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<tr>
<td>002</td>
<td>Added support for Network Interface and Network Device Function resources (only iSCSI boot scope)</td>
<td>May 18, 2017</td>
</tr>
<tr>
<td>001</td>
<td>Initial release.</td>
<td>February 9, 2017</td>
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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 PSME firmware for their hardware platforms, providing Intel® RSD compliant systems.

1.3 Terminology

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

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§
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

![PSME REST API hierarchy for PNC resources](image)

*names are subject to change

### Table 3 Resources and URIs

<table>
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</tr>
<tr>
<td>Chassis Collection</td>
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</tr>
<tr>
<td>Chassis</td>
<td>/redfish/v1/Chassis/(chassisID)</td>
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<td>Computer System Collection</td>
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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.

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<tr>
<td>message</td>
<td>A human readable error message corresponding to the message in the message registry.</td>
</tr>
<tr>
<td>@Message.ExtendedInfo</td>
<td>An array of message objects describing one or more error message(s).</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MessageId</td>
<td>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.</td>
</tr>
<tr>
<td>Message</td>
<td>A human readable error message indicating the semantics associated with the error. This shall be the complete message, and not rely on substitution variables.</td>
</tr>
<tr>
<td>MessageArgs</td>
<td>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.</td>
</tr>
<tr>
<td>Severity</td>
<td>An optional string representing the severity of the error.</td>
</tr>
<tr>
<td>Resolution</td>
<td>An optional string describing recommended action(s) to take to resolve the error.</td>
</tr>
<tr>
<td>RelatedProperties</td>
<td>An optional array of JSON Pointers defining the specific properties within a JSON payload described by the message.</td>
</tr>
</tbody>
</table>

3.1.2 Example error JSON object

```json
{
    "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",
            }
        ]
    }
}
```
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

<table>
<thead>
<tr>
<th>HTTP Status Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>400 Bad Request</td>
<td>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.</td>
</tr>
<tr>
<td>404 Not Found</td>
<td>The request specified a URI of a resource that does not exist.</td>
</tr>
<tr>
<td>405 Method Not Allowed</td>
<td>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.</td>
</tr>
<tr>
<td>409 Conflict</td>
<td>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).</td>
</tr>
<tr>
<td>500 Internal Server Error</td>
<td>The server encountered an unexpected condition that prevented it from fulfilling the request. An extended error shall be returned in the response body.</td>
</tr>
<tr>
<td>501 Not Implemented</td>
<td>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.</td>
</tr>
<tr>
<td>503 Service Unavailable</td>
<td>The server is currently unable to handle the request due to temporary overloading or maintenance of the server.</td>
</tr>
</tbody>
</table>
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: application/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"
   }
```

### 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: application/json

Response:

```
```
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: application/json

Response:

```json
{
    "@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

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chassis</td>
<td>String</td>
<td>Yes</td>
<td>Name of collection</td>
</tr>
<tr>
<td><a href="mailto:Members@odata.count">Members@odata.count</a></td>
<td>Number</td>
<td>No</td>
<td>Collection members count</td>
</tr>
<tr>
<td>Members</td>
<td>Array</td>
<td>No</td>
<td>Contains the members of this collection</td>
</tr>
</tbody>
</table>

4.7.1  Operations

4.7.1.1  GET

Request:

GET /redfish/v1/Chassis

Content-Type: application/json

Response:

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

Response:

```json
{
    "@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",
    "Id": "Blade1",
    "ChassisType": "Blade",
    "Name": "name-as-string",
    "Description": "description-as-string",
    "Manufacturer": "Intel Corporation",
    "Model": "model-as-string",
    "SKU": "sku-as-string",
    "Id": "Blade1",
    "ChassisType": "Blade",
    "Name": "name-as-string",
    "Description": "description-as-string",
    "Manufacturer": "Intel Corporation",
    "Model": "model-as-string",
    "SKU": "sku-as-string",
    "Id": "Blade1",
    "ChassisType": "Blade",
    "Name": "name-as-string",
    "Description": "description-as-string",
    "Manufacturer": "Intel Corporation",
    "Model": "model-as-string",
    "SKU": "sku-as-string",
    "Id": "Blade1",
    "ChassisType": "Blade",
    "Name": "name-as-string",
    "Description": "description-as-string",
    "Manufacturer": "Intel Corporation",
    "Model": "model-as-string",
    "SKU": "sku-as-string",
    "Id": "Blade1",
    "ChassisType": "Blade",
    "Name": "name-as-string",
    "Description": "description-as-string",
    "Manufacturer": "Intel Corporation",
    "Model": "model-as-string",
    "SKU": "sku-as-string",
    "Id": "Blade1",
    "ChassisType": "Blade",
    "Name": "name-as-string",
    "Description": "description-as-string",
    "Manufacturer": "Intel Corporation",
    "Model": "model-as-string",
    "SKU": "sku-as-string",
    "Id": "Blade1",
    "ChassisType": "Blade",
    "Name": "name-as-string",
    "Description": "description-as-string",
    "Manufacturer": "Intel Corporation",
    "Model": "model-as-string",
    "SKU": "sku-as-string",
    "Id": "Blade1",
    "ChassisType": "Blade",
    "Name": "name-as-string",
    "Description": "description-as-string",
    "Manufacturer": "Intel Corporation",
    "Model": "model-as-string",
    "SKU": "sku-as-string",
    "Id": "Blade1",
    "ChassisType": "Blade",
    "Name": "name-as-string",
    "Description": "description-as-string",
    "Manufacturer": "Intel Corporation",
    "Model": "model-as-string",
    "SKU": "sku-as-string",
    "Id": "Blade1",
    "ChassisType": "Blade",
    "Name": "name-as-string",
    "Description": "description-as-string",
    "Manufacturer": "Intel Corporation",
    "Model": "model-as-string",
    "SKU": "sku-as-string",
    "Id": "Blade1",
    "ChassisType": "Blade",
    "Name": "name-as-string",
    "Description": "description-as-string",
    "Manufacturer": "Intel Corporation",
    "Model": "model-as-string",
    "SKU": "sku-as-string",
    "Id": "Blade1",
    "ChassisType": "Blade",
    "Name": "name-as-string",
    "Description": "description-as-string",
    "Manufacturer": "Intel Corporation",
    "Model": "model-as-string",
    "SKU": "sku-as-string",
    "Id": "Blade1",
    "ChassisType": "Blade",
    "Name": "name-as-string",
    "Description": "description-as-string",
    "Manufacturer": "Intel Corporation",
    "Model": "model-as-string",
    "SKU": "sku-as-string",
    "Id": "Blade1",
    "ChassisType": "Blade",
    "Name": "name-as-string",
    "Description": "description-as-string",
    "Manufacturer": "Intel Corporation",
    "Model": "model-as-string",
    "SKU": "sku-as-string",
    "Id": "Blade1",
    "ChassisType": "Blade",
    "Name": "name-as-string",
    "Description": "description-as-string",
    "Manufacturer": "Intel Corporation",
    "Model": "model-as-string",
    "SKU": "sku-as-string",
    "Id": "Blade1",
    "ChassisType": "Blade",
    "Name": "name-as-string",
    "Description": "description-as-string",
    "Manufacturer": "Intel Corporation",
    "Model": "model-as-string",
    "SKU": "sku-as-string",
    "Id": "Blade1",
    "ChassisType": 
```
PUT
Operation is not allowed on this resource.

PATCH
The following properties can be updated by the PATCH operation:

"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": []
    }
  }
}
### 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

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>String</td>
<td>Yes</td>
<td>Name of collection</td>
</tr>
<tr>
<td><a href="mailto:Members@odata.count">Members@odata.count</a></td>
<td>Number</td>
<td>Yes</td>
<td>Collection members count</td>
</tr>
<tr>
<td>Members</td>
<td>Array</td>
<td>Yes</td>
<td>Contains the members of this collection</td>
</tr>
</tbody>
</table>

### 4.9.1 Operations

#### 4.9.1.1 GET
Request:

GET /redfish/v1/Systems
Content-Type: application/json

Response:

```json
{
   "@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:

```json
{
   "@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": {
        "$@odata.type": "#Intel.Oem.ComputerSystem",
        "PciDevices": [{
            "VendorId": "0x8086",
            "DeviceId": "0x1234"
        }],
        "DiscoveryState": "Basic",
        "ProcessorSockets": 8,
        "MemorySockets": 8,
        "PCieConnectionId": [
            "XYZ1234567890"
        ]
    }
},
"Actions": {
    "$@odata.id": "/redfish/v1/Systems/System1/Actions/ComputerSystem.Reset",
    "ResetType@Redfish.AllowableValues": ["On",
        "ForceOff",
        "GracefulShutdown",
        "ForceRestart",
        "Nmi",
        "GracefulRestart",
        "ForceOn",
        "PushPowerButton"
    ]
},
"Oem": {
    "$@odata.id": "/redfish/v1/Systems/System1/Actions/ComputerSystem.StartDeepDiscovery"
}
},
"Oem": {
    "Intel_RackScale": {
        "$@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:**

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

**Response:**

```json
{
    "@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": {
    "#ComputerSystem.Reset": {
      "target": "/redfish/v1/Systems/System1/Actions/ComputerSystem.Reset",
    },
    "Oem": {
      "#ComputerSystem.StartDeepDiscovery": {
        "target": "/redfish/v1/Systems/System1/Actions/ComputerSystem.StartDeepDiscovery"
      }
    }
  }
}
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:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AssetTag</td>
<td>String</td>
<td>No</td>
<td>The user assigned asset tag for this system.</td>
</tr>
<tr>
<td>Boot</td>
<td>Object</td>
<td>No</td>
<td>Boot override properties, details in Table 9.</td>
</tr>
</tbody>
</table>

The following table describes "Boot" properties that can be patched:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BootSourceOverrideEnabled</td>
<td>String</td>
<td>No</td>
<td>Describes the state of the Boot Source Override feature. Allowed values:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;Disabled&quot; - The system will boot as normal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;Once&quot; - On its next boot cycle, the system will boot (one time) to the</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Boot Source Override Target</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;Continuous&quot; - The system will boot to the target specified in the Boot</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SourceOverrideTarget until this property is set to Disabled</td>
</tr>
<tr>
<td>BootSourceOverrideTarget</td>
<td>String</td>
<td>No</td>
<td>The current boot source to be used at next boot instead of the normal boot</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>device, if BootSourceOverrideEnabled is true.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Available values (please refer to annotation @Redfish.AllowableValues for</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>actual list of supported values):</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;None&quot; - Boot from the normal boot device</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;Pxe&quot; - Boot from the Pre-Boot EXECution (PXE) environment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;Hdd&quot; - Boot from a hard drive</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;RemoteDrive&quot; - Boot from a remote drive (e.g. iSCSI)</td>
</tr>
<tr>
<td>BootSourceOverrideMode</td>
<td>String</td>
<td>No</td>
<td>The BIOS Boot Mode (either Legacy or UEFI) to be used when BootSource</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OverrideTarget boot source is booted from:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;Legacy&quot; - The system will boot in non-UEFI boot mode to the Boot Source</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Override Target</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;UEFI&quot; - The system will boot in UEFI boot mode to the Boot Source Override</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Target</td>
</tr>
</tbody>
</table>
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>
<thead>
<tr>
<th>Name</th>
<th>Processors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type URI</td>
<td>/redfish/v1/Systems/(systemID)/Processors</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>String</td>
<td>Yes</td>
<td>Name of collection</td>
</tr>
<tr>
<td><a href="mailto:Members@odata.count">Members@odata.count</a></td>
<td>Number</td>
<td>Yes</td>
<td>Collection members count</td>
</tr>
<tr>
<td>Members</td>
<td>Array</td>
<td>Yes</td>
<td>Contains the members of this collection</td>
</tr>
</tbody>
</table>
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/l/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

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


**ProcessorArchitecture** String
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

**InstructionSet** String
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

**Manufacturer** String
The processor manufacturer

**Model** String
The product model number of this device

**MaxSpeedMHz** Number
The maximum clock speed of the processor

**TotalCores** Number
The total number of cores contained in this processor

**TotalThreads** Number
The total number of execution threads supported by this processor

**ProcessorId** Object
Identification information for this processor

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<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>
</tbody>
</table>

**Status** Object
See Section 5.1 for resource status.

**Oem** Object
Oem extension object

Intel Rack Scale Design extensions ("Intel_RackScale" object):

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
</table>
| Brand     | String | 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 |
### Capabilities

<table>
<thead>
<tr>
<th>Array</th>
</tr>
</thead>
<tbody>
<tr>
<td>Array of strings describing processor capabilities (like reported in SMBIOS table, type 4, offset 0x26), such as:</td>
</tr>
<tr>
<td>&quot;sse&quot; - Streaming SIMD Extensions</td>
</tr>
</tbody>
</table>

#### 4.12.1 Operations

#### 4.12.1.1 GET

**Request:**

GET /redfish/v1/Systems/System1/Processors/CPU1

**Content-Type:** application/json

**Response:**

```json
{
    "@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",
            ]
        }
    }
}
```
Memory collection

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

Table 12  Memory collection attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>String</td>
<td>Yes</td>
<td>Name of collection</td>
</tr>
<tr>
<td><a href="mailto:Members@odata.count">Members@odata.count</a></td>
<td>Number</td>
<td>Yes</td>
<td>Collection members count</td>
</tr>
<tr>
<td>Members</td>
<td>Array</td>
<td>Yes</td>
<td>Contains the members of this collection</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type URI</td>
<td>/redfish/v1/Systems/{systemId}/Memory/{memoryID}</td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>Id</td>
<td>String</td>
<td>Resource identifier</td>
</tr>
<tr>
<td>Name</td>
<td>String</td>
<td>Name of service root</td>
</tr>
<tr>
<td>Description</td>
<td>String</td>
<td>Provides a description of this resource and is used for commonality in the schema definitions</td>
</tr>
<tr>
<td>MemoryType</td>
<td>String</td>
<td>The type of DIMM:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;DRAM&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;NVDIMM_N&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;NVDIMM_F&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;NVDIMM_P&quot;</td>
</tr>
<tr>
<td>MemoryDeviceType</td>
<td>String</td>
<td>Type details of DIMM:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;DDR&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;DDR2&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;DDR3&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;DDR4&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;DDR4_SDRAM&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;DDR4E_SDRAM&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;LPDDR4_SDRAM&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;DDR3_SDRAM&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;LPDDR3_SDRAM&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;DDR2_SDRAM&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;DDR2_SDRAM_FB_DIMM&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;DDR2_SDRAM_FB_DIMM_PROBE&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;DDR_SGRAM&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;DDR_SDRAM&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;ROM&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;SDRAM&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;EDO&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;FastPageMode&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;PipeinedNibble&quot;</td>
</tr>
<tr>
<td>BaseModuleType</td>
<td>String</td>
<td>The base module type of DIMM:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;RDIMM&quot;</td>
</tr>
<tr>
<td>Field</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>MemoryMedia</td>
<td>Array</td>
<td>Media of this DIMM:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;DRAM&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;NAND&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Prioprietary&quot;</td>
</tr>
<tr>
<td>CapacityMiB</td>
<td>Number</td>
<td>DIMM Capacity in MiB</td>
</tr>
<tr>
<td>DataWidthBits</td>
<td>Number</td>
<td>Data Width in bits</td>
</tr>
<tr>
<td>BusWidthBits</td>
<td>Number</td>
<td>Bus Width in bits</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>String</td>
<td>The DIMM manufacturer</td>
</tr>
<tr>
<td>廠商ID</td>
<td>String</td>
<td>Vendor ID</td>
</tr>
<tr>
<td>DeviceID</td>
<td>String</td>
<td>Device ID</td>
</tr>
<tr>
<td>RankCount</td>
<td>Number</td>
<td>Number of ranks available in the DIMM</td>
</tr>
<tr>
<td>DeviceLocator</td>
<td>String</td>
<td>Location of the DIMM in the platform, typically marked in the silk screen</td>
</tr>
<tr>
<td>MemoryLocation</td>
<td>Object</td>
<td>Property describing DIMM location with respect to processor and memory controller</td>
</tr>
<tr>
<td>Attribute</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>Socket</td>
<td>Number, null</td>
<td>Socket number in which DIMM is connected</td>
</tr>
<tr>
<td>MemoryController</td>
<td>Number, null</td>
<td>Memory controller number in which DIMM is connected</td>
</tr>
<tr>
<td>Channel</td>
<td>Number, null</td>
<td>Channel number in which DIMM is connected</td>
</tr>
<tr>
<td>Slot</td>
<td>Number, null</td>
<td>Slot number in which DIMM is connected</td>
</tr>
<tr>
<td>ErrorCorrection</td>
<td>String</td>
<td>Error correction scheme supported for this memory:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;NoECC&quot; - No ECC available</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;SingleBitECC&quot; - Single bit error can be corrected by ECC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;MultiBitECC&quot; - Multiple bits of errors can be corrected by ECC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;AddressParity&quot; - Address Parity errors can be corrected</td>
</tr>
<tr>
<td>OperatingSpeedMhz</td>
<td>Number</td>
<td>Operating speed of DIMM in MHz</td>
</tr>
<tr>
<td>Regions</td>
<td>Array</td>
<td>Memory regions information within the DIMM</td>
</tr>
<tr>
<td>Attribute</td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>RegionId</td>
<td>String, null</td>
<td>Unique region ID representing a specific region within the DIMM</td>
</tr>
<tr>
<td>MemoryClassification</td>
<td>String, null</td>
<td>Type of memory occupied by the given memory region</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Volatile&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Block&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Persistant&quot;</td>
</tr>
<tr>
<td>OffsetMiB</td>
<td>Number, null</td>
<td>Offset within the DIMM that corresponds to the starting of this memory region in MiB</td>
</tr>
<tr>
<td>SizeMiB</td>
<td>Number, null</td>
<td>Size of this memory region in MiB</td>
</tr>
</tbody>
</table>

**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

Intel Rack Scale Design extensions ("Intel_RackScale" object):

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VoltageVolt</td>
<td>Number, null</td>
<td>DIMM operating voltage</td>
</tr>
</tbody>
</table>

### 4.14.1 Operations

#### 4.14.1.1 GET

Request:

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

Response:

```json
{
"@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": {  
    "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-a456-426654400000",
"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"
}]
}]
}
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:

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

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

"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:

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

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/TaskMonitors/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

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blade Network Interface</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type URI</td>
<td>/redfish/v1/Systems/(systemID)/EthernetInterfaces/(nicID)</td>
<td></td>
</tr>
<tr>
<td><strong>Attribute</strong></td>
<td><strong>Type</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>Id</td>
<td>String</td>
<td>Resource identifier</td>
</tr>
<tr>
<td>Name</td>
<td>String</td>
<td>Resource name</td>
</tr>
<tr>
<td>Description</td>
<td>String</td>
<td>Resource description</td>
</tr>
<tr>
<td>Status</td>
<td>Object</td>
<td>See Section 5.1 for resource status.</td>
</tr>
<tr>
<td>Interface Enabled</td>
<td>Bool</td>
<td>This indicates whether this interface is enabled.</td>
</tr>
<tr>
<td>Oem</td>
<td>Object</td>
<td>OEM defined object</td>
</tr>
<tr>
<td>Permanent MACAddresses</td>
<td>String</td>
<td>Permanent MAC Address of this interface (port). This value is typically programmed during manufacturing time. This address is not assignable.</td>
</tr>
<tr>
<td>MACAddresses</td>
<td>String</td>
<td>This is the currently configured MAC address of the (logical port) interface.</td>
</tr>
<tr>
<td>SpeedMbps</td>
<td>Number</td>
<td>This is the current speed in Mbps of this NIC.</td>
</tr>
<tr>
<td>AutoNeg</td>
<td>Boolean</td>
<td>Indicates if the speed and duplex is automatically configured by the NIC.</td>
</tr>
<tr>
<td>FullDuplex</td>
<td>Boolean</td>
<td>Indicates if the NIC is in Full Duplex mode or not.</td>
</tr>
<tr>
<td>MTUSize</td>
<td>Number</td>
<td>This is the currently configured Maximum Transmission Unit (MTU) in bytes on this interface.</td>
</tr>
<tr>
<td>HostName</td>
<td>String</td>
<td>DNS Host Name, without any domain information.</td>
</tr>
<tr>
<td>FQDN</td>
<td>String</td>
<td>Fully qualified domain name obtained by DNS for this interface.</td>
</tr>
<tr>
<td>MaxIPv6StaticAddresses</td>
<td>Number</td>
<td>Indicates the maximum number of Static IPv6 addresses that can be configured on this interface</td>
</tr>
<tr>
<td>VLAN</td>
<td>Object</td>
<td>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</td>
</tr>
</tbody>
</table>

#### VLAN

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VLANEnable</td>
<td>boolean</td>
<td>No</td>
<td>This indicates if this VLAN is enabled</td>
</tr>
<tr>
<td>VLANTId</td>
<td>Number</td>
<td>No</td>
<td>This indicates the VLAN identifier for this VLAN</td>
</tr>
</tbody>
</table>
## Blade Network Interface

### Type URI

```
/redfish/v1/Systems/{systemID}/EthernetInterfaces/{nicID}
```

### Attributes

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPv4Addresses</td>
<td>Array</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td>String, null</td>
<td>IP address</td>
</tr>
<tr>
<td>SubnetMask</td>
<td>String, null</td>
<td>IP subnet mask</td>
</tr>
<tr>
<td>AddressOrigin</td>
<td>String, null</td>
<td>Indicates how the address was determined</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Static&quot; - A static address as configured by the user</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;DHCP&quot; - Address is provided by a DHCPv4 service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;BOOTP&quot; - Address is provided by a BOOTP service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;IPv4LinkLocal&quot; - Address is valid only for this network segment (link)</td>
</tr>
<tr>
<td>Gateway</td>
<td>String, null</td>
<td>IPv4 gateway for this address</td>
</tr>
<tr>
<td>Oem</td>
<td>Object</td>
<td>Oem defined object</td>
</tr>
<tr>
<td>IPv6AddressPolicyTable</td>
<td>Array</td>
<td></td>
</tr>
<tr>
<td>Prefix</td>
<td>String</td>
<td>IPv6 Address Prefix for this table entry</td>
</tr>
<tr>
<td>Precedence</td>
<td>Number</td>
<td>Precedence value for this table entry</td>
</tr>
<tr>
<td>Label</td>
<td>Number</td>
<td>Label value for this table entry</td>
</tr>
<tr>
<td>IPv6StaticAddresses</td>
<td>Array</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td>String, null</td>
<td>IPv6 address</td>
</tr>
<tr>
<td>PrefixLength</td>
<td>Number, null</td>
<td>IPv6 Address Prefix Length</td>
</tr>
<tr>
<td>IPv6Addresses</td>
<td>Array</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td>String, null</td>
<td>IPv6 address</td>
</tr>
<tr>
<td>PrefixLength</td>
<td>Number, null</td>
<td>IPv6 Address Prefix Length</td>
</tr>
<tr>
<td>AddressOrigin</td>
<td>String, null</td>
<td>Indicates how the address was determined</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Static&quot; - A static address as configured by the user</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;DHCP&quot; - Address is provided by a DHCPv6 service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;LinkLocal&quot; - Address is valid only for this network segment (link)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;SLAAC&quot; - Address is provided by a Stateless Address AutoConfiguration (SLAAC) service</td>
</tr>
<tr>
<td>AddressState</td>
<td>String (enum), null</td>
<td>Current state of this address</td>
</tr>
<tr>
<td>Oem</td>
<td>Object</td>
<td>Oem defined object</td>
</tr>
</tbody>
</table>
**Name**: Blade Network Interface

**Type URI**: `/redfish/v1/Systems/(systemID)/EthernetInterfaces/(nicID)`

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPv6DefaultGateway</td>
<td>String</td>
<td>Default gateway address that is currently in use on this interface</td>
</tr>
<tr>
<td>NameServers</td>
<td>String array</td>
<td>DNS name servers for this interface</td>
</tr>
<tr>
<td>VLANs</td>
<td>Object</td>
<td>Reference to a collection of VLANs and is only used if the interface supports more than one VLAN.</td>
</tr>
</tbody>
</table>

**Links**: Links section

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oem</td>
<td>Object</td>
<td>No</td>
<td>Oem references to related resources. See Table 15 for &quot;Intel_RackScale&quot; object.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NeighborPort</td>
<td>Object(link), null</td>
<td>Reference to EthernetSwitch port connected to this interface</td>
</tr>
</tbody>
</table>

### 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

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>String</td>
<td>Yes</td>
<td>Name of collection</td>
</tr>
<tr>
<td><a href="mailto:Members@odata.count">Members@odata.count</a></td>
<td>Number</td>
<td>Yes</td>
<td>Collection members count</td>
</tr>
<tr>
<td>Members</td>
<td>Array</td>
<td>Yes</td>
<td>Contains the members of this collection</td>
</tr>
</tbody>
</table>

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": "2015-03-13T04:33+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"
   }
}
```
PUT
Operation is not allowed on this resource.

PATCH
Operation is not allowed on this resource.

POST
Operation is not allowed on this resource.

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>
<thead>
<tr>
<th>Name</th>
<th>Switch collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type URI</td>
<td>/redfish/v1/EthernetSwitches</td>
</tr>
<tr>
<td>Attribute</td>
<td>Type</td>
</tr>
<tr>
<td>Name</td>
<td>String</td>
</tr>
<tr>
<td><a href="mailto:Members@odata.count">Members@odata.count</a></td>
<td>Number</td>
</tr>
<tr>
<td>Members</td>
<td>Array</td>
</tr>
</tbody>
</table>

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": "1LY8U220007",

"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

<table>
<thead>
<tr>
<th>Name</th>
<th>Type URI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Switch port collection</td>
</tr>
<tr>
<td>Type URI</td>
<td><code>/redfish/v1/EthernetSwitches/Switch1/Ports</code></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>String</td>
<td>Yes</td>
<td>Name of collection</td>
</tr>
<tr>
<td><a href="mailto:Members@odata.count">Members@odata.count</a></td>
<td>Number</td>
<td>Yes</td>
<td>Collection members count</td>
</tr>
<tr>
<td>Members</td>
<td>Array</td>
<td>Yes</td>
<td>Contains the members of this collection</td>
</tr>
</tbody>
</table>

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"
            }
        ]
    }
}
```
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/Ports/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"],
        "PortMembers": ["@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:

```json
{
  "@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": {
      "$EthernetSwitchACL.Bind": {
         "target": "/redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1/Actions/EthernetSwitchACL.Bind",
         "Port@Redfish.AllowableValues": [
            ":/redfish/v1/EthernetSwitches/Switch1/Ports/sw0p2",
            ":/redfish/v1/EthernetSwitches/Switch1/Ports/sw0p3"
         ]
      },
      "$EthernetSwitchACL.Unbind": {
         "target": "/redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1/Actions/EthernetSwitchACL.Unbind",
         "Port@Redfish.AllowableValues": [":/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

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port</td>
<td>Link object</td>
<td>Yes</td>
<td>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.</td>
</tr>
</tbody>
</table>

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:

```json
{
    "@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.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RuleId</td>
<td>Number</td>
<td>No</td>
<td>This is the ACL rule ID which determines rule priority. If not provided during creation, service will assign default next free ID.</td>
</tr>
<tr>
<td>Action</td>
<td>String (enum)</td>
<td>Yes</td>
<td>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</td>
</tr>
<tr>
<td>ForwardMirrorInterface</td>
<td>Link object</td>
<td>Yes for &quot;Forward&quot; and &quot;Mirror&quot; actions</td>
<td>This is the link to the interface where traffic will be mirrored/forwarded.</td>
</tr>
<tr>
<td>MirrorPortRegion</td>
<td>Array of link objects</td>
<td>Yes for &quot;Mirror&quot; action</td>
<td>Array of links to Ethernet interfaces which traffic should be mirrored on &quot;ForwardMirrorInterface&quot;</td>
</tr>
<tr>
<td>MirrorType</td>
<td>String (enum)</td>
<td>Yes for &quot;Mirror&quot; action</td>
<td>Type of mirroring traffic. Available values: Egress - Mirror egressing traffic on the mirrored port to the mirror destination port</td>
</tr>
<tr>
<td>Attribute</td>
<td>Type</td>
<td>Required</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>------------</td>
<td>----------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Ingress</td>
<td></td>
<td></td>
<td>Ingress - Mirror ingressing traffic on the mirrored port to the mirror</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>destination port</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bidirectional - Mirror ingressing and egressing traffic on the mirrored port</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>to the mirror destination port</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Redirect - Mirror ingress traffic to the mirror destination port and drop</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>the traffic ingressing the mirror ports</td>
</tr>
</tbody>
</table>

| 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

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

<table>
<thead>
<tr>
<th>IPDestination</th>
<th>Object</th>
<th>No</th>
<th>Yes</th>
<th>Provides packet destination IPv4 address.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Attribute</strong></td>
</tr>
<tr>
<td>IPv4Address</td>
<td>String</td>
<td>Yes</td>
<td></td>
<td>IPv4 address</td>
</tr>
<tr>
<td>Mask</td>
<td>String, null</td>
<td>No</td>
<td></td>
<td>The mask selects which bits in the corresponding value property are</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>relevant for matching for a frame (a zero bit in the mask indicates a</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>don't care bit in the value). Null value means all bits are relevant.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MACSource</th>
<th>Object</th>
<th>No</th>
<th>Yes</th>
<th>Provides packet source MAC address.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Attribute</strong></td>
</tr>
<tr>
<td>MACAddress</td>
<td>String</td>
<td>Yes</td>
<td></td>
<td>IPv4 address</td>
</tr>
<tr>
<td>Attribute</td>
<td>Type</td>
<td>Required</td>
<td>Nullable</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------</td>
<td>----------</td>
<td>----------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>MACDestination</td>
<td>Object</td>
<td>No</td>
<td>Yes</td>
<td>Provides packet destination MAC address.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MACAddress</td>
<td>String</td>
<td>Yes</td>
<td></td>
<td>IPv4 address</td>
</tr>
<tr>
<td>Mask</td>
<td>String, null</td>
<td>No</td>
<td></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>
<tr>
<td>VLANId</td>
<td>Object</td>
<td>No</td>
<td>Yes</td>
<td>Provides packet VLAN tag ID:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Id</td>
<td>Number</td>
<td>Yes</td>
<td></td>
<td>VLAN Id tag</td>
</tr>
<tr>
<td>Mask</td>
<td>Number, null</td>
<td>No</td>
<td></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>
<tr>
<td>L4SourcePort</td>
<td>Object</td>
<td>No</td>
<td>Yes</td>
<td>IP layer 4 Source port. Contains the following properties.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port</td>
<td>Number</td>
<td>Yes</td>
<td></td>
<td>Port numeric value</td>
</tr>
<tr>
<td>Attribute</td>
<td>Type</td>
<td>Required</td>
<td>Nullable</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------</td>
<td>----------</td>
<td>----------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</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.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Attribute</strong></td>
</tr>
<tr>
<td>Port</td>
<td>Number</td>
<td>Yes</td>
<td></td>
<td>Port numeric value</td>
</tr>
<tr>
<td>Mask</td>
<td>Number, null</td>
<td>No</td>
<td></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>
<tr>
<td>L4Protocol</td>
<td>Number</td>
<td>No</td>
<td>Yes</td>
<td>IP layer 4 protocol number as defined here: <a href="http://www.iana.org/assignments/protocol-numbers/protocol-numbers.xhtml">http://www.iana.org/assignments/protocol-numbers/protocol-numbers.xhtml</a></td>
</tr>
</tbody>
</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
```

**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/$metadata#EthernetSwitches/Members/Switch1/ACLs/Members/Rules/Member/$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
      };
```

PSME REST API Definition

```
},
  "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:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Nullable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RuleId</td>
<td>Number</td>
<td>No</td>
<td>Yes</td>
<td>This is the ACL rule ID which determines rule priority.</td>
</tr>
<tr>
<td>Action</td>
<td>String (enum)</td>
<td>No</td>
<td></td>
<td>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</td>
</tr>
<tr>
<td>ForwardMirrorInterface</td>
<td>Link object</td>
<td>Yes for &quot;Forward&quot; and &quot;Mirror&quot; actions</td>
<td></td>
<td>This is a link to the interface where traffic will be mirrored/forwarded.</td>
</tr>
<tr>
<td>MirrorPortRegion</td>
<td>Array of link objects</td>
<td>Yes for &quot;Mirror&quot; action</td>
<td>Array of links to Ethernet interfaces which traffic should be mirrored on &quot;ForwardMirrorInterface&quot;</td>
<td></td>
</tr>
<tr>
<td>MirrorType</td>
<td>String (enum)</td>
<td>Yes for &quot;Mirror&quot; action</td>
<td>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</td>
<td></td>
</tr>
<tr>
<td>Condition</td>
<td>Object</td>
<td>No</td>
<td></td>
<td>Provides all conditions that must be met to trigger a rule action. List of available properties is described in the table below.</td>
</tr>
</tbody>
</table>

Table 20 ACL Rule Condition attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Nullable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPSource</td>
<td>Object</td>
<td>No</td>
<td>Yes</td>
<td>Provides packet source IPv4 address.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Nullable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPv4Address</td>
<td>String</td>
<td>Yes</td>
<td>IPv4 address</td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>Type</td>
<td>Required</td>
<td>Nullable</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>---------</td>
<td>----------</td>
<td>----------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mask</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IPDestination</th>
<th>Object</th>
<th>No</th>
<th>Yes</th>
<th>Provides packet destination IPv4 address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute</td>
<td>Type</td>
<td>Required</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>IPv4Address</td>
<td>String</td>
<td>Yes</td>
<td>IPv4 address</td>
<td></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>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MACSource</th>
<th>Object</th>
<th>No</th>
<th>Yes</th>
<th>Provides packet source MAC address:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute</td>
<td>Type</td>
<td>Required</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>MACAddress</td>
<td>String</td>
<td>Yes</td>
<td>IPv4 address</td>
<td></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>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MACDestination</th>
<th>Object</th>
<th>No</th>
<th>Yes</th>
<th>Provides packet destination MAC address:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute</td>
<td>Type</td>
<td>Required</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>MACAddress</td>
<td>String</td>
<td>Yes</td>
<td>IPv4 address</td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>Type</td>
<td>Required</td>
<td>Nullable</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>---------</td>
<td>----------</td>
<td>----------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Mask</td>
<td>String, null</td>
<td>No</td>
<td></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>
</tbody>
</table>

**VLANId**

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Nullable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>Number</td>
<td>Yes</td>
<td></td>
<td>Provides packet VLAN tag ID:</td>
</tr>
<tr>
<td>Mask</td>
<td>Number, null</td>
<td>No</td>
<td></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>
</tbody>
</table>

**L4SourcePort**

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Nullable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port</td>
<td>Number</td>
<td>Yes</td>
<td></td>
<td>IP layer 4 Source port. Contains the following properties.</td>
</tr>
<tr>
<td>Mask</td>
<td>Number, null</td>
<td>No</td>
<td></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>
</tbody>
</table>

**L4DestinationPort**

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Nullable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port</td>
<td>Number</td>
<td>Yes</td>
<td></td>
<td>IP layer 4 Destination port. Contains the following properties.</td>
</tr>
</tbody>
</table>

## Attributes

- **Attribute**
- **Type**
- **Required**
- **Nullable**
- **Description**
## Attribute Table

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Nullable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mask</td>
<td>Number</td>
<td>No</td>
<td>Yes</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>
<tr>
<td>L4Protocol</td>
<td>Number</td>
<td>No</td>
<td>Yes</td>
<td>IP layer 4 protocol number as defined here: <a href="http://www.iana.org/assignments/protocol-numbers/protocol-numbers.xhtml">http://www.iana.org/assignments/protocol-numbers/protocol-numbers.xhtml</a></td>
</tr>
</tbody>
</table>

### Request

**PATCH /redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1/Rules/Rule2**

Content-Type: application/json

```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

```json
{
    (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/StaticMACs",
    "@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.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACAddress</td>
<td>String</td>
<td>Yes</td>
<td>MAC address that should be forwarded to this port</td>
</tr>
<tr>
<td>VLANId</td>
<td>Number, null</td>
<td>No</td>
<td>If specified, defines which packets tagged with specific VLANId should be forwarded to this port.</td>
</tr>
</tbody>
</table>

Request:

```plaintext
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:

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

Response:

```json
{
    "@odata.context": "/redfish/v1/$metadata#EthernetSwitches/Members/Switch1/Ports/Members/StaticMACs/Members/$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.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACaddress</td>
<td>String</td>
<td>Yes</td>
<td>MAC address that should be forwarded to this port</td>
</tr>
<tr>
<td>VLANId</td>
<td>Number, null</td>
<td>No</td>
<td>If specified, defines which packets tagged with specific VLANId should be</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>forwarded to this port.</td>
</tr>
</tbody>
</table>

Request:

```
PATCH /redfish/v1/EthernetSwitches/Switch1/Ports/Port1/StaticMACs/2
Content-Type: application/json
{
    "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>
<thead>
<tr>
<th>Name</th>
<th>Network service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type URI</td>
<td>/redfish/v1/Managers/managerID/NetworkProtocol</td>
</tr>
</tbody>
</table>

Table 21 Network service attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>String</td>
<td>Resource identifier</td>
</tr>
<tr>
<td>Name</td>
<td>String</td>
<td>Resource name</td>
</tr>
<tr>
<td>Description</td>
<td>String</td>
<td>Resource description</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 defined object</td>
</tr>
<tr>
<td>HostName</td>
<td>String</td>
<td>Provides information about host name</td>
</tr>
<tr>
<td>FQDN</td>
<td>String</td>
<td>Fully Qualified Domain Name</td>
</tr>
<tr>
<td>Name</td>
<td>Network service</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>-----------------</td>
<td></td>
</tr>
<tr>
<td>Type URI</td>
<td>/redfish/v1/Managers/(managerID)/NetworkProtocol</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTTP</td>
<td>Object</td>
<td>Type</td>
</tr>
<tr>
<td>ProtocolEnabled</td>
<td>Boolean, null</td>
<td>No</td>
</tr>
<tr>
<td>Port</td>
<td>Number, null</td>
<td>No</td>
</tr>
<tr>
<td>HTTPS</td>
<td>Object</td>
<td>Type</td>
</tr>
<tr>
<td>ProtocolEnabled</td>
<td>Boolean, null</td>
<td>No</td>
</tr>
<tr>
<td>Port</td>
<td>Number, null</td>
<td>No</td>
</tr>
<tr>
<td>SNMP</td>
<td>Object</td>
<td>Type</td>
</tr>
<tr>
<td>ProtocolEnabled</td>
<td>Boolean, null</td>
<td>No</td>
</tr>
<tr>
<td>Port</td>
<td>Number, null</td>
<td>No</td>
</tr>
<tr>
<td>VirtualMedia</td>
<td>Object</td>
<td>Type</td>
</tr>
<tr>
<td>ProtocolEnabled</td>
<td>Boolean, null</td>
<td>No</td>
</tr>
<tr>
<td>Port</td>
<td>Number, null</td>
<td>No</td>
</tr>
<tr>
<td>Telnet</td>
<td>Object</td>
<td>Type</td>
</tr>
<tr>
<td>ProtocolEnabled</td>
<td>Boolean, null</td>
<td>No</td>
</tr>
<tr>
<td>Port</td>
<td>Number, null</td>
<td>No</td>
</tr>
<tr>
<td>SSDP</td>
<td>Object</td>
<td>Type</td>
</tr>
<tr>
<td>ProtocolEnabled</td>
<td>Boolean, null</td>
<td>No</td>
</tr>
<tr>
<td>Port</td>
<td>Number, null</td>
<td>No</td>
</tr>
<tr>
<td>NotifyMulticastIntervalSeconds</td>
<td>Number, null</td>
<td>No</td>
</tr>
<tr>
<td>NotifyTTL</td>
<td>Number, null</td>
<td>No</td>
</tr>
<tr>
<td>NotifyIPv6Scope</td>
<td>String, null</td>
<td>No</td>
</tr>
<tr>
<td>IPMI</td>
<td>Object</td>
<td>Type</td>
</tr>
<tr>
<td>ProtocolEnabled</td>
<td>Boolean, null</td>
<td>No</td>
</tr>
<tr>
<td>Port</td>
<td>Number, null</td>
<td>No</td>
</tr>
<tr>
<td>SSH</td>
<td>Object</td>
<td>Type</td>
</tr>
<tr>
<td>ProtocolEnabled</td>
<td>Boolean, null</td>
<td>No</td>
</tr>
<tr>
<td>Port</td>
<td>Number, null</td>
<td>No</td>
</tr>
<tr>
<td>KVMIP</td>
<td>Object</td>
<td>Type</td>
</tr>
</tbody>
</table>
### Name
Network service

### Type URI
/redfish/v1/Managers/(managerID)/NetworkProtocol

## Attribute | Type | Description
--- | --- | ---
ProtocolEnabled | Boolean, null | Availability of protocol
Port | Number, null | 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:**

```json
{
   "@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
   }
}
```
4.32.12 PUT
Operation is not allowed on this resource.

4.32.13 PATCH
Operation is not allowed on this resource.

4.32.14 POST
Operation is not allowed on this resource.

4.32.15 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>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>String</td>
<td>Yes</td>
<td>Name of collection</td>
</tr>
<tr>
<td>Members@odata.</td>
<td>Number</td>
<td>Yes</td>
<td>Collection members count</td>
</tr>
<tr>
<td>count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Members</td>
<td>Array</td>
<td>Yes</td>
<td>Contains the members of this collection</td>
</tr>
</tbody>
</table>

### 4.33.1 Operations

#### 4.33.1.1 GET
Request:

```
GET /redfish/v1/Managers/{managerID}/EthernetInterfaces
```
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>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>String</td>
<td>Yes</td>
<td>Name of collection</td>
</tr>
<tr>
<td><a href="mailto:Members@odata.count">Members@odata.count</a></td>
<td>Number</td>
<td>Yes</td>
<td>Collection members count</td>
</tr>
<tr>
<td>Members</td>
<td>Array</td>
<td>Yes</td>
<td>Contains the members of this collection</td>
</tr>
</tbody>
</table>
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.VLanNetworkInterfaceCollection",
    "@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

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oem</td>
<td>Object</td>
<td>Yes</td>
<td>OEM defined object &quot;Intel_RackScale&quot; extensions:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Attribute</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tagged</td>
</tr>
<tr>
<td>VLANEnable</td>
<td>Boolean</td>
<td>Yes</td>
<td>Indicates if this VLAN is enabled</td>
</tr>
<tr>
<td>VLANId</td>
<td>Number</td>
<td>Yes</td>
<td>VLAN identifier for this NIC</td>
</tr>
</tbody>
</table>

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/VLAN2

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Type URI</th>
</tr>
</thead>
<tbody>
<tr>
<td>_VLANNetworkInterface</td>
<td>/redfish/v1/EthernetSwitches/(switchID)/Ports/(portID)/VLANs/(vlanID)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>String</td>
<td>Resource identifier</td>
</tr>
<tr>
<td>Name</td>
<td>String</td>
<td>Resource name</td>
</tr>
<tr>
<td>Description</td>
<td>String,</td>
<td>Resource description</td>
</tr>
<tr>
<td>OEM</td>
<td>Object</td>
<td>OEM defined object</td>
</tr>
<tr>
<td>&quot;Intel_RackScale&quot; extensions:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tagged</td>
<td>Boolean, null</td>
<td>Indicates if VLAN is tagged (as defined in IEEE 802.1Q)</td>
</tr>
<tr>
<td>Status</td>
<td>Object, null</td>
<td>See Section 5.1 for resource status.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Type URI</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>/redfish/v1/EventService</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>String</td>
<td>Yes</td>
<td>Resource identifier</td>
</tr>
<tr>
<td>Name</td>
<td>String</td>
<td>Yes</td>
<td>Resource name</td>
</tr>
<tr>
<td>Description</td>
<td>String, null</td>
<td>No</td>
<td>Resource description</td>
</tr>
<tr>
<td>Status</td>
<td>Object, null</td>
<td>No</td>
<td>See Section 5.1 for resource status.</td>
</tr>
</tbody>
</table>

Event service  Event service resource responsible for sending events to subscribers.

Table 25 Event service attributes

<table>
<thead>
<tr>
<th>Name</th>
<th>Type URI</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>/redfish/v1/EventService</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>String</td>
<td>Yes</td>
<td>Resource identifier</td>
</tr>
<tr>
<td>Name</td>
<td>String</td>
<td>Yes</td>
<td>Resource name</td>
</tr>
<tr>
<td>Description</td>
<td>String, null</td>
<td>No</td>
<td>Resource description</td>
</tr>
<tr>
<td>Status</td>
<td>Object, null</td>
<td>No</td>
<td>See Section 5.1 for resource status.</td>
</tr>
</tbody>
</table>
**Name** | Event service
---|---
**Type/URI** | `/redfish/v1/EventService`

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

### 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"
    }
}
```
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>
<thead>
<tr>
<th>Table 26 Event subscription collection attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td>Type URI</td>
</tr>
<tr>
<td>Attribute</td>
</tr>
<tr>
<td>Name</td>
</tr>
<tr>
<td>Members</td>
</tr>
<tr>
<td><a href="mailto:Members@odata.count">Members@odata.count</a></td>
</tr>
<tr>
<td>Members</td>
</tr>
</tbody>
</table>

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#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

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>String</td>
<td>Yes</td>
<td>Resource identifier</td>
</tr>
<tr>
<td>Name</td>
<td>String</td>
<td>No</td>
<td>Resource name</td>
</tr>
<tr>
<td>Description</td>
<td>String</td>
<td>No</td>
<td>Resource description</td>
</tr>
<tr>
<td>Oem</td>
<td>Object</td>
<td>No</td>
<td>OEM defined object</td>
</tr>
</tbody>
</table>
Event subscription

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Destination</td>
<td>String</td>
<td>Yes</td>
<td>The URI of the destination Event Service.</td>
</tr>
<tr>
<td>EventTypes</td>
<td>Array</td>
<td>Yes</td>
<td>These are the types of Events that can be subscribed to. Available event types:</td>
</tr>
<tr>
<td>Context</td>
<td>String</td>
<td>Yes</td>
<td>A client-supplied string that is stored with the event destination subscription.</td>
</tr>
<tr>
<td>Protocol</td>
<td>String (enum)</td>
<td>Yes</td>
<td>The protocol type of the event connection. Available protocols:</td>
</tr>
<tr>
<td>OriginResources</td>
<td>Array</td>
<td>No</td>
<td>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</td>
</tr>
<tr>
<td>MessageIds</td>
<td>Array</td>
<td>No</td>
<td>A list of MessageIds that the service will send. Not exposed by PSME ver. 2.1.3</td>
</tr>
</tbody>
</table>

### 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>
<thead>
<tr>
<th>Table 28</th>
<th>Event array attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Event array</td>
</tr>
<tr>
<td>Type URI</td>
<td>n/a</td>
</tr>
<tr>
<td>Attribute</td>
<td>Type</td>
</tr>
<tr>
<td>Id</td>
<td>String</td>
</tr>
<tr>
<td>Name</td>
<td>String</td>
</tr>
<tr>
<td>Description</td>
<td>String</td>
</tr>
<tr>
<td>Oem</td>
<td>Object</td>
</tr>
<tr>
<td>Events</td>
<td>Array</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 29</th>
<th>Event attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute</td>
<td>Type</td>
</tr>
<tr>
<td>EventType</td>
<td>String (enum)</td>
</tr>
<tr>
<td>EventId</td>
<td>String</td>
</tr>
<tr>
<td>EventTimestamp</td>
<td>String</td>
</tr>
<tr>
<td>Severity</td>
<td>String</td>
</tr>
<tr>
<td>Message</td>
<td>String</td>
</tr>
<tr>
<td>MessageId</td>
<td>String</td>
</tr>
<tr>
<td>MessageArgs</td>
<td>Array of strings</td>
</tr>
<tr>
<td>Context</td>
<td>String</td>
</tr>
<tr>
<td>OriginOfCondition</td>
<td>Object</td>
</tr>
</tbody>
</table>

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

```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.

4.4.1 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: application/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",
}
Switch Properties' details available in Switch.xml metadata file.

### 4.44 Operations

#### 4.44.1 GET

**Request:**

GET /redfish/v1/Fabrics/PCIe/Switches/1

**Content-Type: application/json**

**Response:**

```json
{
    "@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": {}
},
"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: application/json

Response:
```json
{
   "@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": {
      "@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: application/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/delete) is not supported.

The following properties can be updated by the PATCH operation:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endpoints</td>
<td>Array</td>
<td>No</td>
<td>An array of references to the endpoints that are contained in this zone.</td>
</tr>
</tbody>
</table>

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:

```json
{
   "@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/NVMeDrivePF3"
      }
   ]
}
```
PSME REST API Definition

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:

```json
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: application/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": {}
        }
    ]
}
```
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: application/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",
}
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:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AssetTag</td>
<td>String</td>
<td>No</td>
<td>The user assigned asset tag for this storage PCIe device.</td>
</tr>
</tbody>
</table>

```
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: application/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: application/json

Response:

```json
{
    "@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: application/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: application/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: application/json

Response:

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

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.

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: application/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 Function 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": {}
## PSME REST API Definition

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

**PATCH**

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

---

May 2017

Document Number: 335458-002
"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

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

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 (non-graceful) 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
Common Property Description

- 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)