iDRAC9 with Lifecycle Controller Version 3.15.15.15

Redfish API Guide

DELL EMC

Notes, cautions, and warnings

NOTE: A NOTE indicates important information that helps you make better use of your product.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

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Overview

The Redfish Scalable Platforms Management API is a standard defined by the Distributed Management Task Force (DMTF). Redfish is a next-generation systems management interface standard, which enables scalable, secure, and open server management. It is a new interface that uses RESTful interface semantics to access data that is defined in model format to perform out-of-band systems management. It is suitable for a wide range of servers ranging from stand-alone servers to rack mount and bladed environments and for large scale cloud environments.

Dell PowerEdge servers offer a comprehensive range of embedded systems management functions enabled by the Integrated Dell Remote Access Controler (iDRAC) with Lifecycle Controller. These functions are designed by adhering industry standard application programming interfaces (APIs) including Redfish.

iDRAC with Lifecycle Controller technology is part of a larger data center solution that helps keep business critical applications and workloads available always. The technology allows administrators to deploy, monitor, manage, configure, update, troubleshoot, and remediate Dell servers from any location, and without the use of agents. It accomplishes this regardless of an operating system or a Hypervisor presence or state.

This document provides a brief overview on Redfish and information on various aspects of Redfish protocol, supported schema, and Redfish Eventing implemented in iDRAC. It also provides guidelines for using the Dell Redfish APIs.

Topics:

New in this release

- To improve responsiveness, PATCH method allows you to use up to 50 attributes at a time.
- To improve the update process, the OEM action **Install** of the UpdateService allows updating one component at a time.

Benefits

Redfish is a new global standard for open server management. It has the capabilities to support single servers, converged infrastructure, and hyper—scale architecture. It provides the following benefits over existing server management methods:

- Increased simplicity and usability
- High data security
- Programmable interface that can be easily scripted
- Widely-used standard

Key technologies

Redfish uses web and cloud-based technologies that enable communications with servers using common programming and scripting languages such as Python, JAVA, and C. The key technologies are as follows:

- REpresentational State Transfer (REST) interface — REST is a web based API, which provides a way to interact with a system over a normal web connection. It supports both HTTPS and HTTP.
- Java Script Notation (JSON) — JSON represents data in such a way that it is much easier to read than XML. It also provides the formatting that is required for scripting languages to interface with the data.
- OData — It is important to standardize the data format when implementing a common interface across multiple vendors. OData provides the required framework to ensure that the data structure remains interchangeable between server vendors.

Other documents you may need

For more information about Redfish, see the DMTF website http://www.dmtf.org/standards/redfish. This website provides access to schema files, white papers, technical notes, and so on.

To download or access a file, go to http://www.dmtf.org/standards/redfish, locate the desired section, and click the link to open or download the files.

You can download the OEM schemas from the Dell website at http://downloads.dell.com/redfish/bmc/schemas/.

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Redfish-based systems management

This section provides an overview of the Redfish service implemented in the iDRAC firmware. It includes information about the Redfish API, schema, configuration, authentication, authorization, and so on.

Topics:

URL support

Redfish is a web-based API which implies that resources are accessed using client supplied URLs. URLs are required to identify the Redfish resources. The Redfish API uses a simple URL hierarchy which follows a `/redfish/v1/` pattern for all resources. To access a Redfish resource, use the URL pattern `https://<iDRAC IP>/redfish/v1/<Resource Path>`. For more information on the supported resources, see Redfish resources. iDRAC supports the following URL patterns:

- `/redfish` — URL for the Redfish version object.
- `/redfish/v1` — Root URL for version 1 of the Redfish services.
- `/redfish/v1/odata` — Redfish services expose an OData service document at this URI. This service document provides a standard format for enumerating resources that are exposed by the service by enabling all generic hypermedia-driven OData clients to navigate to the resources of the service.
- `/redfish/v1/$metadata` — Redfish services expose a metadata document in XML format. This document describes the resources and collections that are available at the service root URI. It also provides references to other metadata documents, which describe the complete set of resource types that are exposed by the service.
- `/redfish/v1/$metadata#<Collection or a Singleton resource>` — Metadata URL specified as a part of @odata.context property for all resources. This URL returns data in XML format.
- `/redfish/v1/JsonSchemas` — This URL returns data in JSON format. The output is a collection of the JsonSchemaFile resource instances.
- `/redfish/v1/JsonSchemas/<resource URI>` — The JSON Schema File resource instance describes the location (URI) of a particular Redfish schema definition being implemented or referenced by a Redfish service. This URL returns data in JSON format.
- `/redfish/v1/<other resource specific URIs>` — All instrumentation resources follow this pattern.

NOTE: The Redfish standard implemented in iDRAC supports only HTTPS protocol.

NOTE: In previous versions of Redfish implementation, # character was parsed as #. Because this character is treated as a break character by the code, any characters after # were ignored. Now, # character is automatically converted to %23. This conversion allows the consoles or REST clients to use the URL without any errors.

Redfish configuration

You can configure the Redfish interface on iDRAC by enabling or disabling the iDRAC attribute. If this attribute is disabled, HTTPS requests to Redfish URIs fail with an HTTP status code of 404 and an error message indicating that this attribute is disabled.

NOTE: You do not need to restart the web server when enabling or disabling Redfish attribute.

Configuring Redfish service using iDRAC web interface

To enable or disable the Redfish service on iDRAC, perform the following tasks:

1 In the iDRAC web interface, navigate to the following screen:
   - 13th generation of PowerEdge servers: **Overview** > **iDRAC Settings** > **Network** > **Services**
   - 14th generation of PowerEdge servers: **iDRAC Settings** > **Services** > **Redfish**

2 Under **Redfish**, select **Enabled** and click **Apply** to enable the service.

Configuring Redfish service by using iDRAC RACADM

You can enable or disable the Redfish service using the iDRAC attribute `iDRAC.Redfish.Enable (Read or Write)`.

Configuring Redfish service by using WS-MAN

The Redfish attribute `iDRAC.Redfish.Enable` is modeled under the existing `DCIM_iDRACCardEnumeration` class. You can configure the Redfish service using existing methods such as SetAttribute, SetAttributes, and ApplyAttributes of `DCIM_iDRACCardService` class.

Redfish schema

The Schemas for the Redfish resources are defined according to the OData Schema representation, which can be directly translated to a JSON Schema representation.

Redfish authentication and authorization

For certain resources, the Redfish clients may require to authenticate access. Redfish relies on the managed system for the required credentials and supported forms of authentication. In iDRAC, authentication is based on local credentials and remote protocols such as Active Directory and LDAP.

NOTE: You must have the required iDRAC license to use Active Directory and LDAP.

Authorization includes both user privilege and license authorization. Redfish support is included in all levels of iDRAC licensing. The following table details the authentication and authorization required for each Redfish action:

Table 1. Redfish authentication and authorization

Redfish actions	Authentication required	Authorization required
Read operation on any instrumentation data	Yes	Yes
Modify instrumentation data	Yes	Yes
Invoke actions	Yes	Yes
View service root	No	No
View metadata document	No	No
View OData service document	No	No
View message registry	No	No
View Redfish version URI	No	No
View JSONSchemaFile resource URI	No	No
View JSON schemas URI	No	No

The Redfish service provides access to Redfish URLs by using the following methods:

- **Basic authentication:** In this method, user name and password are provided for each Redfish API request.
- **Session-based authentication**: This method is used while issuing multiple Redfish operation requests.
  - Session login is initiated by accessing the Create session URI. The response for this request includes an X-Auth-Token header with a session token. Authentication for subsequent requests is made using the X-Auth-Token header.
  - Session logout is performed by issuing a DELETE of the Session resource provided by the Login operation including the X-Auth-Token header.

NOTE: The iDRAC firmware incorporates the concept of application sessions for various existing interfaces such as the web interface, WSMan, and RACADM. With the introduction of Redfish-specific sessions, Redfish inherits the characteristics of web server sessions and the property Session Timeout inherits the web server session timeout value.

NOTE: To ensure a secure connection, Dell recommends using TLS 1.1 or later.

iDRAC licensing

Redfish support is included in all license types of iDRAC. However, some of the iDRAC features require specific licenses. If a required license is not present, certain Redfish APIs may not be accessible and return an HTTP 403 status code. 403 implies that there is no sufficient privileges. In other cases, some of the properties in certain resource may not be returned in a response. The service may also return errors when such properties are modified. For information of specific license requirements for the resources, see Redfish resources.

HTTP methods

The REST API allows you to specify the type of request. It adheres to the Create, Retrieve, Update, and Delete (CRUD) standard format. The data is generated by accessing URIs that can be accessed by using the following HTTP methods:

- GET
- HEAD
- POST
- PUT
- PATCH
- DELETE

GET

Use the GET method to retrieve a representation of a resource. The representation can either be a single resource or a collection. Depending on the media type, the service returns the resource representation by using one of the media types specified in the Accept header. If the Accept header is not present, the service returns the resource representations either as **application/json** or **application/xml**. The resources support the formats defined by the Redfish standard.

The HTTP GET method is used to retrieve a resource. The service ignores the content of the body on a GET. The GET operation is unchanged in the absence of external changes to the resource.

HEAD

All URLs support the HEAD method. This method returns the response headers.

POST

Use the POST method to invoke actions and create a resource. The POST request is submitted to the resource collection to which the new resource belongs. Submitting a POST request to a resource that represents a collection is equivalent to submitting the request to the Members property of that resource. Services that support adding members to a collection support both forms.

Services support the POST method for creating resources. If the resource does not support this method, status code 405 is returned. The body of the create request contains a representation of the object to be created. The service can ignore any service-controlled properties such as ID, forcing those properties for the service to be overridden. The service sets the Location header to the URI of the newly created resource.

PUT

Use the PUT method to replace the property values of a resource. Properties omitted from the request body are reset to their default value. Services support the PUT method to replace a resource completely. If a service does not support this method, status code 405 is returned. Services may return a representation of the resource after any server-side transformations occur in the body of the response. The PUT operation must be unchanged in the absence of external changes to the resource. The exception is that the ETag values may change as a result of this operation.

PATCH

Use the PATCH method to update pre-existing resources. Changes to the resource are sent in the request body. This method does not change the properties that are not specified in the request body. The response is either empty or a representation of the resource after the update is done, or a success code if the operation is successful. Depending on the policies, the implementation may reject the update operation on certain fields and not apply any of the requested updates.

NOTE: Starting from iDRAC version 3.15.15.15 release, you can use the PATCH method with up to 50 attributes at a time.

DELETE

Use the DELETE method to remove a resource. Services support the DELETE method for resources that can be deleted. If the resource cannot be deleted, status code 405 is returned. Services return a representation of the deleted resource in the response body.

HTTP headers

The server response contains only basic information about related resources. Any metadata that is required to process a request or response is accessed by using HTTP headers. iDRAC supports the following request headers:

Header	Description
If-Match	Supported only for AccountService and FirmwareInventory URIs.
If-None-Match	Supported only for AccountService, FirmwareInventory, and metadata URIs.
Content-Length	Returned on all responses except responses that have Transfer-Encoding: chunked.
Content-Type	• Responses other than OData metadata—application/json;charset=utf-8 • OData responses—application/xml;charset=utf-8
ETag	Supported on AccountService, FirmwareInventory, and metadata URIs.
Location	Service sets this header when resources are created or when HTTP requests are redirected to other resources.
Cache-Control	Returned on all responses. Metadata URIs support cached responses. Instrumentation resources cannot be cached.
X-Auth-Token	Used for authentication of user sessions. See "Session-based authentication" under Redfish authentication and authorization.

HTTP status codes and error messages

HTTP defines the status codes that are returned in response messages. When the HTTP status code indicates a failure, the response body contains an extended error resource, which provides meaningful and deterministic error semantics.

The extended-error information for the Redfish service that Dell has implemented contains error or exception information that is unique to Dell. This information provides more details and recommendations for error resolution. To learn more about extended-error information, see the *Event and Error Message Reference Guide* available at www.dell.com/manuals.

For more information about supported status codes and error messages, see the *Redfish Scalable Platforms Management API Specification* document available at www.dmtf.org/standards/redfish.

SSL certificates of iDRAC

iDRAC includes a web server that uses the industry-standard SSL security protocol to transfer encrypted data over a network. Built upon asymmetric encryption technology, SSL is widely accepted for providing authenticated and encrypted communication between clients and servers to prevent eavesdropping across a network.

By default, the iDRAC web server has a Dell self-signed SSL digital certificate. Redfish service reuses this certificate installed on the iDRAC web server. You can replace the default SSL certificate with a certificate signed by a well-known Certificate Authority (CA). You can replace SSL certificates using the iDRAC interfaces such as web interface, RACADM, or WSMan. For more information on managing SSL certificates of iDRAC, see the latest iDRAC User's Guide available at **Dell.com/idracmanuals**.

Eventing

The Redfish service generates asynchronous notifications (events) that are defined by Redfish subscription for the eventing service. These events are sent to an event destination by using HTTP POST method. Events are generated when some significant change or error condition typically of time critical nature occurs. When an event occurs on the service, it notifies the clients. Redfish service must be enabled and iDRAC must be configured to create event subscriptions and to gain read-only privilege for viewing event subscriptions.

The iDRAC implementation of a Redfish service supports only HTTPS notifications. In certain situations, iDRAC may not be able to verify certificates sent by a peer. To handle such situations, iDRAC can be configured to skip certificate verification by using the attribute `iDRAC.RedfishEventing.IgnoreCertificateErrors`. This attribute can be configured to True or False (Default) using RACADM or the WS-MAN interface. Set this attribute to True if certificate validation is not required.

Redfish service provides Lifecycle and Alert events. Lifecycle events may occur when resources are created, modified, or destroyed. Alert events occur when a resource needs to indicate a significant event. Alert events may be either directly or indirectly pertaining to the resource. Examples of these kinds of event are a chassis being opened, button being pressed, cable being unplugged, or threshold being exceeded. iDRAC supports up to 20 event subscriptions.

NOTE: In this release, iDRAC supports only Alert event notifications.

If an event delivery fails, the event service of iDRAC retries delivering the failed event. The number of retries and delivery intervals can be configured using the following attributes:

- `iDRAC.RedfishEventing.DeliveryRetryAttempts`
- `iDRAC.RedfishEventing.DeliveryRetryIntervalInSeconds`

Event delivery retry settings in RACADM

iDRAC.RedfishEventing.DeliveryRetryAttempts (Read or Write)

Description	Specifies the number of retry attempts made for Redfish event delivery
Legal values	Value ranges from 0 to 5
Default value	3
Write privilege	Configure iDRAC

iDRAC.RedfishEventing.DeliveryRetryIntervalInSeconds (Read or Write)

Description	Specifies the intervals (in seconds) of retry attempts made for Redfish event delivery
Legal values	Value ranges from 5 to 60
Default value	30
Write privilege	Configure iDRAC

Eventing operations

The Redfish event service provides the following URIs:

Table 2. Eventing operations

HTTP method type	Description	URI	Metadata reference
GET	Get Event Service detailed information	/redfish/v1/EventService	EventService.xml
POST	Register an event notification receiver	/redfish/v1/EventService/Subscriptions	EventDestination.xml
DELETE	Remove a subscription	/redfish/v1/EventService/Subscriptions/<Subscription ID>	EventService.xml

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Redfish resources

This section describes the resource URIs and related operations that are available in the iDRAC implementation of a Redfish service API.

Topics:

- Thermal
- UpdateService
- VirtualMedia

AccountService

Description

This resource is used to represent a management account service for a Redfish implementation.

URL

```
/redfish/v1/Managers/<ID>/AccountService
```

Methods and privileges

Table 3. HTTP methods and privileges for AccountService

HTTP method	Required privilege
GET	Login

AttributeRegistry

Description

An Attribute Registry is a set of key-value pairs that are specific to a particular implementation or product. This schema describes the structure of a registry and also includes mechanisms for building user interfaces allowing consistent navigation of the contents.

URL

```
/redfish/v1/Registries/ManagerAttributeRegistry/ManagerAttributeRegistry.v1_0_0.json
/redfish/v1/Systems/<ID>/Bios/BiosRegistry
```

Methods and privileges

Table 4. Methods and privileges for AttributeRegistry

HTTP method	Required privilege
GET	Login

Status codes

Table 5. Status codes for AttributeRegistry

HTTP status code	Extended information
200	Base.1.0.Success
500	Base.1.0.InternalError

BIOS

Description

This resource is used for representing the BIOS configuration and the related resources to Reset BIOS, Change Password, and the Settings resource.

URL

```
/redfish/v1/Systems/<ID>/Bios
```

Methods and privileges

Table 6. Methods and privileges for BIOS

HTTP method	Required privilege
GET	Login

Status codes

Table 7. Status codes for BIOS

HTTP status code	Extended information
200	
500	Base.1.0.InternalError

Supported action — ResetBIOS

Description

This action is used for resetting the BIOS attributes to default.

URL

```
/redfish/v1/Systems/<ID>/Bios/Actions/Bios.ResetBios
```

Methods and privileges

Table 8. Methods and privileges for ResetBIOS

HTTP method	Required privilege
POST	SystemControl

Status codes

Table 9. Status codes for ResetBIOS

HTTP status code	Extended information
200	Base.1.0.Success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList
403	Base.1.0.InsufficientPrivilege
404	Base.1.0.ResourceMissingAtURI
500	Base.1.0.InternalError

Supported action — ChangePassword

Description

This action is used for changing the BIOS passwords.

URL

```
/redfish/v1/Systems/<ID>/Bios/Actions/Bios.ChangePassword
```

Methods and privileges

Table 10. Methods and privileges for ChangePassword

HTTP method	Required privilege
POST	SystemControl

Updatable properties

Table 11. Parameters for ChangePassword

Property	Description
PasswordName	The name of the BIOS password to change
OldPassword	The value of the existing password
NewPassword	The value of the new BIOS password

Status codes

Table 12. Status codes for ChangePassword

HTTP status code	Extended information
200	Base.1.0.Success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList
403	Base.1.0.InsufficientPrivilege
404	Base.1.0.ResourceMissingAtURI
500	Base.1.0.InternalError

Supported action — ClearPending

Description

This action is used for clearing the pending values.

URL

```
/redfish/v1/Systems/<ID>/Bios/Actions/Oem/DellManager.ClearPending
```

HTTP methods and privileges

Table 13. HTTP methods and privileges for ClearPending

HTTP method	Required privilege
POST	SystemControl

Status codes

Table 14. Status codes for ClearPending

HTTP status code	Extended information
200	Base.1.0.Success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList
403	Base.1.0.InsufficientPrivilege
404	Base.1.0.ResourceMissingAtURI
500	Base.1.0.InternalError

Settings resource

Description

This resource is used for representing the BIOS pending configuration and related resources to clear pending and navigation to Jobs resource.

URL

```
/redfish/v1/Systems/<ID>/Bios/Settings
```

HTTP methods and privileges

Table 15. HTTP methods and privileges for the Settings resource

HTTP method	Required privilege
GET	Login
PATCH	SystemControl

Updatable properties

Table 16. Properties for the Settings resource

Property	Description
Attributes	Collection of all the attributes and their values supported by the BIOS configuration

Status codes

Table 17. Status codes for the Settings resource

HTTP status code	Extended information
200	Base.1.0.Success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList
403	Base.1.0. InsufficientPrivilege
500	Base.1.0.InternalError

Chassis

Description

This resource is used to represent a chassis or other physical enclosure for a Redfish implementation.

URL

```
/redfish/v1/Chassis
```

HTTP methods and privileges

Table 18. HTTP methods and privileges for Chassis

HTTP method	Required privilege
GET	Login

Navigation URL

```
/redfish/v1/Chassis/<ID>
```

HTTP methods and privileges

Table 19. HTTP methods and privileges for instance of Chassis

HTTP method	Required privilege
PATCH	ConfigureManager

Status codes

Table 20. Status codes for Chassis

HTTP status code	Extended information
200	Base.1.0.success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList • Base.1.0.PropertyUnknown • Base.1.0.PropertyNotWritable • Base.1.0.PropertyValueFormatError
500	Base.1.0.InternalError

Updatable properties

Table 21. Properties and values for Chassis

Property	Values
ResetType	• On • ForceOff
IndicatorLed	• Blinking • Off
ChassisType	• Rack • StandAlone • Blade • Enclosure • Sled

Supported action — Reset

URL

```
/redfish/v1/Chassis/System.Embedded.1/Actions/Chassis.Reset
```

Description

This action is used to reset the chassis.

HTTP methods and privileges

Table 22. HTTP methods and privileges for Reset

HTTP method	Required privilege
POST	ConfigureComponent

Properties and values

Table 23. Properties and values for Reset

Property	Value
ResetType	• On • ForceOff

Status codes

Table 24. Status codes for Reset

HTTP status code	Extended information
204	
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList • Base.1.0.PropertyUnknown • Base.1.0.PropertyNotWritable • Base.1.0.PropertyValueFormatError
500	Base.1.0.InternalError
503	

URL

```
/redfish/v1/Chassis/<ID>/Sensors/Voltages/<ID>
```

HTTP methods and privileges

Table 25. HTTP methods and privileges for the instance

HTTP method	Required privilege
GET	Login

Status codes

Table 26. Status codes for the instance

HTTP status code
200
400
500

NOTE: On PowerEdge FX2 systems, iDRAC can display additional instrumentation data from the sensors on the server only if the Chassis Monitoring setting is set to enabled on iDRAC and CMC.

Contained resources

- Power
- Thermal

ComputerSystem

Description

This resource is used to represent resources that represent a computing system in the Redfish specification.

URL

```
/redfish/v1/Systems
```

HTTP methods and privileges

Table 27. HTTP methods and privileges for ComputerSystem

HTTP method	Required privilege
GET	Login

Navigation URL

```
/redfish/v1/Systems/<ID>
```

HTTP methods and privileges

Table 28. HTTP methods and privileges for the instance of the resource

HTTP method	Required privilege
PATCH	ConfigureManager, ConfigureSelf

Status codes

Table 29. Status codes for ComputerSystem

HTTP status code	Extended information
200	Base.1.0.success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList • Base.1.0.PropertyUnknown • Base.1.0.PropertyNotWritable • Base.1.0.PropertyValueFormatError
500	Base.1.0.InternalError

Updatable properties

Table 30. Properties and values for ComputerSystem

Property	Values
ResetType	• On • ForceOff • GracefulRestart • PushPowerButton • NMI
PowerState	• On • Off
SystemType	Physical
BootSource	• PXE • Floppy • CD • USB • HDD • Utilities • UefiTarget

Property	Values
	• BiosSetup
BootSourceOverrideMode	• UEFI • Legacy
BootSourceOverrideEnabled	• Disabled • Once • Continuous
UefiTargetBootSourceOverride	Any valid UEFI-device path
IndicatorLed	• Lit • Off

Implementation notes

Some of the properties in this schema are dependent on the installed BIOS version. If a compatible BIOS version is not installed, the **UefiTargetBootSourceOverride** property is not supported in this resource.

Supported action — Reset

Description

Resets computer system.

URL

```
/redfish/v1/Systems/<ID>/Actions/ComputerSystem.Reset
```

HTTP methods and privileges

Table 31. HTTP methods and privileges for Reset

HTTP method	Required privilege
POST	ConfigureComponent, ConfigureSelf

Properties and values

Table 32. Properties and values for Reset

Property	Value
ResetType	• On • ForceOff

Property	Value
	• GracefulRestart • PushPowerButton • NMI

Status codes

Table 33. Status codes for Reset

HTTP status code	Extended information
200	
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList • Base.1.0.PropertyUnknown • Base.1.0.PropertyNotWritable • Base.1.0.PropertyValueFormatError
500	Base.1.0.InternalError

Contained resources

- Processor
- EthernetInterfaces
- SimpleStorage
- LogService

DellAttributes

Description

This resource is used to represent the iDRAC Configuration and the related settings resource for pending configuration.

URL

```
/redfish/v1/Managers/<ID>/Attributes
```

HTTP methods and privileges

Table 34. HTTP methods and privileges for DellAttributes

HTTP method	Required privilege
GET	Login
PATCH	SystemControl

Updatable properties

Table 35. Properties for DellAttributes

Property	Description
Attributes	Collection of all the attributes and their values supported by the iDRAC configuration.

Status codes

Table 36. Status codes for DellAttributes

HTTP status code	Extended information
200	Base.1.0.Success
400	• Base.1.0.PropertyValueNotInList • Base.1.0.PropertyValueTypeError
500	Base.1.0.InternalError

Supported action — ClearPending

Description

This action is used to clear the pending values.

URL

```
/redfish/v1/Managers/<ID>/Attributes/Settings/Actions/Oem/DellManager.ClearPending
```

HTTP methods and privileges

Table 37. HTTP methods and privileges for ClearPending

HTTP method	Required privilege
POST	SystemControl

Status codes

Table 38. Status codes for ClearPending

HTTP status code	Extended information
200	Base.1.0.Success
500	Base.1.0.InternalError

Settings resource

Description

This resource is used to represent the Dell Attributes pending configuration and related resources to clear pending and navigation to Jobs resource.

URL

```
/redfish/v1/Managers/<ID>/Attributes/Settings
```

HTTP methods and privileges

Table 39. HTTP methods and privileges for the Settings resource

HTTP method	Required privilege
GET	Login
PATCH	SystemControl

Updatable properties

Table 40. Properties for the Settings resource

Property	Description
Attributes	Collection of all the attributes and their values supported by the iDRAC configuration.

Status codes

Table 41. Status codes for the Settings resource

HTTP status code	Extended information
200	Base.1.0.Success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList
500	Base.1.0.InternalError

DellBootSources

Description

This resource is used to represent the Dell Boot Sources Configuration and the related resources to the settings resource.

URL

```
/redfish/v1/Systems/<ID>/BootSources
```

HTTP methods and privileges

Table 42. HTTP methods and privileges for DellBootSources

HTTP method	Required privilege
GET	Login

Status codes

Table 43. Status codes for DellBootSources

HTTP status code	Extended information
200	
500	Base.1.0.InternalError

Supported action — ClearPending

Description

This action is used to clear the pending values.

URL

```
/redfish/v1/Systems/<ID>/BootSources/Actions/Oem/DellManager.ClearPending
```

HTTP methods and privileges

Table 44. HTTP methods and privileges for ClearPending

HTTP method	Required privilege
POST	SystemControl

Status codes

Table 45. Status codes for ClearPending

HTTP status code	Extended information
200	Base.1.0.Success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList
403	Base.1.0.InsufficientPrivilege
404	Base.1.0.ResourceMissingAtURI
500	Base.1.0.InternalError

Settings resource

Description

This resource is used to represent the Boot Sources pending configuration and related resources to clear pending and navigation to Jobs resource.

URL

```
/redfish/v1/Systems/<ID>/BootSources/Settings
```

HTTP methods and privileges

Table 46. HTTP methods and privileges for the Settings resource

HTTP method	Required privilege
GET	Login
PATCH	SystemControl

Updatable properties

Table 47. Properties for the Settings resource

Property	Description
Attributes	Collection of all the attributes and their values supported for Boot Sources.

Status codes

Table 48. Status codes for the Settings resource

HTTP status code	Extended information
200	Base.1.0.Success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList
403	Base.1.0. InsufficientPrivilege
404	Base.1.0.ResourceMissingAtURI
500	Base.1.0.InternalError

DellBootSourcesRegistry

Description

A Boot Sources Registry is a set of key-value pairs that are specific to a particular implementation or product. This schema describes the structure of a registry and also includes mechanisms for building user interfaces allowing consistent navigation of the contents.

URL

```
/redfish/v1/Systems/<ID>/BootSources/BootSourcesRegistry
```

HTTP methods and privileges

Table 49. HTTP methods and privileges for DellBootSourcesRegistry

HTTP method	Required privilege
GET	Login

Status codes

Table 50. Status codes for DellBootSourcesRegistry

HTTP status code	Extended information
200	Base.1.0.Success
500	Base.1.0.InternalError

DellCertificates

Description

This resource is used to represent Secure Boot certificates for a Redfish implementation.

URL

```
/redfish/v1/Systems/<ID>/SecureBoot/Certificates
```

HTTP methods and privileges

Table 51. HTTP methods and privileges for DellCertificates

HTTP method	Required privilege
GET	Login

Status codes

Table 52. Status codes for DellCertificates

HTTP status code	Extended information
200	Base.1.0.Success
500	Base.1.0.InternalError

URL

```
/redfish/v1/Systems/<ID>/SecureBoot/Certificates/<CertificateStore-ID>
```

HTTP methods and privileges

Table 53. HTTP methods and privileges for the instance of CertificateStore

HTTP method	Required privilege
GET	Login
POST	SystemControl

Updatable properties

Table 54. Properties for the instance of CertificateStore

Parameter	Description
CryptographicHash	A string providing the Cryptographic Hash value of SHA256, SHA384, or SHA512.

Status codes

Table 55. Status codes for the instance of CertificateStore

HTTP status code	Extended information
200	Base.1.0.Success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList
403	Base.1.0. InsufficientPrivilege
500	Base.1.0.InternalError

URL

```
/redfish/v1/Systems/<ID>/SecureBoot/Certificates/<CertificateStore-ID>/<Certificate-ID>
```

HTTP methods and privileges

Table 56. HTTP methods and privileges for instance of Certificate

HTTP method	Required privilege
GET	Login
DELETE	SystemControl

NOTE: By default, GET requests on the Certificate member resource generate an output of `application/json`. Use GET request with Accept header `application/pkix-cert` to download certificate and use `application/octet-stream` to download the Hash files.

Status codes

Table 57. Status codes for the instance of Certificate

HTTP status code	Extended information
200	Base.1.0.Success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList
403	Base.1.0. InsufficientPrivilege
500	Base.1.0.InternalError

DellJob

Description

This resource represents the Dell-specific implementation of a scheduling resource for pending configuration.

URL

```
/redfish/v1/Managers/<ID>/Jobs
```

HTTP methods and privileges

Table 58. HTTP methods and privileges for DellJob

HTTP method	Required privilege
GET	Login
POST	SystemControl

Properties required for job creation

Table 59. Properties required for job creation for DellJob

Parameter	Description
TargetSettingsURI	Settings object resource URI
StartTime	Scheduled start time
EndTime	Scheduled end time

Status codes

Table 60. Status codes for DellJob

HTTP status code	Extended information
200	Base.1.0.Success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList
403	Base.1.0. InsufficientPrivilege
404	Base.1.0.ResourceMissingAtURI
500	Base.1.0.InternalError

Navigation URL

```
/redfish/v1/Managers/<ID>/Jobs
```

HTTP methods and privileges

Table 61. HTTP methods and privileges for the instance of the resource

HTTP method	Required privilege
GET	Login
DELETE	SystemControl

Status codes

Table 62. Status codes for the instance of the resource

HTTP status code	Extended information
200	Base.1.0.Success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList
403	Base.1.0. InsufficientPrivilege
404	Base.1.0.ResourceMissingAtURI
500	Base.1.0.InternalError

DellManager

Description

This resource is used to represent a Redfish OEM extension of management sub-system.

URL

```
/redfish/v1/Managers
```

Supported action — ResetToDefaults

Description

This defines the name of the OEM action supported when used in conjunction with a POST operation to this resource. When issued, this operation resets the Manager attributes to default settings.

URL

```
/redfish/v1/Managers/<ID>/Actions/Oem/DellManager.ResetToDefaults
```

HTTP methods and privileges

Table 63. HTTP methods and privileges for ResetToDefaults

HTTP method	Required privilege
POST	SystemControl

Status codes

Table 64. Status codes for ResetToDefaults

HTTP status code	Extended information
200	Base.1.0.Success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList
500	Base.1.0.InternalError

Updatable properties

Table 65. Supported properties and values for ResetToDefaults

Property	Values
ResetType	• All • ResetAllWithRootDefaults • Default

DellServiceRoot

Description

This object represents the Redfish OEM extensions for root service.

URL

```
/redfish/v1
```

HTTP methods and privileges

Table 66. HTTP methods and privileges for DellServiceRoot

HTTP method	Required privilege
GET	Login

Properties

Table 67. Properties for DellServiceRoot

Property	Description
ManagerMACAddress	iDRAC MAC address
IsBranded	Integer
ServiceTag	System Service Tag

DellUpdateService

Description

This action is used to perform firmware updates.

Supported action — Install

Description

This resource is used to represent extension of the Update Service schema of Redfish.

Starting from the iDRAC version 3.15.15.15 release, you can use the **Install** OEM action of **UpdateService** resource to update only one component at a time. You must perform a commit after uploading each update package. Although the SoftwareIdentityURIs parameter of the Install OEM action is of the type Collection, only one relative URI of the firmware inventory to be installed is allowed. If you attempt to perform an update for multiple components at once, error SYS442 is returned. To update multiple components, upload the package, perform a commit, and then repeat the process for other components.

URL

```
/redfish/v1/UpdateService/Actions/Oem/DellUpdateService.Install
```

HTTP methods and privileges

Table 68. HTTP methods and privileges for Install

HTTP method	Required privilege
POST	• **.d9** file type — ConfigureManager • **.pm** file type — ConfigureManager • **.exe** file type — ConfigureSelf

Updatable properties

Table 69. Properties and values for Install

Property	Values
InstallUpon	• Now • NowAndReboot • NextReboot

Status codes

Table 70. Status codes for Install

HTTP status code	Extended information	Error Message Code
202		SYS408
400		SUP024, SYS406, OSD35
400	Base.1.0. PropertyValueTypeError	
400	Base.1.0. PropertyMissing	
400	Base.1.0.MalformedJSON	SYS405
403	Base.1.0.InsufficientPrivilege	RAC0506
403		LIC501
404	Base.1.0. ResourceMissingAtURI	SYS403
415		SYS401
500	Base.1.0.InternalError	RAC964
503		SUP0108

EthernetInterfaces

Description

This resource is used to represent NIC resources as part of the Redfish specification. It also updates the properties of Manager Ethernet Interface.

NOTE: Only device FQDDs that are associated with physical network controllers are displayed. If iSM is installed and running, and there are only software Ethernet interfaces available on the system, a response code of 200 and an empty collection is returned.

URL

```
/redfish/v1/Managers/<ID>/EthernetInterfaces
```

HTTP methods and privileges

Table 71. HTTP methods and privileges for EthernetInterfaces

HTTP method	Required privilege
GET	Login

Ethernet — Instance

URL

```
/redfish/v1/Managers/<ManagerInstanceID>/EthernetInterfaces/<EthernetInstanceID>
```

HTTP methods and privileges

Table 72. HTTP methods and privileges for instance of EthernetInterfaces

HTTP method	Required privilege
PATCH	ConfigureManager

Properties

Table 73. Properties for EthernetInterfaces

Property	Description
Hostname	Updates hostname
IPv4	Updates IPv4
IPv6	Updates IPv6
IPv6Static	Updates IPv6Static

Status codes and error message codes

Table 74. Status codes and error message codes for EthernetInterfaces

HTTP status code	Extended information	Error Message Code
200	Base.1.0.success	
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList • Base.1.0.PropertyUnknown • Base.1.0.PropertyNotWritable	• ISM0013 • RAC0253 • RAC0254 • RAC0255

HTTP status code	Extended information	Error Message Code
	• Base.1.0.PropertyValueFormatError	• RAC0259 • SWC0296
500	Base.1.0.InternalError	

Reference Properties

/Systems/<ServiceTag+nodeid>/EthernetInterfaces

Description

This resource is used to represent NIC resources as part of the Redfish specification.

HTTP methods and privileges

Table 75. HTTP methods and privileges

HTTP method	Required privilege
GET	Login

Status codes

Table 76. Status codes

HTTP status code
200
400
500

Implementation notes

Some of the properties in this schema are dependent on the installed BIOS and iDRAC Service Module (iSM) version. If a compatible version of BIOS is not installed, **UefiDevicePath** is not supported in this resource. If a compatible version of iSM is not installed, certain properties may not be supported.

EventDestination

Description

This property contains an URL to the destination where the events are sent.

URL

```
/redfish/v1/EventService/Subscriptions
```

HTTP methods and privileges

Table 77. HTTP methods and privileges for EventDestination

HTTP method	Required privilege
GET	Login
POST	ConfigureManager

Properties

Table 78. Properties for EventDestination

Property	Description
Destination	Destination IP to send event
EventTypes	Contains the type of the event
Context	Client-supplied string
Protocol	Protocol type used by event

Status codes

Table 79. Status codes for EventDestination

HTTP status code	Extended information
200	
201	
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList • Base.1.0.PropertyUnknown • Base.1.0.PropertyNotWritable • Base.1.0.PropertyValueFormatError
500	Base.1.0.InternalError
503	

EventService

Description

It represents the properties for the service itself and has links to the actual list of subscriptions.

NOTE: **You can use the IgnoreCertificateErrors attribute in OEMAttributes to ignore certificate errors.**

URL

```
/redfish/v1/EventService
```

HTTP methods and privileges

Table 80. HTTP methods and privileges for EventService

HTTP method	Required privilege
GET	Login

Status codes

Table 81. Status codes for EventService

HTTP status code
200
400
500

JSONSchemas

Description

This resource is used for representing the Schema File locator resource for a Redfish implementation.

URL

```
/redfish/v1/JSONSchemas
```

HTTP methods and privileges

Table 82. HTTP methods and privileges for JSONSchemas

HTTP method	Required privilege
GET	Login

Status codes

Table 83. Status codes for JSONSchemas

HTTP status code
200
400
500

LogEntry

Description

This resource represents the log format for log services in a Redfish implementation.

URL

```
/redfish/v1/Managers/<ID>/Logs
```

HTTP methods and privileges

Table 84. HTTP methods and privileges for LogEntry

HTTP method	Required privilege
GET	Login

Status codes

Table 85. Status codes for LogEntry

HTTP status code
200
400
500

Reference Properties

/redfish/v1/Managers/<ID>/Logs/Lclog

Description

This resource represents the Lifecycle Controller logs for the manager in a Redfish implementation.

HTTP methods and privileges

Table 86. HTTP methods and privileges for the resource

HTTP method	Required privilege
GET	Login

Status codes

Table 87. Status codes for the resource

HTTP status code	Extended information
200	
400	
500	

Logs — System Event Logs

URL

```
/redfish/v1/Managers/<ID>/Logs/Sel
```

Description

This resource represents the System Event Logs for the manager in a Redfish implementation.

HTTP methods and privileges

Table 88. HTTP methods and privileges for the resource

HTTP method	Required privilege
GET	Login

Status codes

Table 89. Status codes for the resource

HTTP status code	Extended information
200	
400	
500	

LogService

Description

This resource is used to represent a log service for a Redfish implementation.

URL

```
/redfish/v1/Managers/<ID>/LogService
```

HTTP methods and privileges

Table 90. HTTP methods and privileges for LogService

HTTP method	Required privilege
GET	Login

Status codes

Table 91. Status codes for LogService

HTTP status code
200
400
500

Reference Properties

/redfish/v1/Managers/<ID>/LogServices/Lclog

Description

This resource represents the Lifecycle Controller log service in a Redfish implementation.

HTTP methods and privileges

Table 92. HTTP methods and privileges for the resource

HTTP method	Required privilege
GET	Login

Status codes

Table 93. Status codes for the resource

HTTP status code
200
400
500

/redfish/v1/Managers/<ID>/LogServices/Sel

Description

This resource represents the SEL log service in a Redfish implementation.

HTTP methods and privileges

Table 94. HTTP methods and privileges for resource

HTTP method	Required privilege
GET	Login

Status codes

Table 95. Status codes for the resource

HTTP status code
200
400
500

Supported action — ClearLog

URL

```
/redfish/v1/Managers/<ID>/LogServices/Sel/Actions/LogService.ClearLog
```

Description

Performs clear operation on logs.

HTTP methods and privileges

Table 96. HTTP methods and privileges for ClearLog

HTTP method	Required privilege
POST	ConfigureManager

Status codes

Table 97. Status codes for ClearLog

HTTP status code	Extended information
204	
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList

HTTP status code	Extended information
	• Base.1.0.PropertyUnknown • Base.1.0.PropertyNotWritable • Base.1.0.PropertyValueFormatError
500	Base.1.0.InternalError

Manager

Description

This resource is used to represent a management sub-system for a Redfish implementation.

URL

```
/redfish/v1/Managers
```

HTTP methods and privileges

Table 98. HTTP methods and privileges for Manager

HTTP method	Required privilege
GET	Login

Status codes

Table 99. Status codes for Manager

HTTP status code
200
400
500

Updatable properties

Table 100. Properties and values for Manager

Property	Values
ManagerType	BMC
CommandConnectTypesSupported	• SSH • Telnet

Property	Values
	• IPMI
GraphicalConnectTypesSupported	KVMIP
ResetType	GracefulRestart

Supported action — Reset

Description

This defines the name of the custom action supported when used in conjunction with a POST operation to this resource. When issued, this operation performs a reset of the manager.

URL

```
/redfish/v1/Managers/<ID>/Actions/Manager.Reset
```

HTTP methods and privileges

Table 101. HTTP methods and privileges for Reset

HTTP method	Required privilege
POST	ConfigureManager

Updatable properties

Table 102. Properties and values for Reset

Property	Value
ResetType	GracefulRestart

Status codes

Table 103. Status codes for Reset

HTTP status code	Extended information
204	
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList • Base.1.0.PropertyUnknown • Base.1.0.PropertyNotWritable • Base.1.0.PropertyValueFormatError

HTTP status code	Extended information
500	Base.1.0.InternalError

ManagerAccount

Description

This resource represents the BMC user accounts collection for a Redfish implementation.

URL

```
/redfish/v1/Managers/<ID>/Accounts
```

HTTP methods and privileges

Table 104. HTTP methods and privileges for ManagerAccount

HTTP method	Required privilege
GET	Login

Navigation URL

```
/redfish/v1/Managers/<ID>/Accounts/<Account-id>
```

HTTP methods and privileges

Table 105. HTTP methods and privileges for the instance of the resource

HTTP method	Required privilege
PATCH	ConfigureManager

Updatable properties

Table 106. Properties and values for instance of the resource

Property	Value
UserName	Updates account user name
Password	Updates account password
RoleId	Updates account role
Enabled	Enables or disables the user

Status codes

Table 107. Status codes for the instance of the resource

HTTP status code	Error message code
200	
400	• RAC0288 • RAC0291
404	
500	

Contained resources

Role

ManagerNetworkProtocol

Description

This object is used to represent the network service settings for the manager.

URL

```
/redfish/v1/Managers/<ID>/NetworkProtocol
```

HTTP methods and privileges

Table 108. HTTP methods and privileges for ManagerNetworkProtocol

HTTP method	Required privilege
GET	Login
PATCH	ConfigureManager

Updatable properties

Table 109. Properties for ManagerNetworkProtocol

Property
FQDN
Hostname
HTTP
HTTPS
IPMI
KVMIP
SNMP
SSH
Telnet
VirtualMedia

Status codes

Table 110. Status codes for ManagerNetworkProtocol

HTTP status code	Extended information
200	Base.1.0.success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList • Base.1.0.PropertyUnknown • Base.1.0.PropertyNotWritable • Base.1.0.PropertyValueFormatError
403	Insufficient privilegess.
500	Base.1.0.InternalError

Role

Description

This resource is used to represent resources that represent the user role for the user account.

URL

```
/redfish/v1/Managers/<ID>/Roles
```

HTTP methods and privileges

Table 111. HTTP methods and privileges for Role

HTTP method	Required privilege
GET	Login

Status codes

Table 112. Status codes for Role

HTTP status code
200
400
500

SerialInterfaces

Description

This resource is used to represent serial resources as part of the Redfish specification.

URL

```
/redfish/v1/Managers/<ID>/SerialInterfaces
```

HTTP methods and privileges

Table 113. HTTP methods and privileges for SerialInterfaces

HTTP method	Required privilege
GET	Login

Navigation URL

```
/redfish/v1/Managers/<ID>/SerialInterfaces/<Serial-key>
```

HTTP methods and privileges

Table 114. HTTP methods and privileges for the instance of the resource

HTTP method	Required privilege
PATCH	ConfigureManager

Updatable properties

Table 115. Properties for the instance of the resource

Property	Description
BitRate	Updates the bit-rate
InterfaceEnabled	Updates InterfaceEnabled

Status codes

Table 116. Status codes for the instance of the resource

HTTP status code	Extended information
200	Base.1.0.success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList • Base.1.0.PropertyUnknown • Base.1.0.PropertyNotWritable • Base.1.0.PropertyValueFormatError
500	Base.1.0.InternalError

Updatable properties

Table 117. Properties and values for SerialInterfaces

Property	Values
SignalType	Rs232
BitRate	• 9600 • 19200 • 38400 • 57600 • 115200

Property	Values
Parity	None
DataBits	8
StopBits	1
FlowControl	Hardware
PinOut	Cisco
ConnectorType	DB9 Male

MessageRegistry

Description

This resource is used to represent a message registry for a Redfish implementation.

URL

```
/redfish/v1/Registries/Messages/En
```

HTTP methods and privileges

Table 118. HTTP methods and privileges for MessageRegistry

HTTP method	Required privilege
GET	Login

Status codes

Table 119. Status codes for MessageRegistry

HTTP status code
200
400
500

OEMManager

Description

This resource is used to export, import, and preview the Server Configuration Profile (SCP) files Redfish implementation.

NOTE: For SCP export, import, and preview, if Lifecycle Controller is disabled, ensure that you enable Lifecycle Controller and retry the operation. To enable Lifecycle Controller, run the following command:

```
racadm set LifecycleController.LCAttributes.LifecycleControllerState 1
```

Redfish SCP is an OEM action and requires OEM privileges *ALL* and role as *ADMIN*. Redfish privileges are not applicable for SCP.

For more information about this schema, the location header, and other details, see the *RESTful Server Configuration with iDRAC REST API* white paper at www.delltechcenter.com.

Supported action — Export, Import, and Preview

Table 120. Supported HTTP methods and features

HTTP method	Feature
POST	Exporting configuration
POST	Importing configuration
POST	Preview configuration

Export resource URL and response details

URL

```
redfish/v1/Managers/<id>/Actions/Oem/EID_674_Manager.ExportSystemConfiguration
```

Status codes

Table 121. Status codes for the action

HTTP status code	Extended information
202	Accepted

Properties and values

Table 122. Properties and values for the action

Property	Values
ExportFormat	XML, JSON
ExportUse	Default, Clone, Replace
IncludeInExport	Default, IncludeReadOnly, IncludePasswordHashValues

Property	Values
ShareParameters	See Share parameters and values.

Import resource URL and response details

URL

```
redfish/v1/Managers/<id>/Actions/Oem/EID_674_Manager.ImportSystemConfiguration
```

Status codes

Table 123. Status codes for the action

HTTP status code	Extended information
202	Accepted

Properties and values

Table 124. Properties and values for the action

Property	Values
ImportBuffer	Buffer content to perform import. Required only for local store and not required for CIFS, NFS, HTTP, or HTTPS.
ShutdownType	Graceful, Forced, NoReboot
HostPowerState	On, Off
TimeToWait	The time to wait for the host to shut down. Default and minimum value is 300 seconds. Maximum value is 3600 seconds.
ShareParameters	See Share parameters and values.

Preview resource URL and response details

URL

```
redfish/v1/Managers/<id>/Actions/Oem/EID_674_Manager.ImportSystemConfigurationPreview
```

Status codes

Table 125. Status codes for the action

HTTP status code	Extended information
202	Accepted

Share parameters and values

Table 126. Share parameters and values

Parameter	Values
IPAddress	IP address of the network share
ShareName	Name of network share
FileName	File name for the SCP
ShareType	CIFS, NFS, HTTP, HTTPS
Username	User name to log on to the share — for CIFS share only.
Password	Password to log on to the share — for CIFS share only.
Workgroup	Workgroup name to log on to the share
Target	Can be the component name or an FQDD. The default value is ALL.

Power

Description

This resource is used to represent a power metrics resource for a Redfish implementation.

URL

```
/redfish/v1/Chassis/<ID>/Power
```

HTTP methods and privileges

Table 127. HTTP methods and privileges for Power

HTTP method	Required privilege
GET	Login

Status codes

Table 128. Status codes for Power

HTTP status code	Extended information
200	Base.1.0.Success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList

HTTP status code	Extended information
	• Base.1.0.PropertyUnknown • Base.1.0.PropertyNotWritable • Base.1.0.PropertyValueFormatError
403	Insufficient privileges.
500	

Reference Properties

URL

```
/redfish/v1/Chassis/<ID>/Power/PowerControl
```

Description

Updates the properties of PowerControl in Chassis Collection.

HTTP methods and privileges

Table 129. HTTP methods and privileges for the action

HTTP method	Required privilege
GET	Login
PATCH	ConfigureManager

Updatable properties

Table 130. Properties and values for the action

Property	Description
PowerLimit	Updates PowerLimit

Status codes

Table 131. Status codes for the action

HTTP status code	Extended information
200	Base.1.0.success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList • Base.1.0.PropertyUnknown

HTTP status code	Extended information
	• Base.1.0.PropertyNotWritable • Base.1.0.PropertyValueFormatError
500	Base.1.0.InternalError

Power — Power Supply Units

URL

```
/redfish/v1/Chassis/<ID>/Power/PowerSupplies/<ID>
```

Description

Provides details of the power supplies that are associated with the system or device.

HTTP methods and privileges

Table 132. HTTP methods and privileges for PowerSupplies

HTTP method	Required privilege
GET	Login

Status codes

Table 133. Status codes for PowerSupplies

HTTP status code	Extended information
200	
400	
403	Insufficient privileges.
500	

Power — Voltage Sensor

URL

```
/redfish/v1/Chassis/<ID>/Sensors/Voltages/<ID>
```

Description

Provides the voltage sensor information.

HTTP methods and privileges

Table 134. HTTP methods and privileges for Voltages Sensor

HTTP method	Required privilege
GET	Login

Status codes

Table 135. Status codes for Voltages Sensor

HTTP status code
200
400
500

NOTE: On PowerEdge FX2 systems, iDRAC can display additional instrumentation data from the sensors on the server only if the Chassis Monitoring setting is set to enabled on iDRAC and CMC.

Power — Redundancy

URL

```
/redfish/v1/Chassis/<ID>/Power/Redundancy/<ID>
```

Description

This object represents the Redundancy element property.

HTTP methods and privileges

Table 136. HTTP methods and privileges for Power Redundancy

HTTP method	Required privilege
GET	Login

Status codes

Table 137. Status codes for Power Redundancy

HTTP status code
200
400
500

SecureBoot

Description

This resource contains UEFI Secure Boot information. It represents properties for managing the UEFI Secure Boot functionality of a system.

URL

```
/redfish/v1/Systems/<ID>/SecureBoot
```

HTTP methods and privileges

Table 138. HTTP methods and privileges for SecureBoot

HTTP method	Required privilege
GET	Login
PATCH	SystemControl

Updatable properties

Table 139. Properties and values for SecureBoot

Property	Description
SecureBootEnable	Enable or disable UEFI Secure Boot (takes effect on next boot).

Status codes

Table 140. Status codes for SecureBoot

HTTP status code	Extended information
200	Base.1.0.Success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList
403	Base.1.0. InsufficientPrivilege
404	Base.1.0.ResourceMissingAtURI
500	Base.1.0.InternalError

Supported action — ResetKeys

Description

This action is used to reset the Secure Boot keys.

URL

```
/redfish/v1/Systems/<ID>/SecureBoot/Actions/SecureBoot.ResetKeys
```

HTTP methods and privileges

Table 141. HTTP methods and privileges for ResetKeys

HTTP method	Required privilege
POST	SystemControl

Updatable properties

Table 142. Properties and values for ResetKeys

Parameter	Description
ResetKeysType	• ResetAllKeysToDefault • DeleteAllKeys • DeletePK • ResetPK • ResetKEK • ResetDB • ResetDBX

Status codes

Table 143. Status codes for ResetKeys

HTTP status code	Extended information
200	Base.1.0.Success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList
500	Base.1.0.InternalError

ServiceRoot

Description

This object represents the root Redfish service. All values for resources in this schema must comply with the requirements described in the Redfish specification.

URL

```
/redfish/v1
```

HTTP methods and privileges

Table 144. HTTP methods and privileges for ServiceRoot

HTTP method	Required privilege
GET	Login

Status codes

Table 145. Status codes for ServiceRoot

HTTP status code	Extended information
200	
400	
403	Insufficient privileges.
500	

Session

URL

```
/redfish/v1/Sessions
```

Description

This resource is used to represent a session for a Redfish implementation.

HTTP methods and privileges

Table 146. HTTP methods and privileges for Session

HTTP method	Required privilege
GET	Login
POST	ConfigureManager

Updatable properties

Table 147. Properties and values for Session

Parameter	Description
username	User name
password	Password

Status codes

Table 148. Status codes for Session

HTTP status code	Extended information
200	
201	
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList • Base.1.0.PropertyUnknown • Base.1.0.PropertyNotWritable • Base.1.0.PropertyValueFormatError
500	Base.1.0.InternalError

Action — Delete

URL

```
/redfish/v1/Sessions/<session-id>
```

Description

Performs delete operation on the session ID.

HTTP methods and privileges

Table 149. HTTP methods and privileges for Delete

HTTP method	Required privilege
DELETE	Login

Status codes

Table 150. Status codes for Delete

HTTP status code
200
400
500

SessionService

Description

This resource is used to represent the Session Service properties for a Redfish implementation.

URL

```
/redfish/v1/SessionService
```

HTTP methods and privileges

Table 151. HTTP methods and privileges for SessionService

HTTP method	Required privilege
GET	Login
PATCH	ConfigureManager

NOTE: The properties for this resource are inherited from the web-server properties.

Updatable properties

Table 152. Properties and values for SessionService

Property	Description
SessionTimeout	Updates web server timeout

Status codes

Table 153. Status codes for SessionService

HTTP status code	Extended information
200	Base.1.0.success
400	• Base.1.0.PropertyValueTypeError • Base.1.0.PropertyValueNotInList • Base.1.0.PropertyUnknown • Base.1.0.PropertyNotWritable • Base.1.0.PropertyValueFormatError
500	Base.1.0.InternalError

SoftwareInventory

Description

This represents the inventory of firmware components.

URL

```
/redfish/v1/UpdateService/FirmwareInventory
```

HTTP methods and privileges

Table 154. HTTP methods and privileges for SoftwareInventory

HTTP method	Required privilege
GET	Login
POST	• **.d9** file type — ConfigureManager • **.pm** file type — ConfigureManager • **.exe** file type — ConfigureSelf

Navigation URL

```
/redfish/v1/UpdateService/FirmwareInventory/<ID>
```

HTTP methods and privileges

Table 155. HTTP methods and privileges for the instance of SoftwareInventory

HTTP method	Required privilege
GET	Login
DELETE	• **.d9** file type — ConfigureManager • **.pm** file type — ConfigureManager • **.exe** file type — ConfigureSelf

Status codes

Table 156. Status codes for SoftwareInventory

HTTP status code	Extended information	Error message code
200		RAC0604, SYS422
200	Base.1.0.Success	SYS413
201	Base.1.0.Created	SYS414
304		
400		OSD35, SYS400, SYS404, SYS406, SYS434
403	Base.1.0.InsufficientPrivilege	RAC0506
403		LIC501
404	Base.1.0. ResourceMissingAtURI	SYS403
405		SYS402
415		SYS401
500	Base.1.0.InternalError	RAC964
503		SUP0108

Processor

Description

This schema defines the processor resource. It represents the properties of a processor attached to a system.

URL

```
/redfish/v1/Systems/<ID>/Processors
```

HTTP methods and privileges

Table 157. HTTP methods and privileges for Processor

HTTP method	Required privilege
GET	Login

Status codes

Table 158. Status codes for Processor

HTTP status code
200
400
500

Properties and values

Table 159. Properties and values for Processor

Property	Values
ProcessorType	CPU
ProcessorArchitecture	x86
InstructionSet	x86-64

Implementation notes

Some of the properties in this schema depend on the installed BIOS version. If a compatible BIOS version is not installed, some of the properties may not be supported on this resource.

SimpleStorage

Description

This property contains the UEFI device path used to identify and locate a specific storage controller.

URL

```
/redfish/v1/Systems/<ID>/Storage/Controllers
```

HTTP methods and privileges

Table 160. HTTP methods and privileges for SimpleStorage

HTTP method	Required privilege
GET	Login

Status codes

Table 161. Status codes for SimpleStorage

HTTP status code	Extended information
200	
400	
403	Insufficient privileges.
500	

VLanNetworkInterface

Description

The value of this property indicates if VLAN is enabled for this interface.

URL

```
/redfish/v1/Systems/<ID>/EthernetInterfaces/<EthernetInstanceID>/Vlans
```

HTTP methods and response content type

Table 162. HTTP methods and response content type for VLanNetworkInterface

HTTP method	Response content type
GET	application/json

Status codes

Table 163. Status codes for VLanNetworkInterface

HTTP status code
200
400
500

TaskService

Description

This resource represents a task service for a Redfish implementation.

URL

```
/redfish/v1/TaskService
```

HTTP methods and privileges

Table 164. HTTP methods and privileges for TaskService

HTTP method	Required privilege
GET	Login

Status codes

Table 165. Status codes for TaskService

HTTP status code
200
400
500

Tasks

URL

```
/redfish/v1/TaskService/Tasks/<TaskID>
```

Status codes

Table 166. Status codes for Tasks

HTTP status code	Extended information
200	Ok
202	Accepted
404	Not Found

Thermal

Description

This resource is used to represent the thermal matrices resource for a Redfish implementation.

URL

```
/redfish/v1/Chassis/<ID>/Thermal
```

HTTP methods and privileges

Table 167. HTTP methods and privileges for Thermal

HTTP method	Required privilege
GET	Login

Status codes

Table 168. Status codes for Thermal

HTTP status code
200
400

HTTP status code
500

Reference properties

/redfish/v1/Chassis/<ID>/Sensors/Fans/<ID>

Description

Provides details of the fan that is associated with the system or chassis.

HTTP methods and privileges

Table 169. HTTP methods and privileges for Fans

HTTP method	Required privilege
GET	Login

Status codes

Table 170. Status codes for Fans

HTTP status code
200
400
500

NOTE: On PowerEdge FX2 systems, iDRAC can display additional instrumentation data from the sensors on the server only if the Chassis Monitoring setting is set to enabled on iDRAC and CMC.

Thermal — Temperatures sensors

URL

```
/redfish/v1/Chassis/<ID>/Sensors/Temperatures/<ID>
```

Description

Represents the properties for temperature sensors.

HTTP methods and privileges

Table 171. HTTP methods and privileges for Temperatures Sensors

HTTP method	Required privilege
GET	Login

Status codes

Table 172. Status codes for Temperatures Sensors

HTTP status code
200
400
500

NOTE: On PowerEdge FX2 systems, iDRAC can display additional instrumentation data from the sensors on the server only if the Chassis Monitoring setting is set to enabled on iDRAC and CMC.

Thermal — Redundancy

URL

/redfish/v1/Chassis/<ID>/Thermal/Redundancy/<ID>

Description

Provides redundant information that is available for fans and other elements in this resource.

HTTP methods and privileges

Table 173. HTTP methods and privileges for Redundancy

HTTP method	Required privilege
GET	Login

Status codes

Table 174. Status codes for Redundancy

HTTP status code	Extended information
200	
400	
403	Insufficient privileges.
500	

UpdateService

Description

This represents the properties of the update service for the Redfish implementation.

URL

```
/redfish/v1/UpdateService
```

HTTP methods and privileges

Table 175. HTTP methods and privileges for UpdateService

HTTP method	Required privilege
GET	Login

Status codes

Table 176. Status codes for UpdateService

HTTP status code	Extended information	Error Message Code
200		OSD35, SUP024
403	Base.1.0. InsufficientPrivilege	RAC0506
404	Base.1.0. ResourceMissingAtURI	SYS403
500	Base.1.0.InternalError	RAC964

VirtualMedia

Description

This resource is used to represent a virtual media service for a Redfish implementation.

URL

```
/redfish/v1/Managers/<ID>/VirtualMedia
```

HTTP methods and privileges

Table 177. HTTP methods and privileges for VirtualMedia

HTTP method	Required privilege
GET	Login

Status codes

Table 178. Status codes for VirtualMedia

HTTP status code	Extended information
200	
400	
403	Insufficient privileges.
500	

Properties and values

Table 179. Properties and values for VirtualMedia

Property	Values
MediaTypes	• CD • DVD • USBStick
ConnectedVia	• NotConnected • Applet

4

Examples

NOTE: For more information about Redfish and detailed examples, see the white papers available at https://www.dmtf.org/standards/redfish.

The following table provides usage examples for the HTTP supported methods such as GET, POST, PATCH, and DELETE:

Topics:

Example for GET

URL

```
/redfish/v1/Managers/iDRAC.Embedded.1/SerialInterfaces
```

Output

```
{
"@odata.context": "/redfish/v1/$metadata#Managers/Members/iDRAC.Embedded.1/
SerialInterfaces/$entity",
"@odata.count": 1,
"@odata.id": "/redfish/v1/Managers/iDRAC.Embedded.1/SerialInterfaces",
"@odata.type": "#SerialInterface.1.0.0.SerialInterfaceCollection",
"Description": "Collection of Serial Interfaces for this System",
"Members": [
     {
      "@odata.id": "/redfish/v1/Managers/iDRAC.Embedded.1/SerialInterfaces/
iDRAC.Embedded.1#Serial.1"
     }
],
"Name": "Serial Interface Collection"
}
```

Example for PATCH

URL

```
/redfish/v1/Managers/iDRAC.Embedded.1/Accounts/<Account-id>
```

Input

```
{"Password": "123","UserName": "reader"}
```

Output

```
{
"Success": {
    "Message": "Successfully Completed Request",
    "MessageId": "Base.1.0.Success",
    "Resolution": "None",
    "Severity": "Ok"
```

```
    }
}
```

Example for POST

URL

```
/redfish/v1/Systems/System.Embedded.1/Actions/ComputerSystem.Reset
```

Input

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

Output

```
204: No Content
```

Example for DELETE

URL

```
/redfish/v1/EventService/Subscriptions/<SubscriptionId>
```

Output

```
200 Ok
{
"INFO": "<SubscriptionId> subscription deleted successfully"
}
```

Example of Job Creation

Request

Method POST

URI https://100.101.18.90/redfish/v1/Managers/iDRAC.Embedded.1/Jobs

Headers

Authorization: Basic cm9vdDpjYWx2aW4=

Content-Type: application/json

Body

```
{
  "TargetSettingsURI" : "/redfish/v1/Systems/System.Embedded.1/Bios/Settings",
  "StartTime" : "TIME_NOW",
  "EndTime" : "TIME_NA"
}
```

Or

```
{
  "TargetSettingsURI" : "/redfish/v1/Systems/System.Embedded.1/Bios/Settings",
  "StartTime" : "2017-08-21T18:11:00",
  "EndTime" : "2017-08-21T20:11:00"
}
```

Response

HTTP Status code: 200

Headers

```
OData-Version: 4.0
Keep-Alive: timeout=60, max=199
Content-Type: application/json;odata.metadata=minimal;charset=utf-8
Server: Appweb/4.5.4
Location: /redfish/v1/Managers/iDRAC.Embedded.1/Jobs/JID_471269252011
Date: Thu, 06 Jan 2000 02:48:49 GMT
Cache-Control: no-cache
Content-Length: 501
Connection: Keep-Alive Access-Control-Allow-Origin: *
Accept-Ranges: bytes
```

BODY

```
{
    "@Message.ExtendedInfo": [
        {
            "Message": "Successfully Completed Request",
            "MessageArgs": [],
            "MessageArgs@odata.count": 0,
            "MessageId": "Base.1.0.Success",
            "RelatedProperties": [],
            "RelatedProperties@odata.count": 0,
            "Resolution": "None",
            "Severity": "OK"
        },
        {
            "Message": "The operation successfully completed.",
            "MessageArgs": [],
            "MessageArgs@odata.count": 0,
            "MessageId": "iDRAC.1.5.SYS413",
            "RelatedProperties": [],
            "RelatedProperties@odata.count": 0,
            "Resolution": "No response action is required.",
            "Severity": "Informational"
        }
    ]
}
```