

This action transfers security protocol data to the controller. The data transferred to the controller contains security protocol-specific commands to be performed by the controller.

Action URI

{Base URI of target resource}/Actions/StorageController.SecuritySend

Action parameters

Parameter Name	Type	Attributes	Notes
Data	string	*required*	The data to transfer.
SecurityProtocol	integer	*required*	The security protocol number.

Parameter Name	Type	Attributes	Notes
SecurityProtocolSpecific	integer	*required*	The security protocol-specific parameter.

Request Example

```
{
    "SecurityProtocol": 2,
    "SecurityProtocolSpecific": 4100,
    "Data": "EAQAAAAAAAE="
}
```

6.132.5 Property details

6.132.5.1 AccessState

Reported ANA access state.

string	Description
Inaccessible	Namespaces in this group are inaccessible. Commands are not able to access user data of namespaces in the ANA group.
NonOptimized	Commands processed by a controller that reports this state for an ANA group provide non-optimized access characteristics, such as lower performance or non-optimal use of subsystem resources, to any namespace in the ANA group.
Optimized	Commands processed by a controller provide optimized access to any namespace in the ANA group.
PersistentLoss	The group is persistently inaccessible. Commands are persistently not able to access user data of namespaces in the ANA group.

6.132.5.2 ControllerType

The type of NVMe controller.

string	Description
Admin	The NVMe controller is an admin controller.
Discovery	The NVMe controller is a discovery controller.
IO	The NVMe controller is an I/O controller.

6.132.5.3 MaxPCIeType

The highest version of the PCIe specification supported by this device.

string	Description
Gen1	A PCIe v1.0 slot.
Gen2	A PCIe v2.0 slot.
Gen3	A PCIe v3.0 slot.
Gen4	A PCIe v4.0 slot.
Gen5	A PCIe v5.0 slot.
Gen6 *(v1.16+)*	A PCIe v6.0 slot.

6.132.5.4 PCIeType

The version of the PCIe specification in use by this device.

string	Description
Gen1	A PCIe v1.0 slot.
Gen2	A PCIe v2.0 slot.
Gen3	A PCIe v3.0 slot.
Gen4	A PCIe v4.0 slot.
Gen5	A PCIe v5.0 slot.
Gen6 *(v1.16+)*	A PCIe v6.0 slot.

6.132.5.5 SupportedControllerProtocols

The supported set of protocols for communicating with this storage controller.

string	Description
AHCI	Advanced Host Controller Interface (AHCI).
CXL	Compute Express Link.

string	Description
DisplayPort	DisplayPort.
DVI	DVI.
eMMC	Embedded MultiMediaCard (e.MMC).
Ethernet	Ethernet.
FC	Fibre Channel.
FCoE	Fibre Channel over Ethernet (FCoE).
FCP	Fibre Channel Protocol for SCSI.
FICON	FIbre CONnection (FICON).
FTP	File Transfer Protocol (FTP).
GenZ	GenZ.
HDMI	HDMI.
HTTP	Hypertext Transport Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
I2C	Inter-Integrated Circuit Bus.
InfiniBand	InfiniBand.
iSCSI	Internet SCSI.
iWARP	Internet Wide Area RDMA Protocol (iWARP).
MultiProtocol	Multiple Protocols.
NFSv3	Network File System (NFS) version 3.
NFSv4	Network File System (NFS) version 4.
NVLink	NVLink.
NVMe	Non-Volatile Memory Express (NVMe).
NVMeOverFabrics	NVMe over Fabrics.
OEM	OEM-specific.
PCIe	PCI Express.
QPI	Intel QuickPath Interconnect (QPI).

string	Description
RoCE	RDMA over Converged Ethernet Protocol.
RoCEv2	RDMA over Converged Ethernet Protocol Version 2.
SAS	Serial Attached SCSI.
SATA	Serial AT Attachment.
SFTP	SSH File Transfer Protocol (SFTP).
SMB	Server Message Block (SMB). Also known as the Common Internet File System (CIFS).
TCP	Transmission Control Protocol (TCP).
TFTP	Trivial File Transfer Protocol (TFTP).
UDP	User Datagram Protocol (UDP).
UET	Ultra Ethernet Transport.
UHCI	Universal Host Controller Interface (UHCI).
UPI	Intel UltraPath Interconnect (UPI).
USB	Universal Serial Bus (USB).
VGA	VGA.

6.132.5.6 SupportedDeviceProtocols

The protocols that the storage controller can use to communicate with attached devices.

string	Description
AHCI	Advanced Host Controller Interface (AHCI).
CXL	Compute Express Link.
DisplayPort	DisplayPort.
DVI	DVI.
eMMC	Embedded MultiMediaCard (e.MMC).
Ethernet	Ethernet.
FC	Fibre Channel.
FCoE	Fibre Channel over Ethernet (FCoE).

string	Description
FCP	Fibre Channel Protocol for SCSI.
FICON	FIbre CONnection (FICON).
FTP	File Transfer Protocol (FTP).
GenZ	GenZ.
HDMI	HDMI.
HTTP	Hypertext Transport Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
I2C	Inter-Integrated Circuit Bus.
InfiniBand	InfiniBand.
iSCSI	Internet SCSI.
iWARP	Internet Wide Area RDMA Protocol (iWARP).
MultiProtocol	Multiple Protocols.
NFSv3	Network File System (NFS) version 3.
NFSv4	Network File System (NFS) version 4.
NVLink	NVLink.
NVMe	Non-Volatile Memory Express (NVMe).
NVMeOverFabrics	NVMe over Fabrics.
OEM	OEM-specific.
PCIe	PCI Express.
QPI	Intel QuickPath Interconnect (QPI).
RoCE	RDMA over Converged Ethernet Protocol.
RoCEv2	RDMA over Converged Ethernet Protocol Version 2.
SAS	Serial Attached SCSI.
SATA	Serial AT Attachment.
SFTP	SSH File Transfer Protocol (SFTP).
SMB	Server Message Block (SMB). Also known as the Common Internet File System (CIFS).

string	Description
TCP	Transmission Control Protocol (TCP).
TFTP	Trivial File Transfer Protocol (TFTP).
UDP	User Datagram Protocol (UDP).
UET	Ultra Ethernet Transport.
UHCI	Universal Host Controller Interface (UHCI).
UPI	Intel UltraPath Interconnect (UPI).
USB	Universal Serial Bus (USB).
VGA	VGA.

6.132.5.7 SupportedRAIDTypes

The set of RAID types supported by the storage controller.

string	Description
None	A placement policy with no redundancy at the device level.
RAID0	A placement policy where consecutive logical blocks of data are uniformly distributed across a set of independent storage devices without offering any form of redundancy.
RAID00	A placement policy that creates a RAID 0 stripe set over two or more RAID 0 sets.
RAID01	A data placement policy that creates a mirrored device (RAID 1) over a set of striped devices (RAID 0).
RAID1	A placement policy where each logical block of data is stored on more than one independent storage device.
RAID10	A placement policy that creates a striped device (RAID 0) over a set of mirrored devices (RAID 1).
RAID10E	A placement policy that uses a RAID 0 stripe set over two or more RAID 10 sets.
RAID10Triple	A placement policy that uses a striped device (RAID 0) over a set of triple mirrored devices (RAID 1Triple).
RAID1E	A placement policy that uses a form of mirroring implemented over a set of independent storage devices where logical blocks are duplicated on a pair of independent storage devices so that data is uniformly distributed across the storage devices.
RAID1Triple	A placement policy where each logical block of data is mirrored three times across a set of three independent storage devices.

string	Description
RAID3	A placement policy using parity-based protection where logical bytes of data are uniformly distributed across a set of independent storage devices and where the parity is stored on a dedicated independent storage device.
RAID4	A placement policy using parity-based protection where logical blocks of data are uniformly distributed across a set of independent storage devices and where the parity is stored on a dedicated independent storage device.
RAID5	A placement policy using parity-based protection for storing stripes of 'n' logical blocks of data and one logical block of parity across a set of 'n+1' independent storage devices where the parity and data blocks are interleaved across the storage devices.
RAID50	A placement policy that uses a RAID 0 stripe set over two or more RAID 5 sets of independent storage devices.
RAID6	A placement policy using parity-based protection for storing stripes of 'n' logical blocks of data and two logical blocks of independent parity across a set of 'n+2' independent storage devices where the parity and data blocks are interleaved across the storage devices.
RAID60	A placement policy that uses a RAID 0 stripe set over two or more RAID 6 sets of independent storage devices.
RAID6TP	A placement policy that uses parity-based protection for storing stripes of 'n' logical blocks of data and three logical blocks of independent parity across a set of 'n+3' independent storage devices where the parity and data blocks are interleaved across the storage devices.

6.132.6 Example response


```
{
    "@odata.type": "#StorageController.v1_9_1.StorageController",
    "Id": "1",
    "Name": "NVMe IO Controller",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "SupportedControllerProtocols": [
        "NVMeOverFabrics"
    ],
    "NVMeControllerProperties": {
        "NVMeVersion": "1.4",
        "ControllerType": "IO",
        "NVMeControllerAttributes": {
            "ReportsUUIDList": false,
            "SupportsSQAssociations": false,
            "ReportsNamespaceGranularity": false,
            "SupportsTrafficBasedKeepAlive": false,
```

```
            "SupportsPredictableLatencyMode": false,
            "SupportsEnduranceGroups": false,
            "SupportsReadRecoveryLevels": false,
            "SupportsNVMSets": false,
            "SupportsExceedingPowerOfNonOperationalState": false,
            "Supports128BitHostId": false
        },
        "NVMeSMARTCriticalWarnings": {
            "PMRUnreliable": false,
            "PowerBackupFailed": false,
            "MediaInReadOnly": false,
            "OverallSubsystemDegraded": false,
            "SpareCapacityWornOut": false
        }
    },
    "Links": {
        "Endpoints": [
            {
                "@odata.id": "/redfish/v1/Fabrics/NVMeoF/Endpoints/Initiator1"
            },
            {
                "@odata.id": "/redfish/v1/Fabrics/NVMeoF/Endpoints/Target1"
            }
        ],
        "AttachedVolumes": [
            {
                "@odata.id": "/redfish/v1/Storage/NVMeoF/Volumes/1"
            },
            {
                "@odata.id": "/redfish/v1/Storage/NVMeoF/Volumes/3"
            },
            {
                "@odata.id": "/redfish/v1/Storage/NVMeoF/Volumes/4"
            }
        ]
    },
    "@odata.id": "/redfish/v1/Storage/NVMeoF/Controllers/1"
}
```


6.133 StorageControllerMetrics 1.0.3

Version	*v1.0*
Release	2023.1

6.133.1 Description

The usage and health statistics for a storage controller.

6.133.2 URIs

/redfish/v1/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Metrics
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Controllers/*{StorageControllerId}*/Metrics
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.133.3 Properties

Property	Type	Attributes	Notes
CorrectableECCErrorCount	integer	*read-only (null)*	The number of correctable errors for the lifetime of the memory of the storage controller.
CorrectableParityErrorCount	integer	*read-only (null)*	The number of correctable parity errors for the lifetime of the memory of the storage controller.
NVMeSMART {	object		The NVMe SMART metrics for this storage controller.
AvailableSparePercent	number (%)	*read-only (null)*	The normalized percentage of the remaining spare capacity available.
AvailableSpareThresholdPercent	number (%)	*read-only (null)*	The available spare threshold as a normalized percentage.
CompositeTemperatureCelsius	number (Celsius)	*read-only (null)*	The composite temperature (C).
ControllerBusyTimeMinutes	integer	*read-only (null)*	The total time the controller is busy with I/O commands in minutes.
CriticalCompositeTempTimeMinutes	integer	*read-only (null)*	The amount of time in minutes that the controller has been operational and that the composite temperature has been greater than or equal to the critical composite temperature threshold.
CriticalWarnings {	object		The NVMe SMART critical warnings. See the *StorageController* schema for details on this property.
@odata.id	string	*read-only*	Link to a NVMeSMARTCriticalWarnings resource. See the Links section and the *StorageController* schema for details.
}			

Property	Type	Attributes	Notes
DataUnitsRead	integer	*read-only (null)*	The number of 512 byte data units the host has read from the controller as part of processing a SMART Data Units Read Command in units of one thousand.
DataUnitsWritten	integer	*read-only (null)*	The number of 512 byte data units the host has written to the controller as part of processing a User Data Out Command in units of one thousand.
EGCriticalWarningSummary {	object		The Endurance Group critical warnings summary.
NamespacesInReadOnlyMode	boolean	*read-only (null)*	An indication of whether namespaces in one or more Endurance Groups are in read-only mode not as a result of a change in the write protection state of a namespace.
ReliabilityDegraded	boolean	*read-only (null)*	An indication of whether the reliability of one or more Endurance Groups is degraded due to significant media-related errors or any internal error that degrades the NVM subsystem reliability.
SpareCapacityUnderThreshold	boolean	*read-only (null)*	An indication of whether the available spare capacity of one or more Endurance Groups is below the threshold.
}			
HostReadCommands	integer	*read-only (null)*	The number of SMART Host Read Commands completed by the controller.
HostWriteCommands	integer	*read-only (null)*	The number of User Data Out Commands completed by the controller.
MediaAndDataIntegrityErrors	integer	*read-only (null)*	The number of occurrences where the controller detected an unrecovered data integrity error.
NumberOfErrorInformationLogEntries	integer	*read-only (null)*	The number of error information log entries over the life of the controller.
PercentageUsed	number (%)	*read-only (null)*	The percentage of the NVM subsystem life used.
PowerCycles	integer	*read-only (null)*	The number of power cycles.
PowerOnHours	number	*read-only (null)*	The number of power-on hours.
TemperatureSensorsCelsius [ ]	array (Celsius) (number, null)	*read-only*	The temperature sensor readings in degree Celsius units for this storage controller.

Property	Type	Attributes	Notes
ThermalMgmtTemp1TotalTimeSeconds	integer	*read-only (null)*	The number of seconds the controller transitioned to lower power states or performed vendor-specific thermal-management actions while minimizing the impact on performance in order to attempt to reduce the composite temperature.
ThermalMgmtTemp1TransitionCount	integer	*read-only (null)*	The number of times the controller transitioned to lower power states or performed vendor-specific thermal-management actions while minimizing the impact on performance in order to attempt to reduce the composite temperature.
ThermalMgmtTemp2TotalTimeSeconds	integer	*read-only (null)*	The number of seconds the controller transitioned to lower power states or performed vendor-specific thermal-management actions regardless of the impact on performance in order to attempt to reduce the composite temperature.
ThermalMgmtTemp2TransitionCount	integer	*read-only (null)*	The number of times the controller transitioned to lower power states or performed vendor-specific thermal-management actions regardless of the impact on performance in order to attempt to reduce the composite temperature.
UnsafeShutdowns	integer	*read-only (null)*	The number of unsafe shutdowns.
WarningCompositeTempTimeMinutes	integer	*read-only (null)*	The amount of time in minutes that the controller has been operational and that the composite temperature has been greater than or equal to the warning composite temperature threshold.
}			
StateChangeCount	integer	*read-only (null)*	The number of state changes for this storage controller.
UncorrectableECCErrorCount	integer	*read-only (null)*	The number of uncorrectable errors for the lifetime of the memory of the storage controller.
UncorrectableParityErrorCount	integer	*read-only (null)*	The number of uncorrectable parity errors for the lifetime of the memory of the storage controller.

6.133.4 Example response

```
{
    "@odata.type": "#StorageControllerMetrics.v1_0_3.StorageControllerMetrics",
    "Id": "Metrics",
    "Name": "Storage Controller Metrics for NVMe IO Controller",
    "NVMeSMART": {
        "CriticalWarnings": {
            "PMRUnreliable": false,
```

```
            "PowerBackupFailed": false,
            "MediaInReadOnly": false,
            "OverallSubsystemDegraded": false,
            "SpareCapacityWornOut": false
        },
        "CompositeTemperatureCelsius": 34,
        "AvailableSparePercent": 50,
        "AvailableSpareThresholdPercent": 30,
        "PercentageUsed": 50,
        "EGCriticalWarningSummary": {
            "NamespacesInReadOnlyMode": false,
            "ReliabilityDegraded": false,
            "SpareCapacityUnderThreshold": false
        },
        "DataUnitsRead": 0,
        "DataUnitsWritten": 0,
        "HostReadCommands": 0,
        "HostWriteCommands": 0,
        "ControllerBusyTimeMinutes": 20,
        "PowerCycles": 49,
        "PowerOnHours": 3,
        "UnsafeShutdowns": 4,
        "MediaAndDataIntegrityErrors": 0,
        "NumberOfErrorInformationLogEntries": 100,
        "WarningCompositeTempTimeMinutes": 0,
        "CriticalCompositeTempTimeMinutes": 0,
        "TemperatureSensorsCelsius": [
            34,
            34,
            34,
            26,
            31,
            35,
            33,
            32
        ],
        "ThermalMgmtTemp1TransitionCount": 10,
        "ThermalMgmtTemp2TransitionCount": 2,
        "ThermalMgmtTemp1TotalTimeSeconds": 20,
        "ThermalMgmtTemp2TotalTimeSeconds": 42
    },
    "@odata.id": "/redfish/v1/Systems/Sys-1/Storage/SimplestNVMeSSD/Controllers/NVMeIOController/Metrics"
}
```


6.134 StorageMetrics 1.0.0

Version	*v1.0*

Release	2024.4

6.134.1 Description

The usage and health statistics for a storage subsystem.

6.134.2 URIs

/redfish/v1/Storage/*{StorageId}*/Metrics
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Metrics
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.134.3 Properties

Property	Type	Attributes	Notes
CompressionSavingsBytes	integer (bytes)	*read-only (null)*	Current compression savings on the storage system in bytes.
DeduplicationSavingsBytes	integer (bytes)	*read-only (null)*	Current deduplication savings on the storage system in bytes.
IOStatistics {}	object		Statistics for this storage system. For property details, see IOStatistics v1.0.4).
StateChangeCount	number	*read-only (null)*	The number of state changes for this storage subsystem.
ThinProvisioningSavingsBytes	integer (bytes)	*read-only (null)*	Current thin provisioning savings on the storage system in bytes.

6.134.4 Example response


```
{
    "@odata.type": "#StorageMetrics.v1_0_0.StorageMetrics",
    "Id": "Metrics",
    "Name": "Storage Metrics",
    "CompressionSavingsBytes": 28238490361,
    "DeduplicationSavingsBytes": 192376223,
    "ThinProvisioningSavingsBytes": 62839028,
    "StateChangeCount": 14,
    "@odata.id": "/redfish/v1/Storage/1/Metrics"
}
```

6.135 Switch 1.10.0

Version	*v1.10*	*v1.9*	*v1.8*	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2025.2	2022.3	2021.4	2021.3	2021.1	2020.4	2020.3	2019.4	2019.2	2017.3	2016.2

6.135.1 Description

The `Switch` schema contains properties that describe a fabric switch.

6.135.2 URIs

/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*

6.135.3 Properties

Property	Type	Attributes	Notes
AssetTag	string	*read-write (null)*	The user-assigned asset tag for this switch.
Certificates *(v1.5+)* {	object		The link to a collection of certificates for device identity and attestation. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
CurrentBandwidthGbps *(v1.4+)*	number (Gbit/s)	*read-only (null)*	The current internal bandwidth of this switch.
CXL *(v1.9+)* {	object		CXL properties for this switch.
MaxVCSsSupported *(v1.9+)*	integer	*read-only*	The maximum number of Virtual CXL Switches (VCSs) supported in this switch.
NumberOfBoundvPPBs *(v1.10+)*	integer	*read-only*	The total number of vPPBs (Virtual PCI-to-PCI Bridges) that are currently bound on this switch.
PBRCapable *(v1.10+)*	boolean	*read-only*	An indication of whether the switch is capable of performing port-based routing.
TotalHDMDecoders *(v1.10+)*	integer	*read-only*	The total number of HDM (Host Device Memory) decoders available per upstream port.

Property	Type	Attributes	Notes
TotalNumbervPPBs *(v1.9+)*	integer	*read-only*	The total number of virtual PCI-to-PCI bridges (vPPBs) supported in this switch.
VCS *(v1.9+, deprecated v1.9)* {	object		Virtual CXL Switch (VCS) properties for this switch. *Deprecated in v1.9 and later. This property has been deprecated in favor of* `VirtualCXLSwitches` *in* `CXL`.
HDMDecoders *(v1.9+)*	integer	*read-only*	The number of Host Device Memory (HDM) Decoders supported by this switch.
}			
VirtualCXLSwitches *(v1.10+)* {	object		The link to the collection of Virtual CXL Switches (VCS) for this CXL switch. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *VirtualCXLSwitch*. See the VirtualCXLSwitch schema for details.
}			
}			
DomainID	integer	*read-only* *(null)*	The domain ID for this switch.
Enabled *(v1.6+)*	boolean	*read-write*	An indication of whether this switch is enabled.
EnvironmentMetrics *(v1.6+)* {	object		The link to the environment metrics for this switch. See the *EnvironmentMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a EnvironmentMetrics resource. See the Links section and the *EnvironmentMetrics* schema for details.
}			
FirmwareVersion *(v1.2+)*	string	*read-only* *(null)*	The firmware version of this switch.
IndicatorLED *(deprecated v1.4)*	string (enum)	*read-write* *(null)*	The state of the indicator LED, which identifies the switch. *For the possible property values, see IndicatorLED in Property details. Deprecated in v1.4 and later. This property has been deprecated in favor of the* `LocationIndicatorActive` *property.*
IsManaged	boolean	*read-write* *(null)*	An indication of whether the switch is in a managed or unmanaged state.
Links {	object		The links to other resources that are related to this resource.
Chassis {	object		The link to the chassis that contains this switch. See the *Chassis* schema for details on this property.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a Chassis resource. See the Links section and the *Chassis* schema for details.
}			
Endpoints *(v1.3+)* [{	array		An array of links to the endpoints that connect to this switch.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
ManagedBy [{	array		An array of links to the managers that manage this switch.
@odata.id	string	*read-only*	Link to a Manager resource. See the Links section and the *Manager* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
PCIeDevice *(v1.4+)* {	object		The link to the PCIe device providing this switch. See the *PCIeDevice* schema for details on this property.
@odata.id	string	*read-only*	Link to a PCIeDevice resource. See the Links section and the *PCIeDevice* schema for details.
}			
}			
Location *(v1.1+)* {}	object		The location of the switch. For property details, see Location.
LocationIndicatorActive *(v1.4+)*	boolean	*read-write (null)*	An indicator allowing an operator to physically locate this resource.
LogServices {	object		The link to the collection of log services associated with this switch. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *LogService*. See the LogService schema for details.
}			
Manufacturer	string	*read-only (null)*	The manufacturer of this switch.
MaxBandwidthGbps *(v1.4+)*	number (Gbit/s)	*read-only (null)*	The maximum internal bandwidth of this switch as currently configured.

Property	Type	Attributes	Notes
Measurements *(v1.5+, deprecated v1.8)* [{	array		An array of DSP0274-defined measurement blocks. *Deprecated in v1.8 and later. This property has been deprecated in favor of the* `ComponentIntegrity` *resource.*
@odata.id	string	*read-only*	Link to a MeasurementBlock resource. See the Links section and the *SoftwareInventory* schema for details.
}]			
Metrics *(v1.7+)* {	object		The link to the metrics associated with this switch. See the *SwitchMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a SwitchMetrics resource. See the Links section and the *SwitchMetrics* schema for details.
}			
Model	string	*read-only (null)*	The product model number of this switch.
PartNumber	string	*read-only (null)*	The part number for this switch.
Ports {	object		The link to the collection ports for this switch. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Port*. See the Port schema for details.
}			
PowerState	string (enum)	*read-only (null)*	The current power state of the switch. *For the possible property values, see PowerState in Property details.*
Redundancy [{ }]	array (object)		Redundancy information for the switches. For property details, see Redundancy.
SerialNumber	string	*read-only (null)*	The serial number for this switch.
SKU	string	*read-only (null)*	The SKU for this switch.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
SupportedProtocols *(v1.3+)* [ ]	array (string (enum))	*read-only*	The protocols this switch supports. *For the possible property values, see SupportedProtocols in Property details.*
SwitchType	string (enum)	*read-only (null)*	The protocol being sent over this switch. *For the possible property values, see SwitchType in Property details.*

Property	Type	Attributes	Notes
TotalSwitchWidth	integer	*read-only (null)*	The total number of lanes, phys, or other physical transport links that this switch contains.
UUID *(v1.3+)*	string (uuid)	*read-only (null)*	The UUID for this switch.

6.135.4 Actions

6.135.4.1 Reset

Description

This action resets this switch.

Action URI

{Base URI of target resource}/Actions/Switch.Reset

Action parameters

Parameter Name	Type	Attributes	Notes
ResetType	string (enum)	*optional*	The type of reset. *For the possible property values, see ResetType in Property details.*

Request Example

```
{
    "ResetType": "ForceRestart"
}
```

6.135.5 Property details

6.135.5.1 IndicatorLED

The state of the indicator LED, which identifies the switch.

string	Description
Blinking	The indicator LED is blinking.
Lit	The indicator LED is lit.
Off	The indicator LED is off.

6.135.5.2 PowerState

The current power state of the switch.

string	Description
Off	The resource is powered off. The components within the resource might continue to have AUX power.
On	The resource is powered on.
Paused	The resource is paused.
PoweringOff	A temporary state between on and off. The components within the resource can take time to process the power off action.
PoweringOn	A temporary state between off and on. The components within the resource can take time to process the power on action.

6.135.5.3 ResetType

The type of reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the unit.
FullPowerCycle	Full power cycle the unit. Behaves like removing utility lines, followed by restoring utility lines to the resource.
GracefulRestart	Shut down gracefully and restart the unit.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.

string	Description
On	Turn on the unit.
Pause	Pause execution on the unit but do not remove power. This is typically a feature of virtual machine hypervisors.
PowerCycle	Power cycle the unit. Behaves like a power removal, followed by a power restore to the resource.
PushPowerButton	Simulate the pressing of the physical power button on this unit.
Resume	Resume execution on the paused unit. This is typically a feature of virtual machine hypervisors.
Suspend	Write the state of the unit to disk before powering off. This allows for the state to be restored when powered back on.

6.135.5.4 SupportedProtocols

The protocols this switch supports.

string	Description
AHCI	Advanced Host Controller Interface (AHCI).
CXL	Compute Express Link.
DisplayPort	DisplayPort.
DVI	DVI.
eMMC	Embedded MultiMediaCard (e.MMC).
Ethernet	Ethernet.
FC	Fibre Channel.
FCoE	Fibre Channel over Ethernet (FCoE).
FCP	Fibre Channel Protocol for SCSI.
FICON	FIbre CONnection (FICON).
FTP	File Transfer Protocol (FTP).
GenZ	GenZ.
HDMI	HDMI.
HTTP	Hypertext Transport Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).

string	Description
I2C	Inter-Integrated Circuit Bus.
InfiniBand	InfiniBand.
iSCSI	Internet SCSI.
iWARP	Internet Wide Area RDMA Protocol (iWARP).
MultiProtocol	Multiple Protocols.
NFSv3	Network File System (NFS) version 3.
NFSv4	Network File System (NFS) version 4.
NVLink	NVLink.
NVMe	Non-Volatile Memory Express (NVMe).
NVMeOverFabrics	NVMe over Fabrics.
OEM	OEM-specific.
PCIe	PCI Express.
QPI	Intel QuickPath Interconnect (QPI).
RoCE	RDMA over Converged Ethernet Protocol.
RoCEv2	RDMA over Converged Ethernet Protocol Version 2.
SAS	Serial Attached SCSI.
SATA	Serial AT Attachment.
SFTP	SSH File Transfer Protocol (SFTP).
SMB	Server Message Block (SMB). Also known as the Common Internet File System (CIFS).
TCP	Transmission Control Protocol (TCP).
TFTP	Trivial File Transfer Protocol (TFTP).
UDP	User Datagram Protocol (UDP).
UET	Ultra Ethernet Transport.
UHCI	Universal Host Controller Interface (UHCI).
UPI	Intel UltraPath Interconnect (UPI).
USB	Universal Serial Bus (USB).

string	Description
VGA	VGA.

6.135.5.5 SwitchType

The protocol being sent over this switch.

string	Description
AHCI	Advanced Host Controller Interface (AHCI).
CXL	Compute Express Link.
DisplayPort	DisplayPort.
DVI	DVI.
eMMC	Embedded MultiMediaCard (e.MMC).
Ethernet	Ethernet.
FC	Fibre Channel.
FCoE	Fibre Channel over Ethernet (FCoE).
FCP	Fibre Channel Protocol for SCSI.
FICON	FIbre CONnection (FICON).
FTP	File Transfer Protocol (FTP).
GenZ	GenZ.
HDMI	HDMI.
HTTP	Hypertext Transport Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
I2C	Inter-Integrated Circuit Bus.
InfiniBand	InfiniBand.
iSCSI	Internet SCSI.
iWARP	Internet Wide Area RDMA Protocol (iWARP).
MultiProtocol	Multiple Protocols.
NFSv3	Network File System (NFS) version 3.

string	Description
NFSv4	Network File System (NFS) version 4.
NVLink	NVLink.
NVMe	Non-Volatile Memory Express (NVMe).
NVMeOverFabrics	NVMe over Fabrics.
OEM	OEM-specific.
PCIe	PCI Express.
QPI	Intel QuickPath Interconnect (QPI).
RoCE	RDMA over Converged Ethernet Protocol.
RoCEv2	RDMA over Converged Ethernet Protocol Version 2.
SAS	Serial Attached SCSI.
SATA	Serial AT Attachment.
SFTP	SSH File Transfer Protocol (SFTP).
SMB	Server Message Block (SMB). Also known as the Common Internet File System (CIFS).
TCP	Transmission Control Protocol (TCP).
TFTP	Trivial File Transfer Protocol (TFTP).
UDP	User Datagram Protocol (UDP).
UET	Ultra Ethernet Transport.
UHCI	Universal Host Controller Interface (UHCI).
UPI	Intel UltraPath Interconnect (UPI).
USB	Universal Serial Bus (USB).
VGA	VGA.

6.135.6 Example response


```
{
    "@odata.type": "#Switch.v1_10_0.Switch",
    "Id": "Switch1",
    "Name": "SAS Switch",
```

```
    "SwitchType": "SAS",
    "Manufacturer": "Contoso",
    "Model": "SAS1000",
    "SKU": "67B",
    "SerialNumber": "2M220100SL",
    "PartNumber": "76-88883",
    "Ports": {
        "@odata.id": "/redfish/v1/Fabrics/SAS/Switches/Switch1/Ports"
    },
    "Redundancy": [
        {
            "@odata.id": "/redfish/v1/Fabrics/SAS/Switches/Switch1#/Redundancy/0",
            "MemberId": "Redundancy",
            "Mode": "Sharing",
            "MaxNumSupported": 2,
            "MinNumNeeded": 1,
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
            "RedundancySet": [
                {
                    "@odata.id": "/redfish/v1/Fabrics/SAS/Switches/Switch1"
                },
                {
                    "@odata.id": "/redfish/v1/Fabrics/SAS/Switches/Switch2"
                }
            ]
        }
    ],
    "Links": {
        "Chassis": {
            "@odata.id": "/redfish/v1/Chassis/Switch1"
        },
        "ManagedBy": [
            {
                "@odata.id": "/redfish/v1/Managers/Switch1"
            },
            {
                "@odata.id": "/redfish/v1/Managers/Switch2"
            }
        ]
    },
    "Actions": {
        "#Switch.Reset": {
            "target": "/redfish/v1/Fabrics/SAS/Switches/Switch1/Actions/Switch.Reset",
            "ResetType@Redfish.AllowableValues": [
                "ForceRestart",
                "GracefulRestart"
            ]
```

```
        }
    },
    "@odata.id": "/redfish/v1/Fabrics/SAS/Switches/Switch1"
}
```


6.136 SwitchMetrics 1.0.2

Version	*v1.0*
Release	2021.3

6.136.1 Description

The `SwitchMetrics` schema contains usage and health statistics for a switch device.

6.136.2 URIs

/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/SwitchMetrics

6.136.3 Properties

Property	Type	Attributes	Notes
InternalMemoryMetrics {	object		The memory metrics for a switch.
CurrentPeriod {	object		The memory metrics since the last reset for this switch.
CorrectableECCErrorCount	integer	*read-only (null)*	The number of correctable errors of memory since reset.
UncorrectableECCErrorCount	integer	*read-only (null)*	The number of uncorrectable errors of memory since reset.
}			
LifeTime {	object		The memory metrics for the lifetime of this switch.
CorrectableECCErrorCount	integer	*read-only (null)*	The number of correctable errors for the lifetime of the memory.
UncorrectableECCErrorCount	integer	*read-only (null)*	The number of uncorrectable errors for the lifetime of the memory.

Property	Type	Attributes	Notes
}			
}			
PCIeErrors {	object		The PCIe errors associated with this switch.
BadDLLPCount *(v1.15+)*	integer	*read-only (null)*	The total number of Bad DLLPs issued on the PCIe link by the receiver.
BadTLPCount *(v1.15+)*	integer	*read-only (null)*	The total number of Bad TLPs issued on the PCIe link by the receiver.
CorrectableErrorCount *(v1.8+)*	integer	*read-only (null)*	The total number of PCIe correctable errors for this device.
FatalErrorCount *(v1.8+)*	integer	*read-only (null)*	The total number of PCIe fatal errors for this device.
L0ToRecoveryCount *(v1.8+)*	integer	*read-only (null)*	The total number of times the PCIe link states transitioned from L0 to the recovery state for this device.
NAKReceivedCount *(v1.8+)*	integer	*read-only (null)*	The total number of NAKs issued on the PCIe link by the receiver.
NAKSentCount *(v1.8+)*	integer	*read-only (null)*	The total number of NAKs issued on the PCIe link by this device.
NonFatalErrorCount *(v1.8+)*	integer	*read-only (null)*	The total number of PCIe non-fatal errors for this device.
ReplayCount *(v1.8+)*	integer	*read-only (null)*	The total number of PCIe replays issued by this device.
ReplayRolloverCount *(v1.8+)*	integer	*read-only (null)*	The total number of PCIe replay rollovers issued by this device.
UnsupportedRequestCount *(v1.13+)*	integer	*read-only (null)*	The total number of PCIe unsupported requests received by this device.
}			

6.136.4 Actions

6.136.4.1 ClearCurrentPeriod

Description

This action sets the `CurrentPeriod` property's values to 0.

Action URI

{Base URI of target resource}/Actions/SwitchMetrics.ClearCurrentPeriod

Action parameters

This action takes no parameters.

6.136.5 Example response

```
{
    "@odata.type": "#SwitchMetrics.v1_0_2.SwitchMetrics",
    "Id": "SwitchMetrics",
    "Name": "PCIe Switch Metrics",
    "PCIeErrors": {
        "CorrectableErrorCount": 0,
        "NonFatalErrorCount": 0,
        "FatalErrorCount": 0,
        "L0ToRecoveryCount": 0,
        "ReplayCount": 0,
        "ReplayRolloverCount": 0,
        "NAKSentCount": 0,
        "NAKReceivedCount": 0
    },
    "InternalMemoryMetrics": {
        "CurrentPeriod": {
            "CorrectableECCErrorCount": 0,
            "UncorrectableECCErrorCount": 0
        },
        "LifeTime": {
            "CorrectableECCErrorCount": 0,
            "UncorrectableECCErrorCount": 0
        }
    },
    "@odata.id": "/redfish/v1/Fabrics/PCIe/Switches/1/SwitchMetrics"
}
```

6.137 Task 1.7.4

Version	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2022.3	2022.1	2020.3	2018.3	2018.2	2018.1	2017.1	1.0

6.137.1 Description

The `Task` schema contains information about a task that the Redfish task service schedules or executes. Tasks represent operations that take more time than a client typically wants to wait.

6.137.2 URIs

/redfish/v1/TaskService/Tasks/*{TaskId}*
/redfish/v1/TaskService/Tasks/*{TaskId}*/SubTasks/*{TaskId2}*

6.137.3 Properties

Property	Type	Attributes	Notes
EndTime	string (date-time)	*read-only*	The date and time when the task was completed. This property will only appear when the task is complete.
EstimatedDuration *(v1.6+)*	string (duration)	*read-only (null)*	The estimated total time required to complete the task.
HidePayload *(v1.3+)*	boolean	*read-only*	An indication of whether the contents of the payload are hidden from view after the task has been created. If `true`, responses do not return the payload. If `false`, responses return the payload. If this property is not present when the task is created, the default is `false`.
Links *(v1.7+)* {	object		Contains references to other resources that are related to this resource.
CreatedResources *(v1.7+)* [{	array		An array of URIs referencing the resources created as the result of the operation that produced this task.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
}			
Messages [{ }]	array (object)		An array of messages associated with the task. For property details, see Message.
Payload *(v1.3+)* {	object		The HTTP and JSON request payload details for this task, unless they are hidden from view by the service.
HttpHeaders *(v1.3+)* [ ]	array (string)	*read-only*	An array of HTTP headers that this task includes.

Property	Type	Attributes	Notes
HttpOperation *(v1.3+)*	string	*read-only*	The HTTP operation to perform to execute this task.
JsonBody *(v1.3+)*	string	*read-only*	The JSON payload to use in the execution of this task.
TargetUri *(v1.3+)*	string (URI)	*read-only*	The URI of the target for this task.
}			
PercentComplete *(v1.4+)*	integer (%)	*read-only* *(null)*	The completion percentage of this task.
StartTime	string (date-time)	*read-only*	The date and time when the task was started.
SubTasks *(v1.5+)* {	object		The link to a collection of sub-tasks for this task. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Task*. See the Task schema for details.
}			
TaskMonitor *(v1.2+)*	string (URI)	*read-only*	The URI of the task monitor for this task.
TaskState	string (enum)	*read-only*	The state of the task. *For the possible property values, see TaskState in Property details.*
TaskStatus	string (enum)	*read-only*	The completion status of the task. *For the possible property values, see TaskStatus in Property details.*

6.137.4 Property details

6.137.4.1 TaskState

The state of the task.

string	Description
Cancelled *(v1.2+)*	Task has been cancelled by an operator or internal process.
Cancelling *(v1.2+)*	Task is in the process of being cancelled.
Completed	Task was completed.
Exception	Task has stopped due to an exception condition.

string	Description
Interrupted	Task has been interrupted.
Killed *(deprecated v1.2)*	Task was terminated. *Deprecated in v1.2 and later. This value has been deprecated and is being replaced by the* `Cancelled` *value, which has more determinate semantics.*
New	A new task.
Pending	Task is pending and has not started.
Running	Task is running normally.
Service	Task is running as a service.
Starting	Task is starting.
Stopping	Task is in the process of stopping.
Suspended	Task has been suspended.

6.137.4.2 TaskStatus

The completion status of the task.

string	Description
Critical	A critical condition requires immediate attention.
OK	Normal.
Warning	A condition requires attention.

6.137.5 Example response

```
{
    "@odata.type": "#Task.v1_7_4.Task",
    "Id": "545",
    "Name": "Task 545",
    "TaskMonitor": "/taskmon/545",
    "TaskState": "Completed",
    "StartTime": "2012-03-07T14:44+06:00",
    "EndTime": "2012-03-07T14:45+06:00",
    "TaskStatus": "OK",
    "Messages": [
        {
```

```
            "MessageId": "Base.1.0.PropertyNotWritable",
            "RelatedProperties": [
                "SKU"
            ],
            "Message": "The property SKU is a read only property and cannot be assigned a value",
            "MessageArgs": [
                "SKU"
            ],
            "Severity": "Warning"
        }
    ],
    "@odata.id": "/redfish/v1/TaskService/Tasks/545"
}
```


6.138 TaskService 1.2.1

Version	*v1.2*	*v1.1*	*v1.0*
Release	2021.1	2017.1	1.0

6.138.1 Description

The `TaskService` schema describes a task service that enables management of long-duration operations, includes the properties for the task service itself, and has links to the resource collection of tasks.

6.138.2 URIs

/redfish/v1/TaskService

6.138.3 Properties

Property	Type	Attributes	Notes
CompletedTaskOverWritePolicy	string (enum)	*read-only*	The overwrite policy for completed tasks. This property indicates if the task service overwrites completed task information. *For the possible property values, see CompletedTaskOverWritePolicy in Property details.*
DateTime	string (date-time)	*read-only* *(null)*	The current date and time, with UTC offset, setting that the task service uses.
LifeCycleEventOnTaskStateChange	boolean	*read-only*	An indication of whether a task state change sends an event.

Property	Type	Attributes	Notes
ServiceEnabled	boolean	*read-write (null)*	An indication of whether this service is enabled.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
TaskAutoDeleteTimeoutMinutes *(v1.2+)*	integer	*read-write*	The number of minutes after which a completed task is deleted by the service.
Tasks {	object		The links to the collection of tasks. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Task*. See the Task schema for details.
}			

6.138.4 Property details

6.138.4.1 CompletedTaskOverWritePolicy

The overwrite policy for completed tasks. This property indicates if the task service overwrites completed task information.

string	Description
Manual	Completed tasks are not automatically overwritten.
Oldest	Oldest completed tasks are overwritten.

6.138.5 Example response


```
{
    "@odata.type": "#TaskService.v1_2_1.TaskService",
    "Id": "TaskService",
    "Name": "Tasks Service",
    "DateTime": "2015-03-13T04:14:33+06:00",
    "CompletedTaskOverWritePolicy": "Manual",
    "LifeCycleEventOnTaskStateChange": true,
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "ServiceEnabled": true,
    "Tasks": {
```

```
        "@odata.id": "/redfish/v1/TaskService/Tasks"
    },
    "@odata.id": "/redfish/v1/TaskService"
}
```

6.139 TelemetryData 1.0.0

Version	*v1.0*
Release	2025.2

6.139.1 Description

The `TelemetryData` schema represents bulk telemetry data from a device or service.

6.139.2 URIs

/redfish/v1/TelemetryService/TelemetryData/*{TelemetryDataId}*

6.139.3 Properties

Property	Type	Attributes	Notes
AdditionalData	string	*read-only*	A Base64-encoded string of the associated telemetry data.
AdditionalDataSizeBytes	integer	*read-only* *(null)*	The size of the data available at location specified by `AdditionalDataURI`.
AdditionalDataURI	string (URI)	*read-only*	The URI at which to access the associated telemetry data.
OEMTelemetryDataType	string	*read-only* *(null)*	The OEM-defined type of telemetry data available in the `AdditionalData` property or retrieved from the URI specified by the `AdditionalDataURI` property.
TelemetryDataType	string (enum)	*read-only* *(null)*	The type of telemetry data available in the `AdditionalData` property or retrieved from the URI specified by the `AdditionalDataURI` property. *For the possible property values, see TelemetryDataType in Property details.*
Timestamp	string (date-time)	*read-only* *(null)*	The date and time when the telemetry data was generated.

6.139.4 Property details

6.139.4.1 TelemetryDataType

The type of telemetry data available in the `AdditionalData` property or retrieved from the URI specified by the `AdditionalDataURI` property.

string	Description
OEM	OEM telemetry data.

6.139.5 Example response

```
{
    "@odata.type": "#TelemetryData.v1_0_0.TelemetryData",
    "Name": "TelemetrySnapshot.1",
    "Timestamp": "2025-11-08T12:25:00-05:00",
    "TelemetryDataType": "OEM",
    "OEMTelemetryDataType": "ContosoAggregator",
    "AdditionalData": "7wO4gDjQvhpA5ejg0xty ... HB6u7ppOGprACFqlMD1N",
    "@odata.id": "/redfish/v1/TelemetryService/TelemetryData/TelemetrySnapshot.1"
}
```

6.140 TelemetryService 1.4.0

Version	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2025.2	2020.4	2019.4	2018.3	2018.2

6.140.1 Description

The `TelemetryService` schema describes a telemetry service. The telemetry service is used for collecting and reporting metric data within the Redfish service.

6.140.2 URIs

/redfish/v1/TelemetryService

6.140.3 Properties

Property	Type	Attributes	Notes
LogService {	object		The link to a log service that the telemetry service uses. This service can be a dedicated log service or a pointer to a log service under another resource, such as a manager. See the *LogService* schema for details on this property.
@odata.id	string	*read-only*	Link to a LogService resource. See the Links section and the *LogService* schema for details.
}			
MaxReports	integer	*read-only* *(null)*	The maximum number of metric reports that this service supports.
MetricDefinitions {	object		The link to the collection of metric definitions. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *MetricDefinition*. See the MetricDefinition schema for details.
}			
MetricReportDefinitions {	object		The link to the collection of metric report definitions. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *MetricReportDefinition*. See the MetricReportDefinition schema for details.
}			
MetricReports {	object		The link to the collection of metric reports. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *MetricReport*. See the MetricReport schema for details.
}			
MinCollectionInterval	string (duration)	*read-only* *(null)*	The minimum time interval between gathering metric data that this service allows.
ServiceEnabled *(v1.2+)*	boolean	*read-write* *(null)*	An indication of whether this service is enabled.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

Property	Type	Attributes	Notes
SupportedCollectionFunctions [ ]	array (string (enum))	*read-only (null)*	The functions that can be performed over each metric. *For the possible property values, see SupportedCollectionFunctions in Property details.*
SupportedOEMTelemetryDataTypes *(v1.4+)* [ ]	array (string, null)	*read-only*	A list of supported OEM-defined telemetry data types.
SupportedTelemetryDataTypes *(v1.4+)* [ ]	array (string (enum))	*read-only (null)*	A list of supported telemetry data types. *For the possible property values, see SupportedTelemetryDataTypes in Property details.*
TelemetryData *(v1.4+)* {	object		The link to the collection of data telemetry. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *TelemetryData*. See the TelemetryData schema for details.
}			
Triggers {	object		The link to the collection of triggers that apply to metrics. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Triggers*. See the Triggers schema for details.
}			

6.140.4 Actions

6.140.4.1 ClearMetricReports *(v1.3+)*

Description

The action to clear the metric reports for this telemetry service.

Action URI

{Base URI of target resource}/Actions/TelemetryService.ClearMetricReports

Action parameters

This action takes no parameters.

6.140.4.2 ClearTelemetryData *(v1.4+)*

Description

The action to clear the telemetry data for this telemetry service.

Action URI

{Base URI of target resource}/Actions/TelemetryService.ClearTelemetryData

Action parameters

This action takes no parameters.

6.140.4.3 CollectTelemetryData *(v1.4+)*

Description

The action to collect the telemetry data from a device or service. When the telemetry data is collected, a new telemetry data resource will be created.

Action URI

{Base URI of target resource}/Actions/TelemetryService.CollectTelemetryData

Action parameters

Parameter Name	Type	Attributes	Notes
OEMTelemetryDataType	string	*optional*	The OEM-defined type of telemetry data to collect.
TargetDevices [{	array	*optional*	An array of devices from which to collect telemetry data.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
TelemetryDataType	string (enum)	*required*	The type of telemetry data to collect. *For the possible property values, see TelemetryDataType in Property details.*

Response Payload

{			
TelmetryData *(v1.4+)* [ ]	array (string)	*read-only required*	An array of links to the collected telemetry data.
}			

Request Example

```
{
    "TelemetryDataType": "OEM",
    "OEMTelemetryDataType": "ContosoAggregator2_0",
    "TargetDevices": [
        "/redfish/v1/Systems/Sys-1/Processors/P1"
    ]
}
```

6.140.4.4 ResetMetricReportDefinitionsToDefaults *(v1.3+)*

Description

The action to reset the metric report definitions to factory defaults.

Action URI

{Base URI of target resource}/Actions/TelemetryService.ResetMetricReportDefinitionsToDefaults

Action parameters

This action takes no parameters.

6.140.4.5 ResetTriggersToDefaults *(v1.3+)*

Description

The action to reset the triggers to factory defaults.

Action URI

{Base URI of target resource}/Actions/TelemetryService.ResetTriggersToDefaults

Action parameters

This action takes no parameters.

6.140.4.6 SubmitTestMetricReport

Description

This action generates a metric report.

Action URI

{Base URI of target resource}/Actions/TelemetryService.SubmitTestMetricReport

Action parameters

Parameter Name	Type	Attributes	Notes
GeneratedMetricReportValues *(v1.1+)* [{	array	*required*	The contents of the `MetricReportValues` in the generated metric report.
MetricDefinition *(v1.1+)* {	object		The link to the metric definition for this metric. See the *MetricDefinition* schema for details on this property.
@odata.id	string	*read-only*	Link to a MetricDefinition resource. See the Links section and the *MetricDefinition* schema for details.
}			
MetricId *(v1.1+)*	string	*read-only* *(null)*	The metric definitions identifier for this metric.
MetricProperty *(v1.1+)*	string (URI)	*read-only* *(null)*	The URI for the property from which this metric is derived.
MetricValue *(v1.1+)*	string	*read-only* *(null)*	The metric value, as a string.
Timestamp *(v1.1+)*	string (date-time)	*read-only* *(null)*	The date and time when the metric is obtained. A management application can establish a time series of metric data by retrieving the instances of metric value and sorting them according to their timestamp.
}]			
MetricReportName	string	*required*	The name of the metric report in generated metric report.
MetricReportValues *(deprecated v1.1)*	string	*optional*	The contents of the `MetricReportValues` array in the generated metric report. *Deprecated in v1.1 and later. This property has been deprecated in favor of using the property* `GeneratedMetricReportValues`.

Request Example

```
{
    "MetricReportName": "TestMetricReport",
    "GeneratedMetricReportValues": [
        {
            "MetricId": "AverageReadingCelsius",
            "MetricValue": "50",
            "Timestamp": "2020-12-06T12:00:00Z",
            "MetricProperty": "/redfish/v1/Chassis/Tray_1/Thermal#/Temperatures/0/ReadingCelsius",
            "MetricDefinition": {
```

```
                "@odata.id": "/redfish/v1/TelemetryService/MetricDefinitions/AverageReadingCelsius"
            }
        },
        {
            "MetricId": "AverageReadingCelsius",
            "MetricValue": "53",
            "Timestamp": "2020-12-06T12:00:01Z",
            "MetricProperty": "/redfish/v1/Chassis/Tray_1/Thermal#/Temperatures/0/ReadingCelsius",
            "MetricDefinition": {
                "@odata.id": "/redfish/v1/TelemetryService/MetricDefinitions/AverageReadingCelsius"
            }
        }
    ]
}
```


6.140.5 Property details

6.140.5.1 SupportedCollectionFunctions

The functions that can be performed over each metric.

string	Description
Average	An averaging function.
Maximum	A maximum function.
Minimum	A minimum function.
Summation	A summation function.

6.140.5.2 SupportedTelemetryDataTypes

A list of supported telemetry data types.

string	Description
OEM	OEM telemetry data.

6.140.5.3 TelemetryDataType

The type of telemetry data to collect.

string	Description
OEM	OEM telemetry data.

6.140.6 Example response

```
{
    "@odata.type": "#TelemetryService.v1_4_0.TelemetryService",
    "Id": "TelemetryService",
    "Name": "Telemetry Service",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "SupportedCollectionFunctions": [
        "Average",
        "Minimum",
        "Maximum"
    ],
    "MetricDefinitions": {
        "@odata.id": "/redfish/v1/TelemetryService/MetricDefinitions"
    },
    "MetricReportDefinitions": {
        "@odata.id": "/redfish/v1/TelemetryService/MetricReportDefinitions"
    },
    "MetricReports": {
        "@odata.id": "/redfish/v1/TelemetryService/MetricReports"
    },
    "Triggers": {
        "@odata.id": "/redfish/v1/TelemetryService/Triggers"
    },
    "LogService": {
        "@odata.id": "/redfish/v1/Managers/1/LogServices/Log1"
    },
    "@odata.id": "/redfish/v1/TelemetryService"
}
```

6.141 Thermal 1.7.3 (deprecated)

Version	*v1.7 Deprecated*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2020.4	2019.4	2018.2	2017.3	2017.1	2016.3	2016.1	1.0

This schema has been deprecated and use in new implementations is discouraged except to retain compatibility with existing products. This schema has been deprecated in favor of the `ThermalSubsystem` schema.

6.141.1 Description

The `Therma`l schema describes temperature monitoring and thermal management subsystems, such as cooling fans, for a computer system or similar devices contained within a chassis.

6.141.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/Thermal (deprecated)

6.141.3 Properties

Property	Type	Attributes	Notes
Fans [{	array		The set of fans for this chassis.
@odata.id	string (URI)	*read-only required*	The unique identifier for a resource.
Actions *(v1.3+)* {}	object		The available actions for this resource.
Assembly *(v1.4+)* {	object		The link to the assembly associated with this fan. See the *Assembly* schema for details on this property.
@odata.id	string	*read-only*	Link to a Assembly resource. See the Links section and the *Assembly* schema for details.
}			
FanName *(deprecated v1.1)*	string	*read-only (null)*	The name of the fan. *Deprecated in v1.1 and later. This property has been deprecated in favor of the `Name` property.*
HotPluggable *(v1.4+)*	boolean	*read-only (null)*	An indication of whether this device can be inserted or removed while the equipment is in operation.
IndicatorLED *(v1.2+)*	string (enum)	*read-write (null)*	The state of the indicator LED, which identifies this fan. *For the possible property values, see IndicatorLED in Property details.*
Location *(v1.4+)* {}	object		The location of the fan. For property details, see Location.
LowerThresholdCritical	integer	*read-only (null)*	The value at which the reading is below normal range but not yet fatal.
LowerThresholdFatal	integer	*read-only (null)*	The value at which the reading is below normal range and fatal.

Property	Type	Attributes	Notes
LowerThresholdNonCritical	integer	*read-only (null)*	The value at which the reading is below normal range.
Manufacturer *(v1.2+)*	string	*read-only (null)*	The manufacturer of this fan.
MaxReadingRange	integer	*read-only (null)*	Maximum value for this sensor.
MemberId	string	*read-only required*	The unique identifier for the member within an array.
MinReadingRange	integer	*read-only (null)*	Minimum value for this sensor.
Model *(v1.2+)*	string	*read-only (null)*	The model number for this fan.
Name *(v1.1+)*	string	*read-only (null)*	Name of the fan.
Oem {}	object		See the Oem object definition in the Common properties section.
PartNumber *(v1.2+)*	string	*read-only (null)*	The part number for this fan.
PhysicalContext	string (enum)	*read-only*	The area or device associated with this fan. *For the possible property values, see PhysicalContext in Property details.*
Reading	integer	*read-only (null)*	The fan speed.
ReadingUnits *(v1.0.1+)*	string (enum)	*read-only (null)*	The units in which the fan reading and thresholds are measured. *For the possible property values, see ReadingUnits in Property details.*
Redundancy [{ }]	array (object)		The set of redundancy groups for this fan. For property details, see Redundancy.
RelatedItem [{	array		An array of links to resources or objects that this fan services.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
SensorNumber *(v1.5+)*	integer	*read-only (null)*	The numerical identifier for this fan speed sensor.
SerialNumber *(v1.2+)*	string	*read-only (null)*	The serial number for this fan.

Property	Type	Attributes	Notes
SparePartNumber *(v1.2+)*	string	*read-only (null)*	The spare part number for this fan.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
UpperThresholdCritical	integer	*read-only (null)*	The value at which the reading is above normal range but not yet fatal.
UpperThresholdFatal	integer	*read-only (null)*	The value at which the reading is above normal range and fatal.
UpperThresholdNonCritical	integer	*read-only (null)*	The value at which the reading is above normal range.
}]			
Redundancy [{ }]	array (object)		The redundancy information for the set of fans in this chassis. For property details, see Redundancy.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
Temperatures [{	array		The set of temperature sensors for this chassis.
@odata.id	string (URI)	*read-only required*	The unique identifier for a resource.
Actions *(v1.3+)* {}	object		The available actions for this resource.
AdjustedMaxAllowableOperatingValue *(v1.4+)*	integer (Celsius)	*read-only (null)*	Adjusted maximum allowable operating temperature for this equipment based on the current environmental conditions present.
AdjustedMinAllowableOperatingValue *(v1.4+)*	integer (Celsius)	*read-only (null)*	Adjusted minimum allowable operating temperature for this equipment based on the current environmental conditions present.
DeltaPhysicalContext *(v1.4+)*	string (enum)	*read-only*	The area or device to which the `DeltaReadingCelsius` temperature measurement applies, relative to `PhysicalContext`. *For the possible property values, see DeltaPhysicalContext in Property details.*
DeltaReadingCelsius *(v1.4+)*	number (Celsius)	*read-only (null)*	The delta temperature reading.
LowerThresholdCritical	number (Celsius)	*read-only (null)*	The value at which the reading is below normal range but not yet fatal.
LowerThresholdFatal	number (Celsius)	*read-only (null)*	The value at which the reading is below normal range and fatal.
LowerThresholdNonCritical	number (Celsius)	*read-only (null)*	The value at which the reading is below normal range.

Property	Type	Attributes	Notes
LowerThresholdUser *(v1.6+)*	integer (Celsius)	*read-write (null)*	The value at which the reading is below the user-defined range.
MaxAllowableOperatingValue *(v1.4+)*	integer (Celsius)	*read-only (null)*	Maximum allowable operating temperature for this equipment.
MaxReadingRangeTemp	number (Celsius)	*read-only (null)*	Maximum value for this sensor.
MemberId	string	*read-only required*	The unique identifier for the member within an array.
MinAllowableOperatingValue *(v1.4+)*	integer (Celsius)	*read-only (null)*	Minimum allowable operating temperature for this equipment.
MinReadingRangeTemp	number (Celsius)	*read-only (null)*	Minimum value for this sensor.
Name	string	*read-only (null)*	The temperature sensor name.
Oem {}	object		See the Oem object definition in the Common properties section.
PhysicalContext	string (enum)	*read-only*	The area or device to which this temperature measurement applies. *For the possible property values, see PhysicalContext in Property details.*
ReadingCelsius	number (Celsius)	*read-only (null)*	The temperature (C).
RelatedItem [{	array		An array of links to resources or objects that represent areas or devices to which this temperature applies.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
SensorNumber	integer	*read-only (null)*	The numerical identifier of the temperature sensor.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
UpperThresholdCritical	number (Celsius)	*read-only (null)*	The value at which the reading is above normal range but not yet fatal.
UpperThresholdFatal	number (Celsius)	*read-only (null)*	The value at which the reading is above normal range and fatal.

Property	Type	Attributes	Notes
UpperThresholdNonCritical	number (Celsius)	*read-only (null)*	The value at which the reading is above normal range.
UpperThresholdUser *(v1.6+)*	integer (Celsius)	*read-write (null)*	The value at which the reading is above the user-defined range.
}]			

6.141.4 Property details

6.141.4.1 DeltaPhysicalContext

The area or device to which the `DeltaReadingCelsius` temperature measurement applies, relative to `PhysicalContext`.

string	Description
Accelerator	An accelerator.
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.
ACOutput	An AC electrical output or output-related circuit.
ACStaticBypassInput	An AC electrical static bypass input.
ACUtilityInput	An AC electrical utility input.
ASIC	An ASIC device, such as a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.
Chassis	The entire chassis.
ComputeBay	A compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).

string	Description
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Manager	A management controller, such as a BMC (baseboard management controller).
Memory	A memory device.
MemorySubsystem	The entire memory subsystem.
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	A power supply bay.
Pump	A pump.

string	Description
Rectifier	A rectifier device.
Reservoir	A reservoir.
Room	The room.
StorageBay	A storage bay.
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

6.141.4.2 IndicatorLED

The state of the indicator LED, which identifies this fan.

string	Description
Blinking	The indicator LED is blinking.
Lit	The indicator LED is lit.
Off	The indicator LED is off.

6.141.4.3 PhysicalContext

The area or device associated with this fan.

string	Description
Accelerator	An accelerator.

string	Description
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.
ACOutput	An AC electrical output or output-related circuit.
ACStaticBypassInput	An AC electrical static bypass input.
ACUtilityInput	An AC electrical utility input.
ASIC	An ASIC device, such as a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.
Chassis	The entire chassis.
ComputeBay	A compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points or region of the chassis.

string	Description
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Manager	A management controller, such as a BMC (baseboard management controller).
Memory	A memory device.
MemorySubsystem	The entire memory subsystem.
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	A power supply bay.
Pump	A pump.
Rectifier	A rectifier device.
Reservoir	A reservoir.
Room	The room.
StorageBay	A storage bay.
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.
Upper	The upper portion of the chassis.

string	Description
VoltageRegulator	A voltage regulator device.

6.141.4.4 ReadingUnits

The units in which the fan reading and thresholds are measured.

string	Description
Percent	The fan reading and thresholds are measured as a percentage.
RPM	The fan reading and thresholds are measured in revolutions per minute.

6.141.5 Example response


```
{
    "@odata.type": "#Thermal.v1_7_3.Thermal",
    "Id": "Thermal",
    "Name": "Thermal",
    "Temperatures": [
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Temperatures/0",
            "MemberId": "0",
            "Name": "CPU1 Temp",
            "SensorNumber": 5,
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
            "ReadingCelsius": 41,
            "UpperThresholdNonCritical": 42,
            "UpperThresholdCritical": 45,
            "UpperThresholdFatal": 48,
            "MinReadingRangeTemp": 0,
            "MaxReadingRangeTemp": 60,
            "PhysicalContext": "CPU",
            "RelatedItem": [
                {
                    "@odata.id": "/redfish/v1/Systems/437XR1138R2/Processors/CPU1"
                }
            ]
        },
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Temperatures/1",
```

```
            "MemberId": "1",
            "Name": "CPU2 Temp",
            "SensorNumber": 6,
            "Status": {
                "State": "Disabled"
            },
            "UpperThresholdNonCritical": 42,
            "UpperThresholdCritical": 45,
            "UpperThresholdFatal": 48,
            "MinReadingRangeTemp": 0,
            "MaxReadingRangeTemp": 60,
            "PhysicalContext": "CPU",
            "RelatedItem": [
                {
                    "@odata.id": "/redfish/v1/Systems/437XR1138R2/Processors/CPU2"
                }
            ]
        },
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Temperatures/2",
            "MemberId": "2",
            "Name": "Chassis Intake Temp",
            "SensorNumber": 9,
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
            "ReadingCelsius": 25,
            "UpperThresholdUser": 28,
            "UpperThresholdNonCritical": 30,
            "UpperThresholdCritical": 40,
            "UpperThresholdFatal": 50,
            "LowerThresholdUser": 20,
            "LowerThresholdNonCritical": 10,
            "LowerThresholdCritical": 5,
            "LowerThresholdFatal": 0,
            "MinReadingRangeTemp": 0,
            "MaxReadingRangeTemp": 60,
            "PhysicalContext": "Intake",
            "RelatedItem": [
                {
                    "@odata.id": "/redfish/v1/Chassis/1U"
                },
                {
                    "@odata.id": "/redfish/v1/Systems/437XR1138R2"
                }
            ]
        }
    ],
    "Fans": [
```

```
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Fans/0",
            "MemberId": "0",
            "Name": "BaseBoard System Fan",
            "PhysicalContext": "Backplane",
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
            "Reading": 2100,
            "ReadingUnits": "RPM",
            "LowerThresholdFatal": 0,
            "MinReadingRange": 0,
            "MaxReadingRange": 5000,
            "Redundancy": [
                {
                    "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Redundancy/0"
                }
            ],
            "RelatedItem": [
                {
                    "@odata.id": "/redfish/v1/Systems/437XR1138R2"
                },
                {
                    "@odata.id": "/redfish/v1/Chassis/1U"
                }
            ]
        },
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Fans/1",
            "MemberId": "1",
            "Name": "BaseBoard System Fan Backup",
            "PhysicalContext": "Backplane",
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
            "Reading": 2050,
            "ReadingUnits": "RPM",
            "LowerThresholdFatal": 0,
            "MinReadingRange": 0,
            "MaxReadingRange": 5000,
            "Redundancy": [
                {
                    "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Redundancy/0"
                }
            ],
            "RelatedItem": [
                {
                    "@odata.id": "/redfish/v1/Systems/437XR1138R2"
```

```
                },
                {
                    "@odata.id": "/redfish/v1/Chassis/1U"
                }
            ]
        }
    ],
    "Redundancy": [
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Redundancy/0",
            "MemberId": "0",
            "Name": "BaseBoard System Fans",
            "RedundancySet": [
                {
                    "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Fans/0"
                },
                {
                    "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Fans/1"
                }
            ],
            "Mode": "N+m",
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
            "MinNumNeeded": 1,
            "MaxNumSupported": 2
        }
    ],
    "@odata.id": "/redfish/v1/Chassis/1U/Thermal"
}
```


6.142 ThermalEquipment 1.2.0

Version	*v1.2*	*v1.1*	*v1.0*
Release	2025.2	2023.2	2023.1

6.142.1 Description

The `ThermalEquipment` schema represents the set of cooling equipment managed by a Redfish service.

6.142.2 URIs

/redfish/v1/ThermalEquipment

6.142.3 Properties

Property	Type	Attributes	Notes
CDUs {	object		A link to a collection of coolant distribution units. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *CoolingUnit*. See the CoolingUnit schema for details.
}			
CoolingLoopRedundancy *(v1.1+)* [{ }]	array (object)		The redundancy information for cooling loops attached to this equipment. For property details, see RedundantGroup.
CoolingLoops {	object		A link to a collection of cooling loops. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *CoolingLoop*. See the CoolingLoop schema for details.
}			
HeatExchangers {	object		A link to a collection of heat exchanger units. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *CoolingUnit*. See the CoolingUnit schema for details.
}			
ImmersionUnits {	object		A link to a collection of immersion cooling units. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *CoolingUnit*. See the CoolingUnit schema for details.
}			
RPUs *(v1.2+)* {	object		A link to a collection of reservoir and pumping units (RPUs). Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *CoolingUnit*. See the CoolingUnit schema for details.
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.142.4 Example response

```
{
    "@odata.type": "#ThermalEquipment.v1_2_0.ThermalEquipment",
    "Id": "ThermalEquipment",
    "Name": "Cooling Equipment",
    "Status": {
        "State": "Enabled",
        "HealthRollup": "OK"
    },
    "CDUs": {
        "@odata.id": "/redfish/v1/ThermalEquipment/CDUs"
    },
    "CoolingLoops": {
        "@odata.id": "/redfish/v1/ThermalEquipment/CoolingLoops"
    },
    "@odata.id": "/redfish/v1/ThermalEquipment"
}
```

6.143 ThermalMetrics 1.3.2

Version	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2023.2	2023.1	2022.3	2020.4

6.143.1 Description

The `ThermalMetrics` schema represents the thermal metrics of a chassis.

6.143.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem/ThermalMetrics

6.143.3 Properties

Property	Type	Attributes	Notes
AirFlowCubicMetersPerMinute *(v1.2+)* {}	object		The air flow through the chassis (m^3/min). For more information about this property, see SensorExcerpt in Property Details.

Property	Type	Attributes	Notes
DeltaPressurekPa *(v1.2+)* {}	object		The differential pressure (kPa). For more information about this property, see SensorExcerpt in Property Details.
EnergykWh *(v1.3+)* {	object (excerpt)		Energy consumption (kWh) of the thermal management subsystem. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
ApparentkVAh *(v1.5+)*	number (kV.A.h)	*read-only (null)*	Apparent energy (kVAh).
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
LifetimeReading *(v1.1+)*	number	*read-only (null)*	The total accumulation value for this sensor.
ReactivekVARh *(v1.5+)*	number (kV.A.h)	*read-only (null)*	Reactive energy (kVARh).
Reading	number	*read-only (null)*	The sensor value.
SensorResetTime	string (date-time)	*read-only (null)*	The date and time when the time-based properties were last reset.
}			
HeaterSummary *(v1.1+)* {	object		The summary of heater metrics for this chassis.
TotalPrePowerOnHeatingTimeSeconds *(v1.1+)*	integer	*read-only (null)*	The total number of seconds all the heaters in the thermal subsystem were active while the respective devices they heat were powered off.
TotalRuntimeHeatingTimeSeconds *(v1.1+)*	integer	*read-only (null)*	The total number of seconds all the heaters in the thermal subsystem were active while the respective devices they heat were powered on.
}			
PowerWatts *(v1.3+)* {	object (excerpt)		Power consumption (W) of the thermal management subsystem. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
ApparentVA	number (V.A)	*read-only (null)*	The product of voltage and current for an AC circuit, in volt-ampere units.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.

Property	Type	Attributes	Notes
PhaseAngleDegrees *(v1.5+)*	number	*read-only (null)*	The phase angle (degrees) between the current and voltage waveforms.
PowerFactor	number	*read-only (null)*	The power factor for this sensor.
ReactiveVAR	number (V.A)	*read-only (null)*	The square root of the difference term of squared apparent VA and squared power (Reading) for a circuit, in VAR units.
Reading	number	*read-only (null)*	The sensor value.
}			
TemperatureReadingsCelsius [{	array (excerpt)		The temperatures (in degree Celsius units) from all related sensors for this device. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.
DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
DeviceName *(v1.2+)*	string	*read-only (null)*	The name of the device.
PhysicalContext	string (enum)	*read-write (null)*	The area or device to which this sensor measurement applies. *For the possible property values, see PhysicalContext in Property details.*
PhysicalSubContext	string (enum)	*read-write (null)*	The usage or location within a device to which this sensor measurement applies. *For the possible property values, see PhysicalSubContext in Property details.*
Reading	number	*read-only (null)*	The sensor value.
}]			
TemperatureSummaryCelsius {	object		The summary temperature readings for this chassis.
Ambient {}	object		The ambient temperature (in degree Celsius units) of this subsystem. For more information about this property, see SensorExcerpt in Property Details.
Exhaust {}	object		The exhaust temperature (in degree Celsius units) of this subsystem. For more information about this property, see SensorExcerpt in Property Details.
Intake {}	object		The intake temperature (in degree Celsius units) of this subsystem. For more information about this property, see SensorExcerpt in Property Details.

Property	Type	Attributes	Notes
Internal {}	object		The internal temperature (in degree Celsius units) of this subsystem. For more information about this property, see SensorExcerpt in Property Details.
}			

6.143.4 Actions

6.143.4.1 ResetMetrics

Description

This action resets the summary metrics related to this equipment.

Action URI

{Base URI of target resource}/Actions/ThermalMetrics.ResetMetrics

Action parameters

This action takes no parameters.

6.143.5 Property details

6.143.5.1 PhysicalContext

The area or device to which this sensor measurement applies.

string	Description
Accelerator	An accelerator.
ACInput	An AC electrical input or input-related circuit.
ACMaintenanceBypassInput	An AC electrical maintenance bypass input.
ACOutput	An AC electrical output or output-related circuit.
ACStaticBypassInput	An AC electrical static bypass input.
ACUtilityInput	An AC electrical utility input.
ASIC	An ASIC device, such as a networking chip or chipset component.

string	Description
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Battery	A battery.
Board	A circuit board.
Chassis	The entire chassis.
ComputeBay	A compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC electrical bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	An expansion bay.
ExpansionSubsystem	A group of expansion bays.
Fan	A fan.
Filter	A filter.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Manager	A management controller, such as a BMC (baseboard management controller).
Memory	A memory device.
MemorySubsystem	The entire memory subsystem.

string	Description
Motor	A motor.
NetworkBay	A networking bay.
NetworkingDevice	A networking device.
PowerOutlet	An electrical outlet.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	A power supply bay.
Pump	A pump.
Rectifier	A rectifier device.
Reservoir	A reservoir.
Room	The room.
StorageBay	A storage bay.
StorageDevice	A storage device.
StorageSubsystem	A storage subsystem.
Switch	A switch device.
SystemBoard	The system board (PCB).
Transceiver	A transceiver.
Transformer	A transformer.
TrustedModule	A trusted module.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

6.143.5.2 PhysicalSubContext

The usage or location within a device to which this sensor measurement applies.

string	Description
Input	The input.

string	Description
Output	The output.

6.143.5.3 SensorExcerpt

The `Sensor` schema describes a sensor and its properties. This object is an excerpt of the *Sensor* resource located at the URI shown in DataSourceUri.

DataSourceUri	string (URI)	*read-only (null)*	The link to the resource that provides the data for this sensor.
Reading	number	*read-only (null)*	The sensor value.

6.143.6 Example response

```
{
    "@odata.type": "#ThermalMetrics.v1_3_2.ThermalMetrics",
    "Id": "ThermalMetrics",
    "Name": "Chassis Thermal Metrics",
    "TemperatureSummaryCelsius": {
        "Internal": {
            "Reading": 39,
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/CPU1Temp"
        },
        "Intake": {
            "Reading": 24.8,
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/IntakeTemp"
        },
        "Ambient": {
            "Reading": 22.5,
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/AmbientTemp"
        },
        "Exhaust": {
            "Reading": 40.5,
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/ExhaustTemp"
        }
    },
    "PowerWatts": {
        "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/FanTotalPower",
        "Reading": 24.72
    },
```

```
    "EnergykWh": {
        "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/FanTotalEnergy",
        "Reading": 38.84
    },
    "TemperatureReadingsCelsius": [
        {
            "Reading": 40,
            "DeviceName": "SystemBoard",
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/SysBrdTemp"
        },
        {
            "Reading": 24.8,
            "DeviceName": "Intake",
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/IntakeTemp"
        },
        {
            "Reading": 39,
            "DeviceName": "CPUSubsystem",
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/CPUTemps"
        },
        {
            "Reading": 42,
            "DeviceName": "MemorySubsystem",
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/MemoryTemp"
        },
        {
            "Reading": 33,
            "DeviceName": "PowerSupply",
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PSTemp"
        },
        {
            "Reading": 40.5,
            "DeviceName": "Exhaust",
            "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/ExhaustTemp"
        }
    ],
    "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/ThermalMetrics"
}
```


6.144 ThermalSubsystem 1.4.0

Version	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2025.2	2023.2	2023.1	2022.3	2020.4

6.144.1 Description

The `ThermalSubsystem` schema contains the definition for the thermal subsystem of a chassis.

6.144.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/ThermalSubsystem

6.144.3 Properties

Property	Type	Attributes	Notes
CoolantConnectorRedundancy *(v1.3+)* [{ }]	array (object)		The redundancy information for the coolant connectors in this subsystem. For property details, see RedundantGroup.
CoolantConnectors *(v1.2+)* {	object		A link to the coolant connectors for this equipment. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *CoolantConnector*. See the CoolantConnector schema for details.
}			
FanRedundancy [{ }]	array (object)		The redundancy information for the groups of fans in this subsystem. For property details, see RedundantGroup.
Fans {	object		The link to the collection of fans within this subsystem. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Fan*. See the Fan schema for details.
}			
Filters *(v1.4+)* {	object		A link to the filters for this equipment. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Filter*. See the Filter schema for details.
}			
Heaters *(v1.1+)* {	object		The link to the collection of heaters within this subsystem. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Heater*. See the Heater schema for details.
}			
LeakDetection *(v1.3+)* {	object		The link to the leak detection system within this chassis. See the *LeakDetection* schema for details on this property.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a LeakDetection resource. See the Links section and the *LeakDetection* schema for details.
}			
Pumps *(v1.3+)* {	object		A link to the pumps for this equipment. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Pump*. See the Pump schema for details.
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
ThermalMetrics {	object		The link to the summary of thermal metrics for this subsystem. See the *ThermalMetrics* schema for details on this property.
@odata.id	string	*read-only*	Link to a ThermalMetrics resource. See the Links section and the *ThermalMetrics* schema for details.
}			

6.144.4 Example response


```
{
    "@odata.type": "#ThermalSubsystem.v1_4_0.ThermalSubsystem",
    "Id": "ThermalSubsystem",
    "Name": "Thermal Subsystem for Chassis",
    "FanRedundancy": [
        {
            "RedundancyType": "NPlusM",
            "MaxSupportedInGroup": 2,
            "MinNeededInGroup": 1,
            "RedundancyGroup": [
                {
                    "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/Fans/Bay1"
                },
                {
                    "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/Fans/Bay2"
                }
            ],
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            }
        },
        {
```

```
            "RedundancyType": "NPlusM",
            "MaxSupportedInGroup": 2,
            "MinNeededInGroup": 1,
            "RedundancyGroup": [
                {
                    "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/Fans/CPU1"
                },
                {
                    "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/Fans/CPU2"
                }
            ],
            "Status": {
                "State": "Disabled"
            }
        }
    ],
    "Fans": {
        "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/Fans"
    },
    "ThermalMetrics": {
        "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/ThermalMetrics"
    },
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem"
}
```


6.145 Triggers 1.4.0

Version	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2024.1	2023.1	2021.2	2019.1	2018.2

6.145.1 Description

The `Triggers` schema describes a trigger condition that applies to metrics.

6.145.2 URIs

/redfish/v1/TelemetryService/Triggers/*{TriggersId}*

6.145.3 Properties

Property	Type	Attributes	Notes
DiscreteTriggerCondition	string (enum)	*read-only (null)*	The conditions for a discrete metric trigger. *For the possible property values, see DiscreteTriggerCondition in Property details.*
DiscreteTriggers [{	array		The list of discrete triggers.
DwellTime	string (duration)	*read-write (null)*	The amount of time that a trigger event persists before the metric action is performed.
Name	string	*read-only (null)*	The name of the trigger.
Severity	string (enum)	*read-write (null)*	The severity of the event message. *For the possible property values, see Severity in Property details.*
Value	string	*read-write (null)*	The discrete metric value that constitutes a trigger event.
}]			
EventTriggers *(v1.1+)* [ ]	array (string, null)	*read-write*	The array of `MessageId` values that specify when a trigger condition is met based on an event.
HysteresisDuration *(v1.3+)*	string (duration)	*read-write (null)*	The duration the metric value must not violate the threshold before the threshold is deactivated.
HysteresisReading *(v1.3+)*	number	*read-write (null)*	The reading offset from the threshold value required to clear the threshold.
Links *(v1.1+)* {	object		The links to other resources that are related to this resource.
MetricReportDefinitions *(v1.1+)* [{	array		The metric report definitions that generate new metric reports when a trigger condition is met and when the `TriggerActions` property contains `RedfishMetricReport`.
@odata.id	string	*read-write*	Link to a MetricReportDefinition resource. See the Links section and the *MetricReportDefinition* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
}			
MetricIds *(v1.2+)* [ ]	array (string, null)	*read-write*	The label for the metric definitions that contain the property identifiers for this trigger. It matches the `Id` property of the corresponding metric definition.

Property	Type	Attributes	Notes
MetricProperties [ ]	array (URI) (string, null)	*read-write*	An array of URIs with wildcards and property identifiers for this trigger. Each wildcard, a name contained by a set of curly braces, is replaced with its corresponding entry in the `Wildcard` array property.
MetricType	string (enum)	*read-only (null)*	The metric type of the trigger. *For the possible property values, see MetricType in Property details.*
NumericThresholds {	object		The thresholds for a numeric metric trigger.
LowerCritical {}	object		The value at which the reading is below normal range and requires attention. For more information about this property, see Threshold in Property Details.
LowerWarning {}	object		The value at which the reading is below normal range. For more information about this property, see Threshold in Property Details.
UpperCritical {}	object		The value at which the reading is above normal range and requires attention. For more information about this property, see Threshold in Property Details.
UpperWarning {}	object		The value at which the reading is above normal range. For more information about this property, see Threshold in Property Details.
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
TriggerActionMessage *(v1.4+)*	string (enum)	*read-write (null)*	The message issued as part of the trigger actions. *For the possible property values, see TriggerActionMessage in Property details.*
TriggerActions [ ]	array (string (enum))	*read-only*	The actions that the trigger initiates. *For the possible property values, see TriggerActions in Property details.*
TriggerEnabled *(v1.4+)*	boolean	*read-write (null)*	An indication of whether the trigger is enabled.
Wildcards [{	array		The wildcards and their substitution values for the entries in the `MetricProperties` array property.
Name	string	*read-only (null)*	The wildcard.
Values [ ]	array (string, null)	*read-write*	An array of values to substitute for the wildcard. A single value of `*` matches all resources.
}]			

6.145.4 Property details

6.145.4.1 Activation

The direction of crossing that activates this threshold.

string	Description
Decreasing	Value decreases below the threshold.
Disabled *(v1.3+)*	The threshold is disabled.
Either	Value crosses the threshold in either direction.
Increasing	Value increases above the threshold.

6.145.4.2 DiscreteTriggerCondition

The conditions for a discrete metric trigger.

string	Description
Changed	A discrete trigger condition is met whenever the metric value changes.
Specified	A discrete trigger condition is met when the metric value becomes one of the values that the `DiscreteTriggers` property lists.

6.145.4.3 MetricType

The metric type of the trigger.

string	Description
Discrete	A discrete value trigger.
Numeric	A numeric value trigger.

6.145.4.4 Severity

The severity of the event message.

string	Description
Critical	A critical condition requires immediate attention.
OK	Normal.
Warning	A condition requires attention.

6.145.4.5 Threshold

A threshold definition for a metric.

Activation	string (enum)	*read-write (null)*	The direction of crossing that activates this threshold. *For the possible property values, see Activation in Property details.*
DwellTime	string (duration)	*read-write (null)*	The duration the metric value must violate the threshold before the threshold is activated.
Reading	number	*read-write (null)*	The threshold value.

6.145.4.6 TriggerActionMessage

The message issued as part of the trigger actions.

string	Description
ConnectionSpeed	`ConnectionSpeedLow` message from the Network Device Message Registry.
DriveMediaLife	`MediaLifeLeftLow` message from the Storage Device Message Registry.
Telemetry	Messages from the Telemetry Message Registry.

6.145.4.7 TriggerActions

The actions that the trigger initiates.

string	Description
LogToLogService	When a trigger condition is met, record in a log.

string	Description
RedfishEvent	When a trigger condition is met, the service sends an event to subscribers.
RedfishMetricReport	When a trigger condition is met, force an update of the specified metric reports.

6.145.5 Example response

```
{
    "@odata.type": "#Triggers.v1_4_0.Triggers",
    "Id": "PlatformPowerCapTriggers",
    "Name": "Triggers for platform power consumed",
    "MetricType": "Numeric",
    "TriggerActions": [
        "RedfishEvent"
    ],
    "NumericThresholds": {
        "UpperCritical": {
            "Reading": 50,
            "Activation": "Increasing",
            "DwellTime": "PT0.001S"
        },
        "UpperWarning": {
            "Reading": 48.1,
            "Activation": "Increasing",
            "DwellTime": "PT0.004S"
        }
    },
    "MetricProperties": [
        "/redfish/v1/Chassis/1/Power#/PowerControl/0/PowerConsumedWatts"
    ],
    "@odata.id": "/redfish/v1/TelemetryService/Triggers/PlatformPowerCapTriggers"
}
```

6.146 TrustedComponent 1.4.0

Version	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2025.2	2023.3	2023.2	2023.1	2022.2

6.146.1 Description

The `TrustedComponent` resource represents a trusted device, such as a TPM.

6.146.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/TrustedComponents/*{TrustedComponentId}*

6.146.3 Properties

Property	Type	Attributes	Notes
Certificates {	object		The link to a collection of device identity certificates of the trusted component. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
FirmwareVersion	string	*read-only* *(null)*	The software version of the active software image on the trusted component.
Links {	object		The links to other resources that are related to this resource.
ActiveSoftwareImage {	object		The link to the software inventory resource that represents the active firmware image for this trusted component. See the *SoftwareInventory* schema for details on this property.
@odata.id	string	*read-write*	Link to a SoftwareInventory resource. See the Links section and the *SoftwareInventory* schema for details.
}			
ComponentIntegrity [{	array		An array of links to ComponentIntegrity resources for which the trusted component is responsible.
@odata.id	string	*read-only*	Link to a ComponentIntegrity resource. See the Links section and the *ComponentIntegrity* schema for details.
}]			
ComponentsProtected [{	array		An array of links to resources that the target component protects.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
IntegratedInto {	object		A link to a resource to which this trusted component is integrated.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}			

Property	Type	Attributes	Notes
Oem {}	object		See the Oem object definition in the Common properties section.
Owner *(v1.2+)* {	object		A link to the resource that owns this trusted component.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}			
SoftwareImages [{	array		The images that are associated with this trusted component.
@odata.id	string	*read-only*	Link to a SoftwareInventory resource. See the Links section and the *SoftwareInventory* schema for details.
}]			
}			
Location *(v1.4+)* {}	object		The location of the trusted component. For property details, see Location.
Manufacturer	string	*read-only (null)*	The manufacturer of this trusted component.
Model	string	*read-only (null)*	The model number of the trusted component.
PartNumber	string	*read-only (null)*	The part number of the trusted component.
SerialNumber	string	*read-only (null)*	The serial number of the trusted component.
SKU	string	*read-only (null)*	The SKU of the trusted component.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
TPM *(v1.1+)* {	object		TPM-specific information for this trusted component.
CapabilitiesVendorID *(v1.1+)*	string	*read-only (null)*	The capabilities vendor ID for this trusted component.
HardwareInterfaceVendorID *(v1.1+)*	string	*read-only (null)*	The hardware interface vendor ID for this trusted component.
}			
TrustedComponentType	string (enum)	*read-only required*	The type of trusted component, such as any physical distinction about the trusted component. *For the possible property values, see TrustedComponentType in Property details.*

Property	Type	Attributes	Notes
UUID	string (uuid)	*read-only (null)*	The UUID for this trusted component.

6.146.4 Actions

6.146.4.1 TPMGetEventLog *(v1.3+)*

Description

This action retrieves the event log for TPM 2.0 devices.

Action URI

{Base URI of target resource}/Actions/TrustedComponent.TPMGetEventLog

Action parameters

This action takes no parameters.

Response Payload

{			
EventLog *(v1.3+)*	string	*read-only required*	The Base64-encoded event log for the TPM.
Oem *(v1.3+)* {}	object		See the Oem object definition in the Common properties section.
}			

Response Example

```
{
    "@odata.type": "#TrustedComponent.v1_0_0.TPMGetEventLog",
    "EventLog": "EeAlkj89JWv9CbeGdmlPaARrrMw... TRUNCATED (TYPICALLY KB or MB)"
}
```

6.146.5 Property details

6.146.5.1 TrustedComponentType

The type of trusted component, such as any physical distinction about the trusted component.

string	Description
Discrete	A discrete trusted component.
Integrated	An integrated trusted component.

6.146.6 Example response


```
{
    "@odata.type": "#TrustedComponent.v1_4_0.TrustedComponent",
    "Id": "iRoT0",
    "UUID": "A3981CF9-576A-4335-A19F-B8CD7EC2821E",
    "Status": {
        "Health": "OK",
        "State": "Enabled"
    },
    "TrustedComponentType": "Integrated",
    "Certificates": {
        "@odata.id": "/redfish/v1/Chassis/1U/TrustedComponents/iRoT0/Certificates"
    },
    "Links": {
        "ComponentsProtected": [
            {
                "@odata.id": "/redfish/v1/Systems/437XR1138R2/Processors/CPU1"
            }
        ],
        "IntegratedInto": {
            "@odata.id": "/redfish/v1/Systems/437XR1138R2/Processors/CPU1"
        },
        "ComponentIntegrity": [
            {
                "@odata.id": "/redfish/v1/ComponentIntegrity/SS-SPDM-1"
            }
        ]
    },
    "@odata.id": "/redfish/v1/Chassis/1U/TrustedComponents/iRoT0"
}
```

6.147 UpdateService 1.16.0

Version	*v1.16*	*v1.15*	*v1.14*	*v1.13*	*v1.12*	*v1.11*	*v1.10*	*v1.9*	*v1.8*	*v1.7*	*v1.6*	...
Release	2025.2	2024.4	2024.1	2023.3	2023.2	2021.4	2021.2	2021.1	2019.4	2019.3	2019.2	...

6.147.1 Description

The `UpdateService` schema describes the update service and the properties for the service itself with links to collections of firmware and software inventory. The update service also provides methods for updating software and firmware of the resources in a Redfish service.

6.147.2 URIs

/redfish/v1/UpdateService

6.147.3 Properties

Property	Type	Attributes	Notes
ClientCertificates *(v1.10+)* {	object		The link to a collection of client identity certificates provided to the server referenced by the `ImageURI` parameter in `SimpleUpdate`. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
FirmwareInventory {	object		An inventory of firmware. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *SoftwareInventory*. See the SoftwareInventory schema for details.
}			
HttpPushUri *(v1.1+, deprecated v1.15)*	string (URI)	*read-only*	The URI used to perform an HTTP or HTTPS push update to the update service. The format of the message is vendor-specific. *Deprecated in v1.15 and later. This property has been deprecated in favor of the `MultipartHttpPushUri` property.*

Property	Type	Attributes	Notes
HttpPushUriOptions *(v1.4+, deprecated v1.15)* {	object		The options for `HttpPushUri`-provided software updates. *Deprecated in v1.15 and later. This property has been deprecated in favor of the update parameters used with `MultipartHttpPushUri`-provided software updates.*
ForceUpdate *(v1.11+)*	boolean	*read-write*	An indication of whether the service should bypass update policies when applying the `HttpPushUri`-provided image.
HttpPushUriApplyTime *(v1.4+)* {	object		The settings for when to apply `HttpPushUri`-provided firmware.
ApplyTime *(v1.4+)*	string (enum)	*read-write*	The time when to apply the `HttpPushUri`-provided software update. *For the possible property values, see ApplyTime in Property details.*
MaintenanceWindowDurationInSeconds *(v1.4+)*	integer (seconds)	*read-write*	The expiry time, in seconds, of the maintenance window.
MaintenanceWindowStartTime *(v1.4+)*	string (date-time)	*read-write*	The start time of a maintenance window.
}			
}			
HttpPushUriOptionsBusy *(v1.4+, deprecated v1.15)*	boolean	*read-write (null)*	An indication of whether a client has reserved the `HttpPushUriOptions` properties for software updates. *Deprecated in v1.15 and later. This property has been deprecated in favor of `MultipartHttpPushUri`-provided software updates.*
HttpPushUriTargets *(v1.2+, deprecated v1.15)* [ ]	array (URI) (string, null)	*read-write*	An array of URIs that indicate where to apply the update image. *Deprecated in v1.15 and later. This property has been deprecated in favor of the update parameters used with `MultipartHttpPushUri`-provided software updates.*
HttpPushUriTargetsBusy *(v1.2+, deprecated v1.15)*	boolean	*read-write (null)*	An indication of whether any client has reserved the `HttpPushUriTargets` property. *Deprecated in v1.15 and later. This property has been deprecated in favor of `MultipartHttpPushUri`-provided software updates.*
MaxImageSizeBytes *(v1.5+)*	integer (bytes)	*read-only (null)*	The maximum size in bytes of the software update image that this service supports.
MultipartHttpPushUri *(v1.6+)*	string (URI)	*read-only*	The URI used to perform a Redfish Specification-defined multipart HTTP or HTTPS push update to the update service.

Property	Type	Attributes	Notes
PublicIdentitySSHKey *(v1.13+)* {	object		A link to the public key that is used with the `SimpleUpdate` action for the key-based authentication. The GenerateSSHIdentityKeyPair and RemoveSSHIdentityKeyPair are used to update the key for the `SimpleUpdate` action. See the *Key* schema for details on this property.
@odata.id	string	*read-only*	Link to a Key resource. See the Links section and the *Key* schema for details.
}			
RemoteServerCertificates *(v1.9+)* {	object		The link to a collection of server certificates for the server referenced by the `ImageURI` parameter in SimpleUpdate. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
RemoteServerSSHKeys *(v1.12+)* {	object		The link to a collection of keys that can be used to authenticate the server referenced by the `ImageURI` parameter in `SimpleUpdate`. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Key*. See the Key schema for details.
}			
ServiceEnabled	boolean	*read-write (null)*	An indication of whether this service is enabled.
SoftwareInventory {	object		An inventory of software. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *SoftwareInventory*. See the SoftwareInventory schema for details.
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
SupportedUpdateImageFormats *(v1.13+)* [ ]	array (string (enum))	*read-only (null)*	The image format types supported by the service. *For the possible property values, see SupportedUpdateImageFormats in Property details.*
UpdateServiceCapabilities *(v1.16+)* {	object		A link to the capabilities of the update service. See the *UpdateServiceCapabilities* schema for details on this property.
@odata.id	string	*read-only*	Link to a UpdateServiceCapabilities resource. See the Links section and the *UpdateServiceCapabilities* schema for details.

Property	Type	Attributes	Notes
}			
VerifyRemoteServerCertificate *(v1.9+)*	boolean	*read-write (null)*	An indication of whether the service will verify the certificate of the server referenced by the `ImageURI` parameter in `SimpleUpdate` prior to sending the transfer request.
VerifyRemoteServerSSHKey *(v1.12+)*	boolean	*read-write (null)*	An indication of whether the service will verify the SSH key of the server referenced by the `ImageURI` parameter in `SimpleUpdate` prior to sending the transfer request.

6.147.4 Actions

6.147.4.1 Activate *(v1.16+)*

Description

This action activates specified software inventory instance.

Action URI

{Base URI of target resource}/Actions/UpdateService.Activate

Action parameters

Parameter Name	Type	Attributes	Notes
Targets [{	array	*required*	The target software inventory instances to activate on staged devices.
@odata.id	string	*read-only*	Link to a SoftwareInventory resource. See the Links section and the *SoftwareInventory* schema for details.
}]			

Request Example

```
{
    "Targets": [
        {
            "@odata.id": "/redfish/v1/UpdateService/FirmwareInventory/BIOS-v120"
        },
        {
            "@odata.id": "/redfish/v1/UpdateService/FirmwareInventory/BMC-v990"
```

```
        }
    ]
}
```

6.147.4.2 GenerateSSHIdentityKeyPair *(v1.13+)*

Description

This action generates a new SSH identity key-pair to be used with the `UpdateService` resource. The generated public key is stored in the `Key` resource referenced by the `PublicIdentitySSHKey` property. Any existing key-pair is deleted and replaced by the new key-pair.

Action URI

{Base URI of target resource}/Actions/UpdateService.GenerateSSHIdentityKeyPair

Action parameters

Parameter Name	Type	Attributes	Notes
Curve	string (enum)	*optional*	The curve to use with the SSH key if the `KeyType` parameter contains `ECDSA`. *For the possible property values, see Curve in Property details.*
KeyLength	integer	*optional*	The length of the SSH key, in bits, if the `KeyType` parameter contains `RSA`.
KeyType	string (enum)	*required*	The type of SSH key. *For the possible property values, see KeyType in Property details.*

Request Example

```
{
    "KeyType": "Ed25519"
}
```

6.147.4.3 RemoveSSHIdentityKeyPair *(v1.13+)*

Description

This action removes the SSH identity key-pair used with the `UpdateService` resource.

Action URI

{Base URI of target resource}/Actions/UpdateService.RemoveSSHIdentityKeyPair

Action parameters

This action takes no parameters.

Request Example

```
{}
```

6.147.4.4 SimpleUpdate

Description

This action updates software components.

Action URI

{Base URI of target resource}/Actions/UpdateService.SimpleUpdate

Action parameters

Parameter Name	Type	Attributes	Notes
ForceUpdate *(v1.11+)*	boolean	*optional*	An indication of whether the service should bypass update policies when applying the provided image. The default is `false`.
ImageURI	string (URI)	*required*	The URI of the software image to install.
Password *(v1.4+)*	string	*optional*	The password to access the URI specified by the `ImageURI` parameter.
Stage *(v1.16+)*	boolean	*optional*	An indication of whether the service stages the image on target devices for a client to activate at a later time.
Targets *(v1.2+)* [ ]	array (URI) (string)	*optional*	An array of URIs that indicate where to apply the update image.
TransferProtocol	string (enum)	*optional*	The network protocol that the update service uses to retrieve the software image file located at the URI specified by the `ImageURI` parameter. This parameter is ignored if the URI provided in `ImageURI` contains a scheme. *For the possible property values, see TransferProtocol in Property details.*
Username *(v1.4+)*	string	*optional*	The username to access the URI specified by the `ImageURI` parameter.

Request Example

```
{
    "ImageURI": "https://images.contoso.org/bmc_0260_2021.bin"
}
```

6.147.4.5 StartUpdate *(v1.7+)*

Description

This action starts updating all images that have been previously invoked using an `OperationApplyTime` value of `OnStartUpdateRequest`.

Action URI

{Base URI of target resource}/Actions/UpdateService.StartUpdate

Action parameters

This action takes no parameters.

6.147.5 Property details

6.147.5.1 ApplyTime

The time when to apply the `HttpPushUri`-provided software update.

string	Description
AtMaintenanceWindowStart	Apply during an administrator-specified maintenance window.
Immediate	Apply immediately.
InMaintenanceWindowOnReset	Apply after a reset but within an administrator-specified maintenance window.
OnReset	Apply on a reset.
OnStartUpdateRequest *(v1.11+)*	Apply when the `StartUpdate` action of the update service is invoked.
OnTargetReset *(v1.14+)*	Apply when the target for the software update is reset. Targets include devices, services, and systems.

6.147.5.2 Curve

The curve to use with the SSH key if the `KeyType` parameter contains `ECDSA`.

string	Description
NISTB233	NIST B-233.
NISTB409	NIST B-409.
NISTK163	NIST K-163.
NISTK233	NIST K-233.
NISTK283	NIST K-283.
NISTK409	NIST K-409.
NISTP192	NIST P-192.
NISTP224	NIST P-224.
NISTP256	NIST P-256.
NISTP384	NIST P-384.
NISTP521	NIST P-521.
NISTT571	NIST T-571.

6.147.5.3 KeyType

The type of SSH key.

string	Description
DSA	DSA.
ECDSA	ECDSA.
Ed25519	Ed25519.
RSA	RSA.

6.147.5.4 SupportedUpdateImageFormats

The image format types supported by the service.

string	Description
PLDMv1_0	A PLDM for Firmware Update Specification v1.0 image.
PLDMv1_1	A PLDM for Firmware Update Specification v1.1 image.
PLDMv1_2	A PLDM for Firmware Update Specification v1.2 image.
PLDMv1_3	A PLDM for Firmware Update Specification v1.3 image.
UEFICapsule	The image conforms to the capsule format described in the UEFI Specification.
VendorDefined	A vendor-defined image.

6.147.5.5 TransferProtocol

The network protocol that the update service uses to retrieve the software image file located at the URI specified by the `ImageURI` parameter. This parameter is ignored if the URI provided in `ImageURI` contains a scheme.

string	Description
CIFS	Common Internet File System (CIFS).
FTP	File Transfer Protocol (FTP).
HTTP	Hypertext Transfer Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
NFS *(v1.3+)*	Network File System (NFS).
NSF *(deprecated v1.3)*	Network File System (NFS). *Deprecated in v1.3 and later. This value has been deprecated in favor of NFS.*
OEM	A manufacturer-defined protocol.
SCP	Secure Copy Protocol (SCP).
SFTP *(v1.1+)*	SSH File Transfer Protocol (SFTP).
TFTP	Trivial File Transfer Protocol (TFTP).

6.147.6 Example response


```
{
    "@odata.type": "#UpdateService.v1_16_0.UpdateService",
    "Id": "UpdateService",
```

```
    "Name": "Update service",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollup": "OK"
    },
    "ServiceEnabled": true,
    "HttpPushUri": "/FWUpdate",
    "FirmwareInventory": {
        "@odata.id": "/redfish/v1/UpdateService/FirmwareInventory"
    },
    "SoftwareInventory": {
        "@odata.id": "/redfish/v1/UpdateService/SoftwareInventory"
    },
    "Actions": {
        "#UpdateService.SimpleUpdate": {
            "target": "/redfish/v1/UpdateService/Actions/UpdateService.SimpleUpdate",
            "@Redfish.ActionInfo": "/redfish/v1/UpdateService/SimpleUpdateActionInfo"
        }
    },
    "@odata.id": "/redfish/v1/UpdateService"
}
```


6.148 UpdateServiceCapabilities 1.0.0

Version	*v1.0*
Release	2025.2

6.148.1 Description

The `UpdateServiceCapabilities` schema contains capabilities of the update service.

6.148.2 URIs

/redfish/v1/UpdateService/UpdateServiceCapabilities

6.148.3 Properties

Property	Type	Attributes	Notes
AllowableStaging [ ]	array (string)	*read-only*	The allowable URIs that a client can specify in the `Targets` parameter for update requests when requesting to stage an image on target devices.
AllowableTargets [ ]	array (string)	*read-only*	The allowable URIs that a client can specify in the `Targets` parameter for update requests.

6.148.4 Example response

```
{
    "@odata.type": "#UpdateServiceCapabilities.v1_0_0.UpdateServiceCapabilities",
    "Id": "UpdateServiceCapabilities",
    "Name": "Update Service Capabilities",
    "AllowableTargets": [
        "/redfish/v1/Managers/BMC",
        "/redfish/v1/Systems/437XR1138R2"
    ],
    "AllowableStaging": [
        "/redfish/v1/Managers/BMC",
        "/redfish/v1/Systems/437XR1138R2"
    ],
    "@odata.id": "/redfish/v1/UpdateService/UpdateServiceCapabilities"
}
```

6.149 USBController 1.0.1

Version	*v1.0*
Release	2021.1

6.149.1 Description

The `USBController` schema defines a Universal Serial Bus controller.

6.149.2 URIs

/redfish/v1/Systems/*{ComputerSystemId}*/USBControllers/*{USBControllerId}*

6.149.3 Properties

Property	Type	Attributes	Notes
Links {	object		The links to other resources that are related to this resource.
Oem {}	object		See the Oem object definition in the Common properties section.
PCIeDevice {	object		A link to the PCIe device that represents this USB controller. See the *PCIeDevice* schema for details on this property.
@odata.id	string	*read-only*	Link to a PCIeDevice resource. See the Links section and the *PCIeDevice* schema for details.
}			
Processors [{	array		An array of links to the processors that can utilize this USB controller.
@odata.id	string	*read-only*	Link to a Processor resource. See the Links section and the *Processor* schema for details.
}]			
}			
Manufacturer	string	*read-only* *(null)*	The manufacturer of this USB controller.
Model	string	*read-only* *(null)*	The product model number of this USB controller.
PartNumber	string	*read-only* *(null)*	The part number for this USB controller.
Ports {	object		The ports of the USB controller. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Port*. See the Port schema for details.
}			
SerialNumber	string	*read-only* *(null)*	The serial number for this USB controller.
SKU	string	*read-only* *(null)*	The SKU for this USB controller.
SparePartNumber	string	*read-only* *(null)*	The spare part number of the USB controller.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.

6.149.4 Example response


```
{
    "@odata.type": "#USBController.v1_0_1.USBController",
    "Id": "USB1",
    "Name": "Contoso USB Controller 1",
    "Manufacturer": "Contoso",
    "Model": "USBv3",
    "SKU": "80937",
    "SerialNumber": "2M220100SL",
    "PartNumber": "G37891",
    "SparePartNumber": "G37890",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Ports": {
        "@odata.id": "/redfish/v1/Systems/1/USBControllers/USB1/Ports"
    },
    "Links": {
        "Processors": [
            {
                "@odata.id": "/redfish/v1/Systems/1/Processors/1"
            },
            {
                "@odata.id": "/redfish/v1/Systems/1/Processors/2"
            }
        ]
    },
    "@odata.id": "/redfish/v1/Systems/1/USBControllers/USB1"
}
```


6.150 VCATEntry 1.0.3

Version	*v1.0*
Release	2019.4

6.150.1 Description

The `VCATEntry` schema defines an entry in a Virtual Channel Action Table. A Virtual Channel is a mechanism used to create multiple, logical communication streams across a physical link.

6.150.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/REQ-VCAT/*{VCATEntryId}*
/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/RSP-VCAT/*{VCATEntryId}*
/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/GenZ/VCAT/*{VCATEntryId}*
/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/VCAT/*{VCATEntryId}* (deprecated)
/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/REQ-VCAT/*{VCATEntryId}* (deprecated)
/redfish/v1/Chassis/*{ChassisId}*/FabricAdapters/*{FabricAdapterId}*/RSP-VCAT/*{VCATEntryId}* (deprecated)
/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*/GenZ/VCAT/*{VCATEntryId}*
/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*/VCAT/*{VCATEntryId}* (deprecated)
/redfish/v1/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/REQ-VCAT/*{VCATEntryId}*
/redfish/v1/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/GenZ/RSP-VCAT/*{VCATEntryId}*
/redfish/v1/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/GenZ/VCAT/*{VCATEntryId}*
/redfish/v1/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/Ports/*{PortId}*/VCAT/*{VCATEntryId}* (deprecated)
/redfish/v1/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/REQ-VCAT/*{VCATEntryId}* (deprecated)
/redfish/v1/Systems/*{SystemId}*/FabricAdapters/*{FabricAdapterId}*/RSP-VCAT/*{VCATEntryId}* (deprecated)
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.150.3 Properties

Property	Type	Attributes	Notes
RawEntryHex	string	*read-write (null)*	The hexadecimal value of the Virtual Channel Action Table entries.
VCEntries [{	array		An array of entries of the Virtual Channel Action Table.
Threshold	string	*read-write (null)*	The configured threshold.
VCMask	string	*read-write (null)*	The bits corresponding to the supported Virtual Channel.
}]			

6.150.4 Example response


```
{
    "@odata.type": "#VCATEntry.v1_0_3.VCATEntry",
    "Id": "0",
    "Name": "VCAT Entry 0",
    "Description": "Gen-Z Port 1 Virtual Channel Action Table Entry 0",
    "RawEntryHex": "0x123456",
```

```
    "VCEntries": [
        {
            "VCMask": "0x00000034",
            "Threshold": "0x12"
        },
        {
            "VCMask": "0x00000034",
            "Threshold": "0x12"
        },
        {
            "VCMask": "0x00000034",
            "Threshold": "0x12"
        },
        {
            "VCMask": "0x00000034",
            "Threshold": "0x12"
        }
    ],
    "@odata.id": "/redfish/v1/Fabrics/GenZ/Switches/Switch1/Ports/1/VCAT/0"
}
```


6.151 VirtualCXLSwitch 1.0.0

Version	*v1.0*
Release	2025.2

6.151.1 Description

The Virtual CXL Switch describes the virtual component with the CXL switch that is governed by a list of rules as prescribed in the CXL specification.

6.151.2 URIs

/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/VCSs/*{VirtualCXLSwitchId}*

6.151.3 Properties

Property	Type	Attributes	Notes
HDMDecoders	integer	*read-only*	The number of HDM (Host Device Memory) decoders present in this Virtual CXL Switch.

Property	Type	Attributes	Notes
Links {	object		The links to other resources that are related to this resource.
Endpoints [{	array		The links to the endpoints designated for this Virtual CXL Switch.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
Port {	object		The link to the local upstream port of the switch that is physically connected to a host or another switch for this Virtual CXL Switch. See the *Port* schema for details on this property.
@odata.id	string	*read-only*	Link to a Port resource. See the Links section and the *Port* schema for details.
}			
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
VCSId	string	*read-only*	The Virtual CXL Switch identifier.
VPPBs {	object		The link to the collection of vPPBs (Virtual PCI-to-PCI Bridges) for this Virtual CXL Switch. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *VirtualPCI2PCIBridge*. See the VirtualPCI2PCIBridge schema for details.
}			

6.151.4 Example response

```
{
    "@odata.type": "#VirtualCXLSwitch.v1_0_0.VirtualCXLSwitch",
    "Id": "1",
    "Name": "Virtual CXL Switch 1",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollup": "OK"
    },
    "VCSId": "1",
    "HDMDecoders": 12,
    "VPPBs": {
        "@odata.id": "/redfish/v1/Fabrics/CXL/Switches/CXL/VCSs/1/VPPBs"
```

```
    },
    "Links": {
        "Endpoints": [
            {
                "@odata.id": "/redfish/v1/Fabrics/CXL/Endpoints/1"
            }
        ]
    },
    "@odata.id": "/redfish/v1/Fabrics/CXL/Switches/CXL/VCSs/1"
}
```

6.152 VirtualMedia 1.6.5

Version	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2022.3	2021.2	2021.1	2018.3	2017.3	2017.1	1.0

6.152.1 Description

The `VirtualMedia` schema contains properties related to the monitor and control of an instance of virtual media, such as a remote CD, DVD, or USB device. A manager for a system or device provides virtual media functionality.

6.152.2 URIs

/redfish/v1/Managers/*{ManagerId}*/VirtualMedia/*{VirtualMediaId}* (deprecated)
/redfish/v1/Systems/*{ComputerSystemId}*/VirtualMedia/*{VirtualMediaId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.152.3 Properties

Property	Type	Attributes	Notes
Certificates *(v1.4+)* {	object		The link to a collection of server certificates for the server referenced by the `Image` property. Contains a link to a resource.
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
ClientCertificates *(v1.5+)* {	object		The link to a collection of client identity certificates provided to the server referenced by the `Image` property. Contains a link to a resource.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to Collection of *Certificate*. See the Certificate schema for details.
}			
ConnectedVia	string (enum)	*read-only* *(null)*	The current virtual media connection method. *For the possible property values, see ConnectedVia in Property details.*
EjectPolicy *(v1.6+)*	string (enum)	*read-write* *(null)*	The ejection policy for the virtual media. *For the possible property values, see EjectPolicy in Property details.*
EjectTimeout *(v1.6+)*	string (duration)	*read-write* *(null)*	Timeout value before the virtual media is automatically ejected.
Image	string (URI)	*read-write* *(null)*	The URI of the location of the selected image.
ImageName	string	*read-only* *(null)*	The current image name.
Inserted	boolean	*read-write* *(null)*	An indication of whether the media is mounted and visible to the host system.
MediaTypes [ ]	array (string (enum))	*read-only*	The media types supported as virtual media. *For the possible property values, see MediaTypes in Property details.*
Password *(v1.3+)*	string	*read-write* *(null)*	The password to access the URI specified by the `Image` property. The value is `null` in responses.
Status *(v1.4+)* {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
TransferMethod *(v1.3+)*	string (enum)	*read-write* *(null)*	The transfer method to use with the image. *For the possible property values, see TransferMethod in Property details.*
TransferProtocolType *(v1.3+)*	string (enum)	*read-write* *(null)*	The network protocol to use with the URI specified by the `Image` property. *For the possible property values, see TransferProtocolType in Property details.*
UserName *(v1.3+)*	string	*read-write* *(null)*	The username to access the URI specified by the `Image` property.
VerifyCertificate *(v1.4+)*	boolean	*read-write* *(null)*	An indication of whether the service will verify the certificate of the server referenced by the `Image` property prior to completing the remote media connection.
WriteProtected	boolean	*read-write* *(null)*	An indication of whether the media is write-protected.

6.152.4 Actions

6.152.4.1 EjectMedia *(v1.2+)*

Description

This action detaches remote media from virtual media.

Action URI

{Base URI of target resource}/Actions/VirtualMedia.EjectMedia

Action parameters

This action takes no parameters.

6.152.4.2 InsertMedia *(v1.2+)*

Description

This action attaches remote media to virtual media.

Action URI

{Base URI of target resource}/Actions/VirtualMedia.InsertMedia

Action parameters

Parameter Name	Type	Attributes	Notes
Image	string	*required*	The URI of the media to attach to the virtual media.
Inserted	boolean	*optional*	An indication of whether the image is treated as mounted and visible to the host system upon completion of the action. The default is `true`.
Password *(v1.3+)*	string	*optional*	The password to access the URI specified by the `Image` parameter.
TransferMethod *(v1.3+)*	string (enum)	*optional*	The transfer method to use with the image. *For the possible property values, see TransferMethod in Property details.*
TransferProtocolType *(v1.3+)*	string (enum)	*optional*	The network protocol to use with the URI specified by the `Image` parameter. *For the possible property values, see TransferProtocolType in Property details.*
UserName *(v1.3+)*	string	*optional*	The username to access the URI specified by the `Image` parameter.

Parameter Name	Type	Attributes	Notes
WriteProtected	boolean	*optional*	An indication of whether the remote media is treated as write-protected. The default is `true`.

Request Example

```
{
    "Image": "https://192.168.1.225/boot_image.iso",
    "Inserted": true,
    "WriteProtected": true
}
```

6.152.5 Property details

6.152.5.1 ConnectedVia

The current virtual media connection method.

string	Description
Applet	Connected to a client application.
NotConnected	No current connection.
Oem	Connected through an OEM-defined method.
URI	Connected to a URI location.

6.152.5.2 EjectPolicy

The ejection policy for the virtual media.

string	Description
AfterUse	The virtual media ejection occurs after the media is used.
OnPowerOff	The virtual media ejection occurs during a system power or reset event.
Persistent	The virtual media mount information persists indefinitely.
Session	The virtual media ejection occurs when a session is terminated. The session might be outside the Redfish service.

string	Description
Timed	The virtual media ejection occurs when a timer configured by the `EjectTimeout` property expires.

6.152.5.3 MediaTypes

The media types supported as virtual media.

string	Description
CD	A CD-ROM format (ISO) image.
DVD	A DVD-ROM format image.
Floppy	A floppy disk image.
USBStick	An emulation of a USB storage device.

6.152.5.4 TransferMethod

The transfer method to use with the image.

string	Description
Stream	Stream image file data from the source URI.
Upload	Upload the entire image file from the source URI to the service.

6.152.5.5 TransferProtocolType

The network protocol to use with the URI specified by the `Image` parameter.

string	Description
CIFS	Common Internet File System (CIFS).
FTP	File Transfer Protocol (FTP).
HTTP	Hypertext Transfer Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
NFS	Network File System (NFS).

string	Description
OEM	A manufacturer-defined protocol.
SCP	Secure Copy Protocol (SCP).
SFTP	SSH File Transfer Protocol (SFTP).
TFTP	Trivial File Transfer Protocol (TFTP).

6.152.6 Example response

```
{
    "@odata.type": "#VirtualMedia.v1_6_5.VirtualMedia",
    "Id": "CD1",
    "Name": "Virtual CD",
    "MediaTypes": [
        "CD",
        "DVD"
    ],
    "Image": "redfish.dmtf.org/freeImages/freeOS.1.1.iso",
    "ImageName": "mymedia-read-only",
    "ConnectedVia": "Applet",
    "Inserted": true,
    "WriteProtected": false,
    "@odata.id": "/redfish/v1/Managers/BMC/VirtualMedia/CD1"
}
```

6.153 VirtualPCI2PCIBridge 1.0.0

Version	*v1.0*
Release	2025.2

6.153.1 Description

The `VirtualPCI2PCIBridge` schema describes Virtual PCI-to-PCI Bridge (vPPB) inside a CXL switch that is owned by the host.

6.153.2 URIs

/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/VCSs/*{VirtualCXLSwitchId}*/VPPBs/*{VirtualPCI2PCIBridgeId}*

6.153.3 Properties

Property	Type	Attributes	Notes
BindingStatus	string (enum)	*read-only*	The binding status of the vPPB. *For the possible property values, see BindingStatus in Property details.*
BoundLDId	integer	*read-only*	The identifier of the bound local logical device.
BoundPBRId	integer	*read-only*	The identifier of the bound PBR.
BoundPortId	integer	*read-only*	The physical port number of the bound port.
GCXLID	string	*read-only* *(null)*	The GCXLID for the CXL logical device bound to this vPPB.
Links {	object		The links to other resources that are related to this resource.
Endpoints [{	array		The links to the endpoints associated with this vPPB.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
Port {	object	*(null)*	The link to the port associated with this vPPB. See the *Port* schema for details on this property.
@odata.id	string	*read-write*	Link to a Port resource. See the Links section and the *Port* schema for details.
}			
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
VPPBId	string	*read-only* *(null)*	The Virtual PCI-PCI Bridge identifier.

6.153.4 Property details

6.153.4.1 BindingStatus

The binding status of the vPPB.

string	Description
BoundLD	This vPPB is bound to a CXL logical device.
BoundPhysicalPort	This vPPB is bound to a physical port.
BoundPID	This vPPB is bound to a PBR ID.
Busy	Binding or unbinding is in progress for this vPPB.
Unbound	This vPPB is in unbound state.

6.153.5 Example response


```
{
    "@odata.type": "#VirtualPCI2PCIBridge.v1_0_0.VirtualPCI2PCIBridge",
    "Id": "1",
    "Name": "vPPB 1",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollup": "OK"
    },
    "VPPBId": "1",
    "BindingStatus": "BoundLD",
    "BoundLDId": 6,
    "GCXLID": "4C-1D-96-FF-FE-DD-D8-35:0001",
    "Links": {
        "Endpoints": [
            {
                "@odata.id": "/redfish/v1/Fabrics/CXL/Endpoints/1"
            }
        ],
        "Port": {
            "@odata.id": "/redfish/v1/Fabrics/CXL/Switches/CXL/Ports/D3"
        }
    },
    "@odata.id": "/redfish/v1/Fabrics/CXL/Switches/CXL/VCSs/1/VPPBs/1"
}
```


6.154 VLanNetworkInterface 1.3.1 (deprecated)

Version	*v1.3 Deprecated*	*v1.2*	*v1.1*	*v1.0*
Release	2021.2	2020.4	2017.1	1.0

This schema has been deprecated and use in new implementations is discouraged except to retain compatibility with existing products. This schema has been deprecated in favor of using individual `EthernetInterface` resources to show VLAN information.

6.154.1 Description

The `VLanNetworkInterface` schema describes a VLAN network instance that is available on a manager, system, or other device.

6.154.2 URIs

/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/NetworkDeviceFunctions/*{NetworkDeviceFunctionId}*/Ethernet/VLANs/*{VLanNetworkInterfaceId}* (deprecated)
/redfish/v1/Managers/*{ManagerId}*/EthernetInterfaces/*{EthernetInterfaceId}*/VLANs/*{VLanNetworkInterfaceId}* (deprecated)
/redfish/v1/Systems/*{ComputerSystemId}*/EthernetInterfaces/*{EthernetInterfaceId}*/VLANs/*{VLanNetworkInterfaceId}* (deprecated)
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.154.3 Properties

Property	Type	Attributes	Notes
VLANEnable	boolean	*read-write* *required on create* *(null)*	An indication of whether this VLAN is enabled for this interface.
VLANId	integer	*read-write* *required on create* *(null)*	The ID for this VLAN.
VLANPriority *(v1.2+)*	integer	*read-write* *(null)*	The priority for this VLAN.

6.154.4 Example response

```
{
    "@odata.type": "#VLanNetworkInterface.v1_3_1.VLanNetworkInterface",
    "Id": "1",
    "Name": "VLAN Network Interface",
    "Description": "System NIC 1 VLAN",
```

```
    "VLANEnable": true,
    "VLANId": 101,
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/EthernetInterfaces/12446A3B0411/VLANs/1"
}
```


6.155 Volume 1.10.1

Version	*v1.10*	*v1.9*	*v1.8*	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*
Release	1.2.6	1.2.5	1.2.4	1.2.3	1.2.1	1.2.0	1.1.0	1.0.6a	1.0.5

6.155.1 Description

Volume contains properties used to describe a volume, virtual disk, LUN, or other logical storage entity for any system.

6.155.2 URIs

/redfish/v1/Storage/*{StorageId}*/ConsistencyGroups/*{ConsistencyGroupId}*/Volumes/*{VolumeId}*
/redfish/v1/Storage/*{StorageId}*/FileSystems/*{FileSystemId}*/CapacitySources/*{CapacitySourceId}*/ProvidingVolumes/*{VolumeId}*
/redfish/v1/Storage/*{StorageId}*/StoragePools/*{StoragePoolId}*/AllocatedVolumes/*{VolumeId}*
/redfish/v1/Storage/*{StorageId}*/StoragePools/*{StoragePoolId}*/CapacitySources/*{CapacitySourceId}*/ProvidingVolumes/*{VolumeId}*
/redfish/v1/Storage/*{StorageId}*/Volumes/*{VolumeId}*
/redfish/v1/StorageServices/*{StorageServiceId}*/ConsistencyGroups/*{ConsistencyGroupId}*/Volumes/*{VolumeId}*
/redfish/v1/StorageServices/*{StorageServiceId}*/FileSystems/*{FileSystemId}*/CapacitySources/*{CapacitySourceId}*/ProvidingVolumes/*{VolumeId}*
/redfish/v1/StorageServices/*{StorageServiceId}*/StoragePools/*{StoragePoolId}*/AllocatedVolumes/*{VolumeId}*
/redfish/v1/StorageServices/*{StorageServiceId}*/StoragePools/*{StoragePoolId}*/CapacitySources/*{CapacitySourceId}*/ProvidingVolumes/*{VolumeId}*
/redfish/v1/StorageServices/*{StorageServiceId}*/Volumes/*{VolumeId}*
/redfish/v1/StorageServices/*{StorageServiceId}*/Volumes/*{VolumeId}*/CapacitySources/*{CapacitySourceId}*/ProvidingVolumes/*{ProvidingVolumeId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/ConsistencyGroups/*{ConsistencyGroupId}*/Volumes/*{VolumeId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/FileSystems/*{FileSystemId}*/CapacitySources/*{CapacitySourceId}*/ProvidingVolumes/*{VolumeId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StoragePools/*{StoragePoolId}*/AllocatedVolumes/*{VolumeId}*

/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StoragePools/*{StoragePoolId}*/CapacitySources/*{CapacitySourceId}*/ProvidingVolumes/*{VolumeId}*
/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Volumes/*{VolumeId}*
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

6.155.3 Properties

Property	Type	Attributes	Notes
AccessCapabilities *(v1.1+)* [ ]	array (string (enum))	*read-write (null)*	Supported IO access capabilities. *For the possible property values, see AccessCapabilities in Property details.*
AllocatedPools *(v1.1+)* {}	object		An array of references to StoragePools allocated from this Volume.
ALUA *(v1.10+)* {	object	*(null)*	ALUA properties for this volume.
ANAGroupId *(v1.10+)*	number	*read-only (null)*	The ANA group id for this volume.
}			
BlockSizeBytes	integer (bytes)	*read-only (null)*	The size of the smallest addressable unit (Block) of this volume in bytes.
Capacity *(v1.1+)*		*read-write*	Capacity utilization.
CapacityBytes	integer (bytes)	*read-write (null)*	The size in bytes of this Volume.
CapacitySources *(v1.1+)* [{	array		An array of space allocations to this volume.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
Compressed *(v1.4+)*	boolean	*read-write (null)*	Indicator of whether or not the Volume has compression enabled.
Connections *(v1.9+)* [{	array		An array of references to Connections that includes this volume.
@odata.id	string	*read-only*	Link to a Connection resource. See the Links section and the *Connection* schema for details.
}]			

Property	Type	Attributes	Notes
Deduplicated *(v1.4+)*	boolean	*read-write (null)*	Indicator of whether or not the Volume has deduplication enabled.
DisplayName *(v1.4+)*	string	*read-write (null)*	A user-configurable string to name the volume.
Encrypted	boolean	*read-write (null)*	Is this Volume encrypted.
EncryptionTypes [ ]	array (string (enum))	*read-write*	The types of encryption used by this Volume. *For the possible property values, see EncryptionTypes in Property details.*
Identifiers [{ }]	array (object)		The Durable names for the volume. For property details, see Identifier.
InitializeMethod *(v1.6+)*	string (enum)	*read-only (null)*	Indicates the Initialization Method used for this volume. If InitializeMethod is not specified, the InitializeMethod should be Foreground. *For the possible property values, see InitializeMethod in Property details.*
IOPerfModeEnabled *(v1.5+)*	boolean	*read-write (null)*	Indicates the IO performance mode setting for the volume.
IOStatistics *(v1.2+, deprecated v1.10)* {}	object		Statistics for this volume. For property details, see IOStatistics v1.0.4). *Deprecated in v1.10 and later. This property is deprecated in favor of the IOStatistics property in VolumeMetrics.*
IsBootCapable *(v1.7+)*	boolean	*read-write (null)*	This property indicates whether or not the Volume contains a boot image and is capable of booting.
Links {	object		Contains references to other resources that are related to this resource.
CacheDataVolumes *(v1.6+)* [{	array		A pointer to the data volumes this volume serves as a cache volume.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
CacheVolumeSource *(v1.6+)* {}	object	*(null)*	A pointer to the cache volume source for this volume.
ClassOfService *(v1.1+)* {}	object		The ClassOfService that this storage volume conforms to.
ClientEndpoints *(v1.4+)* [{	array		An array of references to the client Endpoints associated with this volume.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
ConsistencyGroups *(v1.4+)* [{	array		An array of references to the ConsistencyGroups associated with this volume.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
Controllers *(v1.9+)* [{	array		An array of the Controllers associated with this volume.
@odata.id	string	*read-only*	Link to a StorageController resource. See the Links section and the *StorageController* schema for details.
}]			
DedicatedSpareDrives *(v1.2+)* [{	array		An array of references to the drives which are dedicated spares for this volume.
@odata.id	string	*read-write*	Link to a Drive resource. See the Links section and the *Drive* schema for details.
}]			
Drives [{	array		An array of references to the drives which contain this volume. This will reference Drives that either wholly or only partly contain this volume.
@odata.id	string	*read-only*	Link to a Drive resource. See the Links section and the *Drive* schema for details.
}]			
JournalingMedia *(v1.5+)* {}	object	*(null)*	A pointer to the Resource that serves as a journaling media for this volume.
Oem {}	object		See the Oem object definition in the Common properties section.
OwningStorageResource *(v1.5+)* {	object		A pointer to the Storage resource that owns or contains this volume. See the *Storage* schema for details on this property.
@odata.id	string	*read-only*	Link to a Storage resource. See the Links section and the *Storage* schema for details.
}			

Property	Type	Attributes	Notes
OwningStorageService *(v1.4+)* {}	object		A pointer to the StorageService that owns or contains this volume.
ProvidingStoragePool *(v1.10+)* {}	object	*(null)*	The StoragePool resource that provides this volume resource.
ServerEndpoints *(v1.4+)* [{	array		An array of references to the server Endpoints associated with this volume.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
SpareResourceSets *(v1.3+)* [{	array		An array of references to SpareResourceSets.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
StorageGroups *(v1.4+)* [{	array		An array of references to the StorageGroups associated with this volume.
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
}			
LogicalUnitNumber *(v1.4+)*	integer	*read-only (null)*	Indicates the host-visible LogicalUnitNumber assigned to this Volume.
LowSpaceWarningThresholdPercents *(v1.1+)* [ ]	array (%) (integer, null)	*read-write*	Low space warning.
Manufacturer *(v1.1+)*	string	*read-only (null)*	The manufacturer or OEM of this storage volume.
MaxBlockSizeBytes *(v1.1+)*	integer (bytes)	*read-only (null)*	Max Block size in bytes.
MediaSpanCount *(v1.4+)*	integer	*read-only (null)*	Indicates the number of media elements used per span in the secondary RAID for a hierarchical RAID type.
Metrics *(v1.9+)* {}	object		The link to the metrics for this volume.

Property	Type	Attributes	Notes
Model *(v1.1+)*	string	*read-only (null)*	The model number for this storage volume.
NVMeNamespaceProperties *(v1.5+)* {	object	*(null)*	This property contains properties to use when Volume is used to describe an NVMe Namespace.
FormattedLBASize *(v1.5+)*	string	*read-only (null)*	The LBA data size and metadata size combination that the namespace has been formatted with.
IsShareable *(v1.5+)*	boolean	*read-write (null)*	Indicates the namespace is shareable.
LBAFormat *(v1.9+)* {	object	*(null)*	Describes the current LBA format ID and detailed properties.
LBADataSizeBytes *(v1.9+)*	integer	*read-only (null)*	The LBA data size in bytes.
LBAFormatType *(v1.9+)*	string (enum)	*read-only (null)*	The LBA format type. *For the possible property values, see LBAFormatType in Property details.*
LBAMetadataSizeBytes *(v1.9+)*	integer	*read-only (null)*	The LBA metadata size in bytes.
RelativePerformance *(v1.9+)*	string (enum)	*read-only (null)*	The LBA Relative Performance type. *For the possible property values, see RelativePerformance in Property details.*
}			
LBAFormats *(v1.9+)* [{	array		Describes the LBA format IDs and detailed properties.
LBADataSizeBytes *(v1.9+)*	integer	*read-only (null)*	The LBA data size in bytes.
LBAFormatType *(v1.9+)*	string (enum)	*read-only (null)*	The LBA format type. *For the possible property values, see LBAFormatType in Property details.*
LBAMetadataSizeBytes *(v1.9+)*	integer	*read-only (null)*	The LBA metadata size in bytes.
RelativePerformance *(v1.9+)*	string (enum)	*read-only (null)*	The LBA Relative Performance type. *For the possible property values, see RelativePerformance in Property details.*
}]			
LBAFormatsSupported *(v1.8+)* [ ]	array (string (enum))	*read-only (null)*	A list of the LBA format types supported for the namespace, or potential namespaces. *For the possible property values, see LBAFormatsSupported in Property details.*

Property	Type	Attributes	Notes
MetadataTransferredAtEndOfDataLBA *(v1.5+)*	boolean	*read-only (null)*	This property indicates whether or not the metadata is transferred at the end of the LBA creating an extended data LBA.
NamespaceFeatures *(v1.5+)* {	object	*(null)*	This property contains a set of Namespace Features.
SupportsAtomicTransactionSize *(v1.5+)*	boolean	*read-only (null)*	Indicates that the NVM fields for Namespace preferred write granularity (NPWG), write alignment (NPWA), deallocate granularity (NPDG), deallocate alignment (NPDA) and optimal write size (NOWS) are defined for this namespace and should be used by the host for I/O optimization.
SupportsDeallocatedOrUnwrittenLBError *(v1.5+)*	boolean	*read-only (null)*	This property indicates that the controller supports deallocated or unwritten logical block error for this namespace.
SupportsIOPerformanceHints *(v1.5+)*	boolean	*read-only (null)*	Indicates that the Namespace Atomic Write Unit Normal (NAWUN), Namespace Atomic Write Unit Power Fail (NAWUPF), and Namespace Atomic Compare and Write Unit (NACWU) fields are defined for this namespace and should be used by the host for this namespace instead of the controller-level properties AWUN, AWUPF, and ACWU.
SupportsNGUIDReuse *(v1.5+)*	boolean	*read-only (null)*	This property indicates that the namespace supports the use of an NGUID (namespace globally unique identifier) value.
SupportsThinProvisioning *(v1.5+)*	boolean	*read-only (null)*	This property indicates whether or not the NVMe Namespace supports thin provisioning.
}			
NamespaceId *(v1.5+)*	string	*read-only (null)*	The NVMe Namespace Identifier for this namespace.
NamespaceType *(v1.9+)*	string (enum)	*read-only (null)*	Identifies the type of namespace. *For the possible property values, see NamespaceType in Property details.*
NumberLBAFormats *(v1.5+)*	integer (bytes)	*read-only (null)*	The number of LBA data size and metadata size combinations supported by this namespace. The value of this property is between 0 and 16.
NVMeVersion *(v1.5+)*	string	*read-only (null)*	The version of the NVMe Base Specification supported.
SupportsIOPerformanceHints *(v1.10+)*	boolean	*read-only (null)*	Indicates whether the namespace supports IO performance hints.
SupportsMultipleNamespaceAttachments *(v1.10+)*	boolean	*read-only (null)*	Indicates whether the namespace may be attached to two or more controllers.

Property	Type	Attributes	Notes
Type *(v1.8+)*	string (enum)	*read-only (null)*	Identifies the type of namespace. *For the possible property values, see Type in Property details.*
}			
Operations [{	array		The operations currently running on the Volume.
AssociatedFeaturesRegistry {}	object		A reference to the task associated with the operation if any.
Operation *(v1.9+)*	string (enum)	*read-only (null)*	The type of the operation. *For the possible property values, see Operation in Property details.*
OperationName *(deprecated v1.9)*	string	*read-only (null)*	The name of the operation. *Deprecated in v1.9 and later. This property is deprecated in favor of the Operation property using the Operation enum.*
PercentageComplete	integer	*read-only (null)*	The percentage of the operation that has been completed.
}]			
OptimumIOSizeBytes	integer (bytes)	*read-only (null)*	The size in bytes of this Volume's optimum IO size.
ProvisioningPolicy *(v1.4+)*	string (enum)	*read-write (null)*	This property specifies the volume's storage allocation, or provisioning policy. *For the possible property values, see ProvisioningPolicy in Property details.*
RAIDType *(v1.3.1+)*	string (enum)	*read-only (null)*	The RAID type of this volume. *For the possible property values, see RAIDType in Property details.*
ReadCachePolicy *(v1.4+)*	string (enum)	*read-write (null)*	Indicates the read cache policy setting for the Volume. *For the possible property values, see ReadCachePolicy in Property details.*
RecoverableCapacitySourceCount *(v1.3+)*	integer	*read-write (null)*	Current number of capacity source resources that are available as replacements.
RemainingCapacityPercent *(v1.2+)*	integer	*read-only (null)*	The percentage of the capacity remaining in the Volume.
RemoteReplicaTargets *(v1.8+)* [ ]	array (string, null)	*read-only*	URIs to the resources that are remote target replicas of this source.
ReplicaInfo *(v1.1+)* {}	object		Describes this storage volume in its role as a target replica. For property details, see ReplicaInfo v1.4.0).
ReplicaTargets *(v1.3+)* [{	array		The resources that are target replicas of this source.

Property	Type	Attributes	Notes
@odata.id	string (URI)	*read-only*	The unique identifier for a resource.
}]			
ReplicationEnabled *(v1.9+)*	boolean	*read-write (null)*	Indicates whether or not replication is enabled on the volume.
Status {}	object		The property contains the status of the Volume. For property details, see Status.
StorageGroups *(v1.1+, deprecated v1.9)* {}	object		An array of references to Storage Groups that includes this volume. *Deprecated in v1.9 and later. This property is deprecated in favor of the Connections property.*
StripSizeBytes *(v1.4+)*	integer (bytes)	*read-write (null)*	The number of blocks (bytes) in a strip in a disk array that uses striped data mapping.
VolumeType	string (enum)	*read-only (null)*	The type of this volume. *For the possible property values, see VolumeType in Property details.*
VolumeUsage *(v1.4+)*	string (enum)	*read-only (null)*	Indicates the Volume usage type setting for the Volume. *For the possible property values, see VolumeUsage in Property details.*
WriteCachePolicy *(v1.4+)*	string (enum)	*read-write (null)*	Indicates the write cache policy setting for the Volume. *For the possible property values, see WriteCachePolicy in Property details.*
WriteCacheState *(v1.4+)*	string (enum)	*read-only (null)*	Indicates the WriteCacheState policy setting for the Volume. *For the possible property values, see WriteCacheState in Property details.*
WriteHoleProtectionPolicy *(v1.4+)*	string (enum)	*read-write*	The policy that the RAID volume is using to address the write hole issue. *For the possible property values, see WriteHoleProtectionPolicy in Property details.*

6.155.4 Actions

6.155.4.1 AssignReplicaTarget *(v1.4+)*

Description

This action is used to establish a replication relationship by assigning an existing volume to serve as a target replica for an existing source volume.

Action URI

{Base URI of target resource}/Actions/Volume.AssignReplicaTarget

Action parameters

Parameter Name	Type	Attributes	Notes
ReplicaType	string (enum)	*required*	The type of replica relationship to be created. *For the possible property values, see ReplicaType in Property details.*
ReplicaUpdateMode	string (enum)	*required*	The replica update mode (synchronous vs asynchronous). *For the possible property values, see ReplicaUpdateMode in Property details.*
TargetVolume	string	*required*	The Uri to the existing target volume.

Request Example

```
{
    "ReplicaUpdateMode": "Synchronous",
    "TargetVolume": "/redfish/v1/Storage/1/ConsistencyGroup/CG_DB2",
    "ReplicaType": "Mirror"
}
```

6.155.4.2 ChangeRAIDLayout *(v1.5+)*

Description

Request system change the RAID layout of the volume.

Action URI

{Base URI of target resource}/Actions/Volume.ChangeRAIDLayout

Action parameters

Parameter Name	Type	Attributes	Notes
Drives [{	array	*optional*	An array of the drives to be used by the volume.
@odata.id	string	*read-only*	Link to a Drive resource. See the Links section and the *Drive* schema for details.
}]			
MediaSpanCount	integer	*optional*	The requested number of media elements used per span in the secondary RAID for a hierarchical RAID type.

Parameter Name	Type	Attributes	Notes
RAIDType	string (enum)	*optional*	The requested RAID type for the volume. *For the possible property values, see RAIDType in Property details.*
StripSizeBytes	integer	*optional*	The number of blocks (bytes) requested for new strip size.

Request Example

```
{
    "Drives": [
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Drives/Bay1A"
        },
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Drives/Bay2A"
        },
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Drives/Bay3B"
        },
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Drives/Bay4B"
        }
    ],
    "RAIDType": "RAID6"
}
```

6.155.4.3 CheckConsistency

Description

This action is used to force a check of the Volume's parity or redundant data to ensure it matches calculated values.

Action URI

{Base URI of target resource}/Actions/Volume.CheckConsistency

Action parameters

This action takes no parameters.

6.155.4.4 CreateReplicaTarget *(v1.4+)*

Description

This action is used to create a new volume resource to provide expanded data protection through a replica relationship with the specified source volume.

Action URI

{Base URI of target resource}/Actions/Volume.CreateReplicaTarget

Action parameters

Parameter Name	Type	Attributes	Notes
ReplicaType	string (enum)	*required*	The type of replica relationship to be created. *For the possible property values, see ReplicaType in Property details.*
ReplicaUpdateMode	string (enum)	*required*	The replica update mode (synchronous vs asynchronous). *For the possible property values, see ReplicaUpdateMode in Property details.*
TargetStoragePool	string	*required*	The Uri to the existing target Storage Pool.
VolumeName	string	*optional*	The Name for the new target volume.

Request Example

```
{
    "VolumeName": "Mirror of Volume 65",
    "ReplicaUpdateMode": "Synchronous",
    "TargetStoragePool": "/redfish/v1/Storage/1/StoragePools/PrimaryPool",
    "ReplicaType": "Mirror"
}
```

6.155.4.5 ForceEnable *(v1.5+)*

Description

Request system force the volume to an enabled state regardless of data loss.

Action URI

{Base URI of target resource}/Actions/Volume.ForceEnable

Action parameters

This action takes no parameters.

6.155.4.6 Initialize *(v1.5+)*

Description

This action is used to prepare the contents of the volume for use by the system. If InitializeMethod is not specified in the request body, but the property InitializeMethod is specified, the property InitializeMethod value should be used. If neither is specified, the InitializeMethod should be Foreground.

Action URI

{Base URI of target resource}/Actions/Volume.Initialize

Action parameters

Parameter Name	Type	Attributes	Notes
InitializeMethod	string (enum)	*optional*	The type of initialization to be performed. *For the possible property values, see InitializeMethod in Property details.*
InitializeType	string (enum)	*optional*	The type of initialization to be performed. *For the possible property values, see InitializeType in Property details.*

Request Example

```
{
    "InitializeMethod": "Background",
    "InitializeType": "Fast"
}
```

6.155.4.7 RemoveReplicaRelationship *(v1.4+)*

Description

This action is used to disable data synchronization between a source and target volume, remove the replication relationship, and optionally delete the target volume.

Action URI

{Base URI of target resource}/Actions/Volume.RemoveReplicaRelationship

Action parameters

Parameter Name	Type	Attributes	Notes
DeleteTargetVolume	boolean	*optional*	Indicate whether or not to delete the target volume as part of the operation.
TargetVolume	string	*required*	The Uri to the existing target volume.

Request Example

```
{
    "TargetVolume": "/redfish/v1/Storage/1/StoragePools/PrimaryPool/AllocatedVolumes/650973452245",
    "DeleteTargetVolume": "false"
}
```

6.155.4.8 ResumeReplication *(v1.4+)*

Description

This action is used to resume the active data synchronization between a source and target volume, without otherwise altering the replication relationship.

Action URI

{Base URI of target resource}/Actions/Volume.ResumeReplication

Action parameters

Parameter Name	Type	Attributes	Notes
TargetVolume	string	*required*	The Uri to the existing target volume.

Request Example

```
{
    "TargetVolume": "/redfish/v1/Storage/1/StoragePools/PrimaryPool/AllocatedVolumes/650973452245"
}
```

6.155.4.9 ReverseReplicationRelationship *(v1.4+)*

Description

This action is used to reverse the replication relationship between a source and target volume.

Action URI

{Base URI of target resource}/Actions/Volume.ReverseReplicationRelationship

Action parameters

Parameter Name	Type	Attributes	Notes
TargetVolume	string	*required*	The Uri to the existing target volume.

Request Example

```
{
    "TargetVolume": "/redfish/v1/Storage/1/StoragePools/PrimaryPool/AllocatedVolumes/650973452245"
}
```

6.155.4.10 SplitReplication *(v1.4+)*

Description

This action is used to split the replication relationship and suspend data synchronization between a source and target volume.

Action URI

{Base URI of target resource}/Actions/Volume.SplitReplication

Action parameters

Parameter Name	Type	Attributes	Notes
TargetVolume	string	*required*	The Uri to the existing target volume.

Request Example

```
{
    "TargetVolume": "/redfish/v1/Storage/1/StoragePools/PrimaryPool/AllocatedVolumes/650973452245"
}
```

6.155.4.11 SuspendReplication *(v1.4+)*

Description

This action is used to suspend active data synchronization between a source and target volume, without otherwise altering the replication relationship.

Action URI

{Base URI of target resource}/Actions/Volume.SuspendReplication

Action parameters

Parameter Name	Type	Attributes	Notes
TargetVolume	string	*required*	The Uri to the existing target volume.

Request Example

```
{
    "TargetVolume": "/redfish/v1/Storage/1/StoragePools/PrimaryPool/AllocatedVolumes/650973452245"
}
```

6.155.5 Property details

6.155.5.1 AccessCapabilities

Supported IO access capabilities.

string	Description
Append	AppendOnly.
Execute	Execute access is allowed by the file share.
Read	Read.
Streaming	Streaming.
Write	Write Many.
WriteOnce	WriteOnce.

6.155.5.2 EncryptionTypes

The types of encryption used by this Volume.

string	Description
ControllerAssisted	The volume is being encrypted by the storage controller entity.
NativeDriveEncryption	The volume is utilizing the native drive encryption capabilities of the drive hardware.
SoftwareAssisted	The volume is being encrypted by software running on the system or the operating system.

6.155.5.3 idRef

@odata.id	string (URI)	*read-only*	The unique identifier for a resource.

6.155.5.4 InitializeMethod

The type of initialization to be performed.

string	Description
Background	The volume will be available for use immediately, with data erasure and preparation to happen as background tasks.
Foreground	Data erasure and preparation tasks will complete before the volume is presented as available for use.
Skip	The volume will be available for use immediately, with no preparation.

6.155.5.5 InitializeType

The type of initialization to be performed.

string	Description
Fast	The volume is prepared for use quickly, typically by erasing just the beginning and end of the space so that partitioning can be performed.
Slow	The volume is prepared for use slowly, typically by completely erasing the volume.

6.155.5.6 LBAFormatsSupported

A list of the LBA format types supported for the namespace, or potential namespaces.

string	Description
LBAFormat0	LBAFormat0 is a required type. Indicates the LBA data size supported.
LBAFormat1	Indicates the LBA data size if supported.
LBAFormat10	Indicates the LBA data size supported if supported.
LBAFormat11	Indicates the LBA data size supported if supported.
LBAFormat12	Indicates the LBA data size supported if supported.
LBAFormat13	Indicates the LBA data size supported if supported.
LBAFormat14	Indicates the LBA data size supported if supported.
LBAFormat15	Indicates the LBA data size supported if supported.
LBAFormat2	Indicates the LBA data size supported if supported.
LBAFormat3	Indicates the LBA data size supported if supported.
LBAFormat4	Indicates the LBA data size supported if supported.
LBAFormat5	Indicates the LBA data size supported if supported.
LBAFormat6	Indicates the LBA data size supported if supported.
LBAFormat7	Indicates the LBA data size supported if supported.
LBAFormat8	Indicates the LBA data size supported if supported.
LBAFormat9	Indicates the LBA data size supported if supported.

6.155.5.7 LBAFormatType

The LBA format type.

string	Description
LBAFormat0	LBAFormat0 is a required type. Indicates the LBA data size supported.
LBAFormat1	Indicates the LBA data size if supported.

string	Description
LBAFormat10	Indicates the LBA data size supported if supported.
LBAFormat11	Indicates the LBA data size supported if supported.
LBAFormat12	Indicates the LBA data size supported if supported.
LBAFormat13	Indicates the LBA data size supported if supported.
LBAFormat14	Indicates the LBA data size supported if supported.
LBAFormat15	Indicates the LBA data size supported if supported.
LBAFormat2	Indicates the LBA data size supported if supported.
LBAFormat3	Indicates the LBA data size supported if supported.
LBAFormat4	Indicates the LBA data size supported if supported.
LBAFormat5	Indicates the LBA data size supported if supported.
LBAFormat6	Indicates the LBA data size supported if supported.
LBAFormat7	Indicates the LBA data size supported if supported.
LBAFormat8	Indicates the LBA data size supported if supported.
LBAFormat9	Indicates the LBA data size supported if supported.

6.155.5.8 NamespaceType

Identifies the type of namespace.

string	Description
Block	The namespace is configured for use with a block storage interface.
Computational	The namespace is configured for use with a computational storage interface.
KeyValue	The namespace is configured for use with a KeyValue interface.
ZNS	The namespace is configured for use with a zoned storage interface.

6.155.5.9 Operation

The type of the operation.

string	Description
ChangeRAIDType	A ChangeRAIDType operation is being performed.
ChangeStripSize	A ChangeStripSize operation is being performed.
CheckConsistency	A CheckConsistency operation is being performed.
Compress	A Compress operation is being performed.
Decrypt	A Decrypt operation is being performed.
Deduplicate	A Deduplicate operation is being performed.
Delete	A Delete operation is being performed.
Encrypt	An Encrypt operation is being performed.
Format	A Format operation is being performed.
Initialize	An Initialize operation is being performed.
Rebuild	A Rebuild operation is being performed.
Replicate	A Replicate operation is being performed.
Resize	A Resize operation is being performed.
Sanitize	A Sanitize operation is being performed.

6.155.5.10 ProvisioningPolicy

This property specifies the volume's storage allocation, or provisioning policy.

string	Description
Fixed	Storage is fully allocated.
Thin	Storage may be over allocated.

6.155.5.11 RAIDType

The requested RAID type for the volume.

string	Description
None	A placement policy with no redundancy at the device level.

string	Description
RAID0	A placement policy where consecutive logical blocks of data are uniformly distributed across a set of independent storage devices without offering any form of redundancy.
RAID00	A placement policy that creates a RAID 0 stripe set over two or more RAID 0 sets.
RAID01	A data placement policy that creates a mirrored device (RAID 1) over a set of striped devices (RAID 0).
RAID1	A placement policy where each logical block of data is stored on more than one independent storage device.
RAID10	A placement policy that creates a striped device (RAID 0) over a set of mirrored devices (RAID 1).
RAID10E	A placement policy that uses a RAID 0 stripe set over two or more RAID 10 sets.
RAID10Triple	A placement policy that uses a striped device (RAID 0) over a set of triple mirrored devices (RAID 1Triple).
RAID1E	A placement policy that uses a form of mirroring implemented over a set of independent storage devices where logical blocks are duplicated on a pair of independent storage devices so that data is uniformly distributed across the storage devices.
RAID1Triple	A placement policy where each logical block of data is mirrored three times across a set of three independent storage devices.
RAID3	A placement policy using parity-based protection where logical bytes of data are uniformly distributed across a set of independent storage devices and where the parity is stored on a dedicated independent storage device.
RAID4	A placement policy using parity-based protection where logical blocks of data are uniformly distributed across a set of independent storage devices and where the parity is stored on a dedicated independent storage device.
RAID5	A placement policy using parity-based protection for storing stripes of 'n' logical blocks of data and one logical block of parity across a set of 'n+1' independent storage devices where the parity and data blocks are interleaved across the storage devices.
RAID50	A placement policy that uses a RAID 0 stripe set over two or more RAID 5 sets of independent storage devices.
RAID6	A placement policy using parity-based protection for storing stripes of 'n' logical blocks of data and two logical blocks of independent parity across a set of 'n+2' independent storage devices where the parity and data blocks are interleaved across the storage devices.
RAID60	A placement policy that uses a RAID 0 stripe set over two or more RAID 6 sets of independent storage devices.
RAID6TP	A placement policy that uses parity-based protection for storing stripes of 'n' logical blocks of data and three logical blocks of independent parity across a set of 'n+3' independent storage devices where the parity and data blocks are interleaved across the storage devices.

6.155.5.12 ReadCachePolicy

Indicates the read cache policy setting for the Volume.

string	Description
AdaptiveReadAhead	A caching technique in which the controller dynamically determines whether to pre-fetch data anticipating future read requests, based on previous cache hit ratio.
Off	The read cache is disabled.
ReadAhead	A caching technique in which the controller pre-fetches data anticipating future read requests.

6.155.5.13 RelativePerformance

The LBA Relative Performance type.

string	Description
Best	Best performance.
Better	Better performance.
Degraded	Degraded performance.
Good	Good performance.

6.155.5.14 ReplicaType

The type of replica relationship to be created.

string	Description
Clone	Create a point in time, full copy the source.
Mirror	Create and maintain a copy of the source.
Snapshot	Create a point in time, virtual copy of the source.
TokenizedClone	Create a token based clone.

6.155.5.15 ReplicaUpdateMode

The replica update mode (synchronous vs asynchronous).

string	Description
Active	Active-Active (i.e. bidirectional) synchronous updates.
Adaptive	Allows implementation to switch between synchronous and asynchronous modes.
Asynchronous	Asynchronous updates.
Synchronous	Synchronous updates.

6.155.5.16 Type

Identifies the type of namespace.

string	Description
Block	The namespace is configured for use with a block storage interface.
Computational	The namespace is configured for use with a computational storage interface.
KeyValue	The namespace is configured for use with a KeyValue interface.
ZNS	The namespace is configured for use with a zoned storage interface.

6.155.5.17 VolumeType

The type of this volume.

string	Description
Mirrored	The volume is a mirrored device.
NonRedundant	The volume is a non-redundant storage device.
RawDevice	The volume is a raw physical device without any RAID or other virtualization applied.
SpannedMirrors	The volume is a spanned set of mirrored devices.
SpannedStripesWithParity	The volume is a spanned set of devices which uses parity to retain redundant information.
StripedWithParity	The volume is a device which uses parity to retain redundant information.

6.155.5.18 VolumeUsage

Indicates the Volume usage type setting for the Volume.

string	Description
CacheOnly	The volume is allocated for use as a non-consumable cache only volume.
Data	The volume is allocated for use as a consumable data volume.
ReplicationReserve	The volume is allocated for use as a non-consumable reserved volume for replication use.
SystemData	The volume is allocated for use as a consumable data volume reserved for system use.
SystemReserve	The volume is allocated for use as a non-consumable system reserved volume.

6.155.5.19 WriteCachePolicy

Indicates the write cache policy setting for the Volume.

string	Description
Off	The write cache is disabled.
ProtectedWriteBack	A caching technique in which the completion of a write request is signaled as soon as the data is in cache, and actual writing to non-volatile media is guaranteed to occur at a later time.
UnprotectedWriteBack	A caching technique in which the completion of a write request is signaled as soon as the data is in cache; actual writing to non-volatile media is not guaranteed to occur at a later time.
WriteThrough	A caching technique in which the completion of a write request is not signaled until data is safely stored on non-volatile media.

6.155.5.20 WriteCacheState

Indicates the WriteCacheState policy setting for the Volume.

string	Description
Degraded	Indicates an issue with the cache state in which the cache space is diminished or disabled due to a failure or an outside influence such as a discharged battery.
Protected	Indicates that the cache state type in use generally protects write requests on non-volatile media.

string	Description
Unprotected	Indicates that the cache state type in use generally does not protect write requests on non-volatile media.

6.155.5.21 WriteHoleProtectionPolicy

The policy that the RAID volume is using to address the write hole issue.

string	Description
DistributedLog	The policy that distributes additional log among the volume's capacity sources to address write hole issue.
Journaling	The policy that uses separate block device for write-ahead logging to address write hole issue.
Oem	The policy that is Oem specific.
Off	The volume is not using any policy to address the write hole issue.

6.155.6 Example response


```
{
    "@odata.type": "#Volume.v1_10_2.Volume",
    "Id": "2",
    "Name": "Virtual Disk 2",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Encrypted": false,
    "RAIDType": "RAID0",
    "CapacityBytes": 107374182400,
    "Identifiers": [
        {
            "DurableNameFormat": "UUID",
            "DurableName": "0324c96c-8031-4f5e-886c-50cd90aca854"
        }
    ],
    "Links": {
        "Drives": [
            {
                "@odata.id": "/redfish/v1/Chassis/1U/Drives/3D58ECBC375FD9F2"
            }
        ]
    },
    "Actions": {
        "#Volume.Initialize": {
```

```
            "target": "/redfish/v1/Systems/3/Storage/RAIDIntegrated/Volumes/1/Actions/Volume.Initialize",
            "InitializeType@Redfish.AllowableValues": [
                "Fast",
                "Slow"
            ]
        }
    },
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1/Volumes/2"
}
```


6.156 Zone 1.6.3

Version	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
Release	2020.4	2020.3	2019.4	2019.1	2017.3	2017.1	2016.2

6.156.1 Description

The `Zone` schema describes a simple fabric zone for a Redfish implementation.

6.156.2 URIs

/redfish/v1/CompositionService/ResourceZones/*{ZoneId}*
/redfish/v1/Fabrics/*{FabricId}*/Zones/*{ZoneId}*

6.156.3 Properties

Property	Type	Attributes	Notes
DefaultRoutingEnabled *(v1.4+)*	boolean	*read-write (null)*	This property indicates whether routing within this zone is enabled.
ExternalAccessibility *(v1.3+)*	string (enum)	*read-write (null)*	Indicates accessibility of endpoints in this zone to endpoints outside of this zone. *For the possible property values, see ExternalAccessibility in Property details.*
Identifiers *(v1.2+)* [{ }]	array (object)		The durable names for the zone. For property details, see Identifier.
Links {	object		The links to other resources that are related to this resource.
AddressPools *(v1.4+)* [{	array		An array of links to the address pools associated with this zone.

Property	Type	Attributes	Notes
@odata.id	string	*read-only*	Link to a AddressPool resource. See the Links section and the *AddressPool* schema for details.
}]			
ContainedByZones *(v1.4+)* [{	array		An array of links to the zone that contain this zone.
@odata.id	string	*read-only*	Link to another Zone resource.
}]			
ContainsZones *(v1.4+)* [{	array		An array of links to the zones that are contained by this zone.
@odata.id	string	*read-write*	Link to another Zone resource.
}]			
Endpoints [{	array		The links to the endpoints that this zone contains.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}]			
InvolvedSwitches [{	array		The links to the collection of switches in this zone.
@odata.id	string	*read-only*	Link to a Switch resource. See the Links section and the *Switch* schema for details.
}]			
Oem {}	object		See the Oem object definition in the Common properties section.
ResourceBlocks *(v1.1+)* [{	array		The links to the resource blocks with which this zone is associated.
@odata.id	string	*read-only*	Link to a ResourceBlock resource. See the Links section and the *ResourceBlock* schema for details.
}]			
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. For property details, see Status.
ZoneType *(v1.4+)*	string (enum)	*read-write (null)*	The type of zone. *For the possible property values, see ZoneType in Property details.*

6.156.4 Actions

6.156.4.1 AddEndpoint *(v1.5+)*

Description

This action adds an endpoint to a zone.

Action URI

{Base URI of target resource}/Actions/Zone.AddEndpoint

Action parameters

Parameter Name	Type	Attributes	Notes
Endpoint {	object	*required*	The endpoint to add to the zone. See the *Endpoint* schema for details on this property.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}			
EndpointETag	string	*optional*	The current ETag of the endpoint to add to the zone.
ZoneETag	string	*optional*	The current ETag of the zone.

Request Example

```
{
    "Endpoint": {
        "@odata.id": "/redfish/v1/Fabrics/SAS/Endpoints/Initiator1"
    },
    "EndpointETag": "W/\"19472363938\"",
    "ZoneETag": "W/\"99374369273\""
}
```

6.156.4.2 RemoveEndpoint *(v1.5+)*

Description

This action removes an endpoint from a zone.

Action URI

{Base URI of target resource}/Actions/Zone.RemoveEndpoint

Action parameters

Parameter Name	Type	Attributes	Notes
Endpoint {	object	*required*	The endpoint to remove from the zone. See the *Endpoint* schema for details on this property.
@odata.id	string	*read-only*	Link to a Endpoint resource. See the Links section and the *Endpoint* schema for details.
}			
EndpointETag	string	*optional*	The current ETag of the endpoint to remove from the system.
ZoneETag	string	*optional*	The current ETag of the zone.

Request Example

```
{
    "Endpoint": {
        "@odata.id": "/redfish/v1/Fabrics/SAS/Endpoints/Initiator1"
    },
    "EndpointETag": "W/\"19472363938\"",
    "ZoneETag": "W/\"99374369273\""
}
```

6.156.5 Property details

6.156.5.1 ExternalAccessibility

Indicates accessibility of endpoints in this zone to endpoints outside of this zone.

string	Description
GloballyAccessible	Any external entity with the correct access details, which might include authorization information, can access the endpoints that this zone lists.
NoInternalRouting	Routing is not enabled within this zone.
NonZonedAccessible	Any external entity that another zone does not explicitly list can access the endpoints that this zone lists.
ZoneOnly	Only accessible by endpoints that this zone explicitly lists.

6.156.5.2 ZoneType

The type of zone.

string	Description
Default	The zone in which all endpoints are added by default when instantiated.
ZoneOfEndpoints	A zone that contains endpoints.
ZoneOfResourceBlocks *(v1.6+)*	A zone that contains resource blocks.
ZoneOfZones	A zone that contains zones.

6.156.6 Example response


```
{
    "@odata.type": "#Zone.v1_6_3.Zone",
    "Id": "1",
    "Name": "SAS Zone 1",
    "Description": "SAS Zone 1",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Links": {
        "Endpoints": [
            {
                "@odata.id": "/redfish/v1/Fabrics/SAS/Endpoints/Initiator1"
            },
            {
                "@odata.id": "/redfish/v1/Fabrics/SAS/Endpoints/Initiator2"
            },
            {
                "@odata.id": "/redfish/v1/Fabrics/SAS/Endpoints/Drive1"
            },
            {
                "@odata.id": "/redfish/v1/Fabrics/SAS/Endpoints/Drive3"
            }
        ]
    },
    "@odata.id": "/redfish/v1/Fabrics/SAS/Zones/1"
}
```

7 Redfish documentation generator

This document was created using the Redfish Documentation Generator utility, which uses the contents of the Redfish schema files (in JSON schema format) to automatically generate the bulk of the text. The source code for the utility is available for download at DMTF's GitHub repository located at https://www.github.com/DMTF/Redfish-Tools.

8 ANNEX A (informative) Change log

Version	Date	Description
2025.2	2025-05-01	Release built from Redfish schemas released in DSP8010 version 2025.2.
2025.1	2025-02-05	Release built from Redfish schemas released in DSP8010 version 2025.1.
2024.4	2024-11-27	Release built from Redfish schemas released in DSP8010 version 2024.4.
2024.3	2024-08-01	Release built from Redfish schemas released in DSP8010 version 2024.3.
2024.2	2024-06-06	Release built from Redfish schemas released in DSP8010 version 2024.2.
2024.1	2024-04-04	Release built from Redfish schemas released in DSP8010 version 2024.1.
2023.3	2023-11-30	Release built from Redfish schemas released in DSP8010 version 2023.3.
2023.2	2023-08-11	Release built from Redfish schemas released in DSP8010 version 2023.2.
		Removed ResourceBlock-related URIs from listings for brevity.
2023.1	2023-04-06	Release built from Redfish schemas released in DSP8010 version 2023.1.
2022.3	2022-12-08	Release built from Redfish schemas released in DSP8010 version 2022.3.
		Added `uuid` and `duration` as known string formats.
		Corrected missing `required` notations on array properties.
		Added supplemental details for `HealthRollup`.
2022.2	2022-08-04	Release built from Redfish schemas released in DSP8010 version 2022.2.
2022.1	2022-04-15	Release built from Redfish schemas released in DSP8010 version 2022.1.
2021.4	2021-12-02	Release built from Redfish schemas released in DSP8010 version 2021.4.
		Added Collection Capabilities section under Resource Collections.
2021.3	2021-10-15	Release built from Redfish schemas released in DSP8010 version 2021.3.
2021.2	2021-08-13	Release built from Redfish schemas released in DSP8010 version 2021.2.
		Corrected format of UUID from RFC4122.
2021.1	2021-04-16	Release built from Redfish schemas released in DSP8010 version 2021.1.
		Document formatting updated for Documentation Generator v3.
2020.4	2020-12-01	Release built from Redfish schemas released in DSP8010 version 2020.4.
2020.3	2020-08-14	Release built from Redfish schemas released in DSP8010 version 2020.3.

Version	Date	Description
		Corrected issue that caused read-write links to be listed as read-only.
2020.2	2020-05-08	Release built from Redfish schemas released in DSP8010 version 2020.2.
2020.1	2020-03-27	Release built from Redfish schemas released in DSP8010 version 2020.1.
2019.4	2019-12-06	Release built from Redfish schemas released in DSP8010 version 2019.4.
2019.3	2019-10-11	Release built from Redfish schemas released in DSP8010 version 2019.3.
2019.2	2019-09-13	Release built from Redfish schemas released in DSP8010 version 2019.2.
2019.1	2019-05-03	Release built from Redfish schemas released in DSP8010 version 2019.1.
		Added release version history to match each schema to the DSP8010 version that included it.
		Added action URIs to the Action Details section, and removed the Action object from the property table for clarity.
2018.3	2018-12-15	Release built from Redfish schemas released in DSP8010 version 2018.3.
2018.2	2018-08-10	Release built from Redfish schemas released in DSP8010 version 2018.2.
		Expanded introduction section with additional information.
		Expanded Common Objects section to include previously excluded objects.
		Added URI listings for all Resources for use with Redfish Specification v1.6.0.
		Added Resource Collection table showing schema names and URIs.
		Restructured common objects section utilizing new Documentation Generator functions.
2018.1	2018-05-01	Initial release. Built from Redfish schemas released in DSP8010 version 2018.1.
2017.0a	2017-05-19	Work in progress release to gather feedback on content and format.