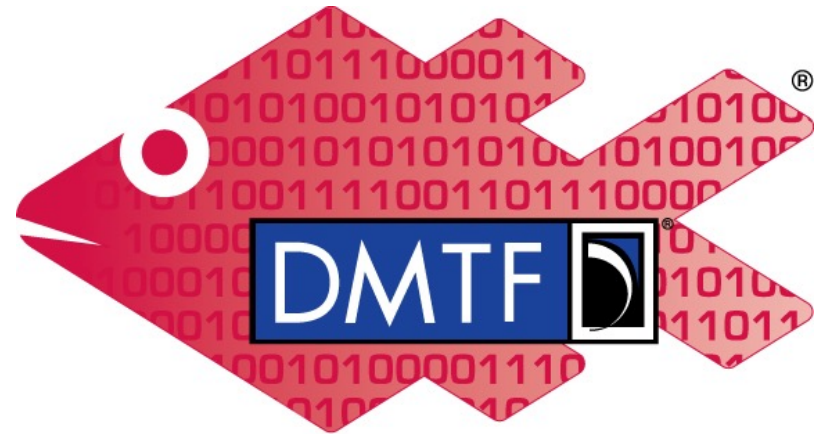# Redfish Release 2024.3

DMTF Redfish Forum

September 2024

Redfish Release 2024.3

- Redfish Specification 1.21.0
  - Added Time-based One-Time Password secret key handling
- Redfish Specification 1.20.2 (errata release)
  - Added /redfish/v1/Registries URI
  - Minor clarifications to naming rules
  - Clarified responses for "Password change required" conditions to show an error payload
- Redfish Schema Bundle 2024.3
  - DSP8010 contains all released Redfish schemas
- Redfish Message Registry Bundle 2024.3
  - DSP8011 contains all released Redfish registries
  - Added *PropertyModified* and *GenerateSecretKeyRequired* messages to Base 1.19.0

- 18 Updated schemas (highlights)
  - See release notes in DSP8010 for errata details
  - Added *Username* and *UserAuthenticationSource* to **Event**, **LogEntry**, **Message**, and **Resource** for event auditing
  - Added generalized Time-based One-Time Password properties and actions to **AccountService** and **ManagerAccount**
  - Added *LocalAccountTypes* and *LocalOEMAccountTypes* to *RoleMapping* in **AccountService** and **ExternalAccountProvider**
- Download all published material at: http://www.dmtf.org/standards/redfish

Time-based One-Time Passwords (TOTP)

- **NEW** *GenerateSecretKey*, *ClearSecretKey*, and *VerifyTimeBasedOneTimePassword* actions were added to **ManagerAccount**
  - Allows a user to generate a random secret key to produce RFC6238-defined tokens
  - The secret key is retained by the service for future token verification
- **NEW** *TimeBasedOneTimePassword* was added to *MultiFactorAuth* in **AccountService**
  - Used to configure generic RFC6238-defined TOTP settings
  - Microsoft Authenticator and Google Authenticator properties may be needed in the future to configure features outside the scope of RFC6238
- **NEW** *GenerateSecretKeyRequired* added to the Base Message Registry
  - Message returned if a user tries to authenticate, but the user does not have a secret key for producing a TOTP
  - The user is allowed to invoke the *GenerateSecretKey* action, but cannot perform other operations

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Secret Key and Token Flow

User generates their secret key

```
POST /redfish/v1/AccountService/Accounts/Bob/Actions/ManagerAccount.GenerateSecretKey HTTP/1.1

{}

HTTP/1.1 200 OK

{
    "SecretKey": "12345678901234567890"  ← User needs to save this key
}
```

User creates session with token

```
POST /redfish/v1/SessionService/Sessions HTTP/1.1

{
    "UserName": "Bob",
    "Password": "P@ssw0rd",
    "Token": "90693936"  ← Calculated from the previous secret key and the time from the system clock
}

HTTP/1.1 201 Created
X-Auth-Token: 1234567890abcdef
Location: /redfish/v1/SessionService/Sessions/1
```

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Secret Key Not Configured Example

```
POST /redfish/v1/SessionService/Sessions HTTP/1.1

{
    "UserName": "Bob",
    "Password": "P@ssw0rd"
}

HTTP/1.1 201 Created
X-Auth-Token: 1234567890abcdef
Location: /redfish/v1/SessionService/Sessions/1

{
    "@odata.id": "/redfish/v1/SessionService/Sessions/1",
    "@odata.type": "#Session.v1_7_0.Session",
    "Id": "1",
    "Name": "User Session",
    "Description": "User Session",
    "UserName": "Bob",
    "Password": null,
    "Message.ExtendedInfo": [
        {
            "MessageId: "Base.1.19.GenerateSecretKeyRequired",
            "Message": "The Time-based One-Time Password (TOTP) secret key for this ...",
            "MessageArgs": [
                "/redfish/v1/AccountService/Accounts/Bob/Actions/ManagerAccount.GenerateSecretKey"
            ],
            "MessageSeverity": "Critical"
        }
    ]
}
```

Schema and Registry Guide documents

- **Redfish Data Model Specification (DSP0268)**
    - Document was previous titled "Redfish Schema Supplement"
    - Now includes normative statements ("LongDescription") and informative description details from schema in a single document
    - Intended for both Redfish Service and client-side developers
- **Redfish Resource and Schema Guide (DSP2046)**
    - Presents schema (data model) contents in a more friendly format for end users
    - Includes example payloads for each resource type
- **Redfish Message Registry Guide (DSP2065)**
    - Presents message registry definitions in a more human-readable format
    - Includes summary table and individual message details
- **Redfish Property Guide (DSP2053)**
    - Provides an alphabetical list of all properties defined in Redfish schema
    - Useful for schema writers to locate existing definitions or properties
    - Helps avoid re-defining property names already in use

Available Redfish conformance testing tools

- DMTF Redfish Forum provides open source tools for service developers to validate their conformance with the Redfish protocol, data model, and profiles
- **Redfish Protocol Validator**
  - Tests a live service for conformance to the Redfish HTTP protocol, including response headers and status codes
  - https://github.com/DMTF/Redfish-Protocol-Validator
- **Redfish Service Validator**
  - Tests a live service for conformance with Redfish schemas, ensuring the returned JSON payloads validate against the standard data models
  - Recommend that developers run this tool first, as errors in payload are more likely to cause issues for end users and interoperability
  - https://github.com/DMTF/Redfish-Service-Validator
- **Redfish Interop Validator**
  - Tests a service against a Redfish interoperability profile
  - https://github.com/DMTF/Redfish-Interop-Validator

Redfish-Publications repository

- Public GitHub repository contains an official read-only copy of the Redfish schemas and standard message registries

  - https://github.com/DMTF/Redfish-Publications
  - Creates public, durable locations for referencing specific schema or registry items in issue reports, forum postings, or other online references
  - Allows developers to automatically synchronize with new Redfish releases using normal GitHub tools and processes

- Repository will be updated as each Redfish release become public

- Contains materials published as DSP8010 and DSP8011

  - **/csdl** – Redfish schemas in OData CSDL XML format
  - **/json-schema** – Redfish schemas in JSON Schema format
  - **/openapi** – Redfish schemas in OpenAPI YAML format
  - **/dictionaries** – RDE dictionaries
  - **/registries** – Redfish standard message registries

Redfish Schema

MINOR REVISION DETAILS

Redfish Schema Minor Revisions (1 of 3)

- AccountService v1.16.0
    - Added *LocalAccountTypes* and *LocalOEMAccountTypes* to *RemoteRoleMapping*
    - Added *TimeBasedOneTimePassword* to *MultiFactorAuth*
    - Added *TimeBasedOneTimePassword* to *MFABypassType*
- Certificate v1.9.0
    - Added "EK" to *CertificateUsageType*
- ComponentIntegrity v1.3.0
    - Added "TCM" and "TPCM" to *ComponentIntegrityType*
- ComputerSystem v1.23.0
    - Added *LastResetCause*
- Event v1.3.0
    - Added *Username* and *UserAuthenticationSource*
- EventDestination v1.15.0
    - Added *BackupDestinations*
- ExternalAccountProvider v1.8.0
    - Added *LocalAccountTypes* and *LocalOEMAccountTypes* to *RemoteRoleMapping*
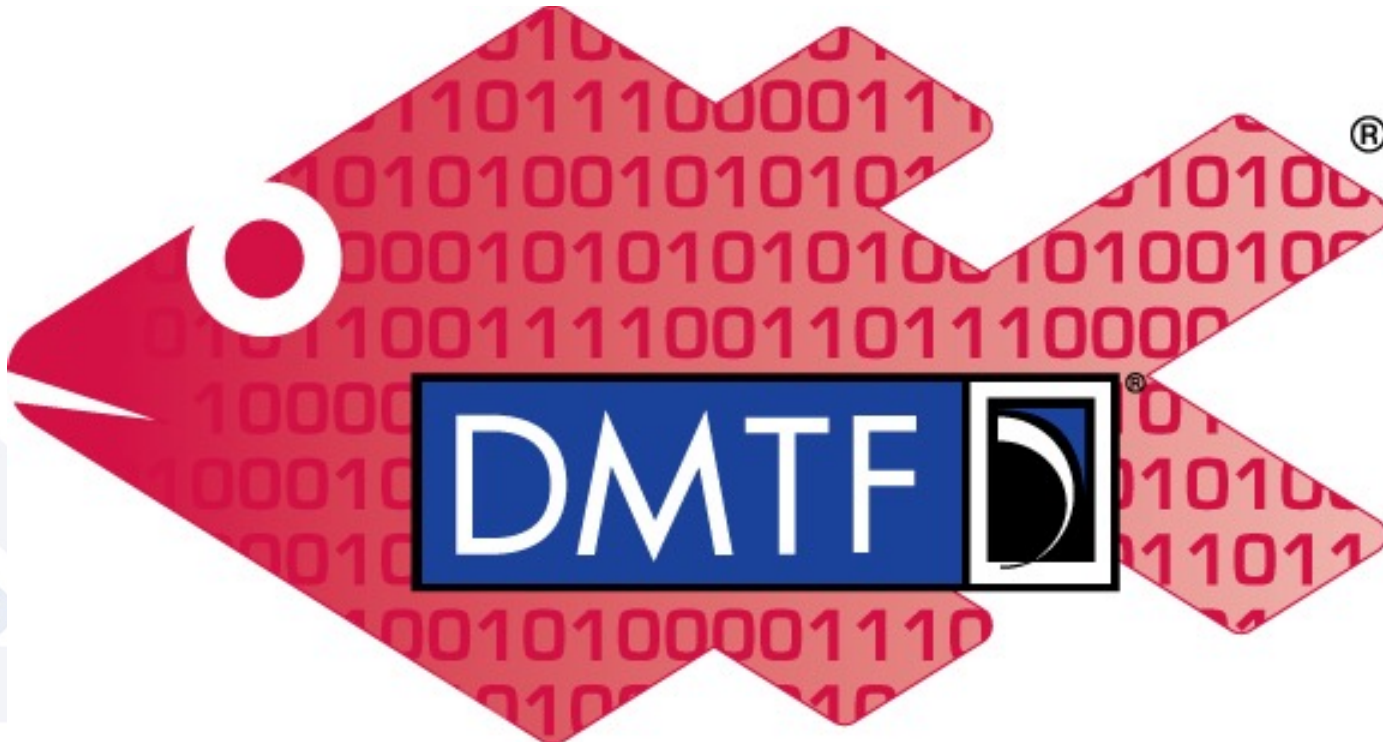
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Redfish Schema Minor Revisions (2 of 3)

- ## LeakDetection v1.1.0
  - Added *Status* to *LeakDetectorGroups*
- ## LeakDetector v1.2.0
  - Added *DeviceName* as excerpt-only
- ## LogEntry v1.17.0
  - Added *Username* and *UserAuthenticationSource*
- ## ManagerAccount v1.13.0
  - Added *SecretKeySet*
  - Added *GenerateSecretKey*, *ClearSecretKey*, and *VerifyTimeBasedOneTimePassword* actions
- ## Message v1.3.0
  - Added *Username* and *UserAuthenticationSource*
- ## PCIeDevice v1.16.0
  - Added "Gen6" to *PCIeTypes*

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Redfish Schema Minor Revisions (3 of 3)

- ## PhysicalContext
  - Added "ExpansionSubsystem", "StorageSubsystem", and "PowerOutlet" physical contexts

- ## Port v1.14.0
  - Added *DateCode* to *SFP*

- ## PortMetrics v1.7.0
  - Added *WavelengthNanometers* to *Transceivers*

- ## Resource v1.20.0
  - Added *Username* and *UserAuthenticationSource* to *Conditions*

- ## StorageController v1.8.0
  - Added *MaxAttachedNamespaces* to *NVMeControllerProperties*