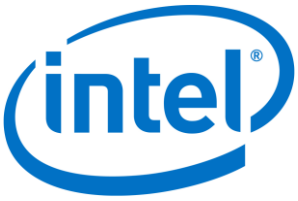

Intel® Rack Scale Design PSME

API Specification

Software Version 2.1.3

May 2017

Revision 002

Document Number: 335458-002

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Revision History

Revision	Description	Date
002	Added support for Network Interface and Network Device Function resources (only iSCSI boot scope)	May 18, 2017
001	Initial release.	February 9, 2017

§

1 Introduction

1.1 Scope

This specification defines the interface to the PSME module to support the discovery, composability, and manageability of Intel® Rack Scale Design drawers. It covers the functionality designed and implemented in Intel® RSD Software 2.1.

The interface specified in this document are based on the Distributed Management Task Force's Redfish™ Interface Specification and schema (see dmtf.org) version 2016.3.

1.2 Intended audience

The intended audiences for this document include:

- Software vendors (for example, ISVs) of pod management software, who make use of the PSME API to discover, compose and manage Rack Scale drawers regardless of the hardware vendor, and/or manage drawers in a multi-vendor environment.
- Software Vendors (for example, OxM) of PSME firmware that will implement of PSME firmware for their hardware platforms, providing Intel® RSD compliant systems.

1.3 Terminology

Table 1 Terminology

Term	Definition
BMC	Baseboard management controller
HTTP	Hypertext Transfer Protocol
JSON	JavaScript object notation
NIC	Network interface card
OData	Open Data Protocol
POD	A physical collection of multiple racks
PODM	Pod Manager
PSME	Pooled System Management Engine
REST	Representational state transfer
URI	Uniform resource identifier
UUID	Universally unique identifier

1.4 References

Table 2 Reference documents

Doc ID	Title	Location
335451	Intel® Rack Scale Design Generic Assets Management Interface API Specification	*Intel.com/intelrsd_resources*
335452	Intel® Rack Scale Design BIOS & BMC Technical Guide	*Intel.com/intelrsd_resources*
335501	Intel® Rack Scale Design Architecture Specification	*Intel.com/intelrsd_resources*
335454	Intel® Rack Scale Design Software Reference Kit Getting Started Guide	*Intel.com/intelrsd_resources*
335455	Intel® Rack Scale Design Pod Manager API Specification	*Intel.com/intelrsd_resources*
335456	Intel® Rack Scale Design Pod Manager Release Notes	*Intel.com/intelrsd_resources*
335457	Intel® Rack Scale Design Pod Manager User Guide	*Intel.com/intelrsd_resources*

Doc ID	Title	Location
335458	Intel® Rack Scale Design PSME REST API Specification	*Intel.com/intelrsd_resources*
335459	Intel® Rack Scale Design PSME Release Notes	*Intel.com/intelrsd_resources*
335460	Intel® Rack Scale Design PSME User Guide	*Intel.com/intelrsd_resources*
335461	Intel® Rack Scale Design Storage Services API Specification	*Intel.com/intelrsd_resources*
335462	Intel® Rack Scale Design Rack Management Module (RMM) API Specification	*Intel.com/intelrsd_resources*
335463	Intel® Rack Scale Design RMM Release Notes	*Intel.com/intelrsd_resources*
335464	Intel® Rack Scale Design Software RMM User Guide	*Intel.com/intelrsd_resources*
DSP0266	Redfish Scalable Platform Management API Specification	*http://dmtf.org/standards/redfish*

§

2 PSME API

2.1 PSME API structure and relations

The PSME REST API provides the REST-based interface that allows full management of the PSME, including asset discovery and configuration.

2.1.1 PSME API physical resource hierarchy

Figure 1 PSME REST API hierarchy for compute resources

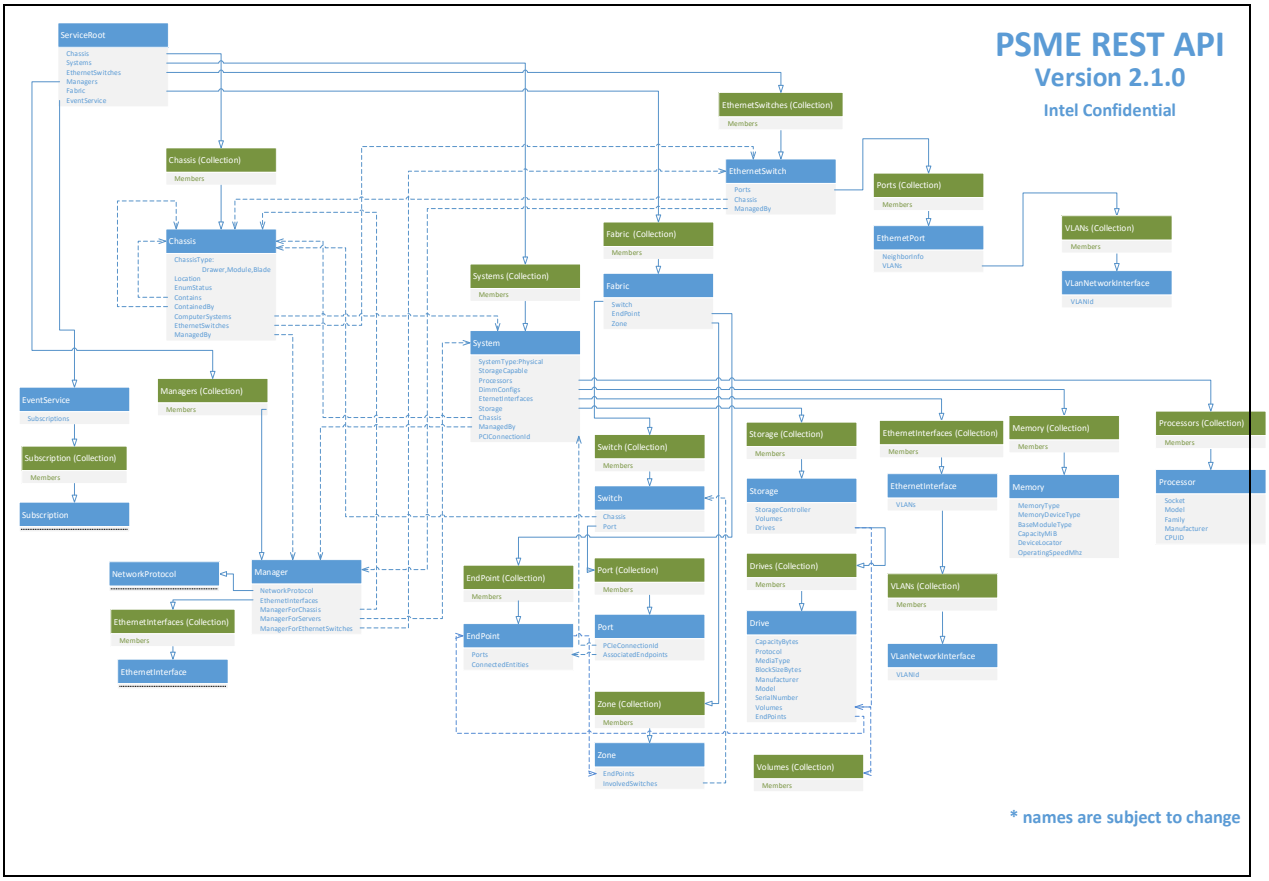

Figure 2 PSME REST API hierarchy for PNC resources

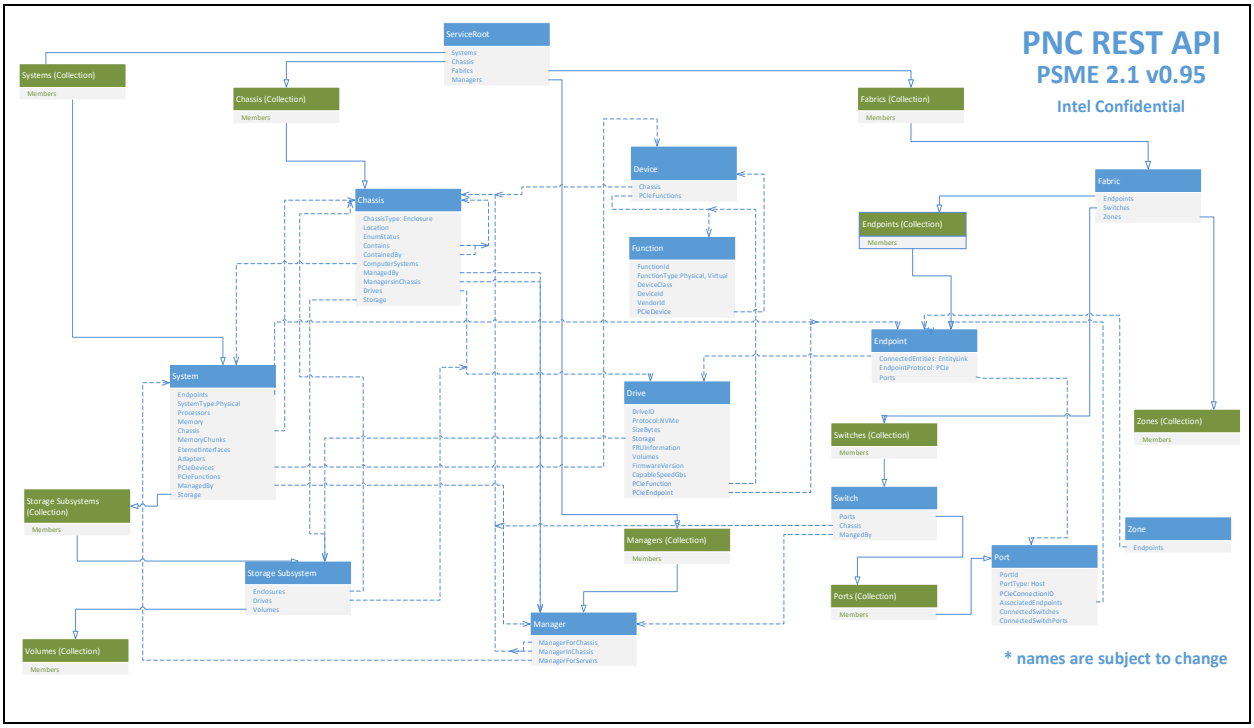

Table 3 Resources and URIs

Resource	URI
Service Root	/redfish/v1
Chassis Collection	/redfish/v1/Chassis
Chassis	/redfish/v1/Chassis/{chassisID}
Computer System Collection	/redfish/v1/Systems
Computer System	/redfish/v1/Systems/{systemID}
Processors Collection	/redfish/v1/Systems/{systemID}/Processors
Processor	/redfish/v1/Systems/{systemID /Processors/{processorID}
Memory Collection	/redfish/v1/Systems/{systemID}/Memory
Memory	/redfish/v1/Systems/{systemID}/Memory/{memoryID}
Storage Subsystem Collection	/redfish/v1/Systems/{systemID}/Storage
Storage Subsystem	/redfish/v1/Systems/{systemID}/Storage/{storageID}
Drives	/redfish/v1/Chassis/{chassisID}/Drives/{driveID}
Manager Collection	/redfish/v1/Managers
Manager	/redfish/v1/Managers/{managerID}
Network Protocol	/redfish/v1/Managers/{managerID}/NetworkProtocol
Ethernet Interface Collection	/redfish/v1/Systems/{systemID}/EthernetInterfaces /redfish/v1/Managers/{managerID}/EthernetInterfaces
Ethernet Interface	/redfish/v1/Systems/{systemID}/EthernetInterfaces/{nicID} /redfish/v1/Managers/{managerID}/EthernetInterfaces/{nicID}
Ethernet Switch Collection	/redfish/v1/EthernetSwitches

Resource	URI
Ethernet Switch	/redfish/v1/EthernetSwitches/{switchID}
Ethernet Switch Port Collection	/redfish/v1/EthernetSwitches/{switchID}/Ports
Ethernet Switch Port	/redfish/v1/EthernetSwitches/{switchID}/Ports/{portID}
Ethernet Switch Port StaticMAC Collection	/redfish/v1/EthernetSwitches/{switchID}/Ports/{portID}/StaticMACs
Ethernet Switch Port Static MAC	/redfish/v1/EthernetSwitches/{switchID}/Ports/{portID}/StaticMACs/{macID}
Ethernet Switch ACL collection	/redfish/v1/EthernetSwitches/{switchID}/ACLs
Ethernet Switch ACL	/redfish/v1/EthernetSwitches/{switchID}/ACLs/{aclID}
Ethernet Switch ACL rule collection	/redfish/v1/EthernetSwitches/{switchID}/ACLs/{aclID}/Rules
Ethernet Switch ACL rule	/redfish/v1/EthernetSwitches/{switchID}/ACLs/{aclID}/Rules/{ruleID}
VLAN Network Interface Collection	/redfish/v1/EthernetSwitches/{switchID}/Ports/{portID}/VLANs /redfish/v1/Systems/{systemID}/EthernetInterfaces/{nicID}/VLANs /redfish/v1/Managers/{managerID}/EthernetInterfaces/{nicID}/VLANs
VLAN Network Interface	/redfish/v1/EthernetSwitches/{switchID}/Ports/{portID}/VLANs/{vlanID} /redfish/v1/Systems/{systemID}/EthernetInterfaces/{nicID}/VLANs/{vlanID} /redfish/v1/Managers/{managerID}/EthernetInterfaces/{nicID}/VLANs/{vlanID}
EventService	/redfish/v1/EventService
Event Subscription Collection	/redfish/v1/EventService/Subscriptions
Event Subscription	/redfish/v1/EventService/Subscriptions/{subscriptionID}
Fabrics collection	/redfish/v1/Fabrics
Fabric	/redfish/v1/Fabrics/{fabricID}
Fabric Switch collection	/redfish/v1/Fabrics/{fabricID}/Switches
Fabric Switch	/redfish/v1/Fabrics/{fabricID}/Switches/{switchID}
Fabric Switch Port collection	/redfish/v1/Fabrics/{fabricID}/Switches/{switchID}/Ports
Fabric Switch Port	/redfish/v1/Fabrics/{fabricID}/Switches/{switchID}/Ports/{portID}
Fabric Zone collection	/redfish/v1/Fabrics/{fabricID}/Zones
Fabric Zone	/redfish/v1/Fabrics/{fabricID}/Zones/{zoneID}
Endpoint Collection	/redfish/v1/Fabrics/{fabricID}/Endpoints
Endpoint	/redfish/v1/Fabrics/{fabricID}/Endpoints/{endpointID}
PCIeDevice	/redfish/v1/Chassis/{chassisID}/PCIeDevices/{deviceID}
PCIe* Device Function	/redfish/v1/Chassis/{chassisID}/PCIeDevices/{deviceID}/Functions/{functionID}
Network Interface collection	/redfish/v1/Systems/{systemID}/NetworkInterfaces
Network Interface	/redfish/v1/Systems/{systemID}/ NetworkInterfaces/{interfaceID}
Network Device Function collection	/redfish/v1/Systems/{systemID}/ NetworkInterfaces/{interfaceID}/NetworkDeviceFunctions
Network Device Function	/redfish/v1/Systems/{systemID}/ NetworkInterfaces/{interfaceID}/NetworkDeviceFunctions/{functionID}

§

3 PSME REST API Error Codes

This chapter contains descriptions of all error codes that may be returned by the REST calls implemented in the PSME REST API of the Intel® RSD software v2.1 release.

3.1 API error response

In the case of an error, the PSME REST API responds with an HTTP status code, as defined by the HTTP 1.1 specification and constrained by additional requirements defined in this specification.

HTTP response status codes alone often do not provide enough information to enable deterministic error semantics. PSME REST API return extended error information as a JSON object with single property named “error”. The value of this property shall be a JSON object with the properties shown in Table 4.

Table 4 API error response attributes

Attribute	Description
code	A string indicating a specific MessageId from the message registry. "Base.1.0.GeneralError" should be used only if there is no better message.
message	A human readable error message corresponding to the message in the message registry.
@Message.ExtendedInfo	An array of message objects describing one or more error message(s).

3.1.1 Message Object

Message Objects provide additional information about an object, property, or error response.

Messages are represented as a JSON object with the following properties:

Table 5 API error response attributes

Attribute	Description
MessageId	String indicating a specific error or message (not to be confused with the HTTP status code). This code can be used to access a detailed message from a message registry.
Message	A human readable error message indicating the semantics associated with the error. This shall be the complete message, and not rely on substitution variables.
MessageArgs	An optional array of strings representing the substitution parameter values for the message. This shall be included in the response if a MessageId is specified for a parameterized message.
Severity	An optional string representing the severity of the error.
Resolution	An optional string describing recommended action(s) to take to resolve the error.
RelatedProperties	An optional array of JSON Pointers defining the specific properties within a JSON payload described by the message.

3.1.2 Example error JSON object

```
{
    "error": {
        "code": "Base.1.0.GeneralError",
        "message": "A general error has occurred. See ExtendedInfo for more
information.",
        "@Message.ExtendedInfo": [
            {
                "@odata.type" :
"/redfish/v1/$metadata#Message.v1_0_0.Message",
                "MessageId": "Base.1.0.MalformedJSON",
                "Message": "The request body submitted was malformed JSON and
could not be parsed by the receiving service",
```

```
                "Severity": "Error"
            }
            {
                "@odata.type" :
"/redfish/v1/$metadata#Message.v1_0_0.Message",
                "MessageId": "Base.1.0.PropertyNotWriteable",
                "RelatedProperties": [
                    "#/Name"
                ],
                "Message": "The property Name is a read only property and
cannot be assigned a value",
                "MessageArgs": [
                    "Name"
                ],
                "Severity": "Warning",
                "Resolution": "Remove the property from the request body and
resubmit the request if the operation failed"
            }
        ]
    }
}
```

3.2 API error codes

In general, if an error is not described in any of the following tables, it is to be mapped into an HTTP 500 Internal Error code.

3.2.1 General error codes

For a detailed list of error codes, please refer to Redfish Scalable Platforms Management API Specification, Section 6.5.2.

Table 6 HTTP error status codes

HTTP Status Code	Description
400 Bad Request	The request could not be processed because it contains missing or invalid information (such as a validation error on an input field, a missing required value, and so on). An extended error shall be returned in the response body.
404 Not Found	The request specified a URI of a resource that does not exist.
405 Method Not Allowed	The HTTP verb specified in the request (e.g., DELETE, GET, HEAD, POST, PUT, PATCH) is not supported for this request URI. The response shall include an Allow header which provides a list of methods that are supported by the resource identified by the Request-URI.
409 Conflict	A creation or update request could not be completed because it would cause a conflict in the current state of the resources supported by the platform (for example, an attempt to set multiple attributes that work in a linked manner using incompatible values).
500 Internal Server Error	The server encountered an unexpected condition that prevented it from fulfilling the request. An extended error shall be returned in the response body.
501 Not Implemented	The server does not (currently) support the functionality required to fulfill the request. This is the appropriate response when the server does not recognize the request method and is not capable of supporting it for any resource.
503 Service Unavailable	The server is currently unable to handle the request due to temporary overloading or maintenance of the server.

3.2.2 PATCH method error codes

For the PATCH method, the Intel® RSD service shall conform to IETF RFC 5789.

The service will respond with the following error codes in the cases listed below:

- 400 Bad Request – malformed JSON in request (values not in range, unknown property, etc.)
- 405 Method Not Allowed – resource does not support PATCH method
- 409 Conflict – update cannot be executed at this moment. User might be able to resolve the conflict and resubmit the request.
- 501 Not Implemented – resource supports PATCH method, but current implementation does not (e.g. underlying HW does not support such functionality)
- 500 Internal Server Error – all other situations where any of above codes does not fit (e.g. underlying HW does not allow to execute this particular request).

§

4 PSME REST API Definition

4.1 Odata support

Intel® RSD supports Odata v4.0 as it is defined in the Redfish Scalable Platforms Management API Specification.

All resources within this RESTful API are identified by a unique identifier property named “@odata.id”. Resource Identifiers shall be represented in JSON payloads as uri paths relative to the Redfish Schema portion of the uri. For example, they shall always start with "/redfish/". The resource identifier is the canonical URL for the resource and can be used to retrieve or edit the resource, as appropriate.

4.2 Asynchronous operations

While the majority of operations in this architecture are synchronous in nature, some operations can take a long time to execute, more time than a client typically wants to wait. For this reason, some operations can be asynchronous at the discretion of the service. The request portion of an asynchronous operation is no different from the request portion of a synchronous operation.

The use of HTTP Response codes enable a client to determine if the operation was completed synchronously or asynchronously. Clients shall be prepared to handle both synchronous and asynchronous responses for requests using HTTP DELETE, POST, PATCH and PUT methods.

For details, refer to the Redfish Scalable Platforms Management API Specification, Section 8.2 Asynchronous Operations.

4.3 Protocol version

The protocol version is separate from the version of the resources, or the version of the Redfish Schema supported by them.

Each version of the Redfish protocol is strongly typed. This is accomplished using the URI of the Redfish service in combination with the resource obtained at that URI, called the ServiceRoot.

The root URI for this version of the Redfish protocol shall be "/redfish/v1/".

While the major version of the protocol is represented in the URI, the major version, minor version and errata version of the protocol are represented in the Version property of the ServiceRoot resource, as defined in the Redfish Schema for that resource. The protocol version is a string of the form:

```
MajorVersion.MinorVersion.Errata
```

Where:

- *MajorVersion* = integer: something in the class changed in a backward incompatible way.
- *MinorVersion* = integer: a minor update. New functionality may have been added but nothing removed. Compatibility will be preserved with previous minorversions.
- *Errata* = integer: something in the prior version was broken and needed to be fixed.

Any resource discovered through links found by accessing the root service, or any service or resource referenced using references from the root service, shall conform to the same version of the protocol supported by the root service.

4.3.1 Operations

4.3.1.1 GET

Request:

```
GET /redfish
Content-Type: applicaton/json
```

Response:

```
{
       "v1": "/redfish/v1/"
}
```

4.4 Odata service document

This service document provides a standard format for enumerating the resources exposed by the service, enabling generic hypermedia-driven OData clients to navigate to the resources of the service.

4.4.1 Operations

4.4.1.1 GET

Request:

```
GET /redfish/v1/odata
Content-Type: applicaton/json
```

Response:

```
{
    "@odata.context": "/redfish/v1/$metadata",
    "value": [
        {
            "name": "Service",
            "kind": "Singleton",
            "url": "/redfish/v1/"
        },
        {
            "name": "Systems",
            "kind": "Singleton",
            "url": "/redfish/v1/Systems"
        },
        {
            "name": "Chassis",
            "kind": "Singleton",
            "url": "/redfish/v1/Chassis"
        },
        {
            "name": "Managers",
            "kind": "Singleton",
            "url": "/redfish/v1/Managers"
        },
        {
            "name": "Services",
            "kind": "Singleton",
            "url": "/redfish/v1/Services"
        },
        {
            "name": "EthernetSwitches",
            "kind": "Singleton",
            "url": "/redfish/v1/EthernetSwitches"
        },
```

```
        {
            "name": "EventService",
            "kind": "Singleton",
            "url": "/redfish/v1/EventService"
        },
        {
            "name": "Tasks",
            "kind": "Singleton",
            "url": "/redfish/v1/TaskService"
        },
        {
            "name": "Registries",
            "kind": "Singleton",
            "url": "/redfish/v1/Registries"
        },
        {
            "name": "Fabrics",
            "kind": "Singleton",
            "url": "/redfish/v1/Fabrics"
        }
    ]
}
```

4.5 Intel Rackscale Design OEM extensions

All Intel Rackscale Design OEM extensions to all resources defined in this document shall be supported.

4.6 Service root

Service root resource – entry point.

Properties' details available in *ServiceRoot.xml* metadata file.

4.6.1 Operations

4.6.1.1 GET

Request:

```
GET /redfish/v1
Content-Type: applicaton/json
```

Response:

```
{
    "@odata.context": "/redfish/v1/$metadata#ServiceRoot.ServiceRoot",
    "@odata.id": "/redfish/v1/",
    "@odata.type": "#ServiceRoot.v1_1_1.ServiceRoot",
    "Id": "RootService",
    "Name": "Root Service",
    "Description": "description-as-string",
    "RedfishVersion": "1.0.2",
    "UUID": "92384634-2938-2342-8820-489239905423",
    "Systems": {
        "@odata.id": "/redfish/v1/Systems"
    },
    "Chassis": {
```

```
        "@odata.id": "/redfish/v1/Chassis"
    },
    "Managers": {
        "@odata.id": "/redfish/v1/Managers"
    },
    "EventService": {
        "@odata.id": "/redfish/v1/EventService"
    },
    "Services": {
        "@odata.id": "/redfish/v1/Services"
    },
    "EthernetSwitches": {
        "@odata.id": "/redfish/v1/EthernetSwitches"
    },
    "Fabrics": {
      "@odata.id": "/redfish/v1/Fabrics"
    },
    "Tasks": {
      "@odata.id": "/redfish/v1/TaskService"
    },
    "Registries": {
        "@odata.id": "/redfish/v1/Registries"
    },
    "Oem": {
        "Intel_RackScale": {
            "@odata.type": "#Intel.Oem.ServiceRoot",
            "ApiVersion": "2.0.0",
        }
    },
    "Links": {}
}
```


4.6.1.2 PUT

Operation is not allowed on this resource.

4.6.1.3 PATCH

Operation is not allowed on this resource.

4.6.1.4 POST

Operation is not allowed on this resource.

4.6.1.5 DELETE

Operation is not allowed on this resource.

4.7 Chassis collection

Chassis collection resource. Figure 3 illustrates the relationship between various chassis components in an example Intel® RSD Rack:

Figure 3 Chassis relations

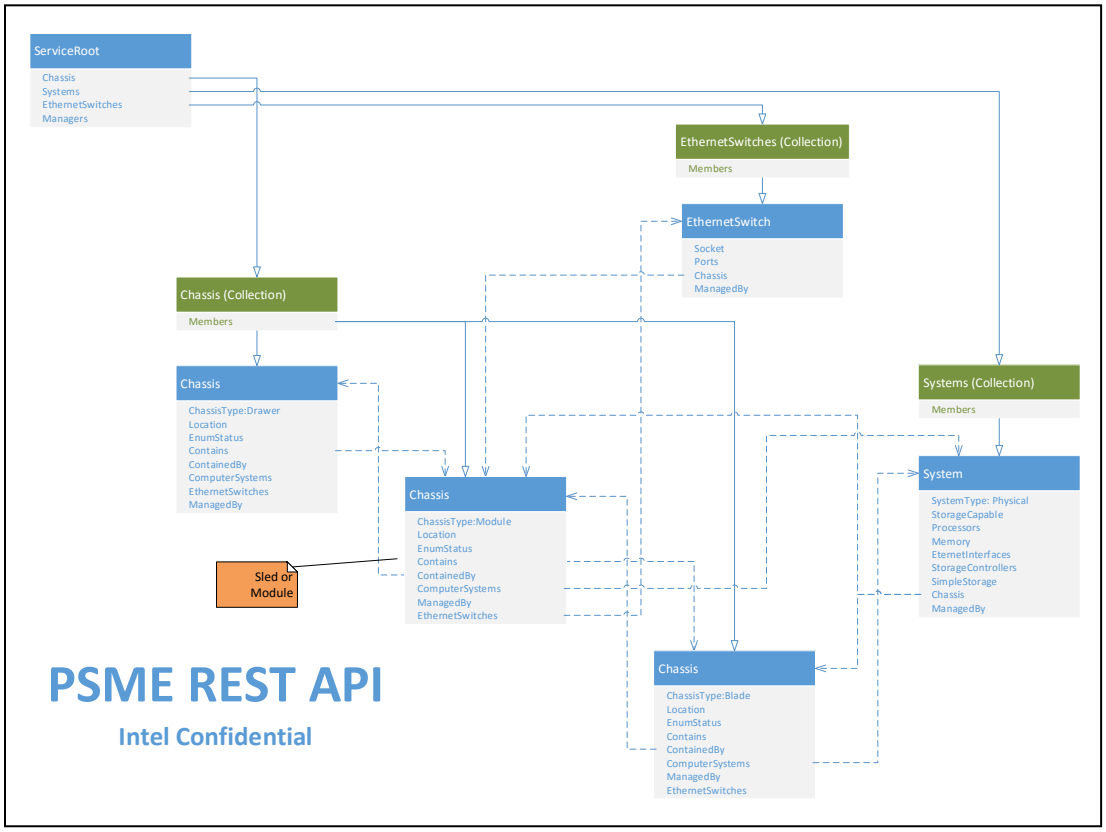

Table 7 Chassis collection attributes

Name	Chassis		
Type URI	/redfish/v1/Chassis		
Attribute	**Type**	**Required**	**Description**
`Name`	String	Yes	Name of collection
`Members@odata.count`	Number	No	Collection members count
`Members`	Array	No	Contains the members of this collection

4.7.1 Operations

4.7.1.1 GET

Request:

```
GET /redfish/v1/Chassis
Content-Type: application/json
```

Response:

```
{
    "@odata.context": "/redfish/v1/$metadata#Chassis",
    "@odata.id": "/redfish/v1/Chassis",
    "@odata.type": "#ChassisCollection.ChassisCollection",
    "Name": "Chassis Collection",
    "Members@odata.count": 5,
    "Members": [
```

```
        {
            "@odata.id": "/redfish/v1/Chassis/Drawer1"
        },
        {
            "@odata.id": "/redfish/v1/Chassis/FabricModule1"
        },
        {
            "@odata.id": "/redfish/v1/Chassis/Sled1"
        }
    ]
}
```

4.7.1.2 PUT

Operation is not allowed on this resource.

4.7.1.3 PATCH

Operation is not allowed on this resource.

4.7.1.4 POST

Operation is not allowed on this resource.

4.7.1.5 DELETE

Operation is not allowed on this resource.

4.8 Chassis

This is the schema definition for the Chassis resource. It represents the properties of physical components for any system. This one resource is intended to represent racks, rackmount servers, blades, standalone, modular systems, enclosures, and all other containers. The non-cpu/device centric parts of the schema are all accessed either directly or indirectly through this resource.

Details of this resource are described in metadata file: *Chassis.xml*

4.8.1 Operations

4.8.1.1 GET

Request:

```
GET /redfish/v1/Chassis/1
Content-Type: applicaton/json
```

Response:

```
{
       "@odata.context": "/redfish/v1/$metadata#Chassis/Members/$entity",
       "@odata.id": "/redfish/v1/Chassis/Blade1",
       "@odata.type": "#Chassis.v1_3_0.Chassis",
       "Id": "Blade1",
       "ChassisType": "Blade",
       "Name": "name-as-string",
       "Description": "description-as-string",
       "Manufacturer": "Intel Corporation",
       "Model": "model-as-string",
       "SKU": "sku-as-string",
```

```
        "SerialNumber": "serial-number-as-string",
        "PartNumber": "part-number-as-string",
        "AssetTag": null,
        "IndicatorLED": null,
        "Status": {
                "State": "Enabled",
                "Health": "OK"
                "HealthRollup": "OK"
        },

        "Oem": {
                "Intel_RackScale": {
                      "@odata.type": "#Intel.Oem.Chassis",
                      "Location": {
                          "Id": "Blade1",
                          "ParentId": "Sled1"
                      }
                }
        },
        "Links": {
                "@odata.type": "#Chassis.v1_2_0.Links",
                "Contains": [],
                "ContainedBy": {
                      "@odata.id": "/redfish/v1/Chassis/Sled1"
                },
                "ComputerSystems": [{
                      "@odata.id": "/redfish/v1/Systems/System1"
                }],
                "ManagedBy": [{
                      "@odata.id": "/redfish/v1/Managers/VirtualBMC1"
                }],
                "ManagersInChassis ": [{
                      "@odata.id": "/redfish/v1/Managers/Manager1"
                }],
                "Storage": [
                   {"@odata.id":"/redfish/v1/Systems/System1/Storage/SATA"}
                ],
                "Drives": [
                    {"@odata.id": "/redfish/v1/Chassis/Blade1/Drives/1"}
                ],
                "Oem": {
                  "Intel_RackScale": {
                    "@odata.type": "#Intel.Oem.ChassisLinks",
                     "Switches": [],
                }
          }
        }
}
```

4.8.1.2 PUT

Operation is not allowed on this resource.

4.8.1.3 PATCH

The following properties can be updated by the PATCH operation:

Attribute	Type	Required	Description
AssetTag	String	No	The user assigned asset tag for this chassis.
Oem->Intel_RackScale->Location	Object	No	Object representing physical location of chassis. The following properties can be patched: "Id" - String containing physical location ID of this chassis

```
PATCH /redfish/v1/Chassis/1
Content-Type: application/json
{
    "AssetTag": "Chassis1"
    "Oem": {
       "Intel_RackScale": {
          "Location": {
            "Id": "Blade1"
          }
       }
    }
}
```

Response:

```
HTTP/1.1 204 No Content
```

Or:

```
HTTP/1.1 200 OK
{
(updated resource body)
}
```

4.8.1.4 POST

Operation is not allowed on this resource.

4.8.1.5 DELETE

Operation is not allowed on this resource.

4.9 Computer Systems collection

Table 8 Computer Systems collection attributes

Name	Systems		
Type URI	/redfish/v1/Systems		
Attribute	**Type**	**Required**	**Description**
Name	String	Yes	Name of collection
Members@odata.count	Number	Yes	Collection members count
Members	Array	Yes	Contains the members of this collection

4.9.1 Operations

4.9.1.1 GET

Request:

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

```
Content-Type: application/json
```

Response:

```
{
    "@odata.context":
"/redfish/v1/$metadata#ComputerSystemCollection.ComputerSystemCollection",
    "@odata.id": "/redfish/v1/Systems",
    "@odata.type": "#ComputerSystemCollection.ComputerSystemCollection",
    "Name": "Computer System Collection",
    "Members@odata.count": 1,
    "Members": [
        {
            "@odata.id": "/redfish/v1/Systems/System1"
        }
    ]
}
```

4.9.1.2 PUT

Operation is not allowed on this resource.

4.9.1.3 PATCH

Operation is not allowed on this resource.

4.9.1.4 POST

Operation is not allowed on this resource.

4.9.1.5 DELETE

Operation is not allowed on this resource.

4.10 Computer System

This schema defines a computer system and its respective properties. A computer system represents a machine (physical or virtual) and the local resources such as memory, cpu and other devices that can be accessed from that machine.

Details of this resource are described in metadata file: *ComputerSystem.xml*

4.10.1 Operations

4.10.1.1 GET (PSME Compute)

Request:

```
GET /redfish/v1/Systems/{systemID}
Content-Type: application/json
```

Response:

```
{
    "@odata.context": "/redfish/v1/$metadata#Systems/Members/$entity",
    "@odata.id": "/redfish/v1/Systems/System1",
    "@odata.type": "#ComputerSystem.v1_3_0.ComputerSystem",
    "Id": "System1",
    "Name": "My Computer System",
    "Description": "Description of server",
    "SystemType": "Physical",
```

```
    "AssetTag": "free form asset tag",
    "Manufacturer": "Manufacturer Name",
    "Model": "Model Name",
    "SKU": "SKU",
    "SerialNumber": "2M220100SL",
    "PartNumber": "Computer1",
    "UUID": "00000000-0000-0000-0000-000000000000",
    "HostName": null,
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollUp": "OK"
    },
    "IndicatorLED": "Off",
    "PowerState": "On",
    "Boot": {
        "@odata.type": "#ComputerSystem.v1_1_0.Boot",
        "BootSourceOverrideEnabled": "Once",
        "BootSourceOverrideTarget": "Pxe",
        "BootSourceOverrideTarget@Redfish.AllowableValues": ["None",
        "Pxe",
        "Hdd",
        "RemoteDrive"],
        "BootSourceOverrideMode": "Legacy",
        "BootSourceOverrideMode@Redfish.AllowableValues":  ["Legacy",
        "UEFI"]
    },
    "BiosVersion": "P79 v1.00 (09/20/2013)",
    "ProcessorSummary": {
        "Count": 8,
        "Model": "Multi-Core Intel(R) Xeon(R) processor 7xxx Series",
        "Status": {
            "State": "Enabled",
            "Health": "OK",
            "HealthRollUp": "OK"
        }
    },
    "MemorySummary": {
        "TotalSystemMemoryGiB": 16.0,
        "Status": {
            "State": "Enabled",
            "Health": "OK",
            "HealthRollUp": "OK"
        }
    },
    "Processors": {
        "@odata.id": "/redfish/v1/Systems/System1/Processors"
    },
    "EthernetInterfaces": {
        "@odata.id": "/redfish/v1/Systems/System1/EthernetInterfaces"
    },
    "SimpleStorage": {},
    "Storage": {
      "@odata.id": "/redfish/v1/Systems/System1/Storage"
    },
```


```
    "Memory": {
        "@odata.id": "/redfish/v1/Systems/System1/Memory"
    },
    "PCIeDevices": [],
    "PCIeFunctions": [],
    "Links": {
       "@odata.type": "#ComputerSystem.v1_2_0.Links",
        "Chassis": [{
            "@odata.id": "/redfish/v1/Chassis/4"
        }],
        "ManagedBy": [{
            "@odata.id": "/redfish/v1/Managers/1"
        }],
        "Endpoints": [],
        "Oem": {
        }
    },
    "Actions": {
        "#ComputerSystem.Reset": {
            "target":
"/redfish/v1/Systems/System1/Actions/ComputerSystem.Reset",
            "ResetType@Redfish.AllowableValues": ["On",
            "ForceOff",
            "GracefulShutdown",
            "ForceRestart",
            "Nmi",
            "GracefulRestart",
            "ForceOn",
            "PushPowerButton"]
        },
        "Oem": {
                "#ComputerSystem.StartDeepDiscovery": {
                    "target":
"/redfish/v1/Systems/System1/Actions/ComputerSystem.StartDeepDiscovery"
                }
        }
    },
    "Oem": {
        "Intel_RackScale": {
            "@odata.type": "#Intel.Oem.ComputerSystem",
            "PciDevices": [{
                "VendorId": "0x8086",
                "DeviceId": "0x1234"
            }],
            "DiscoveryState": "Basic",
            "ProcessorSockets": 8,
            "MemorySockets": 8,
            "PCIeConnectionId": [
               "XYZ1234567890"
            ]
        }
    },
    "NetworkInterfaces": {
        "@odata.id": "/redfish/v1/Systems/System1/NetworkInterfaces"
    }
```

```
}
```

4.10.1.2 GET (PSME PCIe* Fabric)

This resource represents a logical system containing PCIe devices (no CPU or memory) and it is excluded from Pod Manager composition.

Request:

```
GET /redfish/v1/Systems/{systemID}
Content-Type: application/json
```

Response:

```
{
    "@odata.context": "/redfish/v1/$metadata#Systems/Members/$entity",
    "@odata.id": "/redfish/v1/Systems/System2",
    "@odata.type": "#ComputerSystem.v1_2_0.ComputerSystem",
    "Id": "System2",
    "Name": "My Computer System",
    "Description": "Description of server",
    "SystemType": "Physical",
    "AssetTag": "free form asset tag",
    "Manufacturer": "Manufacturer Name",
    "Model": "Model Name",
    "SKU": "SKU",
    "SerialNumber": "2M220100SL",
    "PartNumber": "Computer1",
    "UUID": "00000000-0000-0000-0000-000000000000",
    "HostName": null,
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollUp": "OK"
    },
    "IndicatorLED": null,
    "PowerState": "On",
    "Boot": {
        "@odata.type": "#ComputerSystem.v1_2_0.Boot",
        "BootSourceOverrideEnabled": "Disabled",
        "BootSourceOverrideTarget": "None",
        "BootSourceOverrideTarget@Redfish.AllowableValues": ["None"
        ],
        "BootSourceOverrideMode": null,
        "BootSourceOverrideMode@Redfish.AllowableValues":  []
    },
    "BiosVersion": null,
    "ProcessorSummary": {
        "Count": 0,
        "Model": null,
        "Status": {
            "State": null,
            "Health": null,
            "HealthRollUp": null
        }
    },
    "MemorySummary": {
        "TotalSystemMemoryGiB": 0,
```


```
        "Status": {
            "State": null,
            "Health": null,
            "HealthRollUp": null
        }
    },
    "Processors": {
        "@odata.id": "/redfish/v1/Systems/System2/Processors"
    },
    "EthernetInterfaces": {
        "@odata.id": "/redfish/v1/Systems/System2/EthernetInterfaces"
    },
    "SimpleStorage": {},
    "Storage": {
      "@odata.id": "/redfish/v1/Systems/System2/Storage"
    },
    "Memory": {
        "@odata.id": "/redfish/v1/Systems/System1/Memory"
    },
    "PCIeDevices": [
      {
        "@odata.id": "/redfish/v1/Chassis/PCIeSwitch1/PCIeDevices/Device1"
      }
    ],
    "PCIeFunctions": [],
    "Links": {
        "Chassis": [{
            "@odata.id": "/redfish/v1/Chassis/4"
        }],
        "ManagedBy": [{
            "@odata.id": "/redfish/v1/Managers/1"
        }],
        "Endpoints": [
        ],
        "Oem": {
        }
    },
    "Actions": {
        "#ComputerSystem.Reset": {
            "target":
"/redfish/v1/Systems/System1/Actions/ComputerSystem.Reset",
            "ResetType@Redfish.AllowableValues": ["On",
            "ForceOff",
            "GracefulShutdown",
            "ForceRestart",
            "Nmi",
            "GracefulRestart",
            "ForceOn",
            "PushPowerButton"]
        },
        "Oem": {
                "#ComputerSystem.StartDeepDiscovery": {
                    "target":
"/redfish/v1/Systems/System1/Actions/ComputerSystem.StartDeepDiscovery"
                }
```

```
        }
    },
    "Oem": {
        "Intel_RackScale": {
            "@odata.type": "#Intel.Oem.ComputerSystem",
            "PciDevices": [],
            "DiscoveryState": "Basic",
            "ProcessorSockets": null,
            "MemorySockets": null,
            "PCIeConnectionId": [
            ]
        }
    },
    "NetworkInterfaces": {
        "@odata.id": "/redfish/v1/Systems/System1/NetworkInterfaces"
    }
}
```


4.10.1.3 PUT

Operation is not allowed on this resource.

4.10.1.4 PATCH

The following properties can be updated by the PATCH operation:

Attribute	Type	Required	Description
AssetTag	String	No	The user assigned asset tag for this system.
Boot	Object	No	Boot override properties, details in Table 9.

The following table describes “Boot” properties that can be patched:

Table 9 Boot Override update properties

Attribute	Type	Required	Description
BootSourceOverrideEnabled	String	No	Describes the state of the Boot Source Override feature. Allowed values: “Disabled” - The system will boot as normal “Once” - On its next boot cycle, the system will boot (one time) to the Boot Source Override Target “Continuous” - The system will boot to the target specified in the BootSourceOverrideTarget until this property is set to Disabled
BootSourceOverrideTarget	String	No	The current boot source to be used at next boot instead of the normal boot device, if BootSourceOverrideEnabled is true. Available values (please refer to annotation @Redfish.AllowableValues for actual list of supported values): “None” - Boot from the normal boot device “Pxe” - Boot from the Pre-Boot EXecution (PXE) environment “Hdd” - Boot from a hard drive “RemoteDrive” - Boot from a remote drive (e.g. iSCSI)
BootSourceOverrideMode	String	No	The BIOS Boot Mode (either Legacy or UEFI) to be used when BootSourceOverrideTarget boot source is booted from: “Legacy” - The system will boot in non-UEFI boot mode to the Boot Source Override Target “UEFI” - The system will boot in UEFI boot mode to the Boot Source Override Target

```
PATCH /redfish/v1/Systems/System1
Content-Type: application/json
{
       "Boot": {
               "BootSourceOverrideEnabled": "Once",
               "BootSourceOverrideTarget": "Pxe",
               "BootSourceOverrideMode": "UEFI"
       },
       "AssetTag": "Storage System"
}
```

Response:

```
HTTP/1.1 204 No Content
```

Or:

```
HTTP/1.1 200 OK
{
(updated resource body)
}
```

4.10.1.5 POST

Request:

```
POST /redfish/v1/Systems/System1/Actions/ComputerSystem.Reset
Content-Type: application/json
{
       "ResetType": "On"
}
```

Response:

```
HTTP/1.1 204 No Content
```

In case of PODM StartDeepDiscovery action, the following responses can be expected:

- DeepDiscovery process already started, or resource is allocated for composed node.

```
HTTP/1.1 409 Conflict
```

4.10.1.6 DELETE

Operation is not allowed on this resource.

4.11 Processor collection

Processor collection resource – provides a collection of all processors available in a blade.

Table 10 Processor collection attributes

Name	Processors		
Type URI	/redfish/v1/Systems/{systemID}/Processors		
Attribute	**Type**	**Required**	**Description**
Name	String	Yes	Name of collection
Members@odata.count	Number	Yes	Collection members count
Members	Array	Yes	Contains the members of this collection

4.11.1 Operations

4.11.1.1 GET

Request:

```
GET /redfish/v1/Systems/System1/Processors
Content-Type: application/json
```

Response:

```
{
    "@odata.context":
"/redfish/v1/$metadata#Systems/Members/1/Processors/#entity",
    "@odata.id": "/redfish/v1/Systems/System1/Processors",
    "@odata.type": "#ProcessorCollection.ProcessorCollection",
    "Name": "Processors Collection",
    "Members@odata.count": 1,
    "Members": [
        {
            "@odata.id": "/redfish/v1/Systems/System1/Processors/CPU1"
        }
    ] }
```

4.11.1.2 PUT

Operation is not allowed on this resource.

4.11.1.3 PATCH

Operation is not allowed on this resource.

4.11.1.4 POST

Operation is not allowed on this resource.

4.11.1.5 DELETE

Operation is not allowed on this resource.

4.12 Processor

Processor resource – provides detailed information about a single processor identified by {ProcessorID}.

Table 11 Processor attributes

Name	Processors	
Type URI	/redfish/v1/Systems/{systemId}/Processors/{processorID}	
Attribute	**Type**	**Description**
Id	String	Resource identifier
Name	String	Name of service root
Description	String	Provides a description of this resource and is used for commonality in the schema definitions
Socket	String	The socket or location of the processor
ProcessorType	String	The type of processor. Available values: “CPU” - A Central Processing Unit “OEM” – An OEM-defined Processing Unit “GPU” - A Graphics Processing Unit “FPGA” - A Field Programmable Gate Array

<table>
<tr><td></td><td></td><td>“DSP” - A Digital Signal Processor
“Accelerator” - An Accelerator</td></tr>
<tr><td>ProcessorArchitecture</td><td>String</td><td>The architecture of the processor. Available values:
“x86” - x86 or x86-64
“IA-64” - Intel Itanium
“ARM” – ARM* architecture
“MIPS” – MIPS architecture
“OEM” – OEM-defined</td></tr>
<tr><td>InstructionSet</td><td>String</td><td>The instruction set of the processor. Available values:
“x86” – x86 32-bit
“x86-64” – x86 64-bit
“IA-64” – Intel IA-64
“ARM-A32” – ARM 32-bit
“ARM-A64” – ARM 64-bit
“MIPS32” – MIPS 32-bit
“MIPS64” – MIPS 64-bit
“OEM” – OEM-defined</td></tr>
<tr><td>Manufacturer</td><td>String</td><td>The processor manufacturer</td></tr>
<tr><td>Model</td><td>String</td><td>The product model number of this device</td></tr>
<tr><td>MaxSpeedMHz</td><td>Number</td><td>The maximum clock speed of the processor</td></tr>
<tr><td>TotalCores</td><td>Number</td><td>The total number of cores contained in this processor</td></tr>
<tr><td>TotalThreads</td><td>Number</td><td>The total number of execution threads supported by this processor</td></tr>
<tr><td>ProcessorId</td><td>Object</td><td>Identification information for this processor
<table>
<tr><th>Attribute</th><th>Type</th><th>Description</th></tr>
<tr><td>VendorId</td><td>String, null</td><td>The Vendor Identification for this processor</td></tr>
<tr><td>IdentificationRegisters</td><td>String, null</td><td>The contents of the Identification Registers (CPUID) for this processor</td></tr>
<tr><td>EffectiveFamily</td><td>String, null</td><td>The effective Family for this processor</td></tr>
<tr><td>EffectiveModel</td><td>String, null</td><td>The effective Model for this processor</td></tr>
<tr><td>Step</td><td>String, null</td><td>The Step value for this processor</td></tr>
<tr><td>MicrocodeInfo</td><td>String, null</td><td>The Microcode Information for this processor</td></tr>
</table></td></tr>
<tr><td>Status</td><td>Object</td><td>See Section 5.1 for resource status.</td></tr>
<tr><td>Oem</td><td>Object</td><td>Oem extension object
Intel Rack Scale Design extensions (“Intel_RackScale” object):
<table>
<tr><th>Attribute</th><th>Type</th><th>Description</th></tr>
<tr><td>Brand</td><td>String</td><td>Processor brand string. Available values:
Xeon family: E3, E5, E7
SoC/Atom family: X3 (Avoton), X5 (Broadwell-DE), X7
Core family: I3, I5, I7
“Unknown” – discovered processor is unknown</td></tr>
</table></td></tr>
</table>

		Capabilities	Array	Array of strings describing processor capabilities (like reported in SMBIOS table, type 4, offset 0x26), such as: “sse” - Streaming SIMD Extensions ...	

4.12.1 Operations

4.12.1.1 GET

Request:

```
GET /redfish/v1/Systems/System1/Processors/CPU1
Content-Type: application/json
```

Response:

```
{
        "@odata.context":
"/redfish/v1/$metadata#Systems/Members/1/Processors/Members/$entity",
        "@odata.id": "/redfish/v1/Systems/System1/Processors/CPU1",
        "@odata.type": "#Processor.v1_0_0.Processor",
        "Name": "Processor",
        "Id": "CPU1",
        "Socket": "CPU 1",
        "ProcessorType": "CPU",
        "ProcessorArchitecture": "x86",
        "InstructionSet": "x86-64",
        "Manufacturer": "Intel(R) Corporation",
        "Model": "Multi-Core Intel(R) Xeon(R) processor 7xxx Series",
        "ProcessorId": {
                "VendorId": "GenuineIntel",
                "IdentificationRegisters": "0x34AC34DC8901274A",
                "EffectiveFamily": "0x42",
                "EffectiveModel": "0x61",
                "Step": "0x1",
                "MicrocodeInfo": "0x429943"
        },
        "MaxSpeedMHz": 3700,
        "TotalCores": 8,
        "TotalThreads": 16,
        "Status": {
                "State": "Enabled",
                "Health": "OK",
                "HealthRollup": null
        },
        "Oem": {
                "Intel_RackScale": {
                        "@odata.type": "#Intel.Oem.Processor",
                        "Brand": "E5",
                        "Capabilities": [
                                "sse",
                                "sse2",
```

```
                                    "sse3"
                                ]
                            }
                    }
}
```

4.12.1.2 PUT

Operation is not allowed on this resource.

4.12.1.3 PATCH

Operation is not allowed on this resource.

4.12.1.4 POST

Operation is not allowed on this resource.

4.12.1.5 DELETE

Operation is not allowed on this resource.

4.13 Memory collection

Memory collection resource – provides a collection of all memory modules installed in a computer system.

Table 12 Memory collection attributes

Name	Memory		
Type URI	/redfish/v1/Systems/{systemID}/Memory		
Attribute	**Type**	**Required**	**Description**
`Name`	String	Yes	Name of collection
`Members@odata.count`	Number	Yes	Collection members count
`Members`	Array	Yes	Contains the members of this collection

4.13.1 Operations

4.13.1.1 GET

Request:

```
GET /redfish/v1/Systems/{systemID}/Memory
Content-Type: application/json
```

Response:

```
{
    "@odata.context":
"/redfish/v1/$metadata#Systems/Members/1/Memory/$entity",
    "@odata.type": "#MemoryCollection.MemoryCollection",
    "@odata.id": "/redfish/v1/Systems/System1/Memory",
    "Name": "Memory Collection",
    "Members@odata.count": 1,
    "Members": [
        {
            "@odata.id": "/redfish/v1/Systems/System1/Memory/Dimm1"
        }
    ]
}
```

4.13.1.2 PUT

Operation is not allowed on this resource.

4.13.1.3 PATCH

Operation is not allowed on this resource.

4.13.1.4 POST

Operation is not allowed on this resource.

4.13.1.5 DELETE

Operation is not allowed on this resource.

4.14 Memory

Memory resource – provides detailed information about a single memory module identified by {memoryID}.

Table 13 Memory attributes

Name	Memory	
Type URI	/redfish/v1/Systems/{systemId}/Memory/{memoryID}	
Attribute	**Type**	**Description**
`Id`	String	Resource identifier
`Name`	String	Name of service root
`Description`	String	Provides a description of this resource and is used for commonality in the schema definitions
`MemoryType`	String	The type of DIMM: “DRAM” “NVDIMM_N” “NVDIMM_F” “NVDIMM_P”
`MemoryDeviceType`	String	Type details of DIMM: “DDR” “DDR2” “DDR3” “DDR4” “DDR4_SDRAM” “DDR4E_SDRAM” “LPDDR4_SDRAM” “DDR3_SDRAM” “LPDDR3_SDRAM” “DDR2_SDRAM” “DDR2_SDRAM_FB_DIMM” “DDR2_SDRAM_FB_DIMM_PROBE” “DDR_SGRAM” “DDR_SDRAM” “ROM” “SDRAM” “EDO” “FastPageMode” “PipelinedNibble”
`BaseModuleType`	String	The base module type of DIMM: “RDIMM”

		"UDIMM" "SO_DIMM" "LRDIMM" "Mini_RDIMM" "Mini_UDIMM" "SO_RDIMM_72b" "SO_UDIMM_72b" "SO_DIMM_16b" "SO_DIMM_32b"
MemoryMedia	Array	Media of this DIMM: "DRAM" "NAND" "Prioprietary"
CapacityMiB	Number	DIMM Capacity in MiB
DataWidthBits	Number	Data Width in bits
BusWidthBits	Number	Bus Width in bits
Manufacturer	String	The DIMM manufacturer
SerialNumber	String	The product serial number of this device
PartNumber	String	The product part number of this device
AllowedSpeedsMHz	Array	Speed bins supported by this DIMM (numbers)
FirmwareRevision	String	Revision of firmware on the DIMM controller
FirmwareApiVersion	String	Version of API supported by the firmware
FunctionClasses	Array	Function Classes by the DIMM: "Volatile" "Block" "Persistent"
VendorID	String	Vendor ID
DeviceID	String	Device ID
RankCount	Number	Number of ranks available in the DIMM
DeviceLocator	String	Location of the DIMM in the platform, typically marked in the silk screen
MemoryLocation	Object	Property describing DIMM location with respect to processor and memory controller

Attribute	Type	Description
Socket	Number, null	Socket number in which DIMM is connected
MemoryController	Number, null	Memory controller number in which DIMM is connected
Channel	Number, null	Channel number in which DIMM is connected
Slot	Number, null	Slot number in which DIMM is connected

ErrorCorrection	String	Error correction scheme supported for this memory: "NoECC" - No ECC available "SingleBitECC" - Single bit error can be corrected by ECC "MultiBitECC" - Multiple bits of errors can be corrected by ECC "AddressParity" - Address Parity errors can be corrected
OperatingSpeedMhz	Number	Operating speed of DIMM in MHz
Regions	Array	Memory regions information within the DIMM

Attribute	Type	Description
RegionId	String, null	Unique region ID representing a specific region within the DIMM

		MemoryClassification	String, null	Type of memory occupied by the given memory region “Volatile” “Block” “Persistent”
		OffsetMiB	Number, null	Offset within the DIMM that corresponds to the starting of this memory region in MiB
		SizeMiB	Number, null	Size of this memory region in MiB
OperatingMemoryModes	Array	Memory modes supported by the DIMM. Available values: “Volatile” - Volatile memory “PMEM” - Persistent memory, byte accessible through system address space “Block” - Block accessible system memory		
Status	Object	See Section 5.1 for resource status.		
Oem	Object	Oem extension object Intel Rack Scale Design extensions (“Intel_RackScale” object): **Attribute** / **Type** / **Description** VoltageVolt / Number, null / DIMM operating voltage		

4.14.1 Operations

4.14.1.1 GET

Request:

```
GET /redfish/v1/Systems/System1/Memory/{MemoryID}
Content-Type: application/json
```

Response:

```
{
       "@odata.context":
"/redfish/v1/$metadata#Systems/Members/1/Memory/$entity",
       "@odata.id": "/redfish/v1/Systems/System1/Memory/Dimm1",
       "@odata.type": "#Memory.v1_1_0.Memory",
       "Name": "DIMM",
       "Id": "Dimm1",
       "MemoryType": "DRAM",
       "MemoryDeviceType": "DDR4",
       "BaseModuleType": "LRDIMM",
       "MemoryMedia": [
              "DRAM"
       ],
       "CapacityMiB": 16384,
       "DataWidthBits": 64,
       "BusWidthBits": 72,
       "Manufacturer": "Contoso",
       "SerialNumber": "1A2B3B",
       "PartNumber": "1A2B3D",
       "AllowedSpeedsMHz": [
              2133,
              2400,
              2667
       ],
```


```
        "FirmwareRevision": "RevAbc",
        "FirmwareApiVersion": "ApiAbc",
        "FunctionClasses": [
                "Volatile"
        ],
        "VendorID": "vendorX",
        "DeviceID": "deviceX",
        "RankCount": 1,
        "DeviceLocator": "PROC 1 DIMM 1",
        "MemoryLocation": {
                "Socket": 1,
                "MemoryController": 1,
                "Channel": 1,
                "Slot": 1
        },
        "ErrorCorrection": "MultiBitECC",
        "Status": {
                "State": "Enabled",
                "Health": "OK",
               "HealthRollup": null
        },
        "OperatingSpeedMhz": 2400,
        "Regions": [{
                "RegionId": "1",
                "MemoryClassification": "Volatile",
                "OffsetMiB": 0,
                "SizeMiB": 16384,
        }],
        "OperatingMemoryModes": [
                "Volatile"
        ],
        "Oem": {
                "Intel_RackScale": {
                      "@odata.type": "#Intel.Oem.DimmConfig",
                      "VoltageVolt": 1.35
                }
        }
}
```


4.14.1.2 PUT

Operation is not allowed on this resource.

4.14.1.3 PATCH

Operation is not allowed on this resource.

4.14.1.4 POST

Operation is not allowed on this resource.

4.14.1.5 DELETE

Operation is not allowed on this resource.

4.15 Storage subsystem collection

Storage subsystem collection resource – provides a collection of all storage subsystems available in a computer system.

Details of this resource are described in metadata file: *StorageCollection.xml*

4.15.1 Operations

4.15.1.1 GET

Request:

```
GET /redfish/v1/Systems/{systemID}/Storage
Content-Type: application/json
```

Response:

```
{
    "@odata.context":
"/redfish/v1/$metadata#StorageCollection.StorageCollection",
    "@odata.id": "/redfish/v1/Systems/1/Storage",
    "@odata.type": "#StorageCollection.StorageCollection",
    "Name": "Storage Collection",
    "Members@odata.count": 1,
    "Members": [
        {
            "@odata.id": "/redfish/v1/Systems/3/Storage/SATA"
        }
     ]
}
```

4.15.1.2 PUT

Operation is not allowed on this resource.

4.15.1.3 PATCH

Operation is not allowed on this resource.

4.15.1.4 POST

Operation is not allowed on this resource.

4.15.1.5 DELETE

Operation is not allowed on this resource.

4.16 Storage subsystem

Storage subsystem resource – provides detailed information about a single storage subsystem identified by {storageID}.

Details of this resource are described in metadata file: *Storage.xml*

4.16.1 Operations

4.16.1.1 GET

Request:

```
GET /redfish/v1/Systems/{systemID}/Storage/{storageID}
Content-Type: application/json
```

Response:


```
{
  "@odata.context":
"/redfish/v1/$metadata#Systems/Members/1/Storage/Members/$entity",
  "@odata.id": "/redfish/v1/Systems/1/Storage/SATA",
  "@odata.type": "#Storage.v1_0_0.Storage",
  "Id": "1",
  "Name": "SATA Storage System",
  "Description": "System SATA",
  "Status": {
    "State": "Enabled",
    "Health": "OK",
    "HealthRollUp": "OK"
  },
  "StorageControllers": [{
    "@odata.id": "/redfish/v1/Systems/1/Storage/SATA#/StorageControllers/0",
    "@odata.type": "#Storage.v1_1_0.StorageController",
    "MemberId": "0",
    "Status": {
      "State": "Enabled",
      "Health": "OK"
    },
    "Manufacturer": "ManufacturerName",
    "Model": "ProductModelName",
    "SKU": "",
    "SerialNumber": "2M220100SL",
    "PartNumber": "",
    "AssetTag": "CustomerWritableThingy",
    "SpeedGbps": 6,
    "FirmwareVersion": null,
    "SupportedControllerProtocols": [
      "PCIe"
    ],
    "SupportedDeviceProtocols": [
      "SATA"
    ],
    "Identifiers": [{
      "DurableName": "123e4567-e89b-12d3-a456-426655440000",
      "DurableNameFormat": "UUID"
    }],
    "Links": {
      "Endpoints": []
    }
  }],
  "Drives": [{
    "@odata.id": "/redfish/v1/Chassis/Blade1/Drives/Disk1"
  }],
  "Volumes": {"@odata.id": "/redfish/v1/Systems/1/Storage/SATA/Volumes"},
  "Links": {
    "Enclosures": [{
      "@odata.id": "/redfish/v1/Chassis/Blade1"
    }]
```

```
  },
  "Actions": {}
}
```

4.16.1.2 PUT

Operation is not allowed on this resource.

4.16.1.3 PATCH

Operation is not allowed on this resource.

4.16.1.4 POST

Operation is not allowed on this resource.

4.16.1.5 DELETE

Operation is not allowed on this resource.

4.17 Volume collection

Volume collection resource – provides a collection of all storage volumes available in a storage subsystem.

Details of this resource are described in metadata file: *VolumeCollection.xml*

4.17.1 Operations

4.17.1.1 GET

Request:

```
GET /redfish/v1/Systems/1/Storage/SATA/Volumes
Content-Type: application/json
```

Response:

```
{
    "@odata.context":
"/redfish/v1/$metadata#Systems/Members/1/Storage/SATA/Volumes/$entity",
    "@odata.id": "/redfish/v1/Systems/1/Storage/SATA/Volumes",
    "@odata.type": "#VolumeCollection.VolumeCollection",
    "Name": "Storage Volume Collection",
    "Description": "Storage Volume Collection",
    "Members@odata.count": 0,
    "Members": [
    ],
    "Oem": {}
}
```

4.17.1.2 PUT

Operation is not allowed on this resource.

4.17.1.3 PATCH

Operation is not allowed on this resource.

4.17.1.4 POST

Operation is not allowed on this resource.

4.17.1.5 DELETE

Operation is not allowed on this resource.

4.18 Drive

Drive contains properties describing a single physical disk drive for any system.

Details of this resource are described in metadata file: *Drive.xml*

The Rack Scale Oem section contains the **EraseOnDetach** property which is handled by the Pod Manager. If exposed on PSME, it does not provide any function, it is thus recommended to keep it read-only with value **null.**

4.18.1 Operations

4.18.1.1 GET

Request:

```
GET "/redfish/v1/Chassis/Blade1/Drives/1"
Content-Type: application/json
```

Response:

```
{
    "@odata.context":
"/redfish/v1/$metadata#Chassis/Members/Drives/Members/$entity",
    "@odata.id": "/redfish/v1/Chassis/Blade1/Drives/1",
    "@odata.type": "#Drive.v1_1_1.Drive",
    "IndicatorLED": "Lit",
    "Model": "Drive Model string",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "CapacityBytes": 899527000000,
    "Protocol": "SATA",
    "MediaType": "SSD",
    "Manufacturer": "Intel",
    "SerialNumber": "72D0A037FRD27",
    "PartNumber": "SG0GP8811253178M02GJA00",
    "SKU": "SKU version",
    "StatusIndicator": "OK",
    "Revision": "revision string",
    "FailurePredicted": false,
    "AssetTag": null,
    "CapableSpeedGbs": 6,
    "NegotiatedSpeedGbs": 6,
    "Location": [{
        "Info": "4",
        "InfoFormat": "Hdd index"
    }],
    "Identifiers": [
        {
            "DurableName": "123e4567-e89b-12d3-a456-426655440000",
            "DurableNameFormat": "UUID"
        }
    ],
```

```
    "HotspareType": null,
    "EncryptionAbility": null,
    "EncryptionStatus": null,
    "RotationSpeedRPM": null,
    "BlockSizeBytes": null,
    "PredictedMediaLifeLeftPercent": null,
    "Links": {
        "@odata.type": "#Drive.v1_1_0.Links",
        "Volumes": [],
        "Endpoints": [],
        "Oem": {
        }
    },
    "Actions": {
        "#Drive.SecureErase": {
            "target":
"/redfish/v1/Chassis/Blade1/Drives/1/Actions/Drive.SecureErase"
        }
    },
    "Oem": {
        "Intel_RackScale": {
            "@odata.type": "#Intel.Oem.Drive",
            "EraseOnDetach": null,
            "FirmwareVersion": "1.17",
            "DriveErased": true,
            "Storage": {"@odata.id": "/redfish/v1/Systems/1/Storage/NVMe"},
            "PCIeFunction": {"@odata.id":
"/redfish/v1/Chassis/1/PCIeDevices/Device1/Functions/1"}
        }
    }
}
```

4.18.1.2 PUT

Operation is not allowed on this resource.

4.18.1.3 PATCH

Following properties can be updated by PATCH operation:

Attribute	Type	Required	Description
AssetTag	String	No	The user assigned asset tag for this drive.
Oem	Object	No	Within “Intel_RackScale” object, following properties are PATCH-able: “EraseOnDetach” – property can be updated on PODM. It indicates if drive should be erased when detached from Composed Node. “DriveErased” – property used to indicate whether drive was cleared after assignment to composed node. This property may not be PATCH-able on PODM.

```
PATCH /redfish/v1/Chassis/Blade1/Drives/1
Content-Type: application/json
{
    "AssetTag": "TemporaryStorage",
    "Oem": {
        "Intel_RackScale": {
```

```
            "EraseOnDetach": true,
            "DriveErased": false
        }
    }
}
```

Response:

```
HTTP/1.1 204 No Content
```

Or:

```
HTTP/1.1 200 OK
{
(updated resource body as in 4.18.1.1)
}
```

4.18.1.4 POST

POST action is used to SecureErase drive. If this operation is not immediate, Status->State of resource should be changed to “Starting”. This action works only on drives currently not assigned to any zone.

```
POST /redfish/v1/Chassis/Blade1/Drives/1/Actions/Drive.SecureErase
Content-Type: application/json
{}
```

Response:

```
HTTP/1.1 204 No Content
```

Or (when task is created)

```
HTTP/1.1 202 Accepted
Location: http://<ip>:<port>/redfish/v1/TaskService/TaskMonitors/1
{
    "@odata.context": "/redfish/v1/$metadata#Task.Task",
    "@odata.id": "/redfish/v1/TaskService/Tasks/1",
    "@odata.type": "#Task.v1_0_0.Task",
    "Id": "1",
    "Name": "Task 1",
    "TaskState": " New",
    "StartTime": "2016-09-01T04:45+01:00",
    "TaskStatus": "OK",
    "Messages": [
    ]
}
```

4.18.1.5 DELETE

Operation is not allowed on this resource.

4.19 System Network interface

Blade Network Interface resource – provides detailed information about a network interface identified by {nicID} .

Table 14 Network interface attributes

Name		Blade Network Interface
Type URI		/redfish/v1/Systems/{systemID}/EthernetInterfaces/{nicID}
Attribute	**Type**	**Description**
Id	String	Resource identifier
Name	String	Resource name
Description	String	Resource description
Status	Object	See Section 5.1 for resource status.
InterfaceEnabled	Bool	This indicates whether this interface is enabled.
Oem	Object	OEM defined object
PermanentMACAddress	String	Permanent MAC Address of this interface (port). This value is typically programmed during manufacturing time. This address is not assignable.
MACAddress	String	This is the currently configured MAC address of the (logical port) interface.
SpeedMbps	Number	This is the current speed in Mbps of this NIC.
AutoNeg	Boolean	Indicates if the speed and duplex is automatically configured by the NIC.
FullDuplex	Boolean	Indicates if the NIC is in Full Duplex mode or not.
MTUSize	Number	This is the currently configured Maximum Transmission Unit (MTU) in bytes on this interface.
HostName	String	DNS Host Name, without any domain information.
FQDN	String	Fully qualified domain name obtained by DNS for this interface.
MaxIPv6StaticAddresses	Number	Indicates the maximum number of Static IPv6 addresses that can be configured on this interface
VLAN	Object	If this Network Interface supports more than one VLAN, this property will not be present and the client should look for the VLANs collection in the link section of this resource

Name	Type	Required	Description
VLANEnable	boolean	No	This indicates if this VLAN is enabled
VLANId	Number	No	This indicates the VLAN identifier for this VLAN

Name		Blade Network Interface
Type URI		/redfish/v1/Systems/{systemID}/EthernetInterfaces/{nicID}
Attribute	Type	Description

IPv4Addresses — Array

Name	Type	Required	Description
Address	String, null	No	IP address
SubnetMask	String, null	No	IP subnet mask
AddressOrigin	String, null	No	Indicates how the address was determined “Static” - A static address as configured by the user “DHCP” - Address is provided by a DHCPv4 service “BOOTP” - Address is provided by a BOOTP service “IPv4LinkLocal” - Address is valid only for this network segment (link)
Gateway	String, null	No	IPv4 gateway for this address
Oem	Object	No	Oem defined object

IPv6AddressPolicyTable — Array

Name	Type	Required	Description
Prefix	String	Yes	IPv6 Address Prefix for this table entry
Precedence	Number	No	Precedence value for this table entry
Label	Number	No	Label value for this table entry

IPv6StaticAddresses — Array

Name	Type	Required	Description
Address	String, null	Yes	IPv6 address
PrefixLength	Number, null	Yes	IPv6 Address Prefix Length

IPv6Addresses — Array

Name	Type	Required	Description
Address	String, null	No	IPv6 address
PrefixLength	Number, null	No	IPv6 Address Prefix Length
AddressOrigin	String, null	No	Indicates how the address was determined “Static” - A static address as configured by the user “DHCP” - Address is provided by a DHCPv6 service “LinkLocal” - Address is valid only for this network segment (link) “SLAAC” - Address is provided by a Stateless Address AutoConfiguration (SLAAC) service
AddressState	String (enum), null	No	Current state of this address
Oem	Object	No	Oem defined object

Name		Blade Network Interface
Type URI		/redfish/v1/Systems/{systemID}/EthernetInterfaces/{nicID}
Attribute	Type	Description
IPv6DefaultGateway	String	Default gateway address that is currently in use on this interface
NameServers	String array	DNS name servers for this interface
VLANs	Object	Reference to a collection of VLANs and is only used if the interface supports more than one VLAN.
Links	Object	Links section

Name	Type	Required	Description
Oem	Object	No	Oem references to related resources. See Table 15 for “Intel_RackScale” object.

Table 15 EthernetInterface -> Links -> Oem -> "Intel_RackScale" object properties

Name	Type	Description
NeighborPort	Object(link), null	Reference to EthernetSwitch port connected to this interface

4.19.1 Operations

4.19.1.1 GET

Request:

```
GET /redfish/v1/Systems/System1/EthernetInterfaces/LAN1
Content-Type: application/json
```

Response:

```
{
    "@odata.context":
"/redfish/v1/$metadata#EthernetInterface.EthernetInterface",
    "@odata.id": "/redfish/v1/Systems/System1/EthernetInterfaces/LAN1",
    "@odata.type": "#EthernetInterface.v1_1_0.EthernetInterface",
    "Id": "LAN1",
    "Name": "Ethernet Interface",
    "Description": "System NIC 1",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollup": null
    },
    "InterfaceEnabled": true,
    "PermanentMACAddress": "AA:BB:CC:DD:EE:FF",
    "MACAddress": "AA:BB:CC:DD:EE:FF",
    "SpeedMbps": 100,
    "AutoNeg": true,
    "FullDuplex": true,
    "MTUSize": 1500,
    "HostName": "web483",
    "FQDN": "web483.redfishspecification.org",
    "IPv6DefaultGateway": "fe80::3ed9:2bff:fe34:600",
    "MaxIPv6StaticAddresses": null,
```

```
    "NameServers": [
        "names.redfishspecification.org"
    ],
    "IPv4Addresses": [
        {
            "Address": "192.168.0.10",
            "SubnetMask": "255.255.252.0",
            "AddressOrigin": "Static",
            "Gateway": "192.168.0.1"
        }
    ],
    "IPv6Addresses": [
        {
            "Address": "fe80::1ec1:deff:fe6f:1e24",
            "PrefixLength": 64,
            "AddressOrigin": "Static",
            "AddressState": "Preferred"
        }
    ],
    "IPv6StaticAddresses": [
    ],
    "VLAN": null,
    "Oem": {}
  "Links" : {
    "Oem" : {
      "Intel_RackScale" : {
        "@odata.type" : "#Intel.Oem.EthernetInterface",
       "NeighborPort" : {
          "@odata.id" : "/redfish/v1/EthernetSwitches/1/Ports/1"
        }
      }
    }
  }
}
```

4.19.1.2 PUT

Operation is not allowed on this resource.

4.19.1.3 PATCH

Operation is not allowed on this resource.

4.19.1.4 POST

Operation is not allowed on this resource.

4.19.1.5 DELETE

Operation is not allowed on this resource.

4.20 Manager collection

Manager collection resource – provides a collection of all managers available in a drawer.

Table 16 Manager collection attributes

Name	Managers		
Type URI	/redfish/v1/Managers		
Attribute	**Type**	**Required**	**Description**
Name	String	Yes	Name of collection
Members@odata.count	Number	Yes	Collection members count
Members	Array	Yes	Contains the members of this collection

4.20.1 Operations

4.20.1.1 GET

Request:

```
GET /redfish/v1/Managers
Content-Type: application/json
```

Response:

```
{
        "@odata.context": "/redfish/v1/$metadata#Managers",
        "@odata.id": "/redfish/v1/Managers",
        "@odata.type": #Manager.v1_0_0.ManagerCollection",
        "Name": "Manager Collection",
        "Members@odata.count": 3,
        "Members": [
                {
                        "@odata.id": "/redfish/v1/Managers/BMC1"
                },
                {
                        "@odata.id": "/redfish/v1/Managers/BMC2"
                },
                {
                        "@odata.id": "/redfish/v1/Managers/PSME"
                }
        ]
}
```

4.20.1.2 PUT

Operation is not allowed on this resource.

4.20.1.3 PATCH

Operation is not allowed on this resource.

4.20.1.4 POST

Operation is not allowed on this resource.

4.20.1.5 DELETE

Operation is not allowed on this resource.

4.21 Manager

Manager resource – provides detailed information about a manager identified by {managerID}.

Detailed info about this resource's properties can be obtained from metadata file: *Manager.xml*

4.21.1 Operations

4.21.1.1 GET

Request:

```
GET /redfish/v1/Managers/PSME
Content-Type: application/json
```

Response:


```
{
        "@odata.context": "/redfish/v1/$metadata#Manager.Manager",
        "@odata.id": "/redfish/v1/Managers/PSME",
        "@odata.type": "#Manager.v1_2_0.Manager",
        "Id": "1",
        "Name": "Manager",
        "ManagerType": "BMC",
        "Description": "BMC",
        "ServiceEntryPointUUID": "92384634-2938-2342-8820-489239905423",
        "UUID": "00000000-0000-0000-0000-000000000000",
        "Model": "Joo Janta 200",
        "DateTime": "2015-03-13T04:14:33+06:00",
        "DateTimeLocalOffset": "+06:00",
        "Status": {
                "State": "Enabled",
                "Health": "OK"
        },
        "GraphicalConsole": {
                "ServiceEnabled": true,
                "MaxConcurrentSessions": 2,
                "ConnectTypesSupported": ["KVMIP"]
        },
        "SerialConsole": {
                "ServiceEnabled": true,
                "MaxConcurrentSessions": 1,
                "ConnectTypesSupported": ["Telnet",
                "SSH",
                "IPMI"]
        },
        "CommandShell": {
                "ServiceEnabled": true,
                "MaxConcurrentSessions": 4,
                "ConnectTypesSupported": ["Telnet",
                "SSH"]
        },
        "FirmwareVersion": "1.00",
        "NetworkProtocol": {
                "@odata.id": "/redfish/v1/Managers/PSME/NetworkProtocol"
        },
        "EthernetInterfaces": {
                "@odata.id": "/redfish/v1/Managers/PSME/EthernetInterfaces"
        },
        "Links": {
               "@odata.type": "#Manager.v1_1_0.Links"
```

```
                "ManagerForServers": [],
                "ManagerForChassis": [{
                        "@odata.id": "/redfish/v1/Chassis/FabricModule1"
                }],
                "ManagerInChassis": {
                        "@odata.id": "/redfish/v1/Chassis/Drawer1"
                },
                "Oem": {
                        "Intel_RackScale": {
                                "@odata.type": "#Intel.Oem.ManagerLinks",
                                "ManagerForServices": [{
                                                "@odata.id":
"/redfish/v1/Services/RSS1"
                                }],
                        "ManagerForSwitches": []
                        }
                }
        },
        "Oem": {},
        "PowerState": "On"
}
```


4.21.1.2 PUT

Operation is not allowed on this resource.

4.21.1.3 PATCH

Operation is not allowed on this resource.

4.21.1.4 POST

Operation is not allowed on this resource.

4.21.1.5 DELETE

Operation is not allowed on this resource.

4.22 Ethernet Switch collection

Ethernet Switch collection resource – provides a collection of all switches available in a fabric module.

Table 17 Switch collection attributes

Name	Switch collection		
Type URI	/redfish/v1/EthernetSwitches		
Attribute	**Type**	**Required**	**Description**
`Name`	String	Yes	Name of collection
`Members@odata.count`	Number	Yes	Collection members count
`Members`	Array	Yes	Contains the members of this collection

4.22.1 Operations

4.22.1.1 GET

Request:

```
GET /redfish/v1/EthernetSwitches
Content-Type: application/json
```

Response:

```
{
    "@odata.context": "/redfish/v1/$metadata#EthernetSwitches",
    "@odata.id": "/redfish/v1/EthernetSwitches",
    "@odata.type": "#EthernetSwitchesCollection.EthernetSwitchesCollection",
    "Name": "Ethernet  Switches Collection",
    "Description": "Network Switches Collection",
    "Members@odata.count": 1,
    "Members": [
        {
            "@odata.id": "/redfish/v1/EthernetSwitches/Switch1"
        }
    ]
}
```

4.22.1.2 PUT

Operation is not allowed on this resource.

4.22.1.3 PATCH

Operation is not allowed on this resource.

4.22.1.4 POST

Operation is not allowed on this resource.

4.22.1.5 DELETE

Operation is not allowed on this resource.

4.23 Ethernet Switch

Ethernet Switch resource – provides detailed information about a switch identified by {switchID}.

Detailed info about this resource's properties can be obtained from metadata file: *EthernetSwitch.xml*

4.23.1 Operations

4.23.1.1 GET

Request:

```
GET /redfish/v1/EthernetSwitches/Switch1
Content-Type: application/json
```

Response:

```
{
       "@odata.context":
"/redfish/v1/$metadata#EthernetSwitch.EthernetSwitch",
       "@odata.id": "/redfish/v1/EthernetSwitches/Switch1",
       "@odata.type": "#EthernetSwitch.v1_0_0.EthernetSwitch",
       "Id": "Switch1",
       "SwitchId": "unique switch id",
       "Name": "Switch1",
       "Description": "description-as-string",
```

```
        "Manufacturer": "Quanta",
        "Model": "ly8_rangley",
        "ManufacturingDate": "02/21/2015 00:00:00",
        "SerialNumber": "2M220100SL",
        "PartNumber": "1LY8UZZ0007",

        "FirmwareName": "ONIE",
        "FirmwareVersion": "1.1",
        "Role": "TOR",

        "Status": {
                "State": "Enabled",
                "Health": "OK"
        },
       "ACLs": {
         "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/ACLs"
       },
        "Oem": {},
        "Ports": {
                "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Ports"
        },
        "Links": {
                "Chassis": {
                        "@odata.id": "/redfish/v1/Chassis/FabricModule1"
                },
                "ManagedBy": [{
                        "@odata.id": "/redfish/v1/Managers/Manager1"
                }],
                "Oem": {}
        }
}
```


4.23.1.2 PUT

Operation is not allowed on this resource.

4.23.1.3 PATCH

Operation is not allowed on this resource.

4.23.1.4 POST

Operation is not allowed on this resource.

4.23.1.5 DELETE

Operation is not allowed on this resource.

4.24 Ethernet Switch port collection

Ethernet Switch port collection resource – provides a collection of all switch ports available in a switch.

Table 18 Switch ports collection attributes

Name	Switch port collection		
Type URI	/redfish/v1/EthernetSwitches/Switch1/Ports		
Attribute	**Type**	**Required**	**Description**
Name	String	Yes	Name of collection
Members@odata.count	Number	Yes	Collection members count
Members	Array	Yes	Contains the members of this collection

4.24.1 Operations

4.24.1.1 GET

Request:

```
GET /redfish/v1/EthernetSwitches/Switch1/Ports
Content-Type: application/json
```

Response:

```
{
    "@odata.context":
"/redfish/v1/$metadata#EthernetSwitches/Members/1/Ports",
    "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Ports",
    "@odata.type": "#SwitchPortsCollection.SwitchPortsCollection",
    "Name": "Ethernet  Switch Port Collection",
    "Description": "Switch Port Collection",
    "Members@odata.count": 1,
    "Members": [
        {
            "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Ports/Port1"
        }
    ]
}
```

4.24.1.2 PUT

Operation is not allowed on this resource.

4.24.1.3 PATCH

Operation is not allowed on this resource.

4.24.1.4 POST

Request:

```
POST /redfish/v1/EthernetSwitches/Switch1/Ports
Content-Type: application/json
{
       “PortId”: “Lag1”,
       “PortMode”: “LinkAggregationStatic”,
       “Links”: {
              “PortMembers”: [
                     {
                            “@odata.id”:
“/redfish/v1/EthernetSwitches/Switch1/Ports/Port10”
                     },
```

```
                        {
                                "@odata.id":
"/redfish/v1/EthernetSwitches/Switch1/Ports/Port11"
                        }
                ]
        }
}
```

Response:

```
HTTP/1.1 201 Created
Location: http://<IP>:<PORT>/redfish/v1/EthernetSwitches/Switch1/Ports/Lag1
```

4.24.1.5 DELETE

Operation is not allowed on this resource.

4.25 Ethernet Switch port

Ethernet Switch port resource – provides detailed information about a switch port identified by {portID}.

Detailed info about this resource's properties can be obtained from metadata file: *EthernetSwitchPort.xml*

4.25.1 Operations

4.25.1.1 GET

Request:

```
GET /redfish/v1/EthernetSwitches/Switch1/Ports/Port1
Content-Type: application/json
```

Response:

```
{
        "@odata.context":
"/redfish/v1/$metadata#EthernetSwitches/Members/1/Ports/Members/1/$entity",
        "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Ports/Port1",
        "@odata.type": "#EthernetSwitchPort.v1_0_0.EthernetSwitchPort",

        "Id": "Port1",
        "Name": "Switch Port",
        "Description": "description-as-string",
        "PortId": "sw0p10",
        "Status": {
                "State": "Enabled",
                "Health": "OK",
                "HealthRollup": "OK"
        },
        "LinkType": "Ethernet",
        "OperationalState": "Up",
        "AdministrativeState": "Up",
        "LinkSpeedMbps": 10000,
        "NeighborInfo": {
                "SwitchId": "sw2",
                "PortId": "11",
                "CableId": "CustomerWritableThing"
        },
```


```
        "NeighborMAC": "00:11:22:33:44:55",
        "FrameSize": 1520,
        "Autosense": true,
        "FullDuplex": true,
        "MACAddress": "2c:60:0c:72:e6:33",
        "IPv4Addresses": [{
                "Address": "192.168.0.10",
                "SubnetMask": "255.255.252.0",
                "AddressOrigin": "Static",
                "Gateway": "192.168.0.1"
        }],
        "IPv6Addresses": [{
                "Address": "fe80::1ec1:deff:fe6f:1e24",
                "PrefixLength": 64,
                "AddressOrigin": "Static",
                "AddressState": "Preferred"
        }],
        "PortClass": "Logical",
        "PortMode": "LinkAggregationStatic",
        "PortType": "Upstream",
        "Oem": {},
        "VLANs": {
                "@odata.id":
"/redfish/v1/EthernetSwitches/Switch1/Ports/Port1/VLANs"
        },
        "StaticMACs": {
                "@odata.id":
"/redfish/v1/EthernetSwitches/Switch1/Ports/Port1/StaticMACs"
        },
        "Links": {
            "PrimaryVLAN": {
             "@odata.id":
"/redfish/v1/EthernetSwitches/Switch1/Ports/Port1/VLANs/VLAN1"
         },
                "Switch": {
                      "@odata.id": "/redfish/v1/EthernetSwitches/Switch1"
                },
                "MemberOfPort": {
                      "@odata.id":
"/redfish/v1/EthernetSwitches/Switch1/Ports/LAG1"
                },
                "PortMembers": [],
                "ActiveACLs": [{
                      "@odata.id":
"/redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1"
                }],
    "Oem" : {
      "Intel_RackScale" : {
        "@odata.type" : "#Intel.Oem.EthernetSwitchPort",
        "NeighborInterface" : {
          "@odata.id" : "/redfish/v1/Systems/1/EthernetInterfaces/3"
        }
      }
    }  }
}
```

4.25.1.2 PUT

Operation is not allowed on this resource.

4.25.1.3 PATCH

Request:

```
PATCH /redfish/v1/EthernetSwitches/Switch1/Ports/Port1
Content-Type: application/json
{
       “AdministrativeState”: “Up”,
       “LinkSpeedMbps”: 1000,
   “FrameSize”: 1500,
       “Autosense”:false,
       “Links”: {
           "PrimaryVLAN": {
            "@odata.id":
"/redfish/v1/EthernetSwitches/Switch1/Ports/Port1/VLANs/VLAN1"
        },
                “PortMembers”: [
                      {
                                “@odata.id”:
“/redfish/v1/EthernetSwitches/Switch1/Ports/Port10”
                      },
                      {
                                “@odata.id”:
“/redfish/v1/EthernetSwitches/Switch1/Ports/Port12”
                      }
               ]
   }
}
```

Response:

```
HTTP/1.1 204 No Content
```

Or:

```
HTTP/1.1 200 OK
{
(updated resource body)
}
```

Note: PortMembers array is an optional parameter. If not present in the PATCH request, the list of port members shall not be changed.

4.25.1.4 POST

Operation is not allowed on this resource.

4.25.1.5 DELETE

Request:

```
DELETE /redfish/v1/EthernetSwitches/Switch1/Ports/Lag1
```

Response:

```
HTTP/1.1 204 No Content
```

4.26 Ethernet Switch ACL collection

Ethernet Switch ACL collection resource – provides a collection of resources of type EthernetSwitchACL (Access Control List) defined on the switch.

Detailed info about this resource's properties can be obtained from metadata file: *EthernetSwitchACLCollection.xml*

4.26.1 Operations

4.26.1.1 GET

Request:

```
GET /redfish/v1/EthernetSwitches/Switch1/ACLs
Content-Type: application/json
```

Response:

```
{
  "@odata.context":
"/redfish/v1/$metadata#EthernetSwitches/Members/Switch1/ACLs",
  "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/ACLs",
  "@odata.type": "#EthernetSwitchACLCollection.EthernetSwitchACLCollection",
  "Name": "Ethernet  Switch Access Control List Collection",
  "Description": "Switch Access Control List. Each ACL entry can be bind to
any switch port",
  "Members@odata.count": 1,
  "Members": [
    {
      "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1"
    }
  ]
}
```

4.26.1.2 PUT

Operation is not allowed on this resource.

4.26.1.3 PATCH

Operation is not allowed on this resource.

4.26.1.4 POST

POST action is used to create a new clean Access Control List (ACL) without any rules and bound port. Because of that, JSON used in this post operation shall not contain any properties.

Request:

```
POST /redfish/v1/EthernetSwitches/Switch1/ACLs
Content-Type: application/json
{
}
```

Response:

```
HTTP/1.1 201 Created
Location: http://<IP>:<PORT>/redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1
```

4.26.1.5 DELETE

Operation is not allowed on this resource.

4.27 Ethernet Switch ACL

Ethernet Switch ACL resource – provides detailed information about a switch Access Control List defined on the switch.

Detailed info about this resource's properties can be obtained from metadata file: *EthernetSwitchACL.xml*

4.27.1 Operations

4.27.1.1 GET

Request:

```
GET /redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1
Content-Type: application/json
```

Response:

```
{
  "@odata.context":
"/redfish/v1/$metadata#EthernetSwitches/Members/Switch1/ACLs/Members/$entity"
,
  "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1",
  "@odata.type": "#EthernetSwitchACL.v1_0_0.EthernetSwitchACL",
  "Id": "ACL1",
  "Name": "Ethernet Switch Access Control List",
  "Description": "Switch ACL",
  "Oem": {},
  "Rules": {
    "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1/Rules"
  },
  "Links": {
    "BoundPorts": [{
      "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Ports/sw0p1"
    }],
    "Oem": {}
  }
    "Actions": {
        "#EthernetSwitchACL.Bind": {
            "target":
"/redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1/Actions/EthernetSwitchACL.Bin
d",
            "Port@Redfish.AllowableValues": [
            {"@odata.id":
"/redfish/v1/EthernetSwitches/Switch1/Ports/sw0p2"},
            {"@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Ports/sw0p3"}
            ]
        },
        "#EthernetSwitchACL.Unbind": {
            "target":
"/redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1/Actions/EthernetSwitchACL.Unb
ind",
            "Port@Redfish.AllowableValues": [
            {"@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Ports/sw0p1"}
            ]
        },
```

```
}
```

4.27.1.2 PUT

Operation is not allowed on this resource.

4.27.1.3 PATCH

Operation is not allowed on this resource.

4.27.1.4 POST

POST action is used to execute one of the supported actions:

1. Bind – action binds given port to ACL
2. Unbind – action will remove given port from ACL

Attribute	Type	Required	Description
`Port`	Link object	Yes	Provides URI of the switch port that should be bound to the current ACL. Port should be located on the same switch as the ACL.

```
POST
/redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1/Actions/EthernetSwitchACL.Bind
Content-Type: application/json
{
       "Port": {
                "@odata.id":
"/redfish/v1/EthernetSwitches/Switch1/Ports/sw0p2"
       }
}
```

Response:

```
HTTP/1.1 204 No Content
```

4.27.1.5 DELETE

Request:

```
DELETE /redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1
```

Response:

```
HTTP/1.1 204 No Content
```

Note: The switch may contain some pre-defined ACLs that cannot be deleted. In case of an attempt to delete such a rule, an HTTP 400 BadRequest will be returned along with extended error info indicating that ACL is persistent.

4.28 Ethernet switch ACL rule collection

Ethernet Switch ACL rule collection resource – provides a collection of all rules for the Access Control List (ACL) defined on the switch.

Detailed info about this resource's properties can be obtained from metadata file:
EthernetSwitchACLRuleCollection.xml

4.28.1 Operations

4.28.1.1 GET

Request:

```
GET /redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1/Rules
Content-Type: application/json
```

Response:

```
{
  "@odata.context":
"/redfish/v1/$metadata#EthernetSwitches/Members/Switch1/ACLs/Members/Rules",
  "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1/Rules",
  "@odata.type":
"#EthernetSwitchACLRuleCollection.EthernetSwitchACLRuleCollection",
  "Name": "Ethernet  Switch Access Control List Rules Collection",
  "Description": "Rules for switch Access Control List. Each Rule defines
single action and at least one condition",
  "Members@odata.count": 1,
  "Members": [
    {
      "@odata.id":
"/redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1/Rules/Rule1"
    }
  ]
}
```

4.28.1.2 PUT

Operation is not allowed on this resource.

4.28.1.3 PATCH

Operation is not allowed on this resource.

4.28.1.4 POST

Attributes of POST action to create a new ACL rule.

Attribute	Type	Required	Description
RuleId	Number	No	This is the ACL rule ID which determines rule priority. If not provided during creation, service will assign default next free Id.
Action	String (enum)	Yes	Action that is executed when rule condition is met. Available actions: Permit – packets meeting condition are allowed Deny – deny packets meeting condition Forward – forwards packets to selected interface Mirror – mirrors traffic on selected interface
ForwardMirrorInterface	Link object	Yes for "Forward" and "Mirror" actions	This is the link to the interface where traffic will be mirrored/forwarded.
MirrorPortRegion	Array of link objects	Yes for "Mirror" action	Array of links to Ethernet interfaces which traffic should be mirrored on *"ForwardMirrorInterface"*
MirrorType	String (enum)	Yes for "Mirror" action	Type of mirroring traffic. Available values: Egress - Mirror egressing traffic on the mirrored port to the mirror destination port

Attribute	Type	Required	Description
			Ingress - Mirror ingressing traffic on the mirrored port to the mirror destination port Bidirectional - Mirror ingressing and egressing traffic on the mirrored port to the mirror destination port Redirect - Mirror ingress traffic to the mirror destination port and drop the traffic ingressing the mirror ports
Condition	Object	Yes	Provides all conditions that must be met to trigger rule action. Must contain at least one non-null property. List of available properties is provided below.

Table 19 ACL Rule Condition attributes

Attribute	Type	Required	Nullable	Description
IPSource	Object	No	Yes	Provides packet source IPv4 address. Attribute / Type / Required / Description IPv4Address / String / Yes / IPv4 address Mask / String, null / No / The mask selects which bits in the corresponding value property are relevant for matching for a frame (a zero bit in the mask indicates a don't care bit in the value). Null value means all bits are relevant.
IPDestination	Object	No	Yes	Provides packet destination IPv4 address. Attribute / Type / Required / Description IPv4Address / String / Yes / IPv4 address Mask / String, null / No / The mask selects which bits in the corresponding value property are relevant for matching for a frame (a zero bit in the mask indicates a don't care bit in the value). Null value means all bits are relevant.
MACSource	Object	No	Yes	Provides packet source MAC address. Attribute / Type / Required / Description MACAddress / String / Yes / IPv4 address

<table>
<tr><th>Attribute</th><th>Type</th><th>Required</th><th>Nullable</th><th>Description</th></tr>
<tr><td></td><td></td><td></td><td></td><td>
<table>
<tr><td>Mask</td><td>String, null</td><td>No</td><td>The mask selects which bits in the corresponding value property are relevant for matching for a frame (a zero bit in the mask indicates a don't care bit in the value). Null value means all bits are relevant.</td></tr>
</table>
</td></tr>
<tr><td>MACDestination</td><td>Object</td><td>No</td><td>Yes</td><td>Provides packet destination MAC address.
<table>
<tr><th>Attribute</th><th>Type</th><th>Required</th><th>Description</th></tr>
<tr><td>MACAddress</td><td>String</td><td>Yes</td><td>IPv4 address</td></tr>
<tr><td>Mask</td><td>String, null</td><td>No</td><td>The mask selects which bits in the corresponding value property are relevant for matching for a frame (a zero bit in the mask indicates a don't care bit in the value). Null value means all bits are relevant.</td></tr>
</table>
</td></tr>
<tr><td>VLANId</td><td>Object</td><td>No</td><td>Yes</td><td>Provides packet VLAN tag ID:
<table>
<tr><th>Attribute</th><th>Type</th><th>Required</th><th>Description</th></tr>
<tr><td>Id</td><td>Number</td><td>Yes</td><td>VLAN Id tag</td></tr>
<tr><td>Mask</td><td>Number, null</td><td>No</td><td>The mask selects which bits in the corresponding value property are relevant for matching for a frame (a zero bit in the mask indicates a don't care bit in the value). Null value means all bits are relevant.</td></tr>
</table>
</td></tr>
<tr><td>L4SourcePort</td><td>Object</td><td>No</td><td>Yes</td><td>IP layer 4 Source port. Contains the following properties.
<table>
<tr><th>Attribute</th><th>Type</th><th>Required</th><th>Description</th></tr>
<tr><td>Port</td><td>Number</td><td>Yes</td><td>Port numeric value</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Attribute</th><th>Type</th><th>Required</th><th>Nullable</th><th>Description</th></tr>
<tr><td></td><td></td><td></td><td></td><td>
<table>
<tr><td>Mask</td><td>Number, null</td><td>No</td><td>The mask selects which bits in the corresponding value property are relevant for matching for a frame (a zero bit in the mask indicates a don't care bit in the value). Null value means all bits are relevant.</td></tr>
</table>
</td></tr>
<tr><td>L4DestinationPort</td><td>Object</td><td>No</td><td>Yes</td><td>IP layer 4 Destination port. Contains the following properties.
<table>
<tr><th>Attribute</th><th>Type</th><th>Required</th><th>Description</th></tr>
<tr><td>Port</td><td>Number</td><td>Yes</td><td>Port numeric value</td></tr>
<tr><td>Mask</td><td>Number, null</td><td>No</td><td>Mask</td></tr>
</table>
</td></tr>
<tr><td>L4Protocol</td><td>Number</td><td>No</td><td>Yes</td><td>IP layer 4 protocol number as defined here: http://www.iana.org/assignments/protocol-numbers/protocol-numbers.xhtml</td></tr>
</table>

Request:

```
POST /redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1/Rules
Content-Type: application/json
{
       "RuleId": 1,
       "Action": "Deny",
       "ForwardMirrorInterface": null,
       "MirrorPortRegion": [],
       "MirrorType": null,
       "Condition": {
              "IPSource": {
                     "IPv4Address": "192.168.8.0",
                     "Mask": "0.0.0.255"
              },
              "IPDestination": null,
              "MACSource":  null,
             "MACDestination": null,
              "VLANId": null,
              "L4SourcePort": null,
              "L4DestinationPort": null,
              "L4Protocol": null
       }
}
```

Response:

```
HTTP/1.1 201 Created
Location:
http://<IP>:<PORT>/redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1/Rules/Rule2
```

4.28.1.5 DELETE

Operation is not allowed on this resource.

4.29 Ethernet Switch ACL rule

Ethernet Switch ACL rule resource – provides detailed information about a switch ACL rule defined identified by {ruleID}.

Detailed info about this resource's properties can be obtained from metadata file: *EthernetSwitchACLRule.xml*

4.29.1 Operations

4.29.1.1 GET

Request:

```
GET /redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1/Rules/Rule1
Content-Type: application/json
```

Response:

```
{
       "@odata.context":
"/redfish/v1/$metadata#EthernetSwitches/Members/Switch1/ACLs/Members/Rules/Me
mbers/$entity",
       "@odata.id":
"/redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1/Rules/Rule1",
       "@odata.type": "#EthernetSwitchACLRule.v1_0_0.EthernetSwitchACLRule",
       "Id": "Rule1",
       "Name": "Example Rule",
       "Description": "User defined rule for ACL",
       "RuleId": 1,
       "Action": "Mirror",
       "ForwardMirrorInterface": {
              "@odata.id":
"/redfish/v1/EthernetSwitches/Switch1/Ports/Port9"
       },
       "MirrorPortRegion": [{
              "@odata.id":
"/redfish/v1/EthernetSwitches/Switch1/Ports/Port1"
       },
       {
              "@odata.id":
"/redfish/v1/EthernetSwitches/Switch1/Ports/Port2"
       }],
       "MirrorType": "Bidirectional",
       "Condition": {
              "IPSource": {
                     "IPv4Address": "192.168.1.0",
                     "Mask": "0.0.0.255"
              },
              "IPDestination": null,
              "MACSource":  {
           "Address": "00:11:22:33:44:55",
           "Mask": null
        },
        "MACDestination": null,
              "VLANId": {
           "Id": 1088,
           "Mask": 4095
```

```
        },
                "L4SourcePort": {
                        "Port": 22,
                        "Mask": 255
                },
                "L4DestinationPort": null,
         "L4Protocol": null
        },
        "Oem": {
        },
        "Links": {
        }
}
```

4.29.1.2 PUT

Operation is not allowed on this resource.

4.29.1.3 PATCH

Attributes of ACL Rule that can be modified by PATCH method:

Attribute	Type	Required	Description
RuleId	Number	No	This is the ACL rule ID which determines rule priority.
Action	String (enum)	No	Action that is executed when rule condition is met. Available actions: Permit – packets meeting condition are allowed Deny – deny packets meeting condition Forward – forwards packets to selected interface Mirror – mirrors traffic on selected interface
ForwardMirrorInterface	Link object	Yes for "Forward" and "Mirror" actions	This is a link to the interface where traffic will be mirrored/forwarded.
MirrorPortRegion	Array of link objects	Yes for "Mirror" action	Array of links to Ethernet interfaces which traffic should be mirrored on *"ForwardMirrorInterface"*
MirrorType	String (enum)	Yes for "Mirror" action	Type of mirroring traffic. Available values: Egress - Mirror egressing traffic on the mirrored port to the mirror destination port Ingress - Mirror ingressing traffic on the mirrored port to the mirror destination port Bidirectional - Mirror ingressing and egressing traffic on the mirrored port to the mirror destination port Redirect - Mirror ingress traffic to the mirror destination port and drop the traffic ingressing the mirror ports
Condition	Object	No	Provides all conditions that must be met to trigger a rule action. List of available properties is described in the table below.

Table 20 ACL Rule Condition attributes

Attribute	Type	Required	Nullable	Description
IPSource	Object	No	Yes	Provides packet source IPv4 address. Attribute: IPv4Address; Type: String; Required: Yes; Description: IPv4 address

<table>
<tr><th>Attribute</th><th>Type</th><th>Required</th><th>Nullable</th><th>Description</th></tr>
<tr><td></td><td></td><td></td><td></td><td>
<table>
<tr><td>Mask</td><td>String, null</td><td>No</td><td>The mask selects which bits in the corresponding value property are relevant for matching for a frame (a zero bit in the mask indicates a don't care bit in the value). Null value means all bits are relevant.</td></tr>
</table>
</td></tr>
<tr><td>IPDestination</td><td>Object</td><td>No</td><td>Yes</td><td>Provides packet destination IPv4 address
<table>
<tr><th>Attribute</th><th>Type</th><th>Required</th><th>Description</th></tr>
<tr><td>IPv4Address</td><td>String</td><td>Yes</td><td>IPv4 address</td></tr>
<tr><td>Mask</td><td>String, null</td><td>No</td><td>The mask selects which bits in the corresponding value property are relevant for matching for a frame (a zero bit in the mask indicates a don't care bit in the value). Null value means all bits are relevant.</td></tr>
</table>
</td></tr>
<tr><td>MACSource</td><td>Object</td><td>No</td><td>Yes</td><td>Provides packet source MAC address:
<table>
<tr><th>Attribute</th><th>Type</th><th>Required</th><th>Description</th></tr>
<tr><td>MACAddress</td><td>String</td><td>Yes</td><td>IPv4 address</td></tr>
<tr><td>Mask</td><td>String, null</td><td>No</td><td>The mask selects which bits in the corresponding value property are relevant for matching for a frame (a zero bit in the mask indicates a don't care bit in the value). Null value means all bits are relevant.</td></tr>
</table>
</td></tr>
<tr><td>MACDestination</td><td>Object</td><td>No</td><td>Yes</td><td>Provides packet destination MAC address:
<table>
<tr><th>Attribute</th><th>Type</th><th>Required</th><th>Description</th></tr>
<tr><td>MACAddress</td><td>String</td><td>Yes</td><td>IPv4 address</td></tr>
</table>
</td></tr>
</table>

Attribute	Type	Required	Nullable	Description
				`Mask` — String, null — No — The mask selects which bits in the corresponding value property are relevant for matching for a frame (a zero bit in the mask indicates a don't care bit in the value). Null value means all bits are relevant.
`VLANId`	Object	No	Yes	Provides packet VLAN tag ID: `Id` — Number — Yes — VLAN Id tag `Mask` — Number, null — No — The mask selects which bits in the corresponding value property are relevant for matching for a frame (a zero bit in the mask indicates a don't care bit in the value). Null value means all bits are relevant.
`L4SourcePort`	Object	No	Yes	IP layer 4 Source port. Contains the following properties. `Port` — Number — Yes — Port numeric value `Mask` — Number, null — No — The mask selects which bits in the corresponding value property are relevant for matching for a frame (a zero bit in the mask indicates a don't care bit in the value). Null value means all bits are relevant.
`L4DestinationPort`	Object	No	Yes	IP layer 4 Destination port. Contains the following properties. `Port` — Number — Yes — Port numeric value

Attribute	Type	Required	Nullable	Description
				`Mask` — Number, null — No — The mask selects which bits in the corresponding value property are relevant for matching for a frame (a zero bit in the mask indicates a don't care bit in the value). Null value means all bits are relevant.
`L4Protocol`	Number	No	Yes	IP layer 4 protocol number as defined here: *http://www.iana.org/assignments/protocol-numbers/protocol-numbers.xhtml*

Request:

```
PATCH /redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1/Rules/Rule2
Content-Type: application/json
{
       "RuleId": 1,
       "Action": "Permit",
       "ForwardMirrorInterface": null,
       "MirrorPortRegion": [],
       "MirrorType": null,
       "Condition": {
              "IPSource": {
                     "IPv4Address": "192.168.6.0",
                     "Mask": "0.0.0.255"
              },
              "IPDestination": null,
              "MACSource":  null,
             "MACDestination": null,
              "VLANId": null,
              "L4SourcePort": null,
              "L4DestinationPort": null,
              "L4Protocol": null
       }
}
```

Response:

```
HTTP/1.1 204 No Content
```

Or:

```
HTTP/1.1 200 OK
{
(updated resource body)
}
```

4.29.1.4 POST

Operation is not allowed on this resource.

4.29.1.5 DELETE

Request:

```
DELETE /redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1/Rules/Rule2
```

Response:

```
HTTP/1.1 204 No Content
```

4.30 Ethernet Switch port static MAC collection

Ethernet Switch port static MAC collection resource – provides a collection of all static MAC forwarding table entries.

Detailed info about this resource's properties can be obtained from metadata file:
EthernetSwitchACLRuleCollection.xml

4.30.1 Operations

4.30.1.1 GET

Request:

```
GET /redfish/v1/EthernetSwitches/Switch1/Ports/Port1/StaticMACs
Content-Type: application/json
```

Response:

```
{
  "@odata.context": "
/redfish/v1/$metadata#EthernetSwitches/Members/Switch1/Ports/Members/StaticMA
Cs ",
  "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Ports/Port1/StaticMACs",
  "@odata.type": "#StaticMACCollection.StaticMACCollection",
  "Name": "Static MAC Collection",
  "Description": "description-as-string",
  "Members@odata.count": 1,
  "Members": [
    {
      "@odata.id":
"/redfish/v1/EthernetSwitches/Switch1/Ports/Port1/StaticMACs/1"
    }
  ]
}
```

4.30.1.2 PUT

Operation is not allowed on this resource.

4.30.1.3 PATCH

Operation is not allowed on this resource.

4.30.1.4 POST

Attributes of POST action to create new static MAC entry.

Attribute	Type	Required	Description
MACaddress	String	Yes	MAC address that should be forwarded to this port

VLANId	Number, null	No	If specified, defines which packets tagged with specific VLANId should be forwarded to this port.

Request:

```
POST /redfish/v1/EthernetSwitches/Switch1/Ports/Port1/StaticMACs
Content-Type: application/json
{
    "MACAddress": "00:11:22:33:44:55",
    "VLANId": 69
}
```

Response:

```
HTTP/1.1 201 Created
Location:
http://<IP>:<PORT>/redfish/v1/EthernetSwitches/Switch1/Ports/Port1/StaticMACs
/2
```

4.30.1.5 DELETE

Operation is not allowed on this resource.

4.31 Ethernet Switch port static MAC

Ethernet Switch port static MAC resource – provides detailed information about a static MAC address forward table entry.

Detailed info about this resource's properties can be obtained from metadata file: *EthernetSwitchStaticMAC.xml*

4.31.1 Operations

4.31.1.1 GET

Request:

```
GET /redfish/v1/EthernetSwitches/Switch1/Ports/Port1/StaticMACs/1
Content-Type: application/json
```

Response:

```
{
       "@odata.context":
"/redfish/v1/$metadata#EthernetSwitches/Members/Switch1/Ports/Members/StaticM
ACs/Members/$entity",
       "@odata.id":
"/redfish/v1/EthernetSwitches/Switch1/Ports/Port1/StaticMACs/1",
       "@odata.type": "#StaticMAC.v1_0_0.StaticMAC",
       "Id": "1",
       "Name": "StaticMAC",
       "Description": "description-as-string",
    "MACAddress": "00:11:22:33:44:55",
    "VLANId": 112,
    "Oem": {}
}
```

4.31.1.2 PUT

Operation is not allowed on this resource.

4.31.1.3 PATCH

Attributes of static MAC that can be modified by PATCH method.

Attribute	Type	Required	Description
MACaddress	String	Yes	MAC address that should be forwarded to this port
VLANId	Number, null	No	If specified, defines which packets tagged with specific VLANId should be forwarded to this port.

Request:

```
PATCH /redfish/v1/EthernetSwitches/Switch1/Ports/Port1/StaticMACs/2
Content-Type: application/json
{
    "MACAddress": "AA:11:22:33:44:55",
    "VLANId": 697
}
```

Response:

```
HTTP/1.1 204 No Content
```

Or:

```
HTTP/1.1 200 OK
{
(updated resource body)
}
```

4.31.1.4 POST

Operation is not allowed on this resource.

4.31.1.5 DELETE

Request:

```
DELETE /redfish/v1/EthernetSwitches/Switch1/Ports/Port1/StaticMACs/2
Response:
HTTP/1.1 204 No Content
```

4.32 Network protocol

Network protocol resource – provides detailed information about all network services supported by a manager identified by {managerID}.

Table 21 Network service attributes

Name	Network service	
Type URI	/redfish/v1/Managers/{managerID}/NetworkProtocol	
Attribute	**Type**	**Description**
Id	String	Resource identifier
Name	String	Resource name
Description	String	Resource description
Status	Object	See Section 5.1 for resource status.
Oem	Object	OEM defined object
HostName	String	Provides information about host name
FQDN	String	Fully Qualified Domain Name

Name	Network service				
Type URI	/redfish/v1/Managers/{managerID}/NetworkProtocol				
Attribute	Type	Description			
HTTP	Object	Name	Type	Required	Description
		ProtocolEnabled	Boolean, null	No	Availability of protocol
		Port	Number, null	No	Indicates the protocol port
HTTPS	Object	Name	Type	Required	Description
		ProtocolEnabled	Boolean, null	No	Availability of protocol
		Port	Number, null	No	Indicates the protocol port
SNMP	Object	Name	Type	Required	Description
		ProtocolEnabled	Boolean, null	No	Availability of protocol
		Port	Number, null	No	Indicates the protocol port
VirtualMedia	Object	Name	Type	Required	Description
		ProtocolEnabled	Boolean, null	No	Availability of protocol
		Port	Number, null	No	Indicates the protocol port
Telnet	Object	Name	Type	Required	Description
		ProtocolEnabled	Boolean, null	No	Availability of protocol
		Port	Number, null	No	Indicates the protocol port
SSDP	Object	Name	Type	Required	Description
		ProtocolEnabled	Boolean, null	No	Availability of protocol
		Port	Number, null	No	Indicates the protocol port
		NotifyMulticastIntervalSeconds	Number, null	No	Indicates how often the Multicast is done from this service for SSDP
		NotifyTTL	Number, null	No	Indicates the time to live hop count for SSDPs Notify messages.
		NotifyIPv6Scope	String, null	No	Indicates the scope for the IPv6 Notify messages for SSDP
IPMI	Object	Name	Type	Required	Description
		ProtocolEnabled	Boolean, null	No	Availability of protocol
		Port	Number, null	No	Indicates the protocol port
SSH	Object	Name	Type	Required	Description
		ProtocolEnabled	Boolean, null	No	Availability of protocol
		Port	Number, null	No	Indicates the protocol port
KVMIP	Object	Name	Type	Required	Description

Name	Network service				
Type URI	/redfish/v1/Managers/{managerID}/NetworkProtocol				
Attribute	Type	Description			
		ProtocolEnabled	Boolean, null	No	Availability of protocol
		Port	Number, null	No	Indicates the protocol port

4.32.1 Operations

4.32.1.1 GET

Request:

```
GET /redfish/v1/Managers/{managerID}/NetworkProtocol
Content-Type: application/json
```

Response:

```
{
    "@odata.context":
"/redfish/v1/$metadata#ManagerNetworkProtocol.ManagerNetworkProtocol",
    "@odata.id": "/redfish/v1/Managers/BMC1/NetworkProtocol",
    "@odata.type": "#ManagerNetworkProtocol.v1_0_0.ManagerNetworkProtocol",
    "Id": "NetworkProtocol",
    "Name": "Manager Network Protocol",
    "Description": "Manager Network Service Status",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "HostName": "mymanager",
    "FQDN": "mymanager.mydomain.com",
    "HTTP": {
        "ProtocolEnabled": true,
        "Port": 80
    },
    "HTTPS": {
        "ProtocolEnabled": true,
        "Port": 443
    },
    "IPMI": {
        "ProtocolEnabled": true,
        "Port": 623
    },
    "SSH": {
        "ProtocolEnabled": true,
        "Port": 22
    },
    "SNMP": {
        "ProtocolEnabled": true,
        "Port": 161
    },
    "VirtualMedia": {
        "ProtocolEnabled": true,
        "Port": 17988
```

```
    },
    "SSDP": {
        "ProtocolEnabled": true,
        "Port": 1900,
        "NotifyMulticastIntervalSeconds": 600,
        "NotifyTTL": 5,
        "NotifyIPv6Scope": "Site"
    },
    "Telnet": {
        "ProtocolEnabled": true,
        "Port": 23
    },
    "KVMIP": {
        "ProtocolEnabled": true,
        "Port": 5288
    },
    "Oem": {}
}
```


4.32.1.2 PUT

Operation is not allowed on this resource.

4.32.1.3 PATCH

Operation is not allowed on this resource.

4.32.1.4 POST

Operation is not allowed on this resource.

4.32.1.5 DELETE

Operation is not allowed on this resource.

4.33 Ethernet interface collection

Ethernet interface collection resource – provides a collection of all Ethernet interfaces supported by a manager identified by {managerID} or included in a blade identified by {bladeID}.

Table 22 Ethernet interface collection attributes

Name	Ethernet interfaces		
Type URI	/redfish/v1/Systems/{systemID}/EthernetInterfaces /redfish/v1/Managers/{managerID}/EthernetInterfaces		
Attribute	**Type**	**Required**	**Description**
`Name`	String	Yes	Name of collection
`Members@odata.count`	Number	Yes	Collection members count
`Members`	Array	Yes	Contains the members of this collection

4.33.1 Operations

4.33.1.1 GET

Request:

```
GET /redfish/v1/Managers/{managerID}/EthernetInterfaces
```

```
Content-Type: application/json
```

Response:

```
{
       “@odata.context”:
"/redfish/v1/$metadata#Managers/Members/1/EthernetInterfaces/$entity",
       “@odata.id”: “/redfish/v1/Managers/1/EthernetInterfaces”,
       “@odata.type”:
“#EthernetNetworkInterface.v1_0_0.EthernetNetworkInterfaceCollection”,
       “Name”: “Ethernet Network Interface Collection”,
       “Members@odata.count”: 1,
       “Members”: [
                {
                       “@odata.id”:
“/redfish/v1/Managers/1/EthernetInterfaces/1”
                }
       ]
}
```

4.33.1.2 PUT

Operation is not allowed on this resource.

4.33.1.3 PATCH

Operation is not allowed on this resource.

4.33.1.4 POST

Operation is not allowed on this resource.

4.33.1.5 DELETE

Operation is not allowed on this resource.

4.34 Ethernet interface

Ethernet interface resource – provides detailed information about an Ethernet interface identified by {nicID}.

This is the same resource described in Section 4.19 System Network interface. In future releases they may differ.

4.35 VLAN network interface collection

VLAN Network Interface collection resource – provides a collection of all VLAN network interfaces existing on a switch port identified by {portID} or network interface identified by {nicID}.

Table 23 VLAN network interface collection attributes

Name	VLAN network interfaces		
Type URI	/redfish/v1/EthernetSwitches/{switchID}/Ports/{portID}/ VLANs		
Attribute	**Type**	**Required**	**Description**
`Name`	String	Yes	Name of collection
`Members@odata.count`	Number	Yes	Collection members count
`Members`	Array	Yes	Contains the members of this collection

4.35.1 Operations

4.35.1.1 GET

Request:

```
GET /redfish/v1/EthernetSwitches/Switch1/Ports/Port1/VLANs
Content-Type: application/json
```

Response:

```
{
    "@odata.context":
"/redfish/v1/$metadata#VLanNetworkInterfaceCollection.VLanNetworkInterfaceCol
lection",
    "@odata.id": "/redfish/v1/EthernetSwitches",
    "@odata.type":
"#VLanNetworkInterfaceCollection.VLanNetworkInterfaceCollection",
    "Name": "VLAN Network Interface Collection"
    "Description": "VLAN Network Interface Collection",
    "Members@odata.count": 1,
    "Members": [
        {
            "@odata.id":
"/redfish/v1/EthernetSwitches/Switch1/Ports/Port1/VLANs/VLAN1"
        }
    ]
}
```

4.35.1.2 PUT

Operation is not allowed on this resource.

4.35.1.3 PATCH

Operation is not allowed on this resource.

4.35.1.4 POST

Attribute	Type	Required	Description
Oem	Object	Yes	OEM defined object "Intel_RackScale" extensions: **Attribute** / **Type** / **Description** Tagged / Boolean / Indicates if VLAN is tagged (as defined in IEEE* 802.1Q) – required property.
VLANEnable	Boolean	Yes	Indicates if this VLAN is enabled
VLANId	Number	Yes	VLAN identifier for this NIC

Request:

```
POST /redfish/v1/EthernetSwitches/Switch1/Ports/Port1/VLANs
Content-Type: application/json
{
       "VLANId": 101,
       "VLANEnable": true,
```

```
        "Oem": {
         "Intel_RackScale": {
             "Tagged": false
         }
    }
}
```

Response:

```
HTTP/1.1 201 Created
Location:
http://<IP>:<PORT>/redfish/v1/EthernetSwitches/Switch1/Ports/Port1/VLANs/VLAN
2
```

4.35.1.5 DELETE

Operation is not allowed on this resource.

4.36 VLAN network interface

VLAN Network Interface resource – provides detailed information about a VLAN network interface identified by {vlanID}.

Table 24 VLAN network interface attributes

Name		VLAN Network Interface
Type URI		/redfish/v1/EthernetSwitches/{switchID}/Ports/{portID}/VLANs/{vlanID}
Attribute	**Type**	**Description**
Id	String	Resource identifier
Name	String	Resource name
Description	String, null	Resource description
Oem	Object	OEM defined object “Intel_RackScale” extensions: **Attribute** / **Type** / **Description** Tagged / Boolean, null / Indicates if VLAN is tagged (as defined in IEEE 802.1Q) Status / Object, null / See Section 5.1 for resource status.
VLANEnable	Boolean, null	Indicates if this VLAN is enabled
VLANId	Number	VLAN identifier for this NIC

4.36.1 Operations

4.36.1.1 GET

Request:

```
GET /redfish/v1/EthernetSwitches/Switch1/Ports/Port1/VLANs/{vlanID}
Content-Type: application/json
```

Response:

```
{
```

```
       "@odata.id":
"/redfish/v1/EthernetSwitches/Switch1/Ports/Port1/VLANs/VLAN1",
    "@odata.context":
"/redfish/v1/$metadata#VLanNetworkInterface.VLanNetworkInterface",
    "@odata.type": "#VLanNetworkInterface.v1_0_0.VLanNetworkInterface",
    "Id": "VLAN1",
    "Name": "VLAN Network Interface",
    "Description": "System NIC 1 VLAN",
    "VLANEnable": true,
    "VLANId": 101,
    "Oem": {
        "Intel_RackScale": {
            "@odata.type": "#Intel.Oem.VLanNetworkInterface",
            "Tagged": false,
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
        }
    }
}
```


4.36.1.2 PUT

Operation is not allowed on this resource.

4.36.1.3 PATCH

Operation is not allowed on this resource.

4.36.1.4 POST

Operation is not allowed on this resource.

4.36.1.5 DELETE

Request:

```
DELETE /redfish/v1/EthernetSwitches/Switch1/Ports/Port1/VLANs/VLAN2
```

Response:

```
HTTP/1.1 204 No Content
```

4.37 Event service

Event service resource responsible for sending events to subscribers.

Table 25 Event service attributes

Name		Event service	
Type URI		/redfish/v1/EventService	
Attribute	**Type**	**Required**	**Description**
Id	String	Yes	Resource identifier
Name	String	Yes	Resource name
Description	String, null	No	Resource description
Status	Object, null	No	See Section 5.1 for resource status.

Name		Event service	
Type URI		/redfish/v1/EventService	
Attribute	**Type**	**Required**	**Description**
Oem	Object, null	No	OEM defined object
ServiceEnabled	Boolean, Null	No	This indicates whether this service is enabled.
DeliveryRetryAttempts	Number	No	This is the number of attempts an event posting is retried before the subscription is terminated.
DeliveryRetryIntervalSeconds	Number	No	This represents the number of seconds between retry attempts for sending any given Event.
EventTypesForSubscription	Array	Yes	These are the types of Events that can be subscribed to. Available event types: - *StatusChange* - The status of this resource has changed - *ResourceUpdated* – The value of this resource has been updated. - *ResourceAdded* – A resource has been added - *ResourceRemoved* – A resource has been removed - *Alert* – A condition exists which requires attention.
Subscriptions	Object, null	Yes	This is a reference to a collection of Event Destination resources.
Actions	Object	No	The Actions object contains the available custom actions on this resource.

4.37.1 Operations

4.37.1.1 GET

Request:

```
GET /redfish/v1/EventService
Content-Type: application/json
```

Response:

```
{
    „@odata.context”: „/redfish/v1/$metadata#EventService”,
    „@odata.id”: „/redfish/v1/EventService”,
    „@odata.type”: „#EventService.v1_0_0.EventService”,
    „Id”: „EventService”,
    „Name”: „Event Service”,
    „Description”: „Event Service”,
    „Status”: {
        „State”: „Enabled”,
        „Health”: „OK”
    },
    „ServiceEnabled”: true,
    „DeliveryRetryAttempts”: 3,
    „DeliveryRetryIntervalSeconds”: 60,
    „EventTypesForSubscription”: [
        „StatusChange”,
        „ResourceUpdated”,
        „ResourceAdded”,
        „ResourceRemoved”,
        „Alert”
    ],
    „Subscriptions”: {
        „@odata.id”: „/redfish/v1/EventService/Subscriptions”
```

```
    },
    „Actions”: {
        „Oem”: {}
    },
    „Oem”: {}
}
```

4.37.1.2 PUT

Operation is not allowed on this resource.

4.37.1.3 PATCH

Operation is not allowed on this resource.

4.37.1.4 POST

Operation is not allowed on this resource.

4.37.1.5 DELETE

Operation is not allowed on this resource.

4.38 Event subscription collection

This is a collection of Event Destination resources.

Table 26 Event subscription collection attributes

Name	Event subscription collection		
Type URI	/redfish/v1/EventService/Subscriptions		
Attribute	**Type**	**Required**	**Description**
Name	String	Yes	Name of collection
Members	Array	Yes	Array of resource members
Members@odata.count	Number	Yes	Collection members count
Members	Array	Yes	Contains the members of this collection

4.38.1 Metadata

Detailed info about this resource's properties can be obtained from metadata file: *EventDestinationCollection.xml*

4.38.2 Operations

4.38.2.1 GET

Request:

```
GET /redfish/v1/EventService/Subscriptions
Content-Type: application/json
```

Response:

```
{
    „@odata.context”:
„/redfish/v1/$metadata#EventService/Members/Events/$entity”,
    „@odata.type”: „#EventDestinationCollection.EventDestinationCollection”,
    „Name”: „Event Subscriptions Collection”,
    „Members@odata.count”: 1,
```

```
    „Members”: [
        {
            „@odata.id”: „/redfish/v1/EventService/Subscriptions/1”
        }
    ]
}
```

4.38.2.2 PUT

Operation is not allowed on this resource.

4.38.2.3 PATCH

Operation is not allowed on this resource.

4.38.2.4 POST

Note: OriginResources is supported only by PODM.

Request:

```
POST /redfish/v1/EventService/Subscriptions
Content-Type: application/json
{
       "Name": "EventSubscription 2",
       "Destination": "http://10.0.0.1/Destination1",
       "EventTypes": [
               "ResourceAdded",
               "ResourceRemoved"
       ],
       "Context": "HotSwap events",
       "Protocol": "Redfish",
       "OriginResources": [{
               "@odata.id": "/redfish/v1/Systems/1"
       }]
}
```

Response:

```
HTTP/1.1 201 Created
Location: http://<IP>:<PORT/redfish/v1/EventService/Subscriptions/2
```

4.38.2.5 DELETE

Operation is not allowed on this resource.

4.39 Event subscription

Event subscription contains information about the type of events user subscribed for and should be sent.

Table 27 Event subscription attributes

Name		Event subscription	
Type URI		/redfish/v1/EventService/Subscriptions/{destinationID}	
Attribute	**Type**	**Required**	**Description**
Id	String	Yes	Resource identifier
Name	String	No	Resource name
Description	String	No	Resource description
Oem	Object	No	OEM defined object

Name		Event subscription	
Type URI		/redfish/v1/EventService/Subscriptions/{destinationID}	
Attribute	**Type**	**Required**	**Description**
Destination	String	Yes	The URI of the destination Event Service.
EventTypes	Array	Yes	These are the types of Events that can be subscribed to. Available event types: - *StatusChange* - The status of this resource has changed - *ResourceUpdated* – The value of this resource has been updated. - *ResourceAdded* – A resource has been added - *ResourceRemoved* – A resource has been removed - *Alert* – A condition exists which requires attention.
Context	String	Yes	A client-supplied string that is stored with the event destination subscription.
Protocol	String (enum)	Yes	The protocol type of the event connection. Available protocols: - "Redfish" - event type shall adhere to that defined in the Redfish specification.
OriginResources	Array	No	A list of resources for which the service will send events specified in EventTypes array. Empty array or NULL is interpreted as subscription for all resources and assets in subsystem. **Not exposed by PSME ver. 2.1.3**
MessageIds	Array	No	A list of MessageIds that the service will send. **Not exposed by PSME ver. 2.1.3**

4.39.1 Metadata

Detailed info about this resource's properties can be obtained from metadata file: *EventDestination.xml*

4.39.2 Operations

4.39.2.1 GET

Request:

```
GET /redfish/v1/EventService/Subscriptions/1
Content-Type: application/json
```

Response:

```
{
    „@odata.context”:
„/redfish/v1/$metadata#EventService/Members/Subscriptions/Members/$entity”,
    „@odata.id”: „/redfish/v1/EventService/Subscriptions/1”,
    „@odata.type”: „#EventService.v1_1_0.EventDestination”,
    „Id”: „1”,
    „Name”: „EventSubscription 1”,
    „Description”: „EventSubscription”,
    „Destination”: „http://192.168.1.1/Destination1”,
    „EventTypes”: [
        „ResourceAdded”,
        „ResourceRemoved”
    ],
    „Context”: „My Event”,
    „Protocol”: „Redfish”
}
```

4.39.2.2 PUT

Operation is not allowed on this resource.

4.39.2.3 PATCH

Operation is not allowed on this resource.

4.39.2.4 POST

Operation is not allowed on this resource.

4.39.2.5 DELETE

Request:

```
DELETE /redfish/v1/EventService/Subscriptions/1
```

Response:

```
HTTP/1.1 204 No Content
```

4.40 Event array

The definition of the Event array that is POSTed by the Event Service to active subscribers. It represents the properties for the events themselves and not subscriptions or any other resource. Each event in this array has a set of properties that describe the event. Since this is an array, more than one event can be sent simultaneously.

Table 28 Event array attributes

Name		Event array	
Type URI		n/a	
Attribute	**Type**	**Required**	**Description**
Id	String	Yes	Resource identifier
Name	String	No	Resource name
Description	String	No	Resource description
Oem	Object	No	OEM defined object
Events	Array	Yes	Array of events – see Table 29.

Table 29 Event attributes

Attribute	**Type**	**Required**	**Description**
EventType	String (enum)	Yes	These are the types of Events that can be subscribed to. Available event types: - *StatusChange* - The status of this resource has changed - *ResourceUpdated* – The value of this resource has been updated. - *ResourceAdded* – A resource has been added - *ResourceRemoved* – A resource has been removed - *Alert* – A condition exists which requires attention.
EventId	String	No	This is a unique instance identifier of an event.
EventTimestamp	String	No	This is the time the event occurred.
Severity	String	No	This is the severity of the event.
Message	String	No	This is the human readable message, if provided.
MessageId	String	Yes	This is the key for this message which can be used to look up the message in a message registry.
MessageArgs	Array of strings	No	This array of message arguments is substituted for the arguments in the message when looked up in the message registry.
Context	String	Yes	A context can be supplied at subscription time. This property is the context value supplied by the subscriber.
OriginOfCondition	Object	Yes	This indicates the resource that originated the condition that caused the event to be generated.

4.40.1 Metadata

Detailed info about this resource's properties can be obtained from metadata file: *Event.xml*

4.40.2 Operations

4.40.2.1 POST

Request:

```
POST http://192.168.1.1/Destination1
Content-Type: application/json
{
    „@odata.context”: „/redfish/v1/$metadata#EventService/Members/Events/1”,
    „@odata.id”: „/redfish/v1/EventService/Events/1”,
    „@odata.type”: „#EventService.v1_0_0.Event”,
    „Id”: „1”,
    „Name”: „Event Array”,
    „Description”: „Events”,
    „Events”: [
        {
            „EventType”: „ResourceRemoved”,
            „EventId”: „ABC132489713478812346”,
            „Severity”: „Ok”,
            „EventTimestamp”: „2015-02-23T14:44:44+00:00”,
            „Message”: „The Blade was removed”,
            „MessageId”: „Base.1.0.Success”,
            „MessageArgs”: [
            ],
            „OriginOfCondition”: {
                „@odata.id”: „/redfish/v1/Systems/System1”
            },
            „Context”: „HotSwap event”
        }
    ]
}
```

Response:

```
HTTP/1.1 204 No Content
```

4.40.2.2 PUT

Operation is not allowed on this resource.

4.40.2.3 PATCH

Operation is not allowed on this resource.

4.40.2.4 GET

Operation is not allowed on this resource.

4.40.2.5 DELETE

Operation is not allowed on this resource.

4.41 Fabric collection

Properties' details available in *FabricCollection.xml* metadata file.

4.41.1 Operations

4.41.1.1 GET

Request:

```
GET /redfish/v1/Fabrics
Content-Type: application/json
```

Response:

```
{
       "@odata.context":
"/redfish/v1/$metadata#FabricCollection.FabricCollection",
       "@odata.id": "/redfish/v1/Fabrics",
       "@odata.type": "#FabricCollection.FabricCollection",
       "Name": "Fabric Collection",
       "Description": " Fabric Collection",
       "Members@odata.count": 1,
       "Members": [{
                "@odata.id": "/redfish/v1/Fabrics/PCIe"
       }]
}
```

4.41.1.2 PUT

Operation is not allowed on this resource.

4.41.1.3 PATCH

Operation is not allowed on this resource.

4.41.1.4 POST

Operation is not allowed on this resource.

4.41.1.5 DELETE

Operation is not allowed on this resource.

4.42 Fabric

Properties' details available in *Fabric.xml* metadata file.

4.42.1 Operations

4.42.1.1 GET

Request:

```
GET /redfish/v1/Fabrics/PCIe
Content-Type: applicaton/json
```

Response:

```
{
    "@odata.context": "/redfish/v1/$metadata#Fabric.Fabric",
    "@odata.id": "/redfish/v1/Fabrics/PCIe",
    "@odata.type": "#Fabric.v1_0_0.Fabric",
    "Id": "PCIe",
    "Name": "PCIe Fabric",
```

```
    "FabricType": "PCIe",
    "Description": "PCIe Fabric",
    "MaxZones": null,
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Zones": {
        "@odata.id": "/redfish/v1/Fabrics/PCIe/Zones"
    },
    "Endpoints": {
        "@odata.id": "/redfish/v1/Fabrics/PCIe/Endpoints"
    },
    "Switches": {
        "@odata.id": "/redfish/v1/Fabrics/PCIe/Switches"
    },
    "Links": {
        "Oem": {}
    },
    "Actions": {
        "Oem": {}
    },
    "Oem": {}
}
```

4.42.1.2 PUT

Operation is not allowed on this resource.

4.42.1.3 PATCH

Operation is not allowed on this resource.

4.42.1.4 POST

Operation is not allowed on this resource.

4.42.1.5 DELETE

Operation is not allowed on this resource.

4.43 Switch collection

Properties' details available in *SwitchCollection.xml* metadata file.

4.43.1 Operations

4.43.1.1 GET

Request:

```
GET /redfish/v1/Fabrics/PCIe/Switches
Content-Type: application/json
```

Response:

```
{
    "@odata.context":
"/redfish/v1/$metadata#SwitchCollection.SwitchCollection",
```

```
    "@odata.id": "/redfish/v1/Fabrics/PCIe/Switches",
    "@odata.type": "#SwitchCollection.SwitchCollection",
    "Name": "Switch Collection",
    "Members@odata.count": 1,
    "Members": [
        {
            "@odata.id": "/redfish/v1/Fabrics/PCIe/Switches/1"
        }
    ]
}
```

4.43.1.2 PUT

Operation is not allowed on this resource.

4.43.1.3 PATCH

Operation is not allowed on this resource.

4.43.1.4 POST

Operation is not allowed on this resource.

4.43.1.5 DELETE

Operation is not allowed on this resource.

4.44 Switch

Properties' details available in *Switch.xml* metadata file.

4.44.1 Operations

4.44.1.1 GET

Request:

```
GET /redfish/v1/Fabrics/PCIe/Switches/1
Content-Type: applicaton/json
```

Response:

```
{
    "@odata.context": "/redfish/v1/$metadata#Switch.Switch",
    "@odata.id": "/redfish/v1/Fabrics/PCIe/Switches/1",
    "@odata.type": "#Switch.v1_0_0.Switch",
    "Id": "1",
    "Name": "PCIe Switch",
    "Description": "PCIe Switch",
    "SwitchType": "PCIe",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollUp": "OK"
    },
    "Manufacturer": "Manufacturer Name",
    "Model": "Model Name",
    "SKU": "SKU",
    "SerialNumber": "1234567890",
```

```
    "PartNumber": "997",
    "AssetTag": "Customer Asset Tag",
    "DomainID": 1,
    "IsManaged": true,
    "TotalSwitchWidth": 97,
    "IndicatorLED": null,
    "PowerState": "On",
    "Ports": {
       "@odata.id": "/redfish/v1/Fabrics/PCIe/Switches/1/Ports"
    },
    "Redundancy": [],
    "Links": {
       "Chassis": [
                {"@odata.id": "/redfish/v1/Chassis/PCIeSwitch1"}
       ],
       "ManagedBy": [],
       "Oem": {}
    },
    "Actions": {
       "#Switch.Reset": {
                "target":
"/redfish/v1/Fabrics/PCIe/Switches/1/Actions/Switch.Reset",
                "ResetType@Redfish.AllowableValues": [
                      "GracefulRestart"
                ]
       },
       "Oem": {}
    },
    "Oem": {}
}
```


4.44.1.2 PUT

Operation is not allowed on this resource.

4.44.1.3 PATCH

Operation is not allowed on this resource.

4.44.1.4 POST

To trigger switch action, a POST request should be sent:

Request:

```
POST /redfish/v1/Fabrics/PCIe/Switches/1/Actions/Switch.Reset
Content-Type: application/json
{
       "ResetType": "GracefulRestart"
}
```

Response:

```
HTTP/1.1 204 No Content
```

4.44.1.5 DELETE

Operation is not allowed on this resource.

4.45 Port Collection

Properties' details available in *PortCollection.xml* metadata file.

4.45.1 Operations

4.45.1.1 GET

Request:

```
GET "/redfish/v1/Fabrics/PCIe/Switches/1/Ports
Content-Type: application/json
```

Response:

```
{
       "@odata.context":
"/redfish/v1/$metadata#PortCollection.PortCollection",
       "@odata.id": "/redfish/v1/Fabrics/PCIe/Switches/1/Ports",
       "@odata.type": "#PortCollection.PortCollection",
       "Name": "PCIe Port Collection",
       "Description": "PCIe Port Collection",
       "Members@odata.count": 4,
       "Members": [
        {"@odata.id": "/redfish/v1/Fabrics/PCIe/Switches/1/Ports/Up1"},
        {"@odata.id": "/redfish/v1/Fabrics/PCIe/Switches/1/Ports/Up2"},
        {"@odata.id": "/redfish/v1/Fabrics/PCIe/Switches/1/Ports/Down1"},
        {"@odata.id": "/redfish/v1/Fabrics/PCIe/Switches/1/Ports/Down2"},
    ]
}
```

4.45.1.2 PUT

Operation is not allowed on this resource.

4.45.1.3 PATCH

Operation is not allowed on this resource.

4.45.1.4 POST

Operation is not allowed on this resource.

4.45.1.5 DELETE

Operation is not allowed on this resource.

4.46 Port

Properties' details available in *Port.xml* metadata file.

4.46.1 Operations

4.46.1.1 GET

Request:

```
GET /redfish/v1/Fabrics/PCIe/Switches/1/Ports/Up1
Content-Type: applicaton/json
```

Response:

```
{
  "@odata.context": "/redfish/v1/$metadata#Port.Port",
  "@odata.id": "/redfish/v1/Fabrics/PCIe/Switches/1/Ports/Up1",
  "@odata.type": "#Port.v1_0_0.Port",
  "Id": "Up1",
  "Name": "PCIe Upstream Port 1",
  "Description": "PCIe Upstream Port 1",
  "Status": {
    "State": "Enabled",
    "Health": "OK"
  },
  "PortId": "1",
  "PortProtocol": "PCIe",
  "PortType": "UpstreamPort",
  "CurrentSpeedGbps": 32,
  "Width": 4,
  "MaxSpeedGbps": 64,
  "Actions": {
    "#Port.Reset": {
      "target":
"/redfish/v1/Fabrics/PCIe/Switches/1/Ports/Up1/Actions/PCIePort.Reset",
      "ResetType@Redfish.AllowableValues": [
        "ForceOff",
        "ForceRestart",
        "ForceOn"
      ]
    },
    "Oem": {}
  },
  "Links": {
    "AssociatedEndpoints": [
      {
        "@odata.id": "/redfish/v1/Fabrics/PCIe/Endpoints/HostRootComplex1"
      }
    ],
    "ConnectedSwitches": [],
    "ConnectedSwitchPorts": []
  },
  "Oem": {
    "Intel_RackScale": {
      "@odata.type": "#Intel.Oem.Port",
      "PCIeConnectionId": [
        "XYZ1234567890"
      ]
    }
  }
}
```


4.46.1.2 PUT

Operation is not allowed on this resource.

4.46.1.3 PATCH

Operation is not allowed on this resource.

4.46.1.4 POST

To trigger switch port action, a POST request should be sent:

Request:

```
POST /redfish/v1/Fabrics/PCIe/Switches/1/Ports/Up1/Actions/PCIePort.Reset
Content-Type: application/json
{
       "ResetType": "ForceRestart"
}
```

Response:

```
HTTP/1.1 204 No Content
```

4.46.1.5 DELETE

Operation is not allowed on this resource.

4.47 Zones collection

Properties' details available in *ZoneCollection.xml* metadata file.

4.47.1 Operations

4.47.1.1 GET

Request:

```
GET /redfish/v1/Fabrics/PCIe/Zones
Content-Type: application/json
```

Response:

```
{
    "@odata.context": "/redfish/v1/$metadata#ZoneCollection.ZoneCollection",
    "@odata.id": "/redfish/v1/Fabrics/PCIe/Zones",
    "@odata.type": "#ZoneCollection.ZoneCollection",
    "Name": "PCIe Zone Collection",
    "Description": "PCIe Zone Collection",
    "Members@odata.count": 2,
    "Members": [
        {
            "@odata.id": "/redfish/v1/Fabrics/PCIe/Zones/1"
        },
        {
            "@odata.id": "/redfish/v1/Fabrics/PCIe/Zones/2"
        }
    ]
}
```

4.47.1.2 PUT

Operation is not allowed on this resource.

4.47.1.3 PATCH

Operation is not allowed on this resource.

4.47.1.4 POST

To create a new Fabric zone, an initial zone structure should be POSTed.

In the current PSME implementation, the PCIe Fabric switch is preconfigured with a maximum number of zones. The user cannot create additional zones.

Request:

```
POST /redfish/v1/Fabrics/PCIe/Zones
Content-Type: application/json
{
       "Name": "PCIe Zone 3",
       "Description": "PCIe Zone 3",
       "Links": {
          "Endpoints": [
            {"@odata.id":
"/redfish/v1/Fabrics/PCIe/Endpoints/HostRootComplex1"},
            {"@odata.id": "/redfish/v1/Fabrics/PCIe/Endpoints/NVMeDrivePF1"}
         ],
          "InvolvedSwitches": [
            {"@odata.id": "/redfish/v1/Fabrics/PCIe/Switches/1"}
          ]
       }
}
```

Response:

```
HTTP/1.1 201 Created
Location: http://<IP>:<PORT>/redfish/v1/Fabrics/PCIe/Zones/3
```

4.47.1.5 DELETE

Operation is not allowed on this resource.

4.48 Zone

Properties' details available in *Zone.xml* metadata file.

4.48.1 Operations

4.48.1.1 GET

Request:

```
GET /redfish/v1/Fabrics/PCIe/Zones/1
Content-Type: applicaton/json
```

Response:

```
{
       "@odata.context": "/redfish/v1/$metadata#Zone.Zone",
       "@odata.id": "/redfish/v1/Fabrics/PCIe/Zones/1",
       "@odata.type": "#Zone.v1_0_0.Zone",
       "Id": "1",
       "Name": "PCIe Zone 1",
       "Description": "PCIe Zone 1",
       "Status": {
```

```
                "State": "Enabled",
                "Health": "OK"
        },
        "Links": {
                "Endpoints": [
            {"@odata.id":
"/redfish/v1/Fabrics/PCIe/Endpoints/HostRootComplex1"},
            {"@odata.id": "/redfish/v1/Fabrics/PCIe/Endpoints/NVMeDrivePF1"},
                        {"@odata.id":
"/redfish/v1/Fabrics/PCIe/Endpoints/NVMeDrivePF2"}
         ],
          "InvolvedSwitches": [
            {"@odata.id": "/redfish/v1/Fabrics/PCIe/Switches/1"}
          ]
        },
        "Oem": {}
}
```

4.48.1.2 PUT

Operation is not allowed on this resource.

4.48.1.3 PATCH

The PATCH method can be used to add or remove Endpoints from a Zone. The service requires to always provide a full representation of Endpoints array. We require to always provide a complete array of endpoints. A partial update (single element update/append/detele) is not supported.

The following properties can be updated by the PATCH operation:

Attribute	Type	Required	Description
Endpoints	Array	No	An array of references to the endpoints that are contained in this zone.

```
PATCH /redfish/v1/Fabrics/PCIe/Zones/1
Content-Type: application/json
{
  "Endpoints": [
    {"@odata.id": "/redfish/v1/Fabrics/PCIe/Endpoints/HostRootComplex1"},
    {"@odata.id": "/redfish/v1/Fabrics/PCIe/Endpoints/NVMeDrivePF2"}
  ]
}
```

Response:

```
HTTP/1.1 204 No Content
```

Or:

```
HTTP/1.1 200 OK
{
(updated resource body)
}
```

Or:

```
HTTP/1.1 202 Accepted
Location: http://<ip:port>/redfish/v1/TaskService/Tasks/1/TaskMonitor
{
    "@odata.context": "/redfish/v1/$metadata#Task.Task",
```

```
    "@odata.id": "/redfish/v1/TaskService/Tasks/1",
    "@odata.type": "#Task.v1_0_0.Task",
    "Id": "1",
    "Name": "Task 1",
    "TaskState": "New",
    "StartTime": "2016-09-01T04:45+01:00",
    "TaskStatus": "OK",
    "Messages": [
    ]
}
```

4.48.1.4 POST

Operation is not allowed on this resource.

4.48.1.5 DELETE

In the current PSME implementation, the PCIe fabric switch is preconfigured with a maximum number of zones. The user cannot delete an existing zone.

Request:

```
DELETE /redfish/v1/Fabrics/PCIe/Zones/1
```

Response:

```
HTTP/1.1 204 No Content
```

4.49 Endpoint collection

Properties' details available in *EndpointCollection.xml* metadata file.

4.49.1 Operations

4.49.1.1 GET

Request:

```
GET /redfish/v1/Fabrics/PCIe/Endpoints
Content-Type: application/json
```

Response:

```
{
{
    "@odata.context":
"/redfish/v1/$metadata#EndpointCollection.EndpointCollection",
    "@odata.id": "/redfish/v1/Fabrics/PCIe/Endpoints",
    "@odata.type": "#EndpointCollection.EndpointCollection",
    "Name": "PCIe Endpoint Collection",
    "Members@odata.count": 3,
    "Members": [
        {
            "@odata.id": "/redfish/v1/Fabrics/PCIe/Endpoints/NVMeDrivePF1"
        },
        {
            "@odata.id": "/redfish/v1/Fabrics/PCIe/Endpoints/NVMeDrivePF2"
```

```
        },
        {
            "@odata.id":
"/redfish/v1/Fabrics/PCIe/Endpoints/HostRootComplex1"
        }
    ]
}
}
```

4.49.1.2 PUT

Operation is not allowed on this resource.

4.49.1.3 PATCH

Operation is not allowed on this resource.

4.49.1.4 POST

In Rack Scale Design 2.1, Endpoints are created automatically for every detected NVMe drive connected to a PNC switch. Implementation of this action is not required.

Request:

```
POST /redfish/v1/Fabrics/PCIe/Endpoints
Content-Type: application/json
{
  "Name": "NVMe Drive",
  "Description": "The PCIe Physical function of an 850GB NVMe drive",
  "EndpointProtocol": "PCIe",
  "Identifiers": [
    {
      "DurableNameFormat": "UUID",
      "DurableName": "00000000-0000-0000-0000-000000000000"
    }
  ],
  "ConnectedEntities": [
    {
      "EntityType": "Drive",
      "EntityRole": "Target",
      "EntityLink": {
        "@odata.id": "/redfish/v1/Chassis/PCIeSwitch1/Drives/Disk.Bay.0"
      },
      "Identifiers": [
        {
          "DurableNameFormat": "UUID",
          "DurableName": "00000000-0000-0000-0000-000000000000"
        }
      ]
    }
  ]
}
```

Response:

```
HTTP/1.1 201 Created
Location: http://<IP>:<PORT>/redfish/v1/Fabrics/PCIe/Endpoints/3
```

4.49.1.5 DELETE

Operation is not allowed on this resource.

4.50 Endpoint

Properties' details available in *Endpoint.xml* metadata file.

Additional notes:

EntityLink property may not present or may be *null* on PSME. This property may be filled by PODM if all resources are available.

4.50.1 Operations

4.50.1.1 GET

Request:

```
GET /redfish/v1/Fabrics/PCIe/Endpoints/NVMeDrivePF1
Content-Type: applicaton/json
```

Response:

```
{
  "@odata.context": "/redfish/v1/$metadata#Endpoint.Endpoint",
  "@odata.id": "/redfish/v1/Fabrics/PCIe/Endpoints/NVMeDrivePF1",
  "@odata.type": "#Endpoint.v1_0_0.Endpoint",
  "Id": "NVMeDrivePF1",
  "Name": "NVMe Drive",
  "Description": "The PCIe Physical function of an 850GB NVMe drive",
  "Status": {
      "State": "Enabled",
      "Health": "OK",
      "HealthRollUp": "OK"
  },
  "EndpointProtocol": "PCIe",
  "Identifiers": [
    {
      "DurableNameFormat": "UUID",
      "DurableName": "00000000-0000-0000-0000-000000000000"
    }
  ],
  "ConnectedEntities": [
    {
      "EntityType": "Drive",
      "EntityRole": "Target",
      "EntityLink": {
        "@odata.id": "/redfish/v1/Chassis/PCIeSwitch1/Drives/Disk.Bay.0"
      },
      "Identifiers": [
        {
          "DurableNameFormat": "UUID",
          "DurableName": "00000000-0000-0000-0000-000000000000"
        }
      ],
      "Oem": {}
    }
```

```
  ],
  "Redundancy": [],
  "HostReservationMemoryBytes": null,
  "Links": {
    "Ports": [
      {
        "@odata.id": "/redfish/v1/Fabrics/PCIe/Switches/1/Ports/Down1"
      }
    ]
  },
  "Oem": {},
  "Actions": {
    "Oem": {}
  }
}
```

4.50.1.2 PUT

Operation is not allowed on this resource.

4.50.1.3 PATCH

Operation is not allowed on this resource.

4.50.1.4 POST

Operation is not allowed on this resource.

4.50.1.5 DELETE

Operation is not allowed on this resource.

4.51 PCIe Device

Properties' details available in *PCIeDevice.xml* metadata file. This resource is required for Pooled Node Controller (PNC) service.

Note: The Chassis property in the Links section in Rack Scale Design implementation shall point to a single Chassis (array contains only one element).

4.51.1 Operations

4.51.1.1 GET

Request:

```
GET /redfish/v1/Chassis/1/PCIeDevices/Device1
Content-Type: applicaton/json
```

Response:

```
{
       "@odata.context": "/redfish/v1/$metadata#PCIeDevice.PCIeDevice",
       "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/Device1",
       "@odata.type": "#PCIeDevice.v1_0_0.PCIeDevice",
       "Id": " Device1",
       "Name": "NVMe SSD Drive",
       "Description": "Simple NVMe Drive",
       "AssetTag": "free form asset tag",
       "Manufacturer": "Intel",
```

```
        "Model": "Model Name",
        "SKU": "",
        "SerialNumber": "SN123456",
        "PartNumber": "",
        "DeviceType": "SingleFunction",
        "FirmwareVersion": "XYZ1234",
        "Status": {
                "State": "Enabled",
                "Health": "OK",
                "HealthRollUp": "OK"
        },
        "Links": {
                "Chassis": [{
                      "@odata.id": "/redfish/v1/Chassis/1"
                }],
         "PCIeFunctions": [
             {"@odata.id":
"/redfish/v1/Chassis/1/PCIeDevices/Device1/Functions/1"}
         ],
                "Oem": {}
        },
        "Oem": {}
}
```

4.51.1.2 PUT

Operation is not allowed on this resource.

4.51.1.3 PATCH

The following properties can be updated by the PATCH operation:

Attribute	Type	Required	Description
AssetTag	String	No	The user assigned asset tag for this storage PCIe device.

```
PATCH /redfish/v1/Chassis/1/PCIeDevices/Device1
Content-Type: application/json
{
    "AssetTag": "NVMe drive #1"
}
```

Response:

```
HTTP/1.1 204 No Content
```

Or:

```
HTTP/1.1 200 OK
{
(updated resource body)
}
```

4.51.1.4 POST

Operation is not allowed on this resource.

4.51.1.5 DELETE

Operation is not allowed on this resource.

4.52 PCIe Device Function

Properties' details available in *PCIeFunction.xml* metadata file. This resource is required for Pooled Node Controller (PNC) service.

4.52.1 Operations

4.52.1.1 GET

Request:

```
GET /redfish/v1/Chassis/1/PCIeDevices/Device1/Functions/1
Content-Type: applicaton/json
```

Response:

```
{
{
    "@odata.context": "/redfish/v1/$metadata#PCIeFunction.PCIeFunction",
    "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/Device1/Functions/1",
    "@odata.type": "#PCIeFunction.v1_0_0.PCIeFunction",
    "Id": "1",
    "Name": "SSD",
    "Description": "SSD Drive",
    "FunctionId": 1,
    "FunctionType": "Physical",
    "DeviceClass": "MassStorageController",
    "DeviceId": "0xABCD",
    "VendorId": "0x8086",
    "ClassCode": "0x10802",
    "RevisionId": "0x00",
    "SubsystemId": "0xABCD",
    "SubsystemVendorId": "0xABCD",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollUp": "OK"
    },
    "Links": {
        "Drives": [
            {"@odata.id":
"/redfish/v1/Chassis/PCIeSwitch1/Drives/Disk.Bay.1"}
        ],
        "PCIeDevice": {
            "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/Device1"
        }
    },
    "Oem": {}
}}
```

4.52.1.2 PUT

Operation is not allowed on this resource.

4.52.1.3 PATCH

Operation is not allowed on this resource.

4.52.1.4 POST

Operation is not allowed on this resource.

4.52.1.5 DELETE

Operation is not allowed on this resource.

4.53 Task Service

This resource represents a task service that contains all actual tasks created by the service. This resource is required to be supported by services supporting asynchronous operations (see Section 4.2).

Properties' details are available in *TaskService.xml* metadata file.

4.53.1 Operations

4.53.1.1 GET

Request:

```
GET /redfish/v1/TaskService
Content-Type: applicaton/json
```

Response:

```
{
    "@odata.context": "/redfish/v1/$metadata/TaskService.TaskService",
    "@odata.id": "/redfish/v1/TaskService",
    "@odata.type": "#TaskService.v1_0_0.TaskService",
    "Id": "TaskService",
    "Name": "Tasks Service",
    "DateTime": "2015-03-13T04:14:33+06:00",
    "CompletedTaskOverWritePolicy": "Manual",
    "LifeCycleEventOnTaskStateChange": true,
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "ServiceEnabled": true,
    "Tasks": {
        "@odata.id": "/redfish/v1/TaskService/Tasks"
    },
    "Oem": {}
}
```

4.53.1.2 PUT

Operation is not allowed on this resource.

4.53.1.3 PATCH

Operation is not allowed on this resource.

4.53.1.4 POST

Operation is not allowed on this resource.

4.53.1.5 DELETE

Operation is not allowed on this resource.

4.54 Task Collection

This resource represents a collection of resources of the Task type.

Properties' details available in *TaskCollection.xml* metadata file.

4.54.1 Operations

4.54.1.1 GET

Request:

```
GET /redfish/v1/TaskService/Tasks
Content-Type: applicaton/json
```

Response:

```
{
    "@odata.context": "/redfish/v1/$metadata#TaskCollection.TaskCollection",
    "@odata.type": "#TaskCollection.TaskCollection",
    "Name": "Task Collection",
    "Members@odata.count": 1,
    "Members": [
        {
            "@odata.id": "/redfish/v1/TaskService/Tasks/1"
        }
    ]
}
```

4.54.1.2 PUT

Operation is not allowed on this resource.

4.54.1.3 PATCH

Operation is not allowed on this resource.

4.54.1.4 POST

Operation is not allowed on this resource.

4.54.1.5 DELETE

Operation is not allowed on this resource.

4.55 Task

This resource contains information about a specific Task scheduled by, or being executed by, a Redfish service's Task Service.

Properties' details available in *Task.xml* metadata file.

4.55.1 Operations

4.55.1.1 GET

Request:

```
GET /redfish/v1/TaskService/Tasks/1
Content-Type: applicaton/json
```

Response:

```
{
    "@odata.context": "/redfish/v1/$metadata#Task.Task",
    "@odata.id": "/redfish/v1/TaskService/Tasks/1",
    "@odata.type": "#Task.v1_0_0.Task",
    "Id": "1",
    "Name": "Task 1",
    "Description": "Task 1",
    "TaskState": "Completed",
    "StartTime": "2016-08-18T12:00+01:00",
    "EndTime": "2016-08-18T13:13+01:00",
    "TaskStatus": "OK",
    "Messages" : [
        {
            "MessageId": "Base.1.0.Created",
            "RelatedProperties": [
            ],
            "Message": "The resource has been created successfully",
            "MessageArgs": [
            ],
            "Severity": "OK"
        }
    ]
}
```

4.55.1.2 PUT

Operation is not allowed on this resource.

4.55.1.3 PATCH

Operation is not allowed on this resource.

4.55.1.4 POST

Operation is not allowed on this resource.

4.55.1.5 DELETE

Request:

```
DELETE /redfish/v1/TaskService/Tasks/1
```

Response:

```
HTTP/1.1 204 No Content
```

4.56 Registries (MessageRegistryFileCollection)

This resource represents a collection of Schema File locator resources.

Properties' details available in *MessageRegistryFileCollection.xml* metadata file.

4.56.1 Operations

4.56.1.1 GET

Request:

```
GET /redfish/v1/Registries
Content-Type: applicaton/json
```

Response:

```
{
    "@odata.context":
"/redfish/v1/$metadata#MessageRegistryFileCollection.MessageRegistryFileColle
ction",
    "@odata.id": "/redfish/v1/Registries",
    "@odata.type":
"#MessageRegistryFileCollection.MessageRegistryFileCollection",
    "Name": "Registry File Collection",
    "Description": "Registry Repository",
    "Members@odata.count": 1,
    "Members": [
        {
            "@odata.id": "/redfish/v1/Registries/Base"
        }
    ]
}
```

4.56.1.2 PUT

Operation is not allowed on this resource.

4.56.1.3 PATCH

Operation is not allowed on this resource.

4.56.1.4 POST

Operation is not allowed on this resource.

4.56.1.5 DELETE

Operation is not allowed on this resource.

4.57 Message Registry File

This resource shall be used to represent the Schema File locator resource for a Redfish implementation.

Properties' details available in *MessageRegistryFile.xml* metadata file.

The Base message registry file is defined by Redfish at the following address:
https://www.dmtf.org/sites/default/files/standards/documents/DSP8011_1.0.0a.json

4.57.1 Operations

4.57.1.1 GET

Request:

```
GET /redfish/v1/Registries/Base
Content-Type: applicaton/json
```

Response:

```
{
    "@odata.context": "/redfish/v1/$metadata#Registries/Members/$entity",
    "@odata.id": "/redfish/v1/Registries/Base",
    "@odata.type": "#MessageRegistryFile.v1_0_0.MessageRegistryFile",
    "Id": "Base",
    "Name": "Base Message Registry File",
    "Description": "Base Message Registry File locations",
    "Languages": [
        "en"
    ],
    "Registry": "Base.1.0",
    "Location": [
        {
            "Language": "en",
            "PublicationUri":
"https://www.dmtf.org/sites/default/files/standards/documents/DSP8011_1.0.0a.
json",
        }
    ],
    "Oem": {}
}
```

4.57.1.2 PUT

Operation is not allowed on this resource.

4.57.1.3 PATCH

Operation is not allowed on this resource.

4.57.1.4 POST

Operation is not allowed on this resource.

4.57.1.5 DELETE

Operation is not allowed on this resource.

4.58 Network Interface collection

Properties' details available in *NetworkInterfaceCollection.xml* metadata file.

4.58.1 Operations

4.58.1.1 GET

Request:

```
GET /redfish/v1/Systems/System1/NetworkInterfaces
Content-Type: application/json
```

Response:

```
{
{
    "@odata.context":
"/redfish/v1/$metadata#NetworkInterfaceCollection.NetworkInterfaceCollection"
,
```

```
    "@odata.id": "/redfish/v1/Systems/System1/NetworkInterfaces",
    "@odata.type": "# NetworkInterfaceCollection.NetworkInterfaceCollection",
    "Name": "Network Interface Collection",
    "Members@odata.count": 1,
    "Members": [
        {
            "@odata.id": "/redfish/v1/Systems/System1/NetworkInterfaces/1"
        }
    ]
}
}
```

4.58.1.2 PUT

Operation is not allowed on this resource.

4.58.1.3 PATCH

Operation is not allowed on this resource.

4.58.1.4 POST

Operation is not allowed on this resource.

4.58.1.5 DELETE

Operation is not allowed on this resource.

4.59 Network Interface

NetworkInterface contains references linking NetworkDeviceFunction resources and represents the network functionality available to the containing system.

Properties' details available in *NetworkInterface.xml* metadata file.

4.59.1 Operations

4.59.1.1 GET

Request:

```
GET /redfish/v1/Systems/System1/NetworkInterfaces/1
Content-Type: applicaton/json
```

Response:

```
{
  "@odata.context":
"/redfish/v1/$metadata#NetworkInterface.NetworkInterface",
  "@odata.id": "/redfish/v1/Systems/System1/NetworkInterfaces/1",
  "@odata.type": "# NetworkInterface.v1_0_0.NetworkInterface",
  "Id": "1",
  "Name": "Network Device View",
  "Description": "Network Device View",
  "Status": {
      "State": "Enabled",
      "Health": "OK",
      "HealthRollUp": "OK"
  },
  "NetworkDeviceFunctions": {
```

```
        "@odata.id":
"/redfish/v1/Systems/System1/NetworkInterfaces/1/NetworkDeviceFunctions"
  },
  "Links": {
  },
  "Oem": {}
}
```

4.59.1.2 PUT

Operation is not allowed on this resource.

4.59.1.3 PATCH

Operation is not allowed on this resource.

4.59.1.4 POST

Operation is not allowed on this resource.

4.59.1.5 DELETE

Operation is not allowed on this resource.

4.60 Network Device Function collection

Properties' details available in *NetworkDeviceFunctionCollection.xml* metadata file.

4.60.1 Operations

4.60.1.1 GET

Request:

```
GET /redfish/v1/Systems/System1/NetworkInterfaces/1/NetworkDeviceFunctions
Content-Type: application/json
```

Response:

```
{
{
    "@odata.context": "/redfish/v1/$metadata#NetworkDeviceFunctionCollection.
NetworkDeviceFunctionCollection",
    "@odata.id":
"/redfish/v1/Systems/System1/NetworkInterfaces/1/NetworkDeviceFunctions",
    "@odata.type": "#NetworkDeviceFunctionCollection.
NetworkDeviceFunctionCollection",
    "Name": "Network Device Function Collection",
    "Members@odata.count": 1,
    "Members": [
        {
            "@odata.id":
"/redfish/v1/Systems/System1/NetworkInterfaces/1/NetworkDeviceFunctions/1"
        }
    ]
}
}
```

4.60.1.2 PUT

Operation is not allowed on this resource.

4.60.1.3 PATCH

Operation is not allowed on this resource.

4.60.1.4 POST

Operation is not allowed on this resource.

4.60.1.5 DELETE

Operation is not allowed on this resource.

4.61 Network Device Function

Network Device Function represents a logical interface exposed by the network adapter.

Properties' details available in *NetworkDeviceFunction.xml* metadata file.

4.61.1 Operations

4.61.1.1 GET

Note: Because of confidential nature of CHAP secret fields, it won't be shown in GET request, *null* will be shown instead.

Request:

```
GET /redfish/v1/Systems/System1/NetworkInterfaces/1/NetworkDeviceFunctions/1
Content-Type: applicaton/json
```

Response:

```
{
  "@odata.context":
"/redfish/v1/$metadata#NetworkDeviceFunction.NetworkDeviceFunction",
  "@odata.id":
"/redfish/v1/Systems/System1/NetworkInterfaces/1/NetworkDeviceFunctions/1",
  "@odata.type": "#NetworkDeviceFunction.v1_0_0.NetworkDeviceFunction",
  "Id": "1",
  "Name": "Network Device Fuction View",
  "Description": "Network Device Function View",
  "Status": {
      "State": "Enabled",
      "Health": "OK",
      "HealthRollUp": "OK"
  },
  "DeviceEnabled": true,
  "Ethernet": {
      "MACAddress": "00:0C:29:9A:98:ED"
  },
  "iSCSIBoot": {
      "IPAddressType": "IPv4",
      "InitiatorIPAddress": "10.0.10.10",
      "InitiatorName": "iqn.2017-03.com.intel:workload-server",
      "InitiatorDefaultGateway": "10.0.10.1",
      "InitiatorNetmask": "255.255.255.0",
```

```
      "TargetInfoViaDHCP": false,
      "PrimaryTargetName": "iqn.2017-03.com.intel:image-server",
      "PrimaryTargetIPAddress": "10.0.10.254",
      "PrimaryTargetTCPPort": 3260,
      "PrimaryLUN": 1,
      "PrimaryVLANEnable": true,
      "PrimaryVLANId": 4088,
      "PrimaryDNS": null,
      "SecondaryTargetName": null,
      "SecondaryTargetIPAddress": null,
      "SecondaryTargetTCPPort": null,
      "SecondaryLUN": null,
      "SecondaryVLANEnable": null,
      "SecondaryVLANId": null,
      "SecondaryDNS": null,
      "IPMaskDNSViaDHCP": false,
      "RouterAdvertisementEnabled": false,
      "AuthenticationMethod": "CHAP",
      "CHAPUsername": "user",
      "CHAPSecret": null,
      "MutualCHAPUsername": "mutualuser",
      "MutualCHAPSecret": null
  },
  "Links": {
  },
  "Oem": {}
}
```


4.61.1.2 PUT

Operation is not allowed on this resource.

4.61.1.3 PATCH

The PATCH method should be used to enable iSCSI boot of compute node. After patching this resource, one needs to set BootOverrideTarget to *RemoteDrive* and submit PATCH to ComputerSystem.Reset action.

The following properties can be updated by the PATCH operation:

Attribute	Type	Required	Description
Ethernet	Object	No	Ethernet capabilities for this network device function. Details in table below.
iSCSIBoot	Object	No	iSCSI boot capabilities, status, and configuration values for this network device function. Details in table below.

Ethernet object properties:

Attribute	Type	Required	Description
MACAddress	String	No	MAC address of NIC to be used for iSCSI boot.

iSCSIBoot object properties:

Attribute	Type	Required	Description
IPAddressType	String (enum)	No	The type of IP address (IPv6 or IPv4) being populated in the iSCSIBoot IP address fields.
InitiatorIPAddress	String	No	Address of the iSCSI initiator.

InitiatorName	String	No	The iSCSI initiator name.
InitiatorDefaultGateway	String	No	The IPv6 or IPv4 iSCSI boot default gateway.
InitiatorNetmask	String	No	The IPv6 or IPv4 netmask of the iSCSI boot initiator.
TargetInfoViaDHCP	Boolean	No	Whether the iSCSI boot target name, LUN, IP address, and netmask should be obtained from DHCP.
PrimaryTargetName	String	No	The name of the iSCSI primary boot target.
PrimaryTargetIPAddress	String	No	The IP address (IPv6 or IPv4) for the primary iSCSI boot target.
PrimaryTargetTCPPort	Number	No	The TCP port for the primary iSCSI boot target.
PrimaryLUN	Number	No	The logical unit number (LUN) for the primary iSCSI boot target.
PrimaryVLANEnable	Boolean	No	This indicates if the primary VLAN is enabled.
PrimaryVLANId	Number	No	The 802.1q VLAN ID to use for iSCSI boot from the primary target.
PrimaryDNS	String	No	The IPv6 or IPv4 address of the primary DNS server for the iSCSI boot initiator.
SecondaryTargetName	String	No	The name of the iSCSI secondary boot target.
SecondaryTargetIPAddress	String	No	The IP address (IPv6 or IPv4) for the secondary iSCSI boot target.
SecondaryTargetTCPPort	Number	No	The TCP port for the secondary iSCSI boot target.
SecondaryLUN	Number	No	The logical unit number (LUN) for the secondary iSCSI boot target.
SecondaryVLANEnable	Boolean	No	This indicates if the secondary VLAN is enabled.
SecondaryVLANId	Number	No	The 802.1q VLAN ID to use for iSCSI boot from the secondary target.
SecondaryDNS	String	No	The IPv6 or IPv4 address of the secondary DNS server for the iSCSI boot initiator.
IPMaskDNSViaDHCP	Boolean	No	Whether the iSCSI boot initiator uses DHCP to obtain the iniator name, IP address, and netmask.
RouterAdvertisementEnabled	Boolean	No	Whether IPv6 router advertisement is enabled for the iSCSI boot target.
AuthenticationMethod	String (enum)	No	The iSCSI boot authentication method for this network device function. Supported values: “None” “CHAP” “MutualCHAP”
CHAPUsername	String	No	The username for CHAP authentication.
CHAPSecret	String	No	The shared secret for CHAP authentication.
MutualCHAPUsername	String	No	The CHAP Username for 2-way CHAP authentication.
MutualCHAPSecret	String	No	The CHAP Secret for 2-way CHAP authentication.

```
PATCH
/redfish/v1/Systems/System1/NetworkInterfaces/1/NetworkDeviceFunctions/1
Content-Type: application/json
{
  "Ethernet": {
      "MACAddress": "00:0C:29:9A:98:ED"
  },
  "iSCSIBoot": {
      "IPAddressType": "IPv4",
```

```
      "InitiatorIPAddress": "10.0.10.10",
      "InitiatorName": "iqn.2017-03.com.intel:workload-server",
      "InitiatorDefaultGateway": "10.0.10.1",
      "InitiatorNetmask": "255.255.255.0",
      "TargetInfoViaDHCP": false,
      "PrimaryTargetName": "iqn.2017-03.com.intel:image-server",
      "PrimaryTargetIPAddress": "10.0.10.254",
      "PrimaryTargetTCPPort": 3260,
      "PrimaryLUN": 1,
      "PrimaryVLANEnable": true,
      "PrimaryVLANId": 4088,
      "PrimaryDNS": null,
      "SecondaryTargetName": null,
      "SecondaryTargetIPAddress": null,
      "SecondaryTargetTCPPort": null,
      "SecondaryLUN": null,
      "SecondaryVLANEnable": null,
      "SecondaryVLANId": null,
      "SecondaryDNS": null,
      "IPMaskDNSViaDHCP": false,
      "RouterAdvertisementEnabled": false,
      "AuthenticationMethod": "CHAP",
      "CHAPUsername": "user",
      "CHAPSecret": "userpassword",
      "MutualCHAPUsername": "mutualuser",
      "MutualCHAPSecret": "mutualpassword"
  }
}
```

Response:

```
HTTP/1.1 204 No Content
```

Or:

```
HTTP/1.1 200 OK
{
(updated resource body)
}
```

Or:

```
HTTP/1.1 202 Accepted
Location: http://<ip:port>/redfish/v1/TaskService/Tasks/1/TaskMonitor
{
    "@odata.context": "/redfish/v1/$metadata#Task.Task",
    "@odata.id": "/redfish/v1/TaskService/Tasks/1",
    "@odata.type": "#Task.v1_0_0.Task",
    "Id": "1",
    "Name": "Task 1",
    "TaskState": "New",
    "StartTime": "2016-09-01T04:45+01:00",
    "TaskStatus": "OK",
    "Messages": [
    ]
}
```

4.61.1.4 POST

Operation is not allowed on this resource.

4.61.1.5 DELETE

Operation is not allowed on this resource.

§

5 Common Property Description

5.1 Status

Attribute	Type	Nullable	Description
State	String	Yes	This indicates the known state of the resource, such as if it is enabled. Allowed values: See Section 5.2.
Health	String	Yes	This represents the health state of this resource in the absence of its dependent resources. Allowed values: See Section 5.3.
HealthRollup	String	Yes	This represents the overall health state from the view of this resource. Allowed values: See Section 5.3.

5.2 Status -> State

- Enabled: This function or resource has been enabled
- Disabled: This function or resource has been disabled
- StandbyOffline: This function or resource is enabled, but awaiting an external action to activate it
- StandbySpare: This function or resource is part of a redundancy set and is awaiting a failover or other external action to activate it.
- InTest: This function or resource is undergoing testing
- Starting: This function or resource is starting
- Absent: This function or resource is not installed
- UnavailableOffline: This function or resource is present but cannot be used
- Deferring: The element will not process any commands but will queue new requests.
- Quiesced: The element is enabled but only processes a restricted set of commands.
- Updating: The element is updating and may be unavailable or degraded.

5.3 Status -> Health

- OK: Normal
- Warning: A condition exists that requires attention
- Critical: A critical condition exists that requires immediate attention

5.4 ComputerSystem.Reset

- On: Turn the system on
- ForceOff: Turn the system off immediately (nongraceful) shutdown
- GracefulRestart: Perform a graceful system shutdown followed by a restart of the system
- ForceRestart: Perform an immediate (non-graceful) shutdown, followed by a restart of the system
- Nmi: Generate a nonmaskable interrupt to cause an immediate system halt
- ForceOn: Turn the system on immediately
- PushPowerButton: Simulate the pressing of the physical power button on this system
- GracefulShutdown: Perform a graceful system shutdown and power off

5.5 BootSourceOverrideTarget/Supported

- None: Boot from the normal boot device
- Pxe: Boot from the preboot execution (PXE) environment

- Floppy: Boot from the floppy disk drive
- Cd: Boot from the CD/DVD disc
- Usb: Boot from a USB device as specified by the system BIOS
- Hdd: Boot from a hard drive
- BiosSetup: Boot to the BIOS Setup Utility
- Utilities: Boot the manufacturer's Utilities programs
- Diags: Boot the manufacturer's Diagnostics program
- UefiShell: Boot to the UEFI Shell
- UefiTarget: Boot to the UEFI Device specified in the UefiTargetBootSourceOverride property
- SDCard: Boot from an SD* Card
- UefiHttp: Boot from a UEFI HTTP network location
- RemoteDrive: Boot from a remote drive (e.g. iSCSI)

§