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Redfish Telemetry Streaming and Reporting Proposal

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

CONTENTS

- 1 Foreword 6
 - 1.1 How can I provide feedback? 6
 - 1.2 Where can I find more information? 6
 - 1.3 Using the reference guide 7
 - 1.4 Common Properties 7
- 2 Schema Reference Guide 8
 - 2.1 EventDestination 1.16.0 8
 - 2.1.1 Description 8
 - 2.1.2 URIs 8
 - 2.1.3 Properties 8
 - 2.1.4 Actions 11
 - 2.1.4.1 ResumeSubscription 11
 - 2.1.4.2 SuspendSubscription (v1.12+) 12
 - 2.1.5 Property details 12
 - 2.1.5.1 AuthenticationProtocol 12
 - 2.1.5.2 DeliveryRetryPolicy 13
 - 2.1.5.3 EncryptionProtocol 13
 - 2.1.5.4 EventFormatType 14
 - 2.1.5.5 EventTypes 14
 - 2.1.5.6 LogFacilities 14
 - 2.1.5.7 LowestSeverity 15
 - 2.1.5.8 Protocol 16
 - 2.1.5.9 Severities 17
 - 2.1.5.10 SubscriptionType 17
 - 2.1.5.11 TransferProtocol 17
 - 2.1.6 Example response 18
 - 2.2 EventService 1.11.0 18
 - 2.2.1 Description 19
 - 2.2.2 URIs 19
 - 2.2.3 Properties 19
 - 2.2.4 Actions 22
 - 2.2.4.1 SubmitTestEvent 22
 - 2.2.4.2 TestEventSubscription (v1.10+) 23
 - 2.2.5 Property details 23
 - 2.2.5.1 Authentication 23
 - 2.2.5.2 ConnectionProtocol 24
 - 2.2.5.3 EventFormatTypes 24
 - 2.2.5.4 EventType 24
 - 2.2.5.5 EventTypesForSubscription 25
 - 2.2.5.6 MessageSeverity 25
 - 2.2.5.7 Severities 25

2.2.5.8 SupportedTransferProtocols	26
2.2.6 Example response	26
2.3 Sensor 1.10.2	27
2.3.1 Description	27
2.3.2 URIs	27
2.3.3 Properties	28
2.3.4 Actions	35
2.3.4.1 ResetMetrics	35
2.3.4.2 ResetToDefaults (v1.6+)	36
2.3.5 Property details	36
2.3.5.1 Activation	36
2.3.5.2 ElectricalContext	36
2.3.5.3 Implementation	37
2.3.5.4 PhysicalContext	38
2.3.5.5 PhysicalSubContext	40
2.3.5.6 ReadingBasis	40
2.3.5.7 ReadingType	40
2.3.5.8 VoltageType	42
2.3.6 Example response	42
2.4 TelemetryFeed 1.0.0	43
2.4.1 Description	43
2.4.2 URIs	43
2.4.3 Properties	43
2.4.4 Actions	44
2.4.4.1 DeleteAllReports	44
2.4.4.2 DeleteReport	45
2.4.5 Property details	45
2.4.5.1 IncludeEntireResource	45
2.4.6 Example response	46
2.5 TelemetryService 1.4.0	46
2.5.1 Description	47
2.5.2 URIs	47
2.5.3 Properties	47
2.5.4 Actions	48
2.5.4.1 ClearMetricReports (v1.3+)	48
2.5.4.2 ResetMetricReportDefinitionsToDefaults (v1.3+)	49
2.5.4.3 ResetTriggersToDefaults (v1.3+)	49
2.5.4.4 SubmitTestMetricReport	49
2.5.5 Property details	51
2.5.5.1 SupportedCollectionFunctions	51
2.5.5.2 TelemetryReportOverWritePolicy	51
2.5.6 Example response	51
3 Redfish documentation generator	53

1 Foreword

This Informational Specification covers a proposal to enhance the Redfish Telemetry Service to support streaming of telemetry records from a defined feed, and to produce reports based on those records.

IMPORTANT: These documents are not final. They do not necessarily reflect the views of DMTF or its members. Because these documents are a Work in Progress, these documents may still change, perhaps profoundly and without notice. These documents are available for public review and comment until superseded.

The following files are part of the Redfish Telemetry Enhancement proposal:

- `Mockup` folder containing an updated `public-pdu` mockup. This mockup contains a Rack PDU with the TelemetryService enhanced to include TelemetryFeeds, and EventDestination instances demonstrating subscriptions to both a telemetry stream and a telemetry report delivered to a remote client.
- `Metadata` folder containing new or updated Redfish schema files. The contents of these schema files are detailed in the Schema Reference Guide section of this document. * Redfish Telemetry Streaming and Reporting WIP v0.8.PDF - Presentation describing the proposed enhancements to the Telemetry Service and the Redfish data model.
- Redfish Telemetry Proposal Worksheet WIP v0.8.PDF - Worksheet listing the proposed contents of the telemetry records for the applicable schemas.
- `Outlets-09232024T140000.jsonl` Sample telemetry report in JSON Lines format. This report contains data from a number of Outlet resources from a PDU, collected at 1 minute intervals over a 1 hour reporting period.

1.1 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.
- **Redfish Github Repository:** DMTF Redfish Forum member companies are encouraged to open issues on the group's private repository on Github.

1.2 Where can I find more information?

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

- **Redfish Developer Hub:** <http://redfish.dmtf.org> - Resources for developers building applications using Redfish. Contains an interactive schema explorer, hosted schema and other links.

- **Redfish User Forum:** <https://redfishforum.com> - User forum monitored by DMTF Redfish personnel to answer questions about any Redfish-related topics.
- **DMTF Github Repositories:** <http://www.github.com/DMTF> - Open source tools and libraries for working with the Redfish API.
- **Redfish Standards:** <https://www.dmtf.org/standards/redfish> - Schemas, specs, mockups, white papers, FAQ, educational material and more.
- **DMTF Redfish Forum** (Working group that maintains the Redfish standard): <http://www.dmtf.org/standards/spmf> - Companies involved, upcoming schedules and future work, charter, and information about joining.

1.3 Using the reference guide

The proposed telemetry extension schemas are listed in the following section for reference. This section should be considered an extension to the contents of DSP2046, the Redfish Resource and Schema Guide, which lists the common Redfish properties, other object definitions, and all released Redfish schemas (including those shown here).

This guide was produced using the contents of the schema files from DMTF Redfish Schema bundle DSP8010 and merged with supplemental text using DMTF's [Redfish Documentation Generator](#).

1.4 Common Properties

Properties and objects defined for all Redfish schemas, or referenced by this white paper are detailed in the Redfish Resource and Schema Guide (DSP2046), available for download at the Redfish Standards site: <https://www.dmtf.org/standards/redfish>

2 Schema Reference Guide

2.1 EventDestination 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	2024.4	2024.3	2023.3	2022.3	2022.1	2021.2	2020.4	2020.3	2020.1	2019.3	2019.2	...

2.1.1 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.

2.1.2 URIs

`/redfish/v1/EventService/Subscriptions/{EventDestinationId}`

2.1.3 Properties

Property	Type	Attributes	Notes
BackupDestinations (v1.15+) []	array (URI) (string, null)	<i>read-write</i>	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 <code>Destination</code> property. Contains a link to a resource.
@odata.id	string	<i>read-only</i>	Link to Collection of <i>Certificate</i> . 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 <code>Destination</code> property. Contains a link to a resource.
@odata.id	string	<i>read-only</i>	Link to Collection of <i>Certificate</i> . See the Certificate schema for details.
}			
Context	string	<i>read-write required (null)</i>	A client-supplied string that is stored with the event destination subscription.

Property	Type	Attributes	Notes
DeliveryRetryPolicy (v1.6+)	string (enum)	<i>read-write</i> (null)	The subscription delivery retry policy for events, where the subscription type is <code>RedfishEvent</code> . For the possible property values, see <i>DeliveryRetryPolicy</i> in <i>Property details</i> .
Destination	string (URI)	<i>read-only</i> <i>required on create</i>	The URI of the destination event receiver.
EventFormatType (v1.4+)	string (enum)	<i>read-only</i> (null)	The content types of the message that are sent to the <code>EventDestination</code> . For the possible property values, see <i>EventFormatType</i> in <i>Property details</i> .
EventTypes (deprecated v1.5) []	array (string (enum))	<i>read-only</i>	The types of events that are sent to the destination. For the possible property values, see <i>EventTypes</i> in <i>Property details</i> . <i>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.</i>
ExcludeMessageIds (v1.12+) []	array (string, null)	<i>read-only</i>	The list of <code>MessageId</code> values that are not sent to this event destination.
ExcludeRegistryPrefixes (v1.12+) []	array (string, null)	<i>read-only</i>	The list of prefixes for the message registries that contain the <code>MessageId</code> values that are not sent to this event destination.
HeartbeatIntervalMinutes (v1.11+)	integer	<i>read-only</i> (null)	Interval for sending heartbeat events to the destination in minutes.
HttpHeaders [{ (pattern) }]	array string	<i>read-write</i>	An array of settings for HTTP headers, such as authorization information. This array is <code>null</code> or an empty array in responses. An empty array is the preferred return value on read operations. Property names follow regular expression pattern <code>"^[^:\s]+\$"</code>
IncludeOriginOfCondition (v1.8+)	boolean	<i>read-only</i> (null)	An indication of whether the events subscribed to will also include the entire resource or object referenced by the <code>OriginOfCondition</code> property in the event payload.
MessageIds (v1.1+) []	array (string, null)	<i>read-only</i>	The list of <code>MessageId</code> values that are sent to this event destination.
MetricReportDefinitions (v1.6+) [{}]	array (object)		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. See the <i>MetricReportDefinition</i> schema for details on this property.
OEMProtocol (v1.9+)	string	<i>read-only</i>	The OEM-defined protocol type of the event connection.

Property	Type	Attributes	Notes
OEMSubscriptionType (v1.9+)	string	<i>read-only</i>	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)	<i>read-only</i>	The unique identifier for a resource.
}]			
Password (v1.16+)	string	<i>read-write</i> (null)	The password to access the URI specified by the <code>Destination</code> property.
Protocol	string (enum)	<i>read-only</i> <i>required on create</i>	The protocol type of the event connection. <i>For the possible property values, see Protocol in Property details.</i>
RegistryPrefixes (v1.4+) []	array (string, null)	<i>read-only</i>	The list of prefixes for the message registries that contain the <code>MessageId</code> values that are sent to this event destination.
ResourceTypes (v1.4+) []	array (string, null)	<i>read-only</i>	The list of resource type values (schema names) that correspond to the <code>OriginOfCondition</code> . The version and full namespace should not be specified.
SendHeartbeat (v1.11+)	boolean	<i>read-only</i> (null)	Send a heartbeat event periodically to the destination.
Severities (v1.13+) []	array (string (enum))	<i>read-only</i> (null)	The list of severities that are sent to this event destination. <i>For the possible property values, see Severities in Property details.</i>
SNMP (v1.7+) {	object		Settings for an SNMP event destination.
AuthenticationKey (v1.7+)	string	<i>read-write</i> (null)	The secret authentication key for SNMPv3.
AuthenticationKeySet (v1.10+)	boolean	<i>read-only</i>	Indicates if the <code>AuthenticationKey</code> property is set.
AuthenticationProtocol (v1.7+)	string (enum)	<i>read-write</i> (null)	The authentication protocol for SNMPv3. <i>For the possible property values, see AuthenticationProtocol in Property details.</i>
EncryptionKey (v1.7+)	string	<i>read-write</i> (null)	The secret authentication key for SNMPv3.
EncryptionKeySet (v1.10+)	boolean	<i>read-only</i>	Indicates if the <code>EncryptionKey</code> property is set.
EncryptionProtocol (v1.7+)	string (enum)	<i>read-write</i> (null)	The encryption protocol for SNMPv3. <i>For the possible property values, see EncryptionProtocol in Property details.</i>
TrapCommunity (v1.7+)	string	<i>read-write</i> (null)	The SNMP trap community string.

Property	Type	Attributes	Notes
}			
Status (v1.6+) {}	object		The status and health of the resource and its subordinate or dependent resources. See the <i>Resource</i> schema for details on this property.
SubordinateResources (v1.4+)	boolean	<i>read-only</i> (<i>null</i>)	An indication of whether the subscription is for events in the <code>OriginResources</code> array and its subordinate resources. If <code>true</code> and the <code>OriginResources</code> array is specified, the subscription is for events in the <code>OriginResources</code> array and its subordinate resources. Note that resources associated through the Links section are not considered subordinate. If <code>false</code> and the <code>OriginResources</code> array is specified, the subscription is for events in the <code>OriginResources</code> array only. If the <code>OriginResources</code> array is not present, this property has no relevance.
SubscriptionType (v1.3+)	string (enum)	<i>read-only</i> <i>required</i> (<i>null</i>)	The subscription type for events. <i>For the possible property values, see SubscriptionType in Property details.</i>
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))	<i>read-write</i> (<i>null</i>)	The types of programs that can log messages. <i>For the possible property values, see LogFacilities in Property details.</i>
LowestSeverity (v1.9+)	string (enum)	<i>read-write</i> (<i>null</i>)	The lowest severity level message that will be forwarded. <i>For the possible property values, see LowestSeverity in Property details.</i>
}]			
TelemetryFeedIds (v1.16+) []	array (string, null)	<i>read-only</i>	The identifiers for the telemetry feeds which define this subscription.
TransferProtocol (v1.16+)	string (enum)	<i>read-write</i> (<i>null</i>)	The network file transfer protocol to use with the URI specified by the <code>Destination</code> property. <i>For the possible property values, see TransferProtocol in Property details.</i>
Username (v1.16+)	string	<i>read-write</i> (<i>null</i>)	The username to access the URI specified by the <code>Destination</code> property.
VerifyCertificate (v1.9+)	boolean	<i>read-write</i> (<i>null</i>)	An indication of whether the service will verify the certificate of the server referenced by the <code>Destination</code> property prior to sending the event.

2.1.4 Actions

2.1.4.1 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)	<i>optional</i>	The maximum age of buffered events that should be delivered when resuming the subscription.

Request Example

```
{
  "DeliverBufferedEventDuration": "PT8H"
}
```

2.1.4.2 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.

2.1.5 Property details**2.1.5.1 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.

2.1.5.2 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.

2.1.5.3 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.

2.1.5.4 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.
TelemetryFeed (v1.16+)	The subscription destination receives a telemetry feed payload.
TelemetryReport (v1.16+)	The subscription destination receives a telemetry report payload.

2.1.5.5 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 <code>EventType</code> is deprecated as of Redfish Specification v1.6, the event is based on a registry or resource but not an <code>EventType</code> .
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.

2.1.5.6 LogFacilities

The types of programs that can log messages.

string	Description
Auth	Security/authentication messages.
Authpriv	Security/authentication messages.

string	Description
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.
NTP	NTP subsystem.
Security	Log audit.
SolarisCron	Scheduling daemon.
Syslog	Messages generated internally by syslogd.
User	User-level messages.
UUCP	UUCP subsystem.

2.1.5.7 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.
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.

2.1.5.8 Protocol

The protocol type of the event connection.

string	Description
FileTransfer (v1.15+)	The destination follows the TransferProtocol selection for receiving file-based content.
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.

2.1.5.9 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.

2.1.5.10 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 <code>POST</code> 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.
TelemetryFeed (v1.16+)	The subscription is a Redfish telemetry feed.

2.1.5.11 TransferProtocol

The network file transfer protocol to use with the URI specified by the `Destination` property.

string	Description
CIFS	Common Internet File System (CIFS).
FTP	File Transfer Protocol (FTP).
HTTP	Hypertext Transfer Protocol (HTTP).

string	Description
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).

2.1.6 Example response

```
{
  "@odata.type": "#EventDestination.v1_15_0.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"
}
```

2.2 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	2024.4	2023.1	2022.3	2022.1	2020.2	2020.1	2019.3	2019.2	2019.1	2018.2	2018.1	...
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2.2.1 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.

2.2.2 URIs

/redfish/v1/EventService

2.2.3 Properties

Property	Type	Attributes	Notes
DeliveryRetryAttempts	integer	<i>read-write</i>	The number of times that the <code>POST</code> of an event is retried before the subscription terminates. This retry occurs at the service level, which means that the HTTP <code>POST</code> to the event destination fails with an HTTP <code>4XX</code> or <code>5XX</code> status code or an HTTP timeout occurs this many times before the event destination subscription terminates.
DeliveryRetryIntervalSeconds	integer (seconds)	<i>read-write</i>	The interval, in seconds, between retry attempts for sending any event.
EventFormatTypes (v1.2+) []	array (string (enum))	<i>read-only (null)</i>	The content types of the message that this service can send to the event destination. <i>For the possible property values, see EventFormatTypes in Property details.</i>
EventTypesForSubscription (deprecated v1.3) []	array (string (enum))	<i>read-only</i>	The types of events to which a client can subscribe. <i>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.</i>
ExcludeMessageId (v1.8+)	boolean	<i>read-only</i>	An indication of whether the service supports filtering by the <code>ExcludeMessageIds</code> property.
ExcludeRegistryPrefix (v1.8+)	boolean	<i>read-only</i>	An indication of whether the service supports filtering by the <code>ExcludeRegistryPrefixes</code> property.
IncludeOriginOfConditionSupported (v1.6+)	boolean	<i>read-only (null)</i>	An indication of whether the service supports including the resource payload of the origin of condition in the event payload.

Property	Type	Attributes	Notes
RegistryPrefixes (v1.2+) []	array (string, null)	<i>read-only</i>	The list of the prefixes of the message registries that can be used for the <code>RegistryPrefixes</code> or <code>ExcludeRegistryPrefixes</code> 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)	<i>read-only</i>	The list of <code>@odata.type</code> values, or schema names, that can be specified in the <code>ResourceTypes</code> 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)	<i>read-only</i>	The link to a URI for receiving Server-Sent Event representations for the events that this service generates.
ServiceEnabled	boolean	<i>read-write</i> (<i>null</i>)	An indication of whether this service is enabled. If <code>false</code> , events are no longer published, new SSE connections cannot be established, and existing SSE connections are terminated.
Severities (v1.9+) []	array (string (enum))	<i>read-only</i> (<i>null</i>)	The list of severities that can be specified in the <code>Severities</code> array in a subscription. <i>For the possible property values, see Severities in Property details.</i>
SMTP (v1.5+) {	object		Settings for SMTP event delivery.
Authentication (v1.5+)	string (enum)	<i>read-write</i> (<i>null</i>)	The authentication method for the SMTP server. <i>For the possible property values, see Authentication in Property details.</i>
ConnectionProtocol (v1.5+)	string (enum)	<i>read-write</i> (<i>null</i>)	The connection type to the outgoing SMTP server. <i>For the possible property values, see ConnectionProtocol in Property details.</i>
FromAddress (v1.5+)	string	<i>read-write</i> (<i>null</i>)	The 'from' email address of the outgoing email.
Password (v1.5+)	string	<i>read-write</i> (<i>null</i>)	The password for authentication with the SMTP server. The value is <code>null</code> in responses.
PasswordSet (v1.9+)	boolean	<i>read-only</i>	Indicates if the <code>Password</code> property is set.
Port (v1.5+)	integer	<i>read-write</i> (<i>null</i>)	The destination SMTP port.
ServerAddress (v1.5+)	string	<i>read-write</i> (<i>null</i>)	The address of the SMTP server.
ServiceEnabled (v1.5+)	boolean	<i>read-write</i> (<i>null</i>)	An indication if SMTP for event delivery is enabled.
Username (v1.5+)	string	<i>read-write</i> (<i>null</i>)	The username for authentication with the SMTP server.
}			

Property	Type	Attributes	Notes
SSEFilterPropertiesSupported (v1.2+) {	object		The set of properties that are supported in the <code>\$filter</code> query parameter for the <code>ServerSentEventUri</code> .
EventFormatType (v1.2+)	boolean	<i>read-only</i>	An indication of whether the service supports filtering by the <code>EventFormatType</code> property.
EventType (v1.2+, deprecated v1.3)	boolean	<i>read-only</i>	An indication of whether the service supports filtering by the <code>EventTypes</code> property. <i>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 <code>RegistryPrefix</code> and <code>ResourceType</code> properties and not on the <code>EventType</code> property.</i>
MessageId (v1.2+)	boolean	<i>read-only</i>	An indication of whether the service supports filtering by the <code>MessageIds</code> property.
MetricReportDefinition (v1.2+)	boolean	<i>read-only</i>	An indication of whether the service supports filtering by the <code>MetricReportDefinitions</code> property.
OriginResource (v1.2+)	boolean	<i>read-only</i>	An indication of whether the service supports filtering by the <code>OriginResources</code> property.
RegistryPrefix (v1.2+)	boolean	<i>read-only</i>	An indication of whether the service supports filtering by the <code>RegistryPrefixes</code> property.
ResourceType (v1.2+)	boolean	<i>read-only</i>	An indication of whether the service supports filtering by the <code>ResourceTypes</code> property.
SubordinateResources (v1.4+)	boolean	<i>read-only</i>	An indication of whether the service supports filtering by the <code>SubordinateResources</code> property.
}			
Status {}	object		The status and health of the resource and its subordinate or dependent resources. See the <i>Resource</i> schema for details on this property.
SubordinateResourcesSupported (v1.2+)	boolean	<i>read-only (null)</i>	An indication of whether the service supports the <code>SubordinateResources</code> 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	<i>read-only</i>	Link to Collection of <i>EventDestination</i> . See the <i>EventDestination</i> schema for details.
}			
SupportedTransferProtocols (v1.11+) []	array (string (enum))	<i>read-only</i>	The types of network file transfer protocols supported by the service. <i>For the possible property values, see <code>SupportedTransferProtocols</code> in Property details.</i>

2.2.4 Actions

2.2.4.1 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	<i>optional</i>	The group identifier for the event.
EventId	string	<i>optional</i>	The ID for the event to add.
EventTimestamp	string (date-time)	<i>optional</i>	The date and time for the event to add.
EventType (deprecated v1.3)	string (enum)	<i>optional</i>	The type for the event to add. <i>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.</i>
Message	string	<i>optional</i>	The human-readable message for the event to add.
MessageArgs []	array (string)	<i>optional</i>	An array of message arguments for the event to add.
MessageId	string	<i>required</i>	The <code>MessageId</code> for the event to add.
MessageSeverity (v1.10+)	string (enum)	<i>optional</i>	The severity for the event to add. <i>For the possible property values, see MessageSeverity in Property details.</i>
OriginOfCondition	string (URI)	<i>optional</i>	The URL in the <code>originOfCondition</code> property of the event to add. It is not a reference object.
Severity	string	<i>optional</i>	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/MultiBladeEnc1/Thermal"
}

```

2.2.4.2 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.

2.2.5 Property details

2.2.5.1 Authentication

The authentication method for the SMTP server.

string	Description
AutoDetect	Auto-detect.
CRAM_MD5	CRAM-MD5 authentication.
Login (<i>deprecated v1.7</i>)	LOGIN authentication. <i>Deprecated in v1.7 and later. This value has been deprecated in favor of <code>PLAIN</code>, which supersedes the LOGIN authentication method for SASL.</i>
None	No authentication.
Plain	PLAIN authentication.

2.2.5.2 ConnectionProtocol

The connection type to the outgoing SMTP server.

string	Description
AutoDetect	Auto-detect.
None	Clear text.
StartTLS	StartTLS.
TLS_SSL	TLS/SSL.

2.2.5.3 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.
TelemetryFeed	The subscription destination receives a telemetry feed payload.
TelemetryReport	The subscription destination receives a telemetry report payload.

2.2.5.4 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 <code>EventType</code> is deprecated as of Redfish Specification v1.6, the event is based on a registry or resource but not an <code>EventType</code> .
ResourceAdded	A resource has been added.
ResourceRemoved	A resource has been removed.

string	Description
ResourceUpdated	A resource has been updated.
StatusChange	The status of a resource has changed.

2.2.5.5 EventTypeForSubscription

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 <code>EventType</code> is deprecated as of Redfish Specification v1.6, the event is based on a registry or resource but not an <code>EventType</code> .
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.

2.2.5.6 MessageSeverity

The severity for the event to add.

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

2.2.5.7 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.

2.2.5.8 SupportedTransferProtocols

The types of network file transfer protocols supported by the service.

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).

2.2.6 Example response

```
{
  "@odata.type": "#EventService.v1_10_2.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"
}

```

2.3 Sensor 1.10.2

Version	v1.10	v1.9	v1.8	v1.7	v1.6	v1.5	v1.4	v1.3	v1.2	v1.1	v1.0
Release	2024.2	2024.1	2023.2	2023.1	2022.2	2021.4	2021.2	2021.1	2020.4	2019.4	2018.3

2.3.1 Description

The `Sensor` schema describes a sensor and its properties.

2.3.2 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)

2.3.3 Properties

Property	Type	Attributes	Notes
Accuracy (deprecated v1.8)	number (%)	read-only (null)	The estimated percent error of measured versus actual values. <i>Deprecated in v1.8 and later. This property has been deprecated in favor of ReadingAccuracy.</i>
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. <i>For the possible property values, see ElectricalContext in Property details.</i>
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. <i>For the possible property values, see Implementation in Property details.</i>

Property	Type	Attributes	Notes
LifetimeReading (v1.1+)	number	<i>read-only</i> (null)	The total accumulation value for this sensor.
LifetimeStartDateTime (v1.9+)	string (date-time)	<i>read-only</i> (null)	The date and time when the sensor started accumulating readings for the <code>LifetimeReading</code> property.
Links (v1.3+) {	object		The links to other resources that are related to this resource.
AssociatedControls (v1.4+) [{}]	array (object)		An array of links to the controls that can affect this sensor. See the <code>Control</code> schema for details on this property.
AssociatedControls@odata.count	integer	<i>read-only</i>	The number of items in a collection.
Oem {}	object		The OEM extension property. See the <code>Resource</code> schema for details on this property.
}			
LoadPercent (deprecated v1.1)	number (%)	<i>read-only</i> (null)	The power load utilization for this sensor. <i>Deprecated in v1.1 and later. This property has been deprecated in favor of using a sensor instance with a <code>ReadingType</code> of <code>Percent</code> to show utilization values when needed.</i>
Location {}	object		The location information for this sensor. See the <code>Resource</code> schema for details on this property.
LowestReading (v1.4+)	number	<i>read-only</i> (null)	The lowest sensor value.
LowestReadingTime (v1.4+)	string (date-time)	<i>read-only</i> (null)	The time when the lowest sensor value occurred.
Manufacturer (v1.9+)	string	<i>read-only</i> (null)	The manufacturer of this sensor.
MaxAllowableOperatingValue	number	<i>read-only</i> (null)	The maximum allowable operating value for this equipment.
MinAllowableOperatingValue	number	<i>read-only</i> (null)	The minimum allowable operating value for this equipment.
Model (v1.9+)	string	<i>read-only</i> (null)	The model number of the sensor.
PartNumber (v1.9+)	string	<i>read-only</i> (null)	The part number of the sensor.
PeakReading	number	<i>read-only</i> (null)	The peak sensor value.

Property	Type	Attributes	Notes
PeakReadingTime	string (date-time)	<i>read-only</i> (<i>null</i>)	The time when the peak sensor value occurred.
PhaseAngleDegrees (v1.5+)	number	<i>read-only</i> (<i>null</i>)	The phase angle (degrees) between the current and voltage waveforms.
PhysicalContext	string (enum)	<i>read-only</i> (<i>null</i>)	The area or device to which this sensor measurement applies. <i>For the possible property values, see PhysicalContext in Property details.</i>
PhysicalSubContext	string (enum)	<i>read-only</i> (<i>null</i>)	The usage or location within a device to which this sensor measurement applies. <i>For the possible property values, see PhysicalSubContext in Property details.</i>
PowerFactor	number	<i>read-only</i> (<i>null</i>)	The power factor for this sensor.
Precision	number	<i>read-only</i> (<i>null</i>)	The number of significant digits in the reading.
ReactivekVARh (v1.5+)	number (kV.A.h)	<i>read-only</i> (<i>null</i>)	Reactive energy (kVARh).
ReactiveVAR	number (V.A)	<i>read-only</i> (<i>null</i>)	The square root of the difference term of squared apparent VA and squared power (Reading) for a circuit, in VAR units.
Reading	number	<i>read-only</i> (<i>null</i>)	The sensor value.
ReadingAccuracy (v1.8+)	number	<i>read-only</i> (<i>null</i>)	Accuracy (+/-) of the reading.
ReadingBasis (v1.7+)	string (enum)	<i>read-only</i> (<i>null</i>)	The basis for the reading of this sensor. <i>For the possible property values, see ReadingBasis in Property details.</i>
ReadingRangeMax	number	<i>read-only</i> (<i>null</i>)	The maximum possible value for this sensor.
ReadingRangeMin	number	<i>read-only</i> (<i>null</i>)	The minimum possible value for this sensor.
ReadingTime (v1.1+)	string (date-time)	<i>read-only</i> (<i>null</i>)	The date and time that the reading was acquired from the sensor.
ReadingType	string (enum)	<i>read-only</i> (<i>null</i>)	The type of sensor. <i>For the possible property values, see ReadingType in Property details.</i>
ReadingUnits	string	<i>read-only</i> (<i>null</i>)	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.

Property	Type	Attributes	Notes
@odata.id	string (URI)	<i>read-only</i>	The unique identifier for a resource.
}]			
SensingFrequency (<i>deprecated v1.1</i>)	number	<i>read-only (null)</i>	The time interval between readings of the physical sensor. <i>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.</i>
SensingInterval (<i>v1.1+</i>)	string (duration)	<i>read-only (null)</i>	The time interval between readings of the sensor.
SensorGroup (<i>v1.4+</i>) {}	object		The group of sensors that provide readings for this sensor. See the <i>v1_4_2.v1_4_2</i> schema for details on this property.
SensorResetTime	string (date-time)	<i>read-only (null)</i>	The date and time when the time-based properties were last reset.
SerialNumber (<i>v1.9+</i>)	string	<i>read-only (null)</i>	The serial number of the sensor.
SKU (<i>v1.9+</i>)	string	<i>read-only (null)</i>	The SKU of the sensor.
SparePartNumber (<i>v1.9+</i>)	string	<i>read-only (null)</i>	The spare part number of the sensor.
SpeedRPM (<i>v1.2+</i>)	number ({rev}/min)	<i>read-only (null)</i>	The rotational speed.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. See the <i>Resource</i> schema for details on this property.
THDPercent (<i>v1.1+</i>)	number (%)	<i>read-only (null)</i>	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.
Activation	string (enum)	<i>read-write (null)</i>	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string (duration)	<i>read-write (null)</i>	The duration the sensor value must violate the threshold before the threshold is activated.
HysteresisDuration (<i>v1.7+</i>)	string (duration)	<i>read-write (null)</i>	The duration the sensor value must not violate the threshold before the threshold is deactivated.

Property	Type	Attributes	Notes
HysteresisReading (v1.7+)	number	<i>read-write</i> (null)	The reading offset from the threshold value required to clear the threshold.
Reading	number	<i>read-write</i> (null)	The threshold value.
}			
LowerCautionUser (v1.2+) {	object		A user-defined value at which the reading is considered below normal range.
Activation	string (enum)	<i>read-write</i> (null)	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string (duration)	<i>read-write</i> (null)	The duration the sensor value must violate the threshold before the threshold is activated.
HysteresisDuration (v1.7+)	string (duration)	<i>read-write</i> (null)	The duration the sensor value must not violate the threshold before the threshold is deactivated.
HysteresisReading (v1.7+)	number	<i>read-write</i> (null)	The reading offset from the threshold value required to clear the threshold.
Reading	number	<i>read-write</i> (null)	The threshold value.
}			
LowerCritical {	object		The value at which the reading is below normal range but not yet fatal.
Activation	string (enum)	<i>read-write</i> (null)	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string (duration)	<i>read-write</i> (null)	The duration the sensor value must violate the threshold before the threshold is activated.
HysteresisDuration (v1.7+)	string (duration)	<i>read-write</i> (null)	The duration the sensor value must not violate the threshold before the threshold is deactivated.
HysteresisReading (v1.7+)	number	<i>read-write</i> (null)	The reading offset from the threshold value required to clear the threshold.
Reading	number	<i>read-write</i> (null)	The threshold value.
}			
LowerCriticalUser (v1.2+) {	object		A user-defined value at which the reading is considered below normal range but not yet fatal.

Property	Type	Attributes	Notes
Activation	string (enum)	<i>read-write</i> (<i>null</i>)	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string (duration)	<i>read-write</i> (<i>null</i>)	The duration the sensor value must violate the threshold before the threshold is activated.
HysteresisDuration (v1.7+)	string (duration)	<i>read-write</i> (<i>null</i>)	The duration the sensor value must not violate the threshold before the threshold is deactivated.
HysteresisReading (v1.7+)	number	<i>read-write</i> (<i>null</i>)	The reading offset from the threshold value required to clear the threshold.
Reading	number	<i>read-write</i> (<i>null</i>)	The threshold value.
}			
LowerFatal {	object		The value at which the reading is below normal range and fatal.
Activation	string (enum)	<i>read-write</i> (<i>null</i>)	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string (duration)	<i>read-write</i> (<i>null</i>)	The duration the sensor value must violate the threshold before the threshold is activated.
HysteresisDuration (v1.7+)	string (duration)	<i>read-write</i> (<i>null</i>)	The duration the sensor value must not violate the threshold before the threshold is deactivated.
HysteresisReading (v1.7+)	number	<i>read-write</i> (<i>null</i>)	The reading offset from the threshold value required to clear the threshold.
Reading	number	<i>read-write</i> (<i>null</i>)	The threshold value.
}			
UpperCaution {	object		The value at which the reading is above normal range.
Activation	string (enum)	<i>read-write</i> (<i>null</i>)	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string (duration)	<i>read-write</i> (<i>null</i>)	The duration the sensor value must violate the threshold before the threshold is activated.
HysteresisDuration (v1.7+)	string (duration)	<i>read-write</i> (<i>null</i>)	The duration the sensor value must not violate the threshold before the threshold is deactivated.
HysteresisReading (v1.7+)	number	<i>read-write</i> (<i>null</i>)	The reading offset from the threshold value required to clear the threshold.

Property	Type	Attributes	Notes
Reading	number	<i>read-write</i> <i>(null)</i>	The threshold value.
}			
UpperCautionUser (v1.2+) {	object		A user-defined value at which the reading is considered above normal range.
Activation	string (enum)	<i>read-write</i> <i>(null)</i>	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string (duration)	<i>read-write</i> <i>(null)</i>	The duration the sensor value must violate the threshold before the threshold is activated.
HysteresisDuration (v1.7+)	string (duration)	<i>read-write</i> <i>(null)</i>	The duration the sensor value must not violate the threshold before the threshold is deactivated.
HysteresisReading (v1.7+)	number	<i>read-write</i> <i>(null)</i>	The reading offset from the threshold value required to clear the threshold.
Reading	number	<i>read-write</i> <i>(null)</i>	The threshold value.
}			
UpperCritical {	object		The value at which the reading is above normal range but not yet fatal.
Activation	string (enum)	<i>read-write</i> <i>(null)</i>	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string (duration)	<i>read-write</i> <i>(null)</i>	The duration the sensor value must violate the threshold before the threshold is activated.
HysteresisDuration (v1.7+)	string (duration)	<i>read-write</i> <i>(null)</i>	The duration the sensor value must not violate the threshold before the threshold is deactivated.
HysteresisReading (v1.7+)	number	<i>read-write</i> <i>(null)</i>	The reading offset from the threshold value required to clear the threshold.
Reading	number	<i>read-write</i> <i>(null)</i>	The threshold value.
}			
UpperCriticalUser (v1.2+) {	object		A user-defined value at which the reading is considered above normal range but not yet fatal.
Activation	string (enum)	<i>read-write</i> <i>(null)</i>	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>

Property	Type	Attributes	Notes
DwellTime	string (duration)	<i>read-write</i> (<i>null</i>)	The duration the sensor value must violate the threshold before the threshold is activated.
HysteresisDuration (v1.7+)	string (duration)	<i>read-write</i> (<i>null</i>)	The duration the sensor value must not violate the threshold before the threshold is deactivated.
HysteresisReading (v1.7+)	number	<i>read-write</i> (<i>null</i>)	The reading offset from the threshold value required to clear the threshold.
Reading	number	<i>read-write</i> (<i>null</i>)	The threshold value.
}			
UpperFatal {	object		The value at which the reading is above normal range and fatal.
Activation	string (enum)	<i>read-write</i> (<i>null</i>)	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string (duration)	<i>read-write</i> (<i>null</i>)	The duration the sensor value must violate the threshold before the threshold is activated.
HysteresisDuration (v1.7+)	string (duration)	<i>read-write</i> (<i>null</i>)	The duration the sensor value must not violate the threshold before the threshold is deactivated.
HysteresisReading (v1.7+)	number	<i>read-write</i> (<i>null</i>)	The reading offset from the threshold value required to clear the threshold.
Reading	number	<i>read-write</i> (<i>null</i>)	The threshold value.
}			
}			
UserLabel (v1.9+)	string	<i>read-write</i>	A user-assigned label.
VoltageType	string (enum)	<i>read-only</i> (<i>null</i>)	The voltage type for this sensor. <i>For the possible property values, see VoltageType in Property details.</i>

2.3.4 Actions

2.3.4.1 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.

2.3.4.2 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.

2.3.5 Property details**2.3.5.1 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.

2.3.5.2 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.
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.

2.3.5.3 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.

2.3.5.4 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.

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.

2.3.5.5 PhysicalSubContext

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

string	Description
Input	The input.
Output	The output.

2.3.5.6 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.

2.3.5.7 ReadingType

The type of sensor.

string	Description
AbsoluteHumidity (v1.5+)	Absolute humidity (g/m ³).

string	Description
AirFlow (deprecated v1.7)	Air flow (cu ft/min). <i>Deprecated in v1.7 and later. This value has been deprecated in favor of <code>AirFlowCMM</code> for consistent use of SI units.</i>
AirFlowCMM (v1.7+)	Air flow (m ³ /min).
Altitude	Altitude (m).
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).
LiquidFlow (deprecated v1.7)	Liquid flow (L/s). <i>Deprecated in v1.7 and later. This value has been deprecated in favor of <code>LiquidFlowLPM</code> for consistency of units typically expected or reported by <code>Sensor</code> and <code>Control</code> resources.</i>
LiquidFlowLPM (v1.7+)	Liquid flow (L/min).
LiquidLevel	Liquid level (cm).
Percent (v1.1+)	Percent (%).
Power	Power (W).
Pressure (deprecated v1.7)	Pressure (Pa). <i>Deprecated in v1.7 and later. This value has been deprecated in favor of <code>PressurePa</code> or <code>PressurekPa</code> for consistency of units between <code>Sensor</code> and <code>Control</code> resources.</i>
PressurekPa (v1.5+)	Pressure (kPa).
PressurePa (v1.7+)	Pressure (Pa).
Rotational	Rotational (RPM).
Temperature	Temperature (C).
Voltage	Voltage (VAC or VDC).

2.3.5.8 VoltageType

The voltage type for this sensor.

string	Description
AC	Alternating current.
DC	Direct current.

2.3.6 Example response

```
{
  "@odata.type": "#Sensor.v1_10_1.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"
}
```

2.4 TelemetryFeed 1.0.0

Version	v1.0
Release	2024.4

2.4.1 Description

The TelemetryFeed schema describes a telemetry data feed. A feed defines the data records created for streaming telemetry or for creating telemetry reports sent to a remote client.

2.4.2 URIs

/redfish/v1/TelemetryService/TelemetryFeeds/{TelemetryFeedId}

2.4.3 Properties

Property	Type	Attributes	Notes
DataFeedSources [{	array		The data sources to include in the telemetry feed.
BaseURI	string (URI)	<i>read-only (null)</i>	The link to the base resource to gather data for the telemetry feed.
DetailedRecords	boolean	<i>read-write (null)</i>	Include detailed telemetry records from this source.
FilterKeyValues []	array (string, null)	<i>read-only</i>	The values of the key property used to filter which resources are included in the telemetry feed.
ResourceType	string	<i>read-only (null)</i>	The resource type to include in the telemetry feed.
}]			
Enabled	boolean	<i>read-write (null)</i>	Indicates whether the feed is enabled.
HashIdentifiers	boolean	<i>read-only (null)</i>	Indicates whether the @Redfish.Id annotation appears in place of the @odata.id identifier after the first record is sent.
IncludeEntireResource	string (enum)	<i>read-only (null)</i>	Indicates when the entire resource payload is included in the telemetry feed. <i>For the possible property values, see IncludeEntireResource in Property details.</i>

Property	Type	Attributes	Notes
LocalReportsEnabled	boolean	<i>read-write</i> (<i>null</i>)	Indicates whether local reports are generated from this feed.
LocalReportsKeepAtMost	integer	<i>read-only</i> (<i>null</i>)	The maximum number of local telemetry reports.
ReportDuration	string (duration)	<i>read-only</i> (<i>null</i>)	The duration of a single telemetry feed.
Reports [{	array		Telemetry report files.
ReportURI	string (URI)	<i>read-only</i> (<i>null</i>)	The link to a stored telemetry report file.
SizeBytes	integer	<i>read-only</i> (<i>null</i>)	The size of the telemetry report file in bytes.
StartTime	string (date-time)	<i>read-only</i> (<i>null</i>)	The date and time the report was created.
}]			
Schedule {}	object		The schedule settings for this feed. See the <i>Schedule</i> schema for details on this property.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. See the <i>Resource</i> schema for details on this property.
TelemetryFeedId	string	<i>read-only</i> <i>required on create</i> (<i>null</i>)	The user-defined unique identifier for this telemetry feed.

2.4.4 Actions

2.4.4.1 DeleteAllReports

Description

This action deletes all locally-stored telemetry reports for this telemetry feed.

Action URI

{Base URI of target resource}/Actions/TelemetryFeed.DeleteAllReports

Action parameters

This action takes no parameters.

2.4.4.2 DeleteReport

Description

This action deletes a locally-stored telemetry report.

Action URI

{Base URI of target resource}/Actions/TelemetryFeed.DeleteReport

Action parameters

Parameter Name	Type	Attributes	Notes
ReportURI	string (URI)	<i>optional</i>	The link to a stored telemetry report file.

Request Example

```
{
  "ReportURI": "/redfish/v1/TelemetryService/Temperature-20231003T1200.jsonl"
}
```

2.4.5 Property details

2.4.5.1 IncludeEntireResource

Indicates when the entire resource payload is included in the telemetry feed.

string	Description
Always	Include the full resource in every record in the feed.
Never	Never include the full resource..
Once	Include the full resource only once.

2.4.6 Example response

```
{
  "@odata.type": "#TelemetryFeed.v1_0_0.TelemetryFeed",
  "Id": "Temperature",
  "Name": "Temperature Telemetry Feed",
  "TelemetryFeedId": "Temperature",
  "Description": "Report all temperature sensors from any Chassis",
  "Enabled": true,
  "DataFeedSources": [
    {
      "BaseURI": "/redfish/v1/Chassis",
      "ResourceType": "Sensor",
      "DetailedRecords": false,
      "FilterKeyValues": ["Temperature"]
    }
  ],
  "IncludeEntireResource": "Once",
  "HashIdentifiers": true,
  "ReportDuration": "PT24H",
  "Schedule": {
    "RecurrenceInterval": "PT15M",
    "InitialStartTime": "2024-09-01T00:00"
  },
  "LocalReportsEnabled": true,
  "LocalReportsKeepAtMost": 15,
  "Reports": [
    {
      "ReportURI": "/redfish/v1/TelemetryService/Temperature-20231003T1200.json1",
      "StartTime": "2023-10-03T00:00",
      "SizeBytes": 23426
    },
    {
      "ReportURI": "/redfish/v1/TelemetryService/Temperature-20231004T1200.json1",
      "StartTime": "2023-10-04T00:00",
      "SizeBytes": 23537
    }
  ],
  "@odata.id": "/redfish/v1/TelemetryService/TelemetryFeeds/Temperature",
  "@Redfish.Copyright": "Copyright 2014-2024 DMTF. For the full DMTF copyright policy, see
    http://www.dmtf.org/about/policies/copyright."
}
```

2.5 TelemetryService 1.4.0

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

Release	2024.3	2020.4	2019.4	2018.3	2018.2
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2.5.1 Description

The `TelemetryService` schema describes a telemetry service. The telemetry service is used for collecting and reporting metric data within the Redfish service.

2.5.2 URIs

/redfish/v1/TelemetryService

2.5.3 Properties

Property	Type	Attributes	Notes
AvailableLocalStorageBytes (v1.4+)	integer	<i>read-only</i> (<i>null</i>)	The available size, in bytes, of local storage for telemetry reports.
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 <i>LogService</i> schema for details on this property.
MaxReports	integer	<i>read-only</i> (<i>null</i>)	The maximum number of metric reports that this service supports.
MaxTelemetryReportSizeBytes (v1.4+)	integer	<i>read-only</i> (<i>null</i>)	The maximum size of a telemetry report the service can hold in memory.
MetricDefinitions {	object		The link to the collection of metric definitions. Contains a link to a resource.
@odata.id	string	<i>read-only</i>	Link to Collection of <i>MetricDefinition</i> . See the <i>MetricDefinition</i> schema for details.
}			
MetricReportDefinitions {	object		The link to the collection of metric report definitions. Contains a link to a resource.
@odata.id	string	<i>read-only</i>	Link to Collection of <i>MetricReportDefinition</i> . See the <i>MetricReportDefinition</i> schema for details.
}			
MetricReports {	object		The link to the collection of metric reports. Contains a link to a resource.
@odata.id	string	<i>read-only</i>	Link to Collection of <i>MetricReport</i> . See the <i>MetricReport</i> schema for details.

Property	Type	Attributes	Notes
}			
MinCollectionInterval	string (duration)	<i>read-only</i> (<i>null</i>)	The minimum time interval between gathering metric data that this service allows.
ServiceEnabled (v1.2+)	boolean	<i>read-write</i> (<i>null</i>)	An indication of whether this service is enabled.
Status {}	object		The status and health of the resource and its subordinate or dependent resources. See the <i>Resource</i> schema for details on this property.
SupportedCollectionFunctions []	array (string (enum))	<i>read-only</i> (<i>null</i>)	The functions that can be performed over each metric. <i>For the possible property values, see SupportedCollectionFunctions in Property details.</i>
TelemetryFeeds (v1.4+) {	object		The link to the collection of telemetry feeds. Contains a link to a resource.
@odata.id	string	<i>read-only</i>	Link to Collection of <i>TelemetryFeed</i> . See the <i>TelemetryFeed</i> schema for details.
}			
TelemetryReportOverWritePolicy (v1.4+)	string (enum)	<i>read-only</i>	The overwrite policy for local telemetry reports on this service enforced when local storage is full. <i>For the possible property values, see TelemetryReportOverWritePolicy in Property details.</i>
TotalLocalStorageBytes (v1.4+)	integer	<i>read-only</i> (<i>null</i>)	The total size, in bytes, of local storage for telemetry reports.
Triggers {	object		The link to the collection of triggers that apply to metrics. Contains a link to a resource.
@odata.id	string	<i>read-only</i>	Link to Collection of <i>Triggers</i> . See the <i>Triggers</i> schema for details.
}			

2.5.4 Actions

2.5.4.1 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.

2.5.4.2 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.

2.5.4.3 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.

2.5.4.4 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	<i>required</i>	The contents of the <code>MetricReportValues</code> in the generated metric report.
MetricDefinition (v1.1+) }	object		The link to the metric definition for this metric. See the <i>MetricDefinition</i> schema for details on this property.
MetricId (v1.1+)	string	<i>read-only</i> (null)	The metric definitions identifier for this metric.
MetricProperty (v1.1+)	string (URI)	<i>read-only</i> (null)	The URI for the property from which this metric is derived.
MetricValue (v1.1+)	string	<i>read-only</i> (null)	The metric value, as a string.
Timestamp (v1.1+)	string (date-time)	<i>read-only</i> (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	<i>required</i>	The name of the metric report in generated metric report.
MetricReportValues (deprecated v1.1)	string	<i>optional</i>	The contents of the <code>MetricReportValues</code> array in the generated metric report. <i>Deprecated in v1.1 and later. This property has been deprecated in favor of using the property <code>GeneratedMetricReportValues</code>.</i>

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"
      }
    }
  ]
}
```

```

    }
  }
]
}

```

2.5.5 Property details

2.5.5.1 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.

2.5.5.2 TelemetryReportOverWritePolicy

The overwrite policy for local telemetry reports on this service enforced when local storage is full.

string	Description
NeverOverWrites	When full, new telemetry reports are discarded.
WrapsWhenFull	When full, new telemetry reports overwrite earlier entries.

2.5.6 Example response

```

{
  "@odata.type": "#TelemetryService.v1_3_4.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"  
}
```

3 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 the DMTF's Github repository located at <http://www.github.com/DMTF/Redfish-Tools>.