Intel® Rack Scale Design (RSD) Pooled System Management Engine (PSME) Representational State Transfer (RESTful)

API Specification
Software v2.3

May 2018

Revision 001
# Table of Contents

## 1.0 Introduction

1.1 Scope .................................................................................................................. 9
1.2 Intended Audience ............................................................................................. 9
1.3 Conventions ........................................................................................................ 9
1.4 Notes and Symbol Convention ....................................................................... 9
1.5 Terminology ....................................................................................................... 10
1.6 Document References ....................................................................................... 10

## 2.0 PSME API

2.1 PSME API Structure and Relations ................................................................ 12
2.1.1 PSME API Physical Resource Hierarchy .................................................... 12

## 3.0 PSME RESTful API Error Codes

3.1 API Error Response ............................................................................................ 17
3.1.1 Message Object ............................................................................................ 17
3.1.2 Example Error JSON Object ....................................................................... 17
3.2 API Error Codes ................................................................................................ 18
3.2.1 General Error Codes .................................................................................... 18
3.2.2 Patch Method Error Codes .......................................................................... 19

## 4.0 PSME REST API Definition

4.1 OData Support .................................................................................................... 20
4.2 Asynchronous Operations .................................................................................. 20
4.3 Protocol Version ................................................................................................ 20
4.3.1 Operations .................................................................................................... 21
4.4 OData Service Document ................................................................................ 21
4.4.1 Operations .................................................................................................... 21
4.5 Intel® Rack Scale Design OEM Extensions ...................................................... 22
4.6 Service Root ...................................................................................................... 22
4.6.1 Operations .................................................................................................... 23
4.7 Chassis Collection ............................................................................................. 24
4.7.1 Operations .................................................................................................... 25
4.8 Chassis Resource .............................................................................................. 26
4.8.1 Operations .................................................................................................... 26
4.9 Computer Systems Collection ......................................................................... 29
4.9.1 Operations .................................................................................................... 29
4.10 Computer System ............................................................................................ 29
4.10.1 Operations ................................................................................................... 29
4.11 Computer System Metrics ............................................................................... 39
4.11.1 Operations .................................................................................................. 39
4.12 Processor Collection ....................................................................................... 40
4.12.1 Operations .................................................................................................. 40
4.13 Processor .......................................................................................................... 40
4.13.1 Operations .................................................................................................. 41
4.14 Processor Metrics ............................................................................................ 44
4.14.1 Operations .................................................................................................. 44
4.15 Memory Collection .......................................................................................... 44
4.15.1 Operations .................................................................................................. 44
4.41 VLAN Network Interface ........................................................................................................... 90
4.41.1 Operations ............................................................................................................................. 90
4.42 Event Service .............................................................................................................................. 92
4.42.1 Operations ............................................................................................................................. 92
4.43 Event Subscription Collection ................................................................................................. 93
4.43.1 Metadata ............................................................................................................................... 93
4.43.2 Operations ............................................................................................................................. 94
4.44 Event Subscription .................................................................................................................... 95
4.44.1 Metadata ............................................................................................................................... 95
4.44.2 Operations ............................................................................................................................. 95
4.45 Event Array ............................................................................................................................... 96
4.45.1 Metadata ............................................................................................................................... 97
4.45.2 Operations ............................................................................................................................. 97
4.46 Fabric Collection ...................................................................................................................... 98
4.46.1 Operations ............................................................................................................................. 98
4.47 Fabric ........................................................................................................................................ 99
4.47.1 Operations ............................................................................................................................. 99
4.48 Switch collection ...................................................................................................................... 100
4.48.1 Operations ............................................................................................................................. 100
4.49 Switch ...................................................................................................................................... 101
4.49.1 Operations ............................................................................................................................. 101
4.50 Port Collection ......................................................................................................................... 102
4.50.1 Operations ............................................................................................................................. 102
4.51 Port ........................................................................................................................................... 103
4.51.1 Operations ............................................................................................................................. 103
4.52 Port Metrics .............................................................................................................................. 105
4.52.1 Operations ............................................................................................................................. 105
4.53 Zones Collection ...................................................................................................................... 105
4.53.1 Operations ............................................................................................................................. 105
4.54 Zone .......................................................................................................................................... 107
4.54.1 Operations ............................................................................................................................. 107
4.55 Endpoint Collection .................................................................................................................. 108
4.55.1 Operations ............................................................................................................................. 108
4.56 Endpoint ................................................................................................................................... 110
4.56.1 Operations ............................................................................................................................. 110
4.57 PCIe* Device .............................................................................................................................. 111
4.57.1 Operations ............................................................................................................................. 111
4.58 PCIe Device Function ................................................................................................................ 113
4.58.1 Operations ............................................................................................................................. 113
4.59 Task Service .............................................................................................................................. 114
4.59.1 Operations ............................................................................................................................. 114
4.60 Task Collection ......................................................................................................................... 115
4.60.1 Operations ............................................................................................................................. 115
4.61 Task ........................................................................................................................................... 116
4.61.1 Operations ............................................................................................................................. 116
4.62 Registries (MessageRegistryFileCollection) ............................................................................ 117
4.62.1 Operations ............................................................................................................................. 117
4.63 Message Registry File ............................................................................................................... 118
4.63.1 Operations ............................................................................................................................. 118
4.64 Metric Definition Collection ................................................................. 119
4.64.1 Operations ....................................................................................... 119
4.65 Metric Definition ................................................................................ 120
4.65.1 Operations ....................................................................................... 120
4.66 Telemetry Service .................................................................................. 122
4.66.1 Operations ....................................................................................... 122
4.67 Metric Report Definition Collection ....................................................... 123
4.67.1 Operations ....................................................................................... 123
4.68 Metric Report Definition ........................................................................ 124
4.68.1 Operations ....................................................................................... 124
4.69 Metric Report Collection ....................................................................... 125
4.69.1 Operations ....................................................................................... 126
4.70 Metric Report ....................................................................................... 126
4.70.1 Operations ....................................................................................... 126
4.71 Triggers Collection ............................................................................... 128
4.71.1 Operations ....................................................................................... 128
4.72 Triggers ................................................................................................. 130
4.72.1 Operations ....................................................................................... 130
4.73 Power ................................................................................................... 132
4.73.1 Operations ....................................................................................... 132
4.74 Thermal ................................................................................................ 136
4.74.1 Operations ....................................................................................... 136
4.75 Network Interface Collection .................................................................. 139
4.75.1 Operations ....................................................................................... 139
4.76 Network Interface .................................................................................. 140
4.76.1 Operations ....................................................................................... 140
4.77 Network Device Function Collection ....................................................... 141
4.77.1 Operations ....................................................................................... 141
4.78 Network Device Function ....................................................................... 142
4.78.1 Operations ....................................................................................... 142
4.79 Update Service ....................................................................................... 146
4.79.1 Operations ....................................................................................... 146
4.80 ActionInfo ............................................................................................ 147
4.80.1 Operations ....................................................................................... 147
5.0 Required Resources per Service Type ....................................................... 149
6.0 Common Property Description .................................................................. 152
6.1 Status ................................................................................................... 152
6.2 Status -> State ....................................................................................... 152
6.3 Status -> Health ..................................................................................... 152
6.4 ComputerSystem.Reset ......................................................................... 152
6.5 Bootsourceoverridetarget/Supported ...................................................... 153

Figures

Figure 1. PSME RESTful API Hierarchy for Compute Resources .................. 12
Figure 2. PSME RESTful API Hierarchy for PNC Resources ......................... 13
Figure 3. Chassis Relationship ..................................................................... 25
Tables

Table 1. Terminology .................................................................................................................. 10
Table 2. Document References .............................................................................................. 10
Table 3. Resources and URLs .................................................................................................. 13
Table 4. API Error Response Attributes .................................................................................. 17
Table 5. Message Object Attributes ....................................................................................... 17
Table 6. HTTP Error Status Codes ......................................................................................... 18
Table 7. Properties Updated by Patch Operation ...................................................................... 28
Table 8. Properties Updated by Patch Operation ...................................................................... 36
Table 9. Boot Override Update Properties ............................................................................... 36
Table 10. Action Parameters .................................................................................................... 38
Table 11. Properties Updated by PATCH Operation ................................................................. 53
Table 12. Properties Updated by Patch Operation ................................................................... 62
Table 13. Properties Updated by Patch Operation ................................................................... 67
Table 14. Port Attribute ............................................................................................................ 72
Table 15. New ACL Rule Condition Attributes ....................................................................... 74
Table 16. ACL Rule Condition Attributes ............................................................................... 74
Table 17. ACL Rule Modification Attributes .......................................................................... 78
Table 18. ACL Rule Condition Attributes ............................................................................... 79
Table 19. New Static MAC Entry Attributes ............................................................................ 83
Table 20. Static MAC Modification Attributes ....................................................................... 84
Table 21. Network Service Attributes .................................................................................... 85
Table 22. Post Action Attributes ............................................................................................. 89
Table 23. Properties Updated by Patch Operation ................................................................... 91
Table 24. Event Service Attributes .......................................................................................... 92
Table 25. Event Subscription Attributes .................................................................................. 95
Table 26. Event Array Attributes ............................................................................................ 96
Table 27. Event Attributes ...................................................................................................... 97
Table 28. Properties Updated by Patch Operation ................................................................... 107
Table 29. Properties Updated by Patch Operation ................................................................... 112
Table 30. Properties Updated by Patch Operation ................................................................... 143
Table 31. Ethernet Object Properties ..................................................................................... 143
Table 32. iSCSIBoot Object Properties .................................................................................... 143
Table 33. Required Resources per Service Type ...................................................................... 149
Table 34. Status ....................................................................................................................... 152

May 2018
Document Number: 337207-001US

Intel® Rack Scale Design (RSD) PSME RESTful API Specification

7
## Revision History

<table>
<thead>
<tr>
<th>Revision</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Initial release for Intel® RSD Storage Services software v2.3</td>
<td>March 2018</td>
</tr>
</tbody>
</table>
1.0 Introduction

1.1 Scope

This specification defines the interface to the Pooled System Management Engine (PSME) module to support Intel® Rack Scale Design (Intel® RSD) drawers, which cover the functionality designed and implemented in Intel® Rack Scale Design software v2.3.

The interface specified is based on the Distributed Management Task Force’s (DMTF) Redfish* Interface Specification and schema, #DSP8010 v2016.3. The DMTF enhanced schema now includes the Sensor Model, which is still a work in progress at the Scalable Platforms Management Forum (SPMF). The MemoryMetrics model is based on the Redfish/SPMF API DSP8010_2017.1. For the location and title of documents mentioned, refer to Table 2.

1.2 Intended Audience

The Intended Audiences for this document include:

- Software vendors (for example, independent software vendors (ISV’s) of POD management applications, that make use of the PSME API to discover, compose, and manage Intel® RSD drawers, regardless of the hardware vendor.
- Hardware vendors (for example, OEMs) of PSME firmware that implement PSME firmware for Intel® RSD compliant systems.

1.3 Conventions

The key words/phrases "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119, Table 2.

1.4 Notes and Symbol Convention

Symbol and note convention are similar to typographical conventions used in Cloud Infrastructure Management Interface (CIMI) Model and representational state transfer (RESTful) HTTP-based Protocol specification, refer to Table 2.

Notation used in JSON* serialization description:

- Mandatory in italics indicate data types instead of literal Mandatory.
- Characters are appended to items to indicate cardinality:
  - "?" (0 or 1)
  - "*" (0 or more)
  - "+" (1 or more)
- Vertical bars, "|", denote choice. For example, "a|b" means a choice between "a" and "b".
- Parentheses, "(" and ")", are used to indicate the scope of the operators "?", "*", "+" and "|".
- Ellipses (i.e., "...") indicate points of extensibility.

Note: The lack of ellipses does not mean no extensibility point exists; rather it is just not explicitly called out.
1.5 Terminology

Table 1. Terminology

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACL</td>
<td>Access Control List</td>
</tr>
<tr>
<td>BMC</td>
<td>Baseboard Management Controller</td>
</tr>
<tr>
<td>HTTP</td>
<td>Hypertext Transfer Protocol</td>
</tr>
<tr>
<td>Intel® RSD</td>
<td>Intel® Rack Scale Design</td>
</tr>
<tr>
<td>ISV</td>
<td>Independent Software Vendor</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>OEM</td>
<td>Original Equipment Manufacturer</td>
</tr>
<tr>
<td>PNC</td>
<td>Pooled Node Controller</td>
</tr>
<tr>
<td>PODM</td>
<td>Pod Manager</td>
</tr>
<tr>
<td>PSME</td>
<td>Pooled System Management Engine</td>
</tr>
<tr>
<td>PXE</td>
<td>Preboot Execution</td>
</tr>
<tr>
<td>REST</td>
<td>Representational State Transfer</td>
</tr>
<tr>
<td>SPMF</td>
<td>Scalable Platforms Management Forum</td>
</tr>
<tr>
<td>URI</td>
<td>Uniform Resource Identifier</td>
</tr>
<tr>
<td>UUID</td>
<td>Universally Unique Identifier</td>
</tr>
<tr>
<td>xSsV</td>
<td>Software Vendors</td>
</tr>
</tbody>
</table>

1.6 Document References

Table 2. Document References

<table>
<thead>
<tr>
<th>Doc ID</th>
<th>Title</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>337197</td>
<td>Intel® Rack Scale Design (Intel® RSD) Conformance and Software Reference Kit Getting Started Guide Software v2.3</td>
<td></td>
</tr>
<tr>
<td>337198</td>
<td>Intel® Rack Scale Design (Intel® RSD) POD Manager (PODM) Release Notes Software v2.3</td>
<td></td>
</tr>
<tr>
<td>337199</td>
<td>Intel® Rack Scale Design (Intel® RSD) POD Manager (PODM) Representational State Transfer (RESTful) User Guide Software v2.3</td>
<td></td>
</tr>
<tr>
<td>337200</td>
<td>Intel® Rack Scale Design (Intel® RSD) Pooled System Management Engine (PSME) Release Notes Software v2.3</td>
<td></td>
</tr>
<tr>
<td>337201</td>
<td>Intel® Rack Scale Design (Intel® RSD) Firmware Extension Specification Software v2.3</td>
<td></td>
</tr>
<tr>
<td>337202</td>
<td>Intel® Rack Scale Design (Intel® RSD) Storage Services API Specification Software v2.3</td>
<td></td>
</tr>
<tr>
<td>337203</td>
<td>Intel® Rack Scale Design (Intel® RSD) Architecture Specification Software v2.3</td>
<td></td>
</tr>
<tr>
<td>337204</td>
<td>Intel® Rack Scale Design (Intel® RSD) POD Manager (PODM) Representational State Transfer (RESTful) API Specification Software v2.3</td>
<td></td>
</tr>
<tr>
<td>337205</td>
<td>Intel® Rack Scale Design (Intel® RSD) Rack Management Module (RMM) Representational State Transfer (RESTful) API Specification Software v2.3</td>
<td></td>
</tr>
<tr>
<td>337206</td>
<td>Intel® Rack Scale Design (Intel® RSD) Generic Assets Management Interface (GAMI) API Software v2.3</td>
<td></td>
</tr>
</tbody>
</table>
# Introduction

## Table of Contents

<table>
<thead>
<tr>
<th>Doc ID</th>
<th>Title</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>337207</td>
<td><strong>Intel® Rack Scale Design (Intel® RSD) Pooled System Management Engine (PSME) Representational State Transfer (RESTful) API Specification Software v2.3</strong></td>
<td></td>
</tr>
<tr>
<td>DSP0263</td>
<td><strong>Cloud Infrastructure Management Interface (CIMI) specification</strong></td>
<td><a href="https://www.dmtf.org/sites/default/files/standards/documents/DSP0263_1.0.1.pdf">https://www.dmtf.org/sites/default/files/standards/documents/DSP0263_1.0.1.pdf</a></td>
</tr>
<tr>
<td>DSP0266</td>
<td><strong>Redfish Scalable Platforms Management API Specification v1.4.0</strong></td>
<td><a href="https://www.dmtf.org/sites/default/files/DSP0266_1.4.0.pdf">https://www.dmtf.org/sites/default/files/DSP0266_1.4.0.pdf</a></td>
</tr>
<tr>
<td>DSP8010</td>
<td><strong>Redfish Schema v2016.3</strong></td>
<td><a href="https://www.dmtf.org/sites/default/files/DSP8010_2016.3.zip">https://www.dmtf.org/sites/default/files/DSP8010_2016.3.zip</a></td>
</tr>
<tr>
<td>RFC2119</td>
<td><strong>Key Words for Use in RFCs to Indicate Requirement Levels, March 1997</strong></td>
<td><a href="https://ietf.org/rfc/rfc2119.txt">https://ietf.org/rfc/rfc2119.txt</a></td>
</tr>
</tbody>
</table>
2.0 PSME API

2.1 PSME API Structure and Relations

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

The API hierarchy for compute resources is shown in Figure 1, the API hierarchy for Pooled Node Controller (PNC) resources is shown in Figure 2, and resources and Uniform Resource Identifiers (URI) are listed in Table 3.

2.1.1 PSME API Physical Resource Hierarchy

Figure 1. PSME RESTful API Hierarchy for Compute Resources
Figure 2. PSME RESTful API Hierarchy for PNC Resources

<table>
<thead>
<tr>
<th>Resource</th>
<th>Schema Version</th>
<th>OEM Extended?</th>
<th>URI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Root</td>
<td>v1_1_1</td>
<td>Yes</td>
<td>/redfish/v1</td>
</tr>
<tr>
<td>Chassis Collection</td>
<td></td>
<td>No</td>
<td>/redfish/v1/Chassis</td>
</tr>
<tr>
<td>Chassis</td>
<td>V1_3_0</td>
<td>Yes</td>
<td>/redfish/v1/Chassis/{chassisID}</td>
</tr>
<tr>
<td>Computer Systems Collection</td>
<td></td>
<td>No</td>
<td>/redfish/v1/Systems</td>
</tr>
<tr>
<td>Computer Systems Metrics</td>
<td></td>
<td>Yes</td>
<td>/redfish/v1/Systems/{systemID}/Metrics</td>
</tr>
<tr>
<td>Processors Collection</td>
<td></td>
<td>No</td>
<td>/redfish/v1/Systems/{systemID}/Processors</td>
</tr>
<tr>
<td>Processors</td>
<td>V1_0_0</td>
<td>Yes</td>
<td>/redfish/v1/Systems/{systemID}Processors/{processorID}</td>
</tr>
<tr>
<td>Processors Metrics</td>
<td></td>
<td>No</td>
<td>/redfish/v1/Systems/{systemID}Processors/{processorID}/Metrics</td>
</tr>
<tr>
<td>Memory Collection</td>
<td></td>
<td>No</td>
<td>/redfish/v1/Systems/{systemID}/Memory</td>
</tr>
<tr>
<td>Memory</td>
<td>V1_1_0</td>
<td>Yes</td>
<td>/redfish/v1/Systems/{systemID}/Memory/{memoryID}/Metrics</td>
</tr>
<tr>
<td>Memory Metrics</td>
<td></td>
<td></td>
<td>/redfish/v1/Systems/{systemID}/Memory/{memoryID}/Metrics</td>
</tr>
<tr>
<td>Storage Subsystem Collection</td>
<td></td>
<td>No</td>
<td>/redfish/v1/Systems/{systemID}/Storage</td>
</tr>
<tr>
<td>Storage Subsystem</td>
<td>V1_0_0</td>
<td>No</td>
<td>/redfish/v1/Systems/{systemID}/Storage/{storageID}</td>
</tr>
<tr>
<td>Drives</td>
<td>V1_1_1</td>
<td>Yes</td>
<td>/redfish/v1/Chassis/{chassisID}/Drives/{driveID}</td>
</tr>
<tr>
<td>Managers Collection</td>
<td></td>
<td>No</td>
<td>/redfish/v1/Managers</td>
</tr>
<tr>
<td>Managers</td>
<td>V1_2_0</td>
<td>No</td>
<td>/redfish/v1/Managers/{managerID}</td>
</tr>
</tbody>
</table>

* names are subject to change
<table>
<thead>
<tr>
<th>Resource</th>
<th>Schema Version</th>
<th>OEM Extended?</th>
<th>URI</th>
</tr>
</thead>
<tbody>
<tr>
<td>NetworkProtocol</td>
<td>V1_0_0</td>
<td>No</td>
<td>/redfish/v1/Managers/{managerID}/NetworkProtocol</td>
</tr>
<tr>
<td>EthernetInterfaces Collection</td>
<td>–</td>
<td>–</td>
<td>/redfish/v1/Systems/{systemID}/EthernetInterfaces</td>
</tr>
<tr>
<td>EthernetInterfaces</td>
<td>V1_1_0</td>
<td>Yes</td>
<td>/redfish/v1/Systems/{systemID}/EthernetInterfaces/{nicID}</td>
</tr>
<tr>
<td>EthernetSwitches Collection</td>
<td>–</td>
<td>–</td>
<td>/redfish/v1/EthernetSwitches</td>
</tr>
<tr>
<td>EthernetSwitches Oem v1_0_0</td>
<td>–</td>
<td>–</td>
<td>/redfish/v1/EthernetSwitches/{switchID}/Metrics</td>
</tr>
<tr>
<td>EthernetSwitches Ports Collection</td>
<td>–</td>
<td>–</td>
<td>/redfish/v1/EthernetSwitches/{switchID}/Ports</td>
</tr>
<tr>
<td>EthernetSwitches Ports Oem v1_0_0</td>
<td>–</td>
<td>–</td>
<td>/redfish/v1/EthernetSwitches/{switchID}/Ports/{portID}</td>
</tr>
<tr>
<td>EthernetSwitches Ports Metrics</td>
<td>Oem v1_0_0</td>
<td>–</td>
<td>/redfish/v1/EthernetSwitches/{switchID}/Ports/{portID}/Metrics</td>
</tr>
<tr>
<td>EthernetSwitches StaticMACs Collection Oem v1_0_0</td>
<td>–</td>
<td>–</td>
<td>/redfish/v1/EthernetSwitches/{switchID}/Ports/{portID}/StaticMACs</td>
</tr>
<tr>
<td>EthernetSwitches Access Control Lists (ACL) collection</td>
<td>–</td>
<td>–</td>
<td>/redfish/v1/EthernetSwitches/{switchID}/ACLs</td>
</tr>
<tr>
<td>EthernetSwitches ACLs Oem v1_0_0</td>
<td>–</td>
<td>–</td>
<td>/redfish/v1/EthernetSwitches/{switchID}/ACLs/{aclID}</td>
</tr>
<tr>
<td>EthernetSwitches ACLs rules collection</td>
<td>–</td>
<td>–</td>
<td>/redfish/v1/EthernetSwitches/{switchID}/ACLs/{aclID}/Rules</td>
</tr>
<tr>
<td>EthernetSwitches ACLs rules Oem v1_0_0</td>
<td>–</td>
<td>–</td>
<td>/redfish/v1/EthernetSwitches/{switchID}/ACLs/{aclID}/Rules/{ruleID}</td>
</tr>
<tr>
<td>VLANs Network Interface Collection</td>
<td>–</td>
<td>–</td>
<td>/redfish/v1/EthernetSwitches/{switchID}/Ports/VLANs</td>
</tr>
<tr>
<td>VLANs Network Interface V1_0_1</td>
<td>Yes</td>
<td>–</td>
<td>/redfish/v1/EthernetSwitches/{switchID}/Ports/VLANs/{vlanID}</td>
</tr>
<tr>
<td>EventService</td>
<td>V1_0_0</td>
<td>No</td>
<td>/redfish/v1/EventService</td>
</tr>
<tr>
<td>Event Subscriptions Collection</td>
<td>–</td>
<td>–</td>
<td>/redfish/v1/EventService/Subscriptions</td>
</tr>
<tr>
<td>Event Subscriptions V1_1_1</td>
<td>No</td>
<td>–</td>
<td>/redfish/v1/EventService/Subscriptions/{subscriptionID}</td>
</tr>
<tr>
<td>Fabrics collection</td>
<td>–</td>
<td>–</td>
<td>/redfish/v1/Fabrics</td>
</tr>
<tr>
<td>Fabric V1_0_0</td>
<td>No</td>
<td>–</td>
<td>/redfish/v1/Fabrics/{fabricID}</td>
</tr>
<tr>
<td>Resource</td>
<td>Schema Version</td>
<td>OEM Extended?</td>
<td>URI</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>----------------</td>
<td>---------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>Fabrics Switches collection</td>
<td></td>
<td></td>
<td>/redfish/v1/Fabrics/{fabricID}/Switches</td>
</tr>
<tr>
<td>Fabrics Switches</td>
<td>V1_0_0</td>
<td>No</td>
<td>/redfish/v1/Fabrics/{fabricID}/Switches/{switchID}</td>
</tr>
<tr>
<td>Fabrics Switches Ports collection</td>
<td></td>
<td></td>
<td>/redfish/v1/Fabrics/{fabricID}/Switches/{switchID}/Ports</td>
</tr>
<tr>
<td>Fabrics Switches Ports</td>
<td>V1_0_0</td>
<td>Yes</td>
<td>/redfish/v1/Fabrics/{fabricID}/Switches/{switchID}/Ports/{portID}</td>
</tr>
<tr>
<td>Fabrics Switches Ports Metrics</td>
<td>Oem v1_0_0</td>
<td></td>
<td>/redfish/v1/Fabrics/{fabricID}/Switches/{switchID}/Ports/{portID}/Metrics</td>
</tr>
<tr>
<td>Fabrics Zone collection</td>
<td></td>
<td></td>
<td>/redfish/v1/Fabrics/{fabricID}/Zones</td>
</tr>
<tr>
<td>Fabrics Zones</td>
<td>V1_0_0</td>
<td>No</td>
<td>/redfish/v1/Fabrics/{fabricID}/Zones/{zoneID}</td>
</tr>
<tr>
<td>Endpoints Collection</td>
<td></td>
<td></td>
<td>/redfish/v1/Fabrics/{fabricID}/Endpoints</td>
</tr>
<tr>
<td>Endpoints</td>
<td>V1_0_0</td>
<td>No</td>
<td>/redfish/v1/Fabrics/{fabricID}/Endpoints/{endpointID}</td>
</tr>
<tr>
<td>PCIeDevices</td>
<td>V1_0_0</td>
<td>No</td>
<td>/redfish/v1/Chassis/{chassisID}/PCIeDevices/{deviceID}</td>
</tr>
<tr>
<td>PCIeDevices Function</td>
<td>V1_0_0</td>
<td>No</td>
<td>/redfish/v1/Chassis/{chassisID}/PCIeDevices/{deviceID}/Functions/{functionID}</td>
</tr>
<tr>
<td>TelemetryService</td>
<td>WIP</td>
<td></td>
<td>/redfish/v1/TelemetryService</td>
</tr>
<tr>
<td>MetricDefinitions Collection</td>
<td>WIP</td>
<td></td>
<td>/redfish/v1/TelemetryService/MetricDefinitions</td>
</tr>
<tr>
<td>MetricDefinitions</td>
<td>WIP</td>
<td></td>
<td>/redfish/v1/TelemetryService/MetricDefinitions/{metricDefinitionId}</td>
</tr>
<tr>
<td>MetricReportDefinitions Collection</td>
<td>WIP</td>
<td></td>
<td>/redfish/v1/TelemetryService/MetricReportDefinitions</td>
</tr>
<tr>
<td>MetricReportDefinitions</td>
<td>WIP</td>
<td></td>
<td>/redfish/v1/TelemetryService/MetricReportDefinitions/{metricReportDefinitionId}</td>
</tr>
<tr>
<td>MetricReports</td>
<td>WIP</td>
<td></td>
<td>/redfish/v1/TelemetryService/MetricReports</td>
</tr>
<tr>
<td>MetricReports</td>
<td>WIP</td>
<td></td>
<td>/redfish/v1/TelemetryService/MetricReports/{metricReportId}</td>
</tr>
<tr>
<td>Triggers Collection</td>
<td>WIP</td>
<td></td>
<td>/redfish/v1/TelemetryService/Triggers</td>
</tr>
<tr>
<td>Triggers</td>
<td>WIP</td>
<td></td>
<td>/redfish/v1/TelemetryService/Triggers/{triggerId}</td>
</tr>
<tr>
<td>NetworkInterfaces collection</td>
<td></td>
<td></td>
<td>/redfish/v1/Systems/{systemID}/NetworkInterfaces</td>
</tr>
<tr>
<td>NetworkInterfaces</td>
<td>V1_0_0</td>
<td>No</td>
<td>/redfish/v1/Systems/{systemID}/NetworkInterfaces/{interfaceID}</td>
</tr>
<tr>
<td>NetworkDeviceFunctions collection</td>
<td></td>
<td></td>
<td>/redfish/v1/Systems/{systemID}/NetworkInterfaces/{interfaceID}/NetworkDeviceFunctions</td>
</tr>
<tr>
<td>NetworkDeviceFunctions</td>
<td>V1_0_0</td>
<td>No</td>
<td>/redfish/v1/Systems/{systemID}/NetworkInterfaces/{interfaceID}/NetworkDeviceFunctions/{functionID}</td>
</tr>
<tr>
<td>TaskService</td>
<td>V1_0_0</td>
<td>No</td>
<td>/redfish/v1/TaskService</td>
</tr>
<tr>
<td>Tasks Collection</td>
<td></td>
<td></td>
<td>/redfish/v1/TaskService/Tasks</td>
</tr>
<tr>
<td>Tasks</td>
<td>V1_0_0</td>
<td>No</td>
<td>/redfish/v1/TaskService/Tasks/{taskID}</td>
</tr>
<tr>
<td>Power</td>
<td>V1_1_0</td>
<td>No</td>
<td>/redfish/v1/Chassis/{chassisID}/Power</td>
</tr>
<tr>
<td>Thermal</td>
<td>V1_1_0</td>
<td>No</td>
<td>/redfish/v1/Chassis/{chassisID}/Thermal</td>
</tr>
<tr>
<td>Resource</td>
<td>Schema Version</td>
<td>OEM Extended?</td>
<td>URI</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------</td>
<td>---------------</td>
<td>-----------------------------------------</td>
</tr>
<tr>
<td>UpdateService</td>
<td>V1.1.0</td>
<td>No</td>
<td>/redfish/v1/UpdateService</td>
</tr>
<tr>
<td>ActionInfo</td>
<td>V1.0.0</td>
<td>No</td>
<td>/redfish/v1/UpdateService/SimpleUpdateActionInfo</td>
</tr>
</tbody>
</table>
3.0 PSME RESTful API Error Codes

This chapter contains descriptions of all error codes that may be returned by the RESTful calls implemented in the PSME RESTful API in the Intel® Rack Scale Design (Intel® RSD) software v2.3 release, refer to Table 2.

3.1 API Error Response

In the case of an error, the PSME RESTful API responds with a Hypertext Transfer Protocol (HTTP) status code, as defined by the HTTP 1.1 specification, Table 2, and constrained by additional requirements described in this specification.

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

Table 4. API Error Response Attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>code</td>
<td>A string indicating a specific MessageId from the message registry.</td>
</tr>
<tr>
<td></td>
<td>&quot;Base.1.0.GeneralError&quot; should be used only if there is no better message.</td>
</tr>
<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 properties listed in Table 5.

Table 5. Message Object Attributes

<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 is the complete message, and is does 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 is 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",
```
3.2 API Error Codes

In general, if an error is not described in Table 6, it is to be mapped into HTTP 500 Internal Error code.

3.2.1 General Error Codes

For a detailed list of stats error codes refer to Redfish* Scalable Platforms Management API Specification, Section 6.5.2. Refer to Table 2 for a list of references.

The client should be prepared and ready to handle the error codes listed in Table 6.

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 validation error on an input field, a missing required value, and so on). An extended error is 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, and PATCH) is not supported for this request URI. The response includes 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 is 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 PATCH methods, the Intel® RSD service conforms to IETF RFC 5789. Refer to Table 2 for details.

Service responds with the following error codes in the following cases:

- **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 doesn't (e.g. underlying HW doesn't 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).
4.0 PSME REST API Definition

Important note: The JavaScript* object notation (JSON) examples in this document are informative, not normative. Metadata files that are referenced by this specification are normative.

4.1 OData Support

Intel® Rack Scale Design (Intel® RSD) supports the Open Data Protocol (OData) v4.0 as it is defined in Redfish* Scalable Platforms Management API Specification, Table 4.

All resources within this RESTful API are identified by a unique identifier property named "@odata.id". Resource Identifiers is represented in JSON payloads as URI paths relative to the Redfish Schema portion of the URI. For example, the URIs always start with "/redfish/". The resource identifier is the canonical URI 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 must be prepared to handle both synchronous and asynchronous responses for requests using HTTP DELETE, POST, PATCH and PUT methods.

For details, refer to Table 2, 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 is "/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 minor versions.
- **Errata** = integer: something in the prior version was broken and needed to be fixed.

Any resource discovered through links can be found by accessing the root service or any service or resource referenced using references from the root service, conforms 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:

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

4.4 OData Service Document

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

4.4.1 Operations

4.4.1.1 GET

Request:

GET /redfish/v1/odata
Content-Type: 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",
      }
   ]
}
4.5 Intel® Rack Scale Design OEM Extensions

All Intel® RSD Original Equipment Manufacturer (OEM) extensions to all resources defined in this document are supported.

4.6 Service Root

Service root resource – entry point.

Property details are available in ServiceRoot.xml metadata file. OEM extension details are available in IntelRackScaleOem.xml.
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": "1.1.0",
   "UUID": "92384634-2938-2342-8820-48923905423",
   "Systems": {
      "@odata.id": "/redfish/v1/Systems"
   },
   "Chassis": {
      "@odata.id": "/redfish/v1/Chassis"
   },
   "Managers": {
      "@odata.id": "/redfish/v1/Managers"
   },
   "EventService": {
      "@odata.id": "/redfish/v1/EventService"
   },
   "Fabrics": {
      "@odata.id": "/redfish/v1/Fabrics"
   },
   "Tasks": {
      "@odata.id": "/redfish/v1/TaskService"
   },
   "Registries": {
      "@odata.id": "/redfish/v1/Registries"
   },
   "TelemetryService": {
      "@odata.id": "/redfish/v1/TelemetryService"
   },
   "Oem": {
      "Intel_RackScale": {
         "@odata.type": ":#Intel.Oem.ServiceRoot",
         "ApiVersion": "2.2.0",
         "Services": {
            "@odata.id": "/redfish/v1/Services"
         },
         "EthernetSwitches": {
            "@odata.id": "/redfish/v1/EthernetSwitches"
         }},
   "@odata.type": ":#Intel.Oem.ServiceRoot",
   "ApiVersion": "2.2.0",
   "Services": {
      "@odata.id": "/redfish/v1/Services"
   },
   "EthernetSwitches": {
      "@odata.id": "/redfish/v1/EthernetSwitches"
   }
}
```
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 shows the relationship between chassis components in this example Intel® RSD rack.
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#ChassisCollection.ChassisCollection",
   "@odata.id": "/redfish/v1/Chassis",
   "@odata.type": "]#ChassisCollection.ChassisCollection",
   "Name": "Chassis Collection",
   "Description": "description-as-string",
   "Members@odata.count": 4,
   "Members": [
      {
         "@odata.id": "/redfish/v1/Chassis/Drawer1"
      },
      {
      }
}
```
4.7.1.2 PUT
Operation is not allowed on this resource.

4.7.1.3 PATCH
Operation is not allowed on this resource.

4.7.1.4 POST
Operation is not allowed on this resource.

4.7.1.5 DELETE
Operation is not allowed on this resource.

4.8 Chassis Resource
This section provides the schema definition for the Chassis resource. It represents the properties for physical components for any system. This 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. OEM extensions details are available in IntelRackScaleOem.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.Chassis",
  "@odata.id": "/redfish/v1/Chassis/Bladel",
  "@odata.type": ">#Chassis.v1_4_0.Chassis", "+Chassis.v1_4_0.Links",
  "Id": "Bladel",
  "ChassisType": "Blade",
  "Name": "name-as-string",
  "Description": "description-as-string",
  "Manufacturer": "Intel Corporation",
  "Model": "model-as-string",
}"
```
"SKU": "sku-as-string",
"SerialNumber": "serial-number-as-string",
"PartNumber": "part-number-as-string",
"AssetTag": null,
"IndicatorLED": null,
"Status": {
  "State": "Enabled",
  "Health": "OK"
  "HealthRollup": "OK"
},

"Oem": {
  "Intel_RackScale": {
    "@odata.type": "#Intel.Oem.Chassis",
    "Location": {
      "Id": "Blade1",
      "ParentId": "Sled1"
    }
  }
},

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

"PowerState": "On"
4.8.12 PUT
Operation is not allowed on this resource.

4.8.13 PATCH
The properties in Table 7 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 chassis.</td>
</tr>
<tr>
<td>Oem-&gt;Intel_RackScale-&gt;Location</td>
<td>Object</td>
<td>No</td>
<td>Object representing physical location of chassis. Following properties can be patched: &quot;Id&quot; - String containing physical location ID of this chassis.</td>
</tr>
</tbody>
</table>

Request:
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)
}

4.8.14 POST
Operation is not allowed on this resource.

4.8.15 DELETE
Operation is not allowed on this resource.
4.9 Computer Systems Collection

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",
   "Description": "description-as-string",
   "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. OEM extensions details available in IntelRackScaleOem.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#ComputerSystem.ComputerSystem",
    "@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 v1.0.00 (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": [],
"TrustedModules": [
  {
    "@odata.type": ":ComputerSystem.v1_3_0.TrustedModules"
    "FirmwareVersion": "0.001",
    "InterfaceType": "TPM2_0",
    "Status": {
      "State": "Enabled",
      "Health": null,
      "HealthRollup": null
    },
    "Oem": {},
    "FirmwareVersion2": null,
    "InterfaceTypeSelection": "OemMethod"
  }
],
"Links": {
  "@odata.type": ":ComputerSystem.v1_2_0.Links",
  "Chassis": [
    {
      "@odata.id": "/redfish/v1/Chassis/4"
    }
  ],
  "ManagedBy": [
    {
      "@odata.id": "/redfish/v1/Managers/1"
"Endpoints": [],
"Oem": {
}
"Actions": {
"#ComputerSystem.Reset": {
"target": "/redfish/v1/Systems/System1/Actions/ComputerSystem.Reset",
"ResetType@Redfish.AllowableValues": [
"On",
"ForceOff",
"GracefulShutdown",
"ForceRestart",
"Nmi",
"GracefulRestart",
"ForceOn",
"PushPowerButton"
]
}
"Oem": {
"#Intel.Oem.StartDeepDiscovery": {
"target": "/redfish/v1/Systems/System1/Actions/Oem/Intel.Oem.StartDeepDiscovery"
},
"#Intel.Oem.StartDiscoveryOnDemand": {
"target": "/redfish/v1/Systems/System1/Actions/Oem/Intel.Oem.StartDiscoveryOnDemand"
},
"#Intel.Oem.ChangeTPMState": {
"InterfaceType@Redfish.AllowableValues": [
"TPM1_2",
"TPM2_0"
]
}
}
"Oem": {
"Intel_RackScale": {
"PciDevices": [
{"VendorId": "0x8086",
"DeviceId": "0x1234"
}],
"DiscoveryState": "Basic",
"ProcessorSockets": 8,
"MemorySockets": 8,
4.10.1.2 GET (PSME PCIe* Fabric)

This resource represents logical system containing PCIe* devices (no CPU or memory) and is excluded from PODM Composition.

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

Response:
```json
{
    "@odata.context": "'/redfish/v1/$metadata#ComputerSystem.ComputerSystem",
    "@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": null,
    "PowerState": "On",
    "Boot": {
        "@odata.type": "#ComputerSystem.v1_3_0.Boot",
        "BootSourceOverrideEnabled": "Disabled",
        "BootSourceOverrideTarget": "None",
        "Metrics": {
            "@odata.id": "/redfish/v1/Systems/System1/Metrics"
        },
        "NetworkInterfaces": {
            "@odata.id": "/redfish/v1/Systems/System1/NetworkInterfaces"
        }
    }
}
```
"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": [],
"TrustedModules": [],
"Links": {
  "@odata.type": ">#ComputerSystem.v1_2_0.Links",
  "Chassis": [{
    "@odata.id": "/redfish/v1/Chassis/4"
  }],
  "ManagedBy": [{
    "@odata.id": "/redfish/v1/Managers/1"
},
  "Endpoints": [],
  "Oem": { }
},
"Actions": {
  "#ComputerSystem.Reset": {
    "target": "/redfish/v1/Systems/System1/Actions/ComputerSystem.Reset",
    "ResetType@Redfish.AllowableValues": ["On",
    "ForceOff",
    "GracefulShutdown",
    "ForceRestart",
    "Nmi",
    "GracefulRestart",
    "ForceOn",
    "PushPowerButton"]
  },
  "Oem": {
    "#Intel.Oem.StartDeepDiscovery": {
      "target": "/redfish/v1/Systems/System1/Actions/Oem/Intel.Oem.StartDeepDiscovery"
    },
    "#Intel.Oem.StartDiscoveryOnDemand": {
      "target": "/redfish/v1/Systems/System1/Actions/Oem/Intel.Oem.StartDiscoveryOnDemand"
    },
    "#Intel.Oem.ChangeTPMState": {
      "InterfaceType@Redfish.AllowableValues": ["TPM1_2",
      "TPM2_0"
    ]
  },
  "Oem": {
    "Intel_RackScale": {
      "PciDevices": [],
      "DiscoveryState": "Basic",
      "ProcessorSockets": null,
      "MemorySockets": null,
      "PCleConnectionId": [ ],
      "UserModeEnabled": false,
      "TrustedExecutionTechnologyEnabled": false,
      "Metrics": {
        "@odata.id": "/redfish/v1/Systems/System2/Metrics"
      }
    }
  }
}
4.10.1.3 PUT

Operation is not allowed on this resource.

4.10.1.4 PATCH

The properties in Table 8 can be updated by the PATCH operation:

Table 8. Properties 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 system.</td>
</tr>
<tr>
<td>Boot</td>
<td>Object</td>
<td>No</td>
<td>Boot override properties, details in Table 9.</td>
</tr>
<tr>
<td>UserModeEnabled</td>
<td>Boolean</td>
<td>No</td>
<td>Allows switching between user mode (FW upgrade of system components disabled) and admin mode (FW upgrade enabled).</td>
</tr>
</tbody>
</table>

Table 9 describes the "Boot" properties that can be patched.

Table 9. Boot Override Update Properties

<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: &quot;Disabled&quot; - The system will boot as normal. &quot;Once&quot; - On its next boot cycle, the system will boot (one time) to the Boot Source Override Target. &quot;Continuous&quot; - The system will boot to the target specified in the BootSourceOverride Target 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 device, if BootSourceOverrideEnabled is true. Available values (refer to annotation @Redfish.AllowableValues for actual list of supported values): &quot;None&quot; - Boot from the normal boot device. &quot;Pxe&quot; - Boot from the Pre-Boot EXecution (PXE) environment. &quot;Hdd&quot; - Boot from a hard drive. &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 BootSourceOverrideTarget boot source is booted from: &quot;Legacy&quot; - The system will boot in non-UEFI boot mode to the Boot Source Override Target. &quot;UEFI&quot; - The system will boot in UEFI boot mode to the Boot Source Override Target.</td>
</tr>
</tbody>
</table>

Request:

PATCH /redfish/v1/Systems/System1
Content-Type: application/json

```json
{
    "Boot": {
        "BootSourceOverrideEnabled": "Once",
        "BootSourceOverrideTarget": "Pxe",
        "BootSourceOverrideMode": "UEFI"
    },
    "AssetTag": "Storage System"
}
```
PSME REST API Definition

"Oem": {
    "Intel_RackScale": {
        "UserModeEnabled": true
    }
}

Response:

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

Or (when task is created):

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": [
    ]
}

4.10.1.5  POST

4.10.1.5.1  Reset Computer System:

Request:

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

Response:

HTTP/1.1 204 No Content

4.10.1.5.2  Start Deep Discovery Process (PODM only)

This action is deprecated and may be removed in future version of service.

Request:

POST /redfish/v1/Systems/System1/Actions/Oem/Intel.Oem.StartDeepDiscovery
Content-Type: application/json
{
}
Response:
HTTP/1.1 204 No Content

Note: If DeepDiscovery process already started, or resource is allocated for composed node.

HTTP/1.1 409 Conflict

4.10.1.5.3 Start Discovery on Demand Process (PODM only)
This action is deprecated and may be removed in future version of service.

This action is used to trigger the discovery process on the PODM despite other discovery mechanisms (refresh assets inventory).

Request:
POST /redfish/v1/Systems/System1/Actions/Oem/Intel.Oem.StartDiscoveryOnDemand
Content-Type: application/json
{
}

Response:
HTTP/1.1 204 No Content

4.10.1.5.4 Change TPM State and/or Version:
This action typically can be applied to system during reset operation. Created task remains “InProgress” until reset action is triggered. Table 10 describes the action parameters.

Table 10. Action Parameters

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DeviceEnabled</td>
<td>Boolean</td>
<td>Yes</td>
<td>This defines the TPM device state as a result of triggering this action.</td>
</tr>
<tr>
<td>InterfaceType</td>
<td>String (enum)</td>
<td>No</td>
<td>Required interface type of the Trusted Module. Allowed values are defined in metadata ComputerSystem.xml Refer to Redfish@AllowableValues for service-supported types.</td>
</tr>
<tr>
<td>ClearOwnership</td>
<td>Boolean</td>
<td>No</td>
<td>This indicates if TPM ownership should be cleared.</td>
</tr>
</tbody>
</table>

Request:
Content-Type: application/json
{
    "DeviceEnabled": true,
    "InterfaceType": "TPM2_0",
    "ClearOwnership": true
}

Response:
HTTP/1.1 204 No Content

Or when task is created:

(header)
HTTP/1.1 202 Accepted
Location: http://<ip>:<port>/redfish/v1/TaskService/TaskMonitors/1

(body)
{
    "@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": [
]
}

4.10.1.6  DELETE

Operation is not allowed on this resource.

4.11  Computer System Metrics

Property details are available in ComputerSystemMetrics.xml metadata file.

4.11.1  Operations

4.11.1.1  GET

Request:

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

Response:

[
  "@odata.context": "/redfish/v1/$metadata#ComputerSystemMetricsComputerSystemMetrics",
  "@odata.id": "/redfish/v1/Systems/System1/Metrics",
  "@odata.type": "#ComputerSystemMetrics.v1_0_0.ComputerSystemMetrics",
  "Name": "Computer System Metrics for System1",
  "Description": "description-as-string",
  "Id": "Metrics for System1",
  "ProcessorBandwidthPercent": 17,
  "MemoryBandwidthPercent": 23,
  "MemoryThrottledCyclesPercent": 13,
  "ProcessorPowerWatt": 120,
  "MemoryPowerWatt": 48,
  "IOBandwidthGBps": 4,
  "Health": ["OK"]
]

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

4.12.1 Operations

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

Response:
```
{
   "@odata.context": "/redfish/v1/$metadata#ProcessorCollectionProcessorCollection",
   "@odata.id": "/redfish/v1/Systems/System1/Processors",
   "@odata.type": "#ProcessorCollection.ProcessorCollection",
   "Name": "Processors Collection",
   "Description": "description-as-string",
   "Members@odata.count": 1,
   "Members": [
      {
         "@odata.id": "/redfish/v1/Systems/System1/Processors/CPU1"
      }
   ]
}
```

4.12.1.2 PUT
Operation is not allowed on this resource.

4.12.1.3 PATCH
Operation is not allowed on this resource.

4.12.1.4 POST
Operation is not allowed on this resource.

4.12.1.5 DELETE
Operation is not allowed on this resource.

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

Property details are available in Processor.xml metadata file. OEM extensions details are available in IntelRackScaleOem.xml.
4.13.1 Operations

4.13.1.1 GET

Request:

GET /redfish/v1/Systems/System1/Processors/{ProcessorID}
Content-Type: application/json

Response:

{
    "@odata.context": "/redfish/v1/$metadata#Processor.Processor",
    "@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": {
            "Brand": "E5",
            "Capabilities": [
                "sse",
                "sse2",
                "sse3"
            ],
            "OnPackageMemory": [
                {
                    "Type": "L2Cache",
                    "CapacityMB": 2,
                    "SpeedMHz": null
                }
            ]
        }
    }
}
4.13.1.2 GET (FPGA)

Request:
GET /redfish/v1/Systems/System1/Processors/FPGA1
Content-Type: application/json

Response:

```
{
  "@odata.context": "/redfish/v1/$metadata#Processor.Processor",
  "@odata.id": "/redfish/v1/Systems/System1/Processors/FPGA1",
  "@odata.type": ">#Processor.v1_0_0.Processor",
  "Description": "description-as-string",
  "Name": "Accelerator",
  "Id": "FPGA1",
  "Socket": "CPU 1",
  "ProcessorType": "FPGA",
  "ProcessorArchitecture": "OEM",
  "InstructionSet": "OEM",
  "Manufacturer": "Intel(R) Corporation",
```

"Model": "CPU Integrated FPGA Accelerator XYZ8008",
"ProcessorId": {
    "VendorId": "GenuineIntel",
    "IdentificationRegisters": "0xDEADBEEF",
    "EffectiveFamily": "0xFF",
    "EffectiveModel": "0xAA",
    "Step": "0x1",
    "MicrocodeInfo": null
},
"MaxSpeedMHz": null,
"TotalCores": 2,
"TotalThreads": null,
"Status": {
    "State": "Enabled",
    "Health": "OK",
    "HealthRollup": null
},
"Oem": {
    "Intel_RackScale": {
        "$odata.type": "#Intel.Oem.Processor",
        "Brand": null,
        "Capabilities": [],
        "OnPackageMemory": [
            {
                "Type": "HBM2",
                "CapacityMB": 512,
                "SpeedMHz": 1066
            }
        ],
        "ThermalDesignPowerWatt": 2.5,
        "FPGA": {
            "Type": "Integrated",
            "BitStreamVersion": "Blue1",
            "HSSIConfiguration": "4x10G",
            "HSSISideband": "I2C",
            "ReconfigurationSlots": 1
        }
    }
}

4.13.1.3 PUT
Operation is not allowed on this resource.

4.13.1.4 PATCH
Operation is not allowed on this resource.

4.13.1.5 POST
Operation is not allowed on this resource.
4.13.1.6 DELETE
Operation is not allowed on this resource.

4.14 Processor Metrics
Property details are available in ProcessorMetrics.xml metadata file.

4.14.1 Operations
4.14.1.1 GET
Request:
GET /redfish/v1/Systems/System1/Processors/CPU1/Metrics
Content-Type: application/json
Response:
{
    "@odata.context": "/redfish/v1/$metadata#ProcessorMetrics.ProcessorMetrics",
    "@odata.id": "/redfish/v1/Systems/System1/Processors/CPU1/Metrics",
    "@odata.type": ">#ProcessorMetrics.v1_0_0.ProcessorMetrics",
    "Name": "ProcessorMetrics for CPU1",
    "Description": "description-as-string",
    "Id": "Metrics for CPU1",
    "AverageFrequencyMHz": 3014,
    "ThrottlingCelsius": 19,
    "TemperatureCelsius": 73,
    "ConsumedPowerWatt": 153,
    "Health": ["FRB1 BIST Failure", "Processor Throttled"]
}

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

4.15.1 Operations
4.15.1.1 GET
PSME REST API Definition

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

Response:
{
    "@odata.context": "/redfish/v1/$metadata#MemoryCollection.MemoryCollection",
    "@odata.type": ">#MemoryCollection.MemoryCollection",
    "@odata.id": "/redfish/v1/Systems/System1/Memory",
    "Name": "Memory Collection",
    "Description": "description-as-string",
    "Members@odata.count": 1,
    "Members": [
        {
            "@odata.id": "/redfish/v1/Systems/System1/Memory/Dimm1"
        }
    ]
}

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 Memory
Memory resource – provides detailed information about a single memory module identified by {memoryID}.
Properties' details are available in the Memory.xml metadata file. OEM extensions details available in IntelRackScaleOem.xml.

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

Response:
{
    "@odata.context": "/redfish/v1/$metadata#Memory.Memory",
    "@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"
],
"Metrics": {
  "@odata.id": "/redfish/v1/Systems/System1/Memory/Dimm1/Metrics"}
4.16.1.2 PUT
Operation is not allowed on this resource.

4.16.1.3 PATCH
Operation is not allowed on this resource.

4.16.1.4 POST
Operation is not allowed on this resource.

4.16.1.5 DELETE
Operation is not allowed on this resource.

4.17 Memory Metrics
Property details are available in MemoryMetrics.xml metadata file for official Redfish Memory Metrics and IntelRackScaleOem.xml file for Intel® RSD extensions for Memory Metrics.

Note: The current version of Intel® RSD does not implement all memory metrics. Currently implemented metrics are annotated as "Required in metadata". Third Party PSME implementations may choose a bigger memory metric set for implementation based on capabilities on underlying HW/FW.

4.17.1 Operations
4.17.1.1 GET
Request:
GET /redfish/v1/Systems/3/Memory/Dimm1/Metrics
Content-Type: application/json

Response:
{
  "@odata.context": "/redfish/v1/$metadata#Systems/Members/1/Memory/Metrics/$entity",
  "@odata.id": "/redfish/v1/Systems/3/Memory/Dimm1/Metrics",
  "@odata.type": ">#MemoryMetrics.v1_0_0.MemoryMetrics",
  "Name": "Memory Metrics for DIMM1",
  "Description": "description-as-string",
  "Id": "Metrics for DIMM1",
  "Oem": {
    "Intel_RackScale": {
      "TemperatureCelsius": 46,
      "Health": ["OK"]
    }
  }
}
4.18 Storage Subsystem Collection

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

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

4.18.1 Operations

4.18.1.1 GET

Request:

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

Response:

```json
{
    "@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"
        }
    ]
}
```

4.18.1.2 PUT

Operation is not allowed on this resource.

4.18.1.3 PATCH

Operation is not allowed on this resource.
4.19 Storage Subsystem

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

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

4.19.1 Operations

4.19.1.1 GET

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

Response:
{
    "@odata.context": "/redfish/v1/$metadata#Storage.Storage",
    "@odata.id": "/redfish/v1/Systems/1/Storage/SATA",
    "@odata.type": ":#Storage.v1_1_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"
    ]
}
4.19.1.2 PUT
Operation is not allowed on this resource.

4.19.1.3 PATCH
Operation is not allowed on this resource.

4.20 Volume Collection
Volume collection resource – provides collection of all storage volumes available in a storage subsystem.
Details of this resource are described in metadata file: VolumeCollection.xml

4.20.1 Operations

4.20.1.1 GET

Request:
GET /redfish/v1/Systems/1/Storage/SATA/VolumesCollection
Content-Type: application/json

Response:

```json
{
   "@odata.context": "/redfish/v1/$metadata#VolumeCollection.VolumeCollection",
   "@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,
}
```
4.21 Drive

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

Details of this resource are described in metadata file: Drive.xml. OEM extensions details available in IntelRackScaleOem.xml.

The Intel® RSD OEM section contains EraseOnDetach property, which is handled by PODM. If exposed on PSME it does not provide any function thus it is recommended to keep it read-only with value null.

4.21.1 Operations

4.21.1.1 GET

Request:

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

Response:

```json
{
    "@odata.context": "/redfish/v1/$metadata#Drive.Drive",
    "@odata.id": "/redfish/v1/Chassis/Blade1/Drives/1",
    "@odata.type": 
    
    "Id": "1",
    "Name": "Drive",
    "Description": "Drive description string",
    "IndicatorLED": "Lit",
    "Model": "Drive Model string",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollup": null
    },
    "CapacityBytes": 899527000000,
    "Protocol": "SATA",
    "MediaType": "SSD",
    "Members": [],
    "Oem":{}
}"
```
"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_2_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"
      }
    }
  }
}
4.21.1.2 PUT

Operation is not allowed on this resource.

4.21.1.3 PATCH

The properties in Table 11 can be updated by the PATCH operation:

Table 11. Properties 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 &quot;Intel_RackScale&quot; object following properties are PATCH-able:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“EraseOnDetach” – property can be updated on PODM (PODM). It indicates if drive 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 assignment to composed node.</td>
</tr>
</tbody>
</table>

Request:

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 4.21.1.1)
}

4.21.1.4 POST

POST action is used to SecureErase drives. 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
{
4.21.1.5 **DELETE**

Operation is not allowed on this resource.

### 4.22 System Network Interface

Blade Network Interface resource – provides detailed information about a network interface identified by `{nicID}`. Details of this resource are described in metadata file: `EthernetInterface.xml`. OEM extensions details available in `IntelRackScaleOem.xml`.

#### 4.22.1 Operations

##### 4.22.1.1 GET

**Request:**

```
GET /redfish/v1/Systems/System1/EthernetInterfaces/LAN1
```

**Content-Type:** application/json

**Response:**

```json
{
   "@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,
"VLANs": null,

"Oem": {},
"Links": {
    "Oem": {
        "Intel_RackScale": {
            "@odata.type": "#Intel.Oem.EthernetInterface",
            "NeighborPort": {
                "@odata.id": "/redfish/v1/EthernetSwitches/1/Ports/1"
            },
            "SupportedProtocols": [
                "RoCEv2",
                "iWARP",
                "iSCSI"
            ]
        }
    }
}

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

4.23.1 Operations

4.23.1.1 GET
Request:
GET /redfish/v1/Managers
Content-Type: application/json

Response:
{
  "@odata.context": "/redfish/v1/$metadata#ManagerCollection.ManagerCollection",
  "@odata.id": "/redfish/v1/Managers",
  "@odata.type": #ManagerCollection.ManagerCollection",
  "Name": "Manager Collection",
  "Description": "description-as-string",
  "Members@odata.count": 3,
  "Members": [
    {
      "@odata.id": "/redfish/v1/Managers/BMC1"
    },
    {
      "@odata.id": "/redfish/v1/Managers/BMC2"
    },
    {
      "@odata.id": "/redfish/v1/Managers/PSME"
    }
  ]
}

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 Manager

The manager is a systems management entity, which may implement or provide access to a Redfish service. Examples of managers are BMCS, Enclosure Managers, Management Controllers, and other subsystems assigned manageability functions. There may be multiple Managers in implementation, and they may or may not be directly accessible via a Redfish-defined interface.

Details about the resource properties are found in the metadata file: Manager.xml  OEM extensions details are available in IntelRackScaleOem.xml.

4.24.1 Operations

4.24.1.1 GET

Request:

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

Response:

```
{
   "@odata.context": "/redfish/v1/$metadata#Manager.Manager",
   "@odata.id": "/redfish/v1/Managers/PSME",
   "@odata.type": "/Manager.v1_2_0.Manager",
   "Id": "1",
   "Name": "Manager",
   "ManagerType": "BMC",
   "Description": "BMC",
   "ServiceEntryPointUUID": "92384634-2938-2342-8820-489239905423",
   "UUID": "00000000-0000-0000-0000-000000000000",
   "Model": "Joo Janta 200",
   "DateTime": "2015-03-13T04:14:33+06:00",
   "DateTimeLocalOffset": "+06:00",
   "Status": {
      "State": "Enabled",
      "Health": "OK",
      "HealthRollup": null
   },
   "GraphicalConsole": {
      "ServiceEnabled": true,
      "MaxConcurrentSessions": 2,
      "ConnectTypesSupported": ["KVMIP"]
   },
   "SerialConsole": {
      "ServiceEnabled": true,
      "MaxConcurrentSessions": 1,
      "ConnectTypesSupported": ["Telnet",
      "SSH",
      "IPMI"]
   },
   "CommandShell": {
      "ServiceEnabled": true,
```
"MaxConcurrentSessions": 4,
"ConnectTypesSupported": ["Telnet", "SSH"]
},
"FirmwareVersion": "1.00",
"NetworkProtocol": {
  "@odata.id": "/redfish/v1/Managers/PSME/NetworkProtocol"
},
"EthernetInterfaces": {
  "@odata.id": "/redfish/v1/Managers/PSME/EthernetInterfaces"
},
"Links": {
  "@odata.type": ":Manager.v1_1_0.Links"
},
"ManagerForServers": [],
"ManagerForChassis": [{
  "@odata.id": "/redfish/v1/Chassis/FabricModule1"
}],
"ManagerInChassis": {
  "@odata.id": "/redfish/v1/Chassis/Drawer1"
},
"Oem": {
  "Intel_RackScale": {
    "@odata.type": ":Intel.Oem.ManagerLinks",
    "ManagerForServices": [{
      "@odata.id": "/redfish/v1/Services/RSS1"
    },
    "ManagerForSwitches": []
  }
},
"Oem": {},
"PowerState": "On",
"Actions": {
  "#Manager.Reset": {
    "target": "/redfish/v1/Managers/PSME/Actions/Manager.Reset",
    "ResetType@Redfish.AllowableValues": [ ]
  },
  "Oem": {}
}

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
Operation is not allowed on this resource.
4.24.1.5 **DELETE**

Operation is not allowed on this resource.

### 4.25 Ethernet Switch Collection

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

#### 4.25.1 Operations

**4.25.1.1 GET**

**Request:****

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

**Response:**

```
{
   "@odata.context": "/redfish/v1/$metadata#EthernetSwitchesCollection.EthernetSwitchesCollection",
   "@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"
      }
   ]
}
```

**4.25.1.2 PUT**

Operation is not allowed on this resource.

**4.25.1.3 PATCH**

Operation is not allowed on this resource.

**4.25.1.4 POST**

Operation is not allowed on this resource.

**4.25.1.5 DELETE**

Operation is not allowed on this resource.

### 4.26 Ethernet Switch

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

Detailed info about these resource properties can be obtained from metadata file: EthernetSwitch.xml
4.26.1 Operations

4.26.1.1 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_1_0.EthernetSwitch",
  "Id": "Switch1",
  "SwitchId": "unique switch id",
  "Name": "Switch1",
  "Description": "description-as-string",
  "Manufacturer": "Quanta",
  "Model": "ly8_rangley",
  "ManufacturingDate": "02/21/2015 00:00:00",
  "SerialNumber": "2M220100SL",
  "PartNumber": "1LY8UZZ0007",
  "FirmwareName": "ONIE",
  "FirmwareVersion": "1.1",
  "Role": "TOR",
  "MaxACLNumber": 4,
  "Status": {
    "State": "Enabled",
    "Health": "OK",
    "HealthRollup": "null"
  },
  "Oem": {},
  "Ports": {
    "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Ports"
  },
  "ACLs": {
    "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/ACLs"
  },
  "Metrics": {
    "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Metrics"
  },
  "Links": {
    "Chassis": {
      "@odata.id": "/redfish/v1/Chassis/FabricModule1"
    },
    "ManagedBy": [
      {
        "@odata.id": "/redfish/v1/Managers/PSME"
      }
    ],
    "Oem": {}
  }
}
},
"LLDPEnabled": true,
"ETSEnabled": true,
"DCBXEnabled": true,
"PriorityFlowControl": {
  "Enabled": true,
  "LosslessPriorities": [0, 1, 6, 7]
},
"TrafficClassification": [
  {
    "TrafficClass": 1,
    "Protocol": "UDP",
    "Port": 4791
  },
  {
    "TrafficClass": 2,
    "Protocol": "TCP",
    "Port": 860
  },
  {
    "TrafficClass": 2,
    "Protocol": "TCP",
    "Port": 3260
  }
],
"ClassToPriorityMapping": [
  {
    "TrafficClass": 1,
    "Priority": 5
  },
  {
    "TrafficClass": 2,
    "Priority": 5
  }
],
"PriorityToClassMapping": [
  {
    "Priority": 5,
    "TrafficClass": 1
  },
  {
    "Priority": 6,
    "TrafficClass": 2
  }
],
"TransmissionSelection": [
  {
    "TrafficClass": 1,
    "BandwidthPercent": 60
  }
]
"TrafficClass": 2,
"BandwidthPercent": 30
}
]
]

### 4.26.1.2 PUT

Operation is not allowed on this resource.

### 4.26.1.3 PATCH

The properties in Table 13 can be updated by the PATCH operation:

#### Table 12. Properties Updated by Patch Operation

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLDPEnabled</td>
<td>Boolean</td>
<td>No</td>
<td>Enables Link Layer Discovery Protocol for this switch (globally).</td>
</tr>
<tr>
<td>ETSEnabled</td>
<td>Boolean</td>
<td>No</td>
<td>Enables Enhanced Transmission Scheduling for this switch.</td>
</tr>
<tr>
<td>PriorityFlowControl</td>
<td>Object</td>
<td>No</td>
<td>Configures Priority flow control for this switch:</td>
</tr>
<tr>
<td></td>
<td>Attribute</td>
<td>Type</td>
<td>Required</td>
</tr>
<tr>
<td>Enabled</td>
<td>Boolean</td>
<td>No</td>
<td>Globally enables PFC for switch.</td>
</tr>
<tr>
<td>LosslessPriorities</td>
<td>Array of Int64</td>
<td>No</td>
<td>Identifiers of priorities that can't be dropped.</td>
</tr>
<tr>
<td>TrafficClassification</td>
<td>Object</td>
<td>No</td>
<td>Configures mapping of traffic to Traffic Class:</td>
</tr>
<tr>
<td></td>
<td>Attribute</td>
<td>Type</td>
<td>Required</td>
</tr>
<tr>
<td>TrafficClass</td>
<td>Int64</td>
<td>Yes</td>
<td>Id of Traffic Class to which this traffic should be mapped.</td>
</tr>
<tr>
<td>Port</td>
<td>Int64</td>
<td>Yes</td>
<td>Port on which this traffic runs.</td>
</tr>
<tr>
<td>ClassToPriorityMapping</td>
<td>Object</td>
<td>No</td>
<td>Configures mapping Traffic Class to Traffic Priority</td>
</tr>
<tr>
<td></td>
<td>Attribute</td>
<td>Type</td>
<td>Required</td>
</tr>
<tr>
<td>TrafficClass</td>
<td>Int64</td>
<td>Yes</td>
<td>Identifier of Traffic Class</td>
</tr>
<tr>
<td>Priority</td>
<td>Int64</td>
<td>Yes</td>
<td>Identifier of Priority for PFC</td>
</tr>
<tr>
<td>PriorityToClassMapping</td>
<td>Object</td>
<td>No</td>
<td>Configures mapping Traffic Priority to Traffic Class</td>
</tr>
<tr>
<td></td>
<td>Attribute</td>
<td>Type</td>
<td>Required</td>
</tr>
<tr>
<td>TrafficClass</td>
<td>Int64</td>
<td>Yes</td>
<td>Identifier of Traffic Class</td>
</tr>
<tr>
<td>Priority</td>
<td>Int64</td>
<td>Yes</td>
<td>Identifier of Priority for PFC</td>
</tr>
</tbody>
</table>
### Attribute Table

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TransmissionSelection</td>
<td>Object</td>
<td>No</td>
<td>Configures bandwidth for different Traffic Classes for ETS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TrafficClass</td>
<td>Int64</td>
<td>Yes</td>
<td>Identifier of Traffic Class</td>
</tr>
<tr>
<td>BandwidthPercent</td>
<td>Int64</td>
<td>Yes</td>
<td>Guaranteed minimal bandwidth for this Traffic Class.</td>
</tr>
</tbody>
</table>

#### 4.26.1.4 DELETE

Operation is not allowed on this resource.

#### 4.26.1.5 POST

Operation is not allowed on this resource.

#### 4.26.1.6 DELETE

Operation is not allowed on this resource.

#### 4.27 Ethernet Switch Metrics

Property details are available in `EthernetSwitchMetrics.xml` metadata file.

*Note:* The current version of Intel RSD does not implement Ethernet switch metrics.

##### 4.27.1 Operations

#### 4.27.1.1 GET

Request:

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

Response:

```
{
    "@odata.context": "/redfish/v1/$metadata#EthernetSwitchMetrics.EthernetSwitchMetrics",
    "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Metrics",
    "@odata.type": "#EthernetSwitchMetrics.v1_0_0.EthernetSwitchMetrics",
    "Name": "EthernetSwitch Metrics for Switch1",
    "Description": "description-as-string",
    "Id": "Metrics for Switch1",
    "Health": "OK"
}
```

#### 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**
Operation is not allowed on this resource.

4.27.1.5 **DELETE**
Operation is not allowed on this resource.

### 4.28 Ethernet Switch Port Collection

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

#### 4.28.1 Operations

**4.28.1.1 GET**

**Request:**

```
GET /redfish/v1/EthernetSwitches/Switch1/Ports
```

**Content-Type:** application/json

**Response:**

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

**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**

**Request:**

```
POST /redfish/v1/EthernetSwitches/Switch1/Ports
```

**Content-Type:** application/json

```json
{  
   "PortId": "Lag1",
   "PortMode": "LinkAggregationStatic",
   "Links": {
      "PortMembers": [
      ]
   }
}
```
4.28.1.5 DELETE
Operation is not allowed on this resource.

4.29 Ethernet Switch Port
Ethernet Switch port resource – provides detailed information about a switch port identified by \{portID\}.
The Ethernet Switch port collection resource – provides a collection of all switch ports available in a switch.

4.29.1 Operations

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

Response:
{
   "@odata.context":
   "/redfish/v1/$metadata#EthernetSwitchPort.EthernetSwitchPort",
   "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Ports/Port1",
   "@odata.type": ">#EthernetSwitchPort.v1_1_0.EthernetSwitchPort",
   "Id": "Port1",
   "Name": "RSA Switch Port",
   "Description": "description-as-string",
   "PortId": "sw0p10",
   "Status": {
      "State": "Enabled",
      "Health": "OK",
      "HealthRollup": null
   },
   "LinkType": "Ethernet",
   "OperationalState": "Up",
   "AdministrativeState": "Up",
   "LinkSpeedMbps": 10000,
   "NeighborInfo": 
}
"SwitchId": "unique switch id",
"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"
},
"Metrics": {
  "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Ports/Port1/Metrics"
},
"Links": {
  "@odata.type": "#EthernetSwitchPort.v1_1_0.Links",
  "PrimaryVLAN": {
    "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Ports/Port1/VLANs/VLAN1"
  },
  "Switch": {
    "@odata.id": "/redfish/v1/EthernetSwitches/Switch1"
  },
  "MemberOfPort": {
    "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Ports/LAG1"
  },
  "PortMembers": []
}
"ActiveACLs": [{
  "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1"
}]
}

"NeighborInterface": {
  "@odata.id": "/redfish/v1/Systems/System1/EthernetInterfaces/LAN1"
},
  "PFCEnabled": true,
  "DCBXState": "Disabled",
  "LLDPEnabled": true
}

4.29.1.2 PUT

Operation is not allowed on this resource.

4.29.1.3 PATCH

The properties in Table 13 can be updated by the PATCH operation:

### Table 13. Properties Updated by Patch Operation

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AdministrativeState</td>
<td>String (enum)</td>
<td>No</td>
<td>Port link state forced by user. Allowed values: &quot;Up&quot; &quot;Down&quot;</td>
</tr>
<tr>
<td>LinkSpeedMbps</td>
<td>Number</td>
<td>No</td>
<td>Port speed in Mbps</td>
</tr>
<tr>
<td>FrameSize</td>
<td>Number</td>
<td>No</td>
<td>MAC frame size in bytes</td>
</tr>
<tr>
<td>Autosense</td>
<td>Boolean</td>
<td>No</td>
<td>Indicates if the speed and duplex is automatically configured.</td>
</tr>
<tr>
<td>Links</td>
<td>Object</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>PrimaryVLAN</td>
<td>Reference</td>
<td>No</td>
<td>Link to VLAN resource that should be primary for this port</td>
</tr>
<tr>
<td>PortMembers</td>
<td>Array of References</td>
<td>No</td>
<td>List of ports being members of this logical port</td>
</tr>
<tr>
<td>FullDuplex</td>
<td>Boolean</td>
<td>No</td>
<td>Enables full duplex mode.</td>
</tr>
<tr>
<td>MACAddress</td>
<td>String</td>
<td>No</td>
<td>MAC address of port.</td>
</tr>
<tr>
<td>IPv4Addresses</td>
<td>Array of objects</td>
<td>No</td>
<td>Array of IP addresses of this port in following format:</td>
</tr>
<tr>
<td>Address</td>
<td>String</td>
<td>Yes</td>
<td>IP v4 address</td>
</tr>
<tr>
<td>SubnetMask</td>
<td>String</td>
<td>No</td>
<td>Subnet mask</td>
</tr>
<tr>
<td>Gateway</td>
<td>String</td>
<td>No</td>
<td>IPv4 gateway for this address</td>
</tr>
<tr>
<td>IPv6Addresses</td>
<td>Array of objects</td>
<td>No</td>
<td>Array of IP addresses of this port in following format:</td>
</tr>
<tr>
<td>Address</td>
<td>String</td>
<td>Yes</td>
<td>IP address in v6 format</td>
</tr>
<tr>
<td>PrefixLength</td>
<td>Number</td>
<td>No</td>
<td>Provides the IPv6 network prefix length in bits for this address</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>PFCEnabled</td>
<td>Boolean</td>
<td>No</td>
<td>Enables Priority Flow Control for this port</td>
</tr>
<tr>
<td>DCBXState</td>
<td>String (enum)</td>
<td>No</td>
<td>Sets Data Center Bridging Exchange TLV format. Allowable values:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“Disabled”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“EnabledIEEE”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“EnabledCEE”</td>
</tr>
<tr>
<td>LLDPEnabled</td>
<td>Boolean</td>
<td>No</td>
<td>Enables Link Layer Discovery Protocol for this port.</td>
</tr>
</tbody>
</table>

Request:

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

Response:

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

Or:

HTTP/1.1 204 No Content

Or (when task is created):

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": [
      ]
}

Note: PortMembers array is an optional parameter. If not present in the PATCH request, a list of port members does not change.

4.29.1.4 POST

Operation is not allowed on this resource.

4.29.1.5 DELETE

Request:
DELETE /redfish/v1/EthernetSwitches/Switch1/Ports/Lag1

Response:
HTTP/1.1 204 No Content

4.30 Ethernet Switch Port Metrics

Property details are available in EthernetSwitchPortMetrics.xml metadata file.

Note: The current version of Intel® RSD does not implement Ethernet Switch Port metrics.

4.30.1 Operations

4.30.1.1 GET

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

Response:
{
   "@odata.context": "/redfish/v1/$metadata#EthernetSwitchPortMetrics.EthernetSwitchPortMetrics",
   "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Ports/Port1/Metrics",
   "@odata.type": "#EthernetSwitchPortMetrics.v1_0_0.EthernetSwitchPortMetrics",
   "Name": "Ethernet Switch Port Metrics",
   "Id": "Metrics",
   "Received": {
      "Packets": 8,
      "DroppedPackets": 0,
      "ErrorPackets": 0,
      "BroadcastPackets": 0,
      "MulticastPackets": 0,
      "Errors": 0,
      "Bytes": 64
   }
}
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
Operation is not allowed on this resource.

4.30.1.5 DELETE
Operation is not allowed on this resource.

4.31 Ethernet Switch ACL Collection

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

Information on properties can be obtained from metadata file: EthernetSwitchACLCollection.xml.

4.31.1 Operations

4.31.1.1 GET

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

Response:
{
  "@odata.context": "/redfish/v1/$metadata#EthernetSwitchACLCollection.EthernetSwitchACLCollection",
  "@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": [ },
4.31.2 PUT
Operation is not allowed on this resource.

4.31.3 PATCH
Operation is not allowed on this resource.

4.31.4 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 does not contain any properties.

Request:
```plaintext
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
```

4.31.5 DELETE
Operation is not allowed on this resource.

4.32 Ethernet Switch ACL
Ethernet Switch ACL resource – provides detailed information about a switch ACL defined on switch.
Detailed information about resource properties can be obtained from metadata file: EthernetSwitchACL.xml

4.32.1 Operations

4.32.1.1 GET

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

Response:
```
{
   "@odata.context": "/redfish/v1/$metadata#EthernetSwitchACL.EthernetSwitchACL",
   "@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": [  
      {"@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Ports/sw0p2"},  
      {"@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Ports/sw0p3"}  
    ]  
  },  
  "#EthernetSwitchACL.Unbind": {  
    "target": "/redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1/Actions/EthernetSwitchACL.Unbind",  
    "Port@Redfish.AllowableValues": [  
      {"@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Ports/sw0p1"}  
    ]  
  }  
}  

4.32.1.2 PUT  
Operation is not allowed on this resource.  

4.32.1.3 PATCH  
Operation is not allowed on this resource.  

4.32.1.4 POST  
POST action is used to execute one of supported actions:  
  1. Bind – action binds given port to ACL  
  2. Unbind – action will remove given port from ACL  

### Table 14. Port Attribute  

<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 switch port that should be bind to current ACL. Port should be located on the same switch as ACL is.</td>
</tr>
</tbody>
</table>

Request:  

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

Intel® Rack Scale Design (RSD) PSME RESTful  
API Specification  
Document Number: 337207-001US  
May 2018
PSME REST API Definition

4.32.1.5 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 attempt to delete such rule, HTTP 400 BadRequest will be returned along with extended error info indicating that ACL is persistent.

4.33 Ethernet Switch ACL Rule Collection

Ethernet Switch ACL rule collection resource – provides a collection of all rules for ACL defined on switch.

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

4.33.1 Operations

4.33.1.1 GET

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

Response:
{
  "@odata.context": "/redfish/v1/$metadata#EthernetSwitchACLRuleCollection.EthernetSwitchACLRuleCollection",
  "@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"
    }
  ]
}

4.33.1.2 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

#### Table 15. New 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>RuleId</td>
<td>Number</td>
<td>No</td>
<td></td>
<td>This is ACL rule ID which determine 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></td>
<td>Action that will be executed when rule condition will be met. Available actions:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Permit – packets meeting condition will be allowed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Deny – deny packets meeting condition</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Forward – forwards packets to selected interface</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Mirror – mirrors traffic on selected interface</td>
</tr>
<tr>
<td>ForwardMirrorInterface</td>
<td>Link object</td>
<td>Yes for “Forward” and “Mirror” actions</td>
<td></td>
<td>This is link to interface where traffic will be mirrored/forwarded.</td>
</tr>
<tr>
<td>MirrorPortRegion</td>
<td>Array of link objects</td>
<td>Yes for “Mirror” action</td>
<td></td>
<td>Array of links to Ethernet interfaces which traffic should be mirrored on ForwardMirrorInterface.</td>
</tr>
<tr>
<td>MirrorType</td>
<td>String (enum)</td>
<td>Yes for “Mirror” action</td>
<td></td>
<td>Type of mirroring traffic. Available values:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Egress - Mirror egressing traffic on the mirrored port to the mirror destination port</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Ingress - Mirror ingressing traffic on the mirrored port to the mirror destination port</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Bidirectional - Mirror ingressing and egressing traffic on the mirrored port to the mirror destination port</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Redirect - Mirror ingress traffic to the mirror destination port and drop the traffic ingressing the mirror ports</td>
</tr>
<tr>
<td>Condition</td>
<td>Object</td>
<td>Yes</td>
<td></td>
<td>Provides all conditions that must be met to trigger rule action. Must contain at least one non-null property. List of available properties is described below.</td>
</tr>
</tbody>
</table>

#### Table 16. 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>Attribute</td>
<td></td>
<td></td>
<td></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 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>

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPDestination</td>
<td>Object</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

---

Intel® Rack Scale Design (RSD) PSME RESTful API Specification

May 2018

Document Number: 337207-001US

74
<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Nullable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACSource</td>
<td>Object</td>
<td>No</td>
<td>Yes</td>
<td>Provides packet source MAC address:</td>
</tr>
<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>Mask</td>
<td>String, null</td>
<td>No</td>
<td></td>
<td>The mask selects which bits in corresponding value property are relevant for matching 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>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><strong>Attribute</strong></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 corresponding value property are relevant for matching 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><strong>Attribute</strong></td>
</tr>
<tr>
<td>Id</td>
<td>Number</td>
<td>Yes</td>
<td></td>
<td>VLAN Id tag</td>
</tr>
</tbody>
</table>
### Attribute  | Type  | Required | Nullable | Description
--- | --- | --- | --- | ---
| Mask   | Number, null | No | | The mask selects which bits in corresponding value property are relevant for matching a frame (a zero bit in the mask indicates a don’t care bit in the value). Null value means all bits are relevant.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
</table>
| L4SourcePort  | Object | No       | Yes         | IP layer 4 Source port. Contains following properties:
|               |       |          |             | Attribute  | Type  | Required | Description |
| Port          | Number | Yes      | Port numeric value |
| Mask          | Number, null | No | The mask selects which bits in corresponding value property are relevant for matching a frame (a zero bit in the mask indicates a don’t care bit in the value). Null value means all bits are relevant. |

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
</table>
| L4DestinationPort | Object | No       | Yes         | IP layer 4 Destination port. Contains following properties:
|               |       |          |             | Attribute  | Type  | Required | Description |
| Port          | Number | Yes      | Port numeric value |
| Mask          | Number, null | No | Mask |

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>L4Protocol</td>
<td>Number</td>
<td>No</td>
<td>Yes</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
    }
}
```
4.33.1.5 DELETE

Operation is not allowed on this resource.

4.34 Ethernet Switch ACL Rule

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

Detailed info about these resource properties can be obtained from metadata file: EthernetSwitchACLRule.xml

4.34.1 Operations

4.34.1.1 GET

Request:

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

Response:

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

Response:

HTTP/1.1 201 Created
"IPSource": {
  "IPv4Address": "192.168.1.0",
  "Mask": "0.0.0.255"
},
"IPDestination": null,
"MACSource": {
  "Address": "00:11:22:33:44:55",
  "Mask": null
},
"MACDestination": null,
"VLANId": {
  "Id": 1088,
  "Mask": 4095
},
"L4SourcePort": {
  "Port": 22,
  "Mask": 255
},
"L4DestinationPort": null,
"L4Protocol": null
},
"Oem": {
},
"Links": {
}

4.34.1.2 PUT

Operation is not allowed on this resource.

4.34.1.3 PATCH

The attributes of the ACL Rule that can be modified by PATCH method are listed in Table 17.

Table 17. ACL Rule Modification Attributes

<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 ACL rule ID that determines rule priority.</td>
</tr>
<tr>
<td>Action</td>
<td>String (enum)</td>
<td>No</td>
<td>Action that will be executed when rule condition will be met. Available actions:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Permit – packets meeting condition will be allowed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Deny – deny packets meeting condition</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Forward – forwards packets to selected interface</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Mirror – mirrors traffic on selected interface</td>
</tr>
<tr>
<td>ForwardMirrorInterface</td>
<td>Link object</td>
<td>Yes for “Forward” and “Mirror” actions</td>
<td>This is link to interface where traffic will be mirrored/forwarded.</td>
</tr>
<tr>
<td>MirrorPortRegion</td>
<td>Array of link objects</td>
<td>Yes for “Mirror” action</td>
<td>Array of links to Ethernet interfaces which traffic should be mirrored on ForwardMirrorInterface</td>
</tr>
</tbody>
</table>
### Attribute Definition

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
</table>
| MirrorType      | String (enum)      | Yes for “Mirror” action | Type of mirroring traffic. Available values:  
- Egress - Mirror egressing traffic on the mirrored port to the mirror destination port  
- Ingress - Mirror ingressing traffic on the mirrored port to the mirror destination port  
- Bidirectional - Mirror ingressing and egressing traffic on the mirrored port to the mirror destination port  
- Redirect - Mirror ingress traffic to the mirror destination port and drop the traffic ingressing the mirror ports |

| Condition       | Object             | No       | Provides all conditions that must be met to trigger rule action. List of available properties is described in Table 18. |

### Table 18. 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>IP Source</td>
<td>Object</td>
<td>No</td>
<td>Yes</td>
<td>Provides packet source IPv4 address.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Type</td>
<td>Required</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>IPv4 Address</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 corresponding value property are relevant for matching a frame (a zero bit in the mask indicates a do not care bit in the value). Null value means all bits are relevant.</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>IP Destination</td>
<td>Object</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Attribute</td>
<td>Type</td>
<td>Required</td>
<td>Description</td>
</tr>
<tr>
<td>IPv4 Address</td>
<td>String</td>
<td>Yes</td>
<td>IPv4 address</td>
</tr>
<tr>
<td>Mask</td>
<td>String, null</td>
<td>No</td>
<td>The mask selects which bits in corresponding value property are relevant for matching a frame (a zero bit in the mask indicates a do not care bit in the value). Null value means all bits are relevant.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Type</td>
<td>Required</td>
<td>Nullable</td>
</tr>
<tr>
<td>-------------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>MACSource</td>
<td>Object</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MACDestination</td>
<td>Object</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VLANId</td>
<td>Object</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribute</td>
<td>Type</td>
<td>Required</td>
<td>Nullable</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td><strong>L4SourcePort</strong></td>
<td>Object</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>L4DestinationPort</strong></td>
<td>Object</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>L4Protocol</strong></td>
<td>Number</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></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:
Or:

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

4.34.1 POST
Operation is not allowed on this resource.

4.34.1.5 DELETE
Request:
DELETE /redfish/v1/EthernetSwitches/Switch1/ACLs/ACL1/Rules/Rule2
Response:
HTTP/1.1 204 No Content

4.35 Ethernet Switch Port Static MAC Collection
Ethernet Switch Port Static MAC collection resource – provides a collection of all static MAC forwarding table entries.
Detailed information about these resource properties can be obtained from metadata file:
EthernetSwitchACLRuleCollection.xml

4.35.1 Operations
4.35.1.1 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" }
]
**4.35.1.2 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**

The attributes of POST action to create new static MAC entry are listed in Table 19.

<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>This, if specified, defines which packets tagged with specific VLANId should be forwarded to this port.</td>
</tr>
</tbody>
</table>

**Request:**

POST /redfish/v1/EthernetSwitches/Switch1/Ports/Port1/StaticMACs

Content-Type: application/json

```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

**4.35.1.5 DELETE**

Operation is not allowed on this resource.

**4.36 Ethernet Switch Port Static MAC**

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

Detailed information about this resource property can be obtained from metadata file: EthernetSwitchStaticMAC.xml

**4.36.1 Operations**

**4.36.1.1 GET**

**Request:**

GET /redfish/v1/EthernetSwitches/Switch1/Ports/Port1/StaticMACs/1

Content-Type: application/json
Response:

```
{
  "@odata.context": "/redfish/v1/$metadata#EthernetSwitches/Members/Switch1/Ports/Members/StaticMACs/Members/$entity",
  "@odata.id": "/redfish/v1/EthernetSwitches/Switch1/Ports/Port1/StaticMACs/1",
  "@odata.type": "#StaticMAC.v1_1_0.StaticMAC",
  "Id": "1",
  "Name": "StaticMAC",
  "Description": "description-as-string",
  "MACAddress": "00:11:22:33:44:55",
  "VLANId": 112,
  "Oem": {}
}
```

4.36.1.2 PUT

Operation is not allowed on this resource.

4.36.1.3 PATCH

Attributes of static MAC that can be modified by PATCH method are listed in Table 20.

<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>This if specified defines which packets tagged with specific VLANId, should be 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:

Or:

HTTP/1.1 200 OK

```
{
  (updated resource body)
}
```

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/StaticMACs/2
Response:

HTTP/1.1 204 No Content
4.37  Network Protocol

Network protocol resource – provides detailed information about all network services supported by a manager identified by \{managerID\}. Network service attributes are listed in Table 21.

Table 21.  Network Service Attributes

<table>
<thead>
<tr>
<th>Name</th>
<th>Network service</th>
<th>Type URI</th>
</tr>
</thead>
<tbody>
<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>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>Refer to Section 6.1 for resource status.</td>
</tr>
<tr>
<td>HostName</td>
<td>String, null</td>
<td>No</td>
<td>Provides information about host name</td>
</tr>
<tr>
<td>FQDN</td>
<td>String, null</td>
<td>No</td>
<td>Fully Qualified Domain Name</td>
</tr>
</tbody>
</table>

HTTP

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ProtocolEnabled</td>
<td>Boolean, null</td>
<td>No</td>
<td>Availability of protocol</td>
</tr>
<tr>
<td>Port</td>
<td>Number, null</td>
<td>No</td>
<td>Indicates the protocol port</td>
</tr>
</tbody>
</table>

HTTPS

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ProtocolEnabled</td>
<td>Boolean, null</td>
<td>No</td>
<td>Availability of protocol</td>
</tr>
<tr>
<td>Port</td>
<td>Number, null</td>
<td>No</td>
<td>Indicates the protocol port</td>
</tr>
</tbody>
</table>

SNMP

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ProtocolEnabled</td>
<td>Boolean, null</td>
<td>No</td>
<td>Availability of protocol</td>
</tr>
<tr>
<td>Port</td>
<td>Number, null</td>
<td>No</td>
<td>Indicates the protocol port</td>
</tr>
</tbody>
</table>

VirtualMedia

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ProtocolEnabled</td>
<td>Boolean, null</td>
<td>No</td>
<td>Availability of protocol</td>
</tr>
<tr>
<td>Port</td>
<td>Number, null</td>
<td>No</td>
<td>Indicates the protocol port</td>
</tr>
</tbody>
</table>

Telnet

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ProtocolEnabled</td>
<td>Boolean, null</td>
<td>No</td>
<td>Availability of protocol</td>
</tr>
<tr>
<td>Port</td>
<td>Number, null</td>
<td>No</td>
<td>Indicates the protocol port</td>
</tr>
</tbody>
</table>

SSDP

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ProtocolEnabled</td>
<td>Boolean, null</td>
<td>No</td>
<td>Availability of protocol</td>
</tr>
<tr>
<td>Port</td>
<td>Number, null</td>
<td>No</td>
<td>Indicates the protocol port</td>
</tr>
</tbody>
</table>
### Name

<table>
<thead>
<tr>
<th>Service Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network service</td>
</tr>
</tbody>
</table>

#### Type URI

```
/redfish/v1/Managers/{managerID}/NetworkProtocol
```

#### Attribute

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NotifyMulticastIntervalSeconds</td>
<td>Number, null</td>
<td>No</td>
<td>Indicates how often the Multicast is done from this service for SSDP</td>
</tr>
<tr>
<td>NotifyTTL</td>
<td>Number, null</td>
<td>No</td>
<td>Indicates the time to live hop count for SSDPs Notify messages.</td>
</tr>
<tr>
<td>NotifyIPv6Scope</td>
<td>String, null</td>
<td>No</td>
<td>Indicates the scope for the IPv6 Notify messages for SSDP</td>
</tr>
</tbody>
</table>

### IPMI

#### Operation

4.37.1.1 GET

**Request:**

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

**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",
        "HealthRollup": null
    },
    "HostName": "mymanager",
    "FQDN": "mymanager.mydomain.com",
    "HTTP": {
```
"ProtocolEnabled": true,
  "Port": 80
},
"HTTPS": {
  "ProtocolEnabled": true,
  "Port": 443
},
"IPMI": {
  "ProtocolEnabled": true,
  "Port": 623
},
"SSH": {
  "ProtocolEnabled": true,
  "Port": 22
},
"SNMP": {
  "ProtocolEnabled": true,
  "Port": 161
},
"VirtualMedia": {
  "ProtocolEnabled": true,
  "Port": 17988
},
"SSDP": {
  "ProtocolEnabled": true,
  "Port": 1900,
  "NotifyMulticastIntervalSeconds": 600,
  "NotifyTTL": 5,
  "NotifyIPv6Scope": "Site"
},
"Telnet": {
  "ProtocolEnabled": true,
  "Port": 23
},
"KVMIP": {
  "ProtocolEnabled": true,
  "Port": 5288
},
"Oem": {}  

4.37.1.2  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 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}. Ethernet interface collection attributes are listed in Table 2.

4.38.1 Operations

4.38.1.1 GET

Request:

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

Response:

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

4.38.1.2 PUT

Operation is not allowed on this resource.

4.38.1.3 PATCH

Operation is not allowed on this resource.

4.38.1.4 POST

Operation is not allowed on this resource.

4.38.1.5 DELETE

Operation is not allowed on this resource.

4.39 Ethernet Interface

Ethernet interface resource – provides detailed information about an Ethernet interface identified by {nicID}. For current API version this resource is identical with System Network Interface (refer to Section 4.22).
4.40 VLAN Network Interface Collection

VLAN Network Interface collection resource – provides a collection of all VLAN network interface existing on a Switch Port identified by {portID} or network interface identified by {nicID}. VLAN network interface collection attributes are listed in Section 4.40, VLAN Network Interface Collection.

4.40.1 Operations

4.40.1.1 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"
    
  ]
}
```

4.40.1.2 PUT

Operation is not allowed on this resource.

4.40.1.3 PATCH

Operation is not allowed on this resource.

4.40.1.4 POST

POST action attributes are listed in Table 22.

<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>Attribute                  Type</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tagged                      Boolean</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 Network interface card (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

4.40.1.5 DELETE
Operation is not allowed on this resource.

4.41 VLAN Network Interface

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

Details of this resource are described in metadata file: VLANNetworkInterface.xml, OEM extensions details are available in IntelRackScaleOem.xml.

4.41.1 Operations

4.41.1.1 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_1.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"
         }
      }
   }
}
4.41.1.2 **PUT**

Operation is not allowed on this resource.

4.41.1.3 **PATCH**

The properties in Table 23 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>VLANId</td>
<td>Number</td>
<td>No</td>
<td>VLAN identifier for this VLAN.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Note:</strong> Ability to write this property value is implementation specific. May not work, or work on only some types of VLANs (e.g., only untagged VLANs).</td>
</tr>
</tbody>
</table>

Request:

```
PATCH /redfish/v1/EthernetSwitches/Switch1/Ports/Port1/VLANs/VLAN1
Content-Type: application/json
{
  "VLANId": 202
}
```

Response:

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

Or:

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

Or (when task is created):

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

OrLocation: 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": [ ]
}
```

Or:

```
HTTP/1.1 200 OK
```
4.41.1.4 POST

Operation is not allowed on this resource.

4.41.1.5 DELETE

Request:

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

Response:

HTTP/1.1 204 No Content

4.42 Event Service

The Event Service resource is responsible for sending events to subscribers. Event service attributes are listed in Table 24.

Table 24. Event Service Attributes

<table>
<thead>
<tr>
<th>Name</th>
<th>Event service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type URI</td>
<td>/redfish/v1/EventService</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, null</td>
</tr>
<tr>
<td>Status</td>
<td>Object, null</td>
</tr>
<tr>
<td>Oem</td>
<td>Object, null</td>
</tr>
<tr>
<td>ServiceEnabled</td>
<td>Boolean, Null</td>
</tr>
<tr>
<td>DeliveryRetryAttempts</td>
<td>Number</td>
</tr>
<tr>
<td>DeliveryRetryIntervalSeconds</td>
<td>Number</td>
</tr>
<tr>
<td>EventTypesForSubscription</td>
<td>Array</td>
</tr>
<tr>
<td>Subscriptions</td>
<td>Object, null</td>
</tr>
<tr>
<td>Actions</td>
<td>Object</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>Yes</td>
<td>Resource identifier</td>
</tr>
<tr>
<td>Name</td>
<td>Yes</td>
<td>Resource name</td>
</tr>
<tr>
<td>Description</td>
<td>No</td>
<td>Resource description</td>
</tr>
<tr>
<td>Status</td>
<td>No</td>
<td>Refer to Section 6.1 for resource status.</td>
</tr>
<tr>
<td>Oem</td>
<td>No</td>
<td>OEM defined object</td>
</tr>
<tr>
<td>ServiceEnabled</td>
<td>No</td>
<td>This indicates whether this service is enabled.</td>
</tr>
<tr>
<td>DeliveryRetryAttempts</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>No</td>
<td>This represents the number of seconds between retry attempts for sending any given Event.</td>
</tr>
<tr>
<td>EventTypesForSubscription</td>
<td>Yes</td>
<td>This is the types of Events that can be subscribed to. Available event types:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- StatusChange - The status of this resource has changed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- ResourceUpdated - The value of this resource has been updated.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- ResourceAdded - A resource has been added</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- ResourceRemoved - A resource has been removed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Alert - A condition exist which requires attention.</td>
</tr>
<tr>
<td>Subscriptions</td>
<td>Yes</td>
<td>This is a reference to a collection of Event Destination resources.</td>
</tr>
<tr>
<td>Actions</td>
<td>Yes</td>
<td>The Actions object contains the available custom actions on this resource.</td>
</tr>
</tbody>
</table>

4.42.1 Operations

4.42.1.1 GET

Request:

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

```json
{
   "@odata.context": "/redfish/v1/$metadata#EventService",
   "@odata.id": "/redfish/v1/EventService",
   "@odata.type": "#EventService.v1_0_2.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",
      "MetricReport"
   ],
   "Subscriptions": {
      "@odata.id": "/redfish/v1/EventService/Subscriptions"
   },
   "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 Event Subscription Collection

#### 4.43.1 Metadata

`http://redfish.dmtf.org/schemas/v1/EventDestinationCollection.xml`
4.43.2 Operations

4.43.2.1 GET

Request:

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

Response:

```
{
    "@odata.context": "/redfish/v1/$metadata#EventService/Members/Events/$entity",
    "@odata.type": "#EventDestinationCollection.EventDestinationCollection",
    "Name": "Event Subscriptions Collection",
    "Description": "description-as-a-string",
    "Members@odata.count": 1,
    "Members": [
        {
            "@odata.id": "/redfish/v1/EventService/Subscriptions/1"
        }
    ]
}
```

4.43.2.2 PUT

Operation is not allowed on this resource.

4.43.2.3 PATCH

Operation is not allowed on this resource.

4.43.2.4 POST

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"
}
```

Response:

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

4.43.2.5 DELETE

Operation is not allowed on this resource.
4.44   Event Subscription

The Event Subscription contains information about the type of events that the user subscribes to and those that should be sent. Even subscription attributes are listed in Table 25.

<table>
<thead>
<tr>
<th>Table 25.</th>
<th>Event Subscription Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Event subscription</td>
</tr>
<tr>
<td>Type URI</td>
<td>/redfish/v1/EventService/Subscriptions/{destinationID}</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>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>
<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 types of Events that can be subscribed to.</td>
</tr>
<tr>
<td>Context</td>
<td>String</td>
<td>Deprecated</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 current version of PSME.</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 current version of PSME.</td>
</tr>
</tbody>
</table>

4.44.1   Metadata

http://redfish.dmtf.org/schemas/v1/EventDestination.xml

4.44.2   Operations

4.44.2.1 GET

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

Response:
{
    "@odata.context": "http://redfish.dmtf.org/schemas/v1/EventDestination.xml#EventDestination.v1_1_1.EventDestination",
    "@odata.id": "redfish/v1/EventService/Subscriptions/1",
    "@odata.type": "#EventDestination.v1_1_1.EventDestination",
    "Id": "1",
}
"Name": "EventSubscription 1",
"Description": "EventSubscription",
"Destination": "http://192.168.1.1/Destination1",
"EventTypes": [
   "ResourceAdded",
   "ResourceRemoved"
],
"Context": "My Event",
"Protocol": "Redfish",
"OriginResources": [
   {
      "@odata.id": "/redfish/v1/Systems/1"
   }
],
"MessageIds": []
}

4.44.2.2 PUT
Operation is not allowed on this resource.

4.44.2.3 PATCH
Operation is not allowed on this resource.

4.44.2.4 POST
Operation is not allowed on this resource.

4.44.2.5 DELETE
Request:
DELETE /redfish/v1/EventService/Subscriptions/1
Response:
HTTP/1.1 204 No Content

4.45 Event Array
Definition of 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. Event array attributes are listed in Table 26 and Event attributes are listed in Table 27.

Table 26. Event Array Attributes

<table>
<thead>
<tr>
<th>Name</th>
<th>Event array</th>
<th>Type URI</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>String</td>
<td>n/a</td>
<td>String</td>
<td>Yes</td>
<td>Resource identifier</td>
</tr>
<tr>
<td>Name</td>
<td>String</td>
<td>n/a</td>
<td>String</td>
<td>No</td>
<td>Resource name</td>
</tr>
<tr>
<td>description</td>
<td>String</td>
<td>n/a</td>
<td>String</td>
<td>No</td>
<td>Resource description</td>
</tr>
<tr>
<td>Oem</td>
<td>Object</td>
<td>n/a</td>
<td>Object</td>
<td>No</td>
<td>OEM defined object</td>
</tr>
<tr>
<td>Events</td>
<td>Array</td>
<td>Yes</td>
<td>Array</td>
<td>Yes</td>
<td>Array of events – Refer to Table 27</td>
</tr>
<tr>
<td>Context</td>
<td>Array</td>
<td>No</td>
<td>String</td>
<td>No</td>
<td>A context can be supplied at subscription time. This property shall contain a client-supplied context for the Event Destination to which this event is being sent.</td>
</tr>
</tbody>
</table>
Table 27. Event Attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EventType</td>
<td>String (enum)</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 exist which requires attention.</td>
</tr>
<tr>
<td>EventId</td>
<td>String</td>
<td>No</td>
<td>This is a unique instance identifier of an event.</td>
</tr>
<tr>
<td>EventTimestamp</td>
<td>String</td>
<td>No</td>
<td>The event occurred in this time.</td>
</tr>
<tr>
<td>Severity</td>
<td>String</td>
<td>No</td>
<td>This is the severity of the event.</td>
</tr>
<tr>
<td>Message</td>
<td>String</td>
<td>No</td>
<td>This is the human readable message, if provided.</td>
</tr>
<tr>
<td>MessageId</td>
<td>String</td>
<td>Yes</td>
<td>This is the key for this message, which can be used to look up the message in a message registry.</td>
</tr>
<tr>
<td>MessageArgs</td>
<td>Array of strings</td>
<td>No</td>
<td>This array of message arguments is substituted for the arguments in the message when looked up in the message registry.</td>
</tr>
<tr>
<td>Context</td>
<td>String</td>
<td>Deprecated</td>
<td>A context can be supplied at subscription time. This property is the context value supplied by the subscriber.</td>
</tr>
<tr>
<td>OriginOfCondition</td>
<td>Object</td>
<td>Yes</td>
<td>This indicates the resource that originated the condition that caused the event to be generated.</td>
</tr>
</tbody>
</table>

4.45.1 Metadata

http://redfish.dmtf.org/schemas/v1/Event.xml

4.45.2 Operations

4.45.2.1 POST

Request:

POST http://192.168.1.1/Destination1
Content-Type: application/json
{
    "@odata.context": "/redfish/v1/$metadata#EventService/Members/Events/1",
    "@odata.id": "/redfish/v1/EventService/Events/1",
    "@odata.type": ">#Event.v1_2_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

4.45.2 PUT
Operation is not allowed on this resource.

4.45.2.3 PATCH
Operation is not allowed on this resource.

4.45.2.4 GET
Operation is not allowed on this resource.

4.45.2.5 DELETE
Operation is not allowed on this resource.

4.46 Fabric Collection
Property details are available in the FabricCollection.xml metadata file.

4.46.1 Operations

4.46.1.1 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" }] }
4.46.1.4 POST
Operation is not allowed on this resource.

4.46.1.5 DELETE
Operation is not allowed on this resource.

4.47 Fabric
Property details are available in Fabric.xml metadata file.

4.47.1 Operations

4.47.1.1 GET

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

Response:

```json
{
    "@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",
        "HealthRollup": "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": {
        "@odata.id": "/redfish/v1/Fabrics/PCIe/Switches"
    },
    "Actions": {
        "@odata.id": "/redfish/v1/Fabrics/PCIe/Switches"
    },
    "Oem": {}
}
```
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
Operation is not allowed on this resource.

4.47.1.5 DELETE
Operation is not allowed on this resource.

4.48 Switch collection
Property details are available in the SwitchCollection.xml metadata file.

4.48.1 Operations

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

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

4.48.1.2 PUT
Operation is not allowed on this resource.

4.48.1.3 PATCH
Operation is not allowed on this resource.

4.48.1.4 POST
Operation is not allowed on this resource.

4.48.1.5 DELETE
Operation is not allowed on this resource.
4.49 Switch

Property details are available in the Switch.xml metadata file.

4.49.1 Operations

4.49.1.1 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": [
```
```
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
To trigger a switch action the 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

4.49.1.5 DELETE
Operation is not allowed on this resource.

4.50 Port Collection
Property details are available in the PortCollection.xml metadata file.

4.50.1 Operations

4.50.1.1 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"},
   ...]
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 Port
Property details are available in the Port.xml metadata file. OEM extension details are available in IntelRackScaleOem.xml.

4.51.1 Operations

4.51.1.1 GET

Request:
GET /redfish/v1/Fabrics/PCIe/Switches/1/Ports/Up1
Content-Type: application/json

Response:

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

4.51.1.2 PUT
Operation is not allowed on this resource.

4.51.1.3 PATCH
Operation is not allowed on this resource.

4.51.1.4 POST
To trigger the switch port action send a POST request:

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
4.51.1.5 DELETE

4.52 Port Metrics

Property details are available in PortMetrics.xml metadata file.

4.52.1 Operations

4.52.1.1 GET

Request:
GET /redfish/v1/Fabrics/PCIe/Switches/1/Ports/Up1/Metrics
Content-Type: application/json

Response:
{
  "@odata.context": "/redfish/v1/$metadata#Systems/Members/1/Port/Metrics/$entity",
  "@odata.id": "/redfish/v1/Fabrics/PCIe/Switches/1/Ports/Up1/Metrics",
  "@odata.type": ">#PortMetrics.v1_0_0.PortMetrics",
  "Name": "Fabric Port Metrics for Port1",
  "Description": "description-as-string",
  "Id": "Metrics for Port1",
  "Health": "OK"
}

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 Zones Collection

Property details are available in the ZoneCollection.xml metadata file.

4.53.1 Operations

4.53.1.1 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"
    }
]

4.53.1.2 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
To create a new Fabric zone, the initial zone structure should be POSTed.

Note: In the current PSME implementation, the PCIe Fabric switch is preconfigured with a maximum number of zones. Users 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

4.53.1.5 DELETE
Operation is not allowed on this resource.
4.54 Zone

Property details are available in Zone.xml metadata file.

4.54.1 Operations

4.54.1.1 GET

Request:

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

Response:

```json
{
   "@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": {}
   }
}
```

4.54.1.2 PUT

Operation is not allowed on this resource.

4.54.1.3 PATCH

The PATCH method can be used to add or remove Endpoints from a Zone. The service is required to provide a complete representation of Endpoints array. A partial update is not supported.

The properties in Table 28 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>

Request:
**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/1.1 202 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": [ ]
}

### 4.54.1.4 POST
Operation is not allowed on this resource.

### 4.54.1.5 DELETE

**Note:** In current PSME implementation, PCIe fabric switch is preconfigured with maximum number of zones. The user cannot delete any existing zone.

Request:
DELETE /redfish/v1/Fabrics/PCIe/Zones/1

Response:
HTTP/1.1 204 No Content

### 4.55 Endpoint Collection

Property details are available in EndpointCollection.xml metadata file.

### 4.55.1 Operations

#### 4.55.1.1 GET

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

```
{
    "@odata.context": "/redfish/v1/$metadata#EndpointCollection.EndpointCollection",
    "@odata.type": "#EndpointCollection.EndpointCollection",
    "Name": "PCIe Endpoint Collection",
    "Members@odata.count": 3,
    "Members": [
        { "@odata.id": "/redfish/v1/Fabrics/PCIe/Endpoints/NVMeDrivePF1" },
        { "@odata.id": "/redfish/v1/Fabrics/PCIe/Endpoints/NVMeDrivePF2" },
        { "@odata.id": "/redfish/v1/Fabrics/PCIe/Endpoints/HostRootComplex1" }
    ]
}
```

4.55.1.2 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

In the Intel® RSD software v2.3, Endpoints are created automatically for every detected NVMe drive connected to the PNC switch. Implementation of this action is not required.

Request:

```
POST /redfish/v1/Fabrics/PCIe/Endpoints
Content-Type: application/json
{
    "EndpointProtocol": "PCIe",
    "Identifiers": [
        {
            "DurableNameFormat": "UUID",
            "DurableName": "00000000-0000-0000-0000-000000000000"
        }
    ],
    "ConnectedEntities": [
        {
            "EntityRole": "Target",
            "EntityLink": {
                "@odata.id": "/redfish/v1/Chassis/PCIeSwitch1/Drives/Disk.Bay.0"
            },
            "Identifiers": [
                {
                    "DurableNameFormat": "UUID",
                    "DurableName": "00000000-0000-0000-0000-000000000000"
                }
            ]
        }
    ]
}
```
4.55.1.5 DELETE

Operation is not allowed on this resource.

4.56 Endpoint

Property details are available in the Endpoint.xml metadata file.

Additional notes:

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

4.56.1 Operations

4.56.1.1 GET

Request:

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

Response:

```json
{
    "@odata.context": "/redfish/v1/$metadata#Endpoint.Endpoint",
    "@odata.id": "/redfish/v1/Fabrics/PCIe/Endpoints/NVMeDrivePF1",
    "@odata.type": "+Endpoint.v1_1_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": [
        {
...
"EntityRole": "Target",
"EntityLink": {
   "@odata.id": "/redfish/v1/Chassis/PCIeSwitch1/Drives/Disk.Bay.0"
 },
"Identifiers": [
   {
   "DurableNameFormat": "UUID",
   "DurableName": "00000000-0000-0000-0000-000000000000"
   },
   "Oem": {}
  ]
 },
"Redundancy": [],
"HostReservationMemoryBytes": null,
"Links": {
   "Ports": [
   {
   "@odata.id": "/redfish/v1/Fabrics/PCIe/Switches/1/Ports/Down1"
   }
   ],
   "Oem": {},
   "Actions": {
   "Oem": {}
   }
  }
}

4.56.1.2 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

4.57 PCIe* Device

Property details are available in the PCIeDevice.xml metadata file. This resource is required for PNC service.

Note: Chassis property in the links section of the Intel® RSD implementation points to a single Chassis (the array contains only one element).

4.57.1 Operations

4.57.1.1 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",
   "Model": "Model Name",
   "SKU": "",
   "SerialNumber": "SN123456",
   "PartNumber": "",
   "DeviceType": "SingleFunction",
   "FirmwareVersion": "XYZ1234",
   "Status": {
      "State": "Enabled",
      "Health": "OK",
      "HealthRollUp": "OK"
   },
   "Links": {
      "Chassis": [{
         "@odata.id": "/redfish/v1/Chassis/1"
      }],
      "PCIeFunctions": [
         {"@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/Device1/Functions/1"
      },
      "Oem": {}
   },
   "Oem": {}
}
```

4.57.1.2 PUT

Operation is not allowed on this resource.

4.57.1.3 PATCH

The properties in Table 29 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"
}
```
**PSME REST API Definition**

**Response:**

HTTP/1.1 204 No Content

Or:

HTTP/1.1 200 OK

```
{  
(updated resource body)
}
```

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 PCIe Device Function**

Property details are available in the PCIeFunction.xml metadata file. This resource is required for PNC service.

**4.58.1 Operations**

**4.58.1.1 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": [
    ...
    ]
```

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 Task Service
This resource represents the task service, which contains all actual tasks created by this service. This resource must be supported by services supporting asynchronous operations (Refer to Section 4.2).

Property details are available in the TaskService.xml metadata file.

4.59.1 Operations

4.59.1.1 GET
Request:
GET /redfish/v1/TaskService
Content-Type: application/json

Response:

{"@odata.id": "/redfish/v1/Chassis/PCIeSwitch1/Drives/Disk.Bay.1"},
"PCIeDevice": {
  
  "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/Device1"
},
"Oem": {}}
4.59.1.2 PUT
Operation is not allowed on this resource.

4.59.1.3 PATCH
Operation is not allowed on this resource.

4.59.1.4 POST
Operation is not allowed on this resource.

4.59.1.5 DELETE
Operation is not allowed on this resource.

4.60 Task Collection
This resource represents a collection of resources of Task Collection type.
Property details are available in the TaskCollection.xml metadata file.

4.60.1 Operations

4.60.1.1 GET
Request:
GET /redfish/v1/TaskService/Tasks
Content-Type: application/json

Response:
{
   "@odata.context": "/redfish/v1/$metadata#TaskCollection.TaskCollection",
   "@odata.id": "/redfish/v1/TaskService/Tasks",
   "@odata.type": ":TaskCollection.TaskCollection",
   "Name": "Task Collection",
   "Members@odata.count": 1,
   "Members": [
      {"@odata.id": "/redfish/v1/TaskService/Tasks/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 Task
This resource contains information about a specific Task scheduled by, or being executed by, a Redfish service Task Service.
Property details are available in the Task.xml metadata file.

4.61.1 Operations

4.61.1.1 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": [
      {
         "@odata.type": "Message.v1_0_0.Message",
         "MessageId": "Base.1.0.Created",
         "RelatedProperties": [ ],
         "Message": "The resource has been created successfully",
         "MessageArgs": [ ],
         "Severity": "OK"
      }
   ]
}
```

4.61.1.2 PUT
Operation is not allowed on this resource.
4.61.1.3  PATCH
Operation is not allowed on this resource.

4.61.1.4  POST
Operation is not allowed on this resource.

4.61.1.5  DELETE
Request:
DELETE /redfish/v1/TaskService/Tasks/1
Response:
HTTP/1.1 204 No Content

4.62  Registries (MessageRegistryFileCollection)
This resource represents a collection of the Schema File locator resources.
Property details are available in the MessageRegistryFileCollection.xml metadata file.

4.62.1  Operations

4.62.1.1  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"
   }]
}

4.62.1.2  PUT
Operation is not allowed on this resource.

4.62.1.3  PATCH
Operation is not allowed on this resource.

4.62.1.4  POST
Operation is not allowed on this resource.
4.6.2.1.5 DELETE
Operation is not allowed on this resource.

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

Property details are available in the MessageRegistryFile.xml metadata file.

The base message registry file is defined by Redfish. Refer to the following address:
http://redfish.dmtf.org/registries/Base.v1_0_0.json

4.63.1 Operations

4.63.1.1 GET
Request:
GET /redfish/v1/Registries/Base
Content-Type: application/json

Response:
{
   "@odata.context": "http://redfish/v1/$metadata#Registries/Members/$entity",
   "@odata.id": "http://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": "http://redfish.dmtf.org/registries/Base.v1_0_0.json",
      }
   ],
   "Oem": {}
}

4.63.1.2 PUT
Operation is not allowed on this resource.

4.63.1.3 PATCH
Operation is not allowed on this resource.

4.63.1.4 POST
Operation is not allowed on this resource.

4.63.1.5 DELETE
Operation is not allowed on this resource.
4.64 Metric Definition Collection

Property details are available in MetricDefinitionCollection.xml metadata file.

4.64.1 Operations

4.64.1.1 GET

Request:

GET /redfish/v1/TelemetryService/MetricDefinitions
Content-Type: application/json

Response:

```
{
    "@odata.context": "/redfish/v1/$metadata#TelemetryService/MetricDefinitions/$entity",
    "@odata.id": "/redfish/v1/TelemetryService/MetricDefinitions",
    "@odata.type": "#MetricDefinitionCollection.MetricDefinitionCollection",
    "Name": "Metric Definitions Collection",
    "Description": "description-as-string",
    "Members@odata.count": 5,
    "Members": [
        {
            "@odata.id": "/redfish/v1/TelemetryService/MetricDefinitions/CPUTemperature"
        },
        {
            "@odata.id": "/redfish/v1/TelemetryService/MetricDefinitions/CPUHealth"
        },
        {
            "@odata.id": "/redfish/v1/TelemetryService/MetricDefinitions/CPUBandwidth"
        },
        {
            "@odata.id": "/redfish/v1/TelemetryService/MetricDefinitions/SLEDTemperatures"
        },
        {
            "@odata.id": "/redfish/v1/TelemetryService/MetricDefinitions/MemoryHealth"
        }
    ]
}
```

4.64.1.2 PUT

Operation is not allowed on this resource.

4.64.1.3 PATCH

Operation is not allowed on this resource.

4.64.1.4 POST

Operation is not allowed on this resource.
### 4.65 Metric Definition

Property details are available in the MetricDefinition.xml metadata file. Metric Definition describes either metrics associated with a physical sensor (e.g., exposed by Baseboard management controller (BMC) or metrics associated with the specific resource (e.g., statistics of Ethernet Switch Port). This resource is optional for metrics and required for sensors.

### 4.65.1 Operations

#### 4.65.1.1 GET (Metric Definition for Discrete Sensor)

**Request:**

```
GET /redfish/v1/TelemetryService/MetricDefinitions/CPUHealth
```

**Content-Type:** application/json

**Response:**

```
{
    "@odata.context": "/redfish/v1/$metadata#MetricDefinition.MetricDefinition",
    "@odata.id": "/redfish/v1/TelemetryService/MetricDefinitions/CPUHealth",
    "@odata.type": ">#MetricDefinition.v1_0_0.MetricDefinition",
    "Id": "CPUHealth1",
    "Name": "CPU1 IPMI Health Sensor",
    "MetricType": "Discrete",
    "SensorType": "PhysicalSensor",
    "Implementation": "PhysicalSensor",
    "SensingInterval": "PT1S",
    "PhysicalContext": "CPU",
    "DiscreteValues": [
        "OK",
        "Internal Error",
        "Thermal Trip",
        "FRB1 BIST Failure",
        "FRB2 Hang in Post",
        "FRB3 Startup Failure",
        "Config Error",
        "SMBIOS Uncorrectable Error",
        "Processor Presence Detected",
        "Processor Disabled",
        "Terminator Presence Detected",
        "Processor Throttled",
        "Machine Check Exception",
        "Correctable Machine Check Error"
    ],
    "MetricProperties": [
        "/redfish/v1/Systems/System1/Processors/CPU1/Metrics#/CPUHealth"
    ],
    "Oem": {
```
"Intel_RackScale": {
  "@odata.type": "#Intel.Oem.MetricDefinition",
  "DiscreteMetricType": "Multiple"
}
}

4.65.1.2  GET (Metric Definition for Numeric Sensor)

Request:
GET /redfish/v1/TelemetryService/MetricDefinitions/CPUTemperature
Content-Type: application/json

Response:
{
  "@odata.context": "/redfish/v1/$metadata#MetricDefinition.MetricDefinition",
  "@odata.id": "/redfish/v1/TelemetryService/MetricDefinitions/CPUTemperature",
  "@odata.type": "#MetricDefinition.v1_0_0.MetricDefinition",
  "Description": "CPU1 Temperature MetricDefinition",
  "Name": "Temperature MetricDefinition",
  "Id": "TEMP1",
  "SensorType": "Temperature",
  "Implementation": "Physical",
  "SensingInterval": "PT1S",
  "MetricType": "Numeric",
  "PhysicalContext": "CPU",
  "Units": "Cel",
  "MinReadingRange": 0,
  "MaxReadingRange": 80,
  "Precision": 1,
  "Calibration": 2,
  "MetricProperties": [
    "/redfish/v1/Systems/System1/Processors/CPU1/Metrics#/TemperatureCelsius"
  ]
}

4.65.1.3  GET (Metric Definition for Counter or Metric not associated with Sensor)

Request:
GET /redfish/v1/TelemetryService/MetricDefinitions/CPUBandwidth
Content-Type: application/json

Response:
{
  "@odata.context": "/redfish/v1/$metadata#MetricDefinition.MetricDefinition",
  "@odata.id": "/redfish/v1/TelemetryService/MetricDefinitions/CPUBandwidth",
  "@odata.type": "#MetricDefinition.v1_0_0.MetricDefinition",
  "Id": "CPUBandwidth",
  "Name": "CPU Bandwidth type",
  "MetricType": "Numeric",
}
"Implementation": "DigitalMeter",
"PhysicalContext": "CPU",

"SensingInterval": "PT1S",
"Units": "%",
"MinReadingRange": 0,
"MaxReadingRange": 100,

"MetricProperties": [
    "#/redfish/v1/Systems/System1/Processors/CPU1/Metrics#/CPUBandwidthPercent"
],
"Oem": {
    "Intel_RackScale": {
        "@odata.type": "#Intel.Oem.MetricDefinition",
        "CalculationPrecision": 5
    }
}

4.65.1.4 PUT
Operation is not allowed on this resource.

4.65.1.5 PATCH
Operation is not allowed on this resource.

4.65.1.6 POST
Operation is not allowed on this resource.

4.65.1.7 DELETE
Operation is not allowed on this resource.

4.66 Telemetry Service
Property details are available in the TelemetryService.xml metadata file.

4.66.1 Operations

4.66.1.1 GET

Request:
GET /redfish/v1/TelemetryService
Content-Type: application/json

Response:


4.66.1.2 PUT
Operation is not allowed on this resource.

4.66.1.3 PATCH
Operation is not allowed on this resource.

4.66.1.4 POST
Operation is not allowed on this resource.

4.66.1.5 DELETE
Operation is not allowed on this resource.

4.67 Metric Report Definition Collection

Property details are available in the MetricReportDefinitionCollection.xml metadata file.

Note: In the Intel® RSD PSME implementation, the Metric Report Definition Collection resource is not implemented.

4.67.1 Operations

4.67.1.1 GET

Request:
GET /redfish/v1/TelemetryService/MetricReportDefinitions
Content-Type: application/json

Response:

```json
{
    "@odata.context": "@odata.context",
    "@odata.id": "@odata.id",
    "@odata.type": "@odata.type",
    "#MetricReportDefinitionCollection.MetricReportDefinitionCollection",
    "Name": "MetricReportDefinition Collection",
    "Members@odata.count": 1,
    "Members": [
        {
            "@odata.id": "@odata.id",
            "@odata.id": "/redfish/v1/TelemetryService/MetricReportDefinitions/CPUMetrics"
        }
    ]
}
```
4.67.1.2  PUT
Operation is not allowed on this resource.

4.67.1.3  PATCH
Operation is not allowed on this resource.

4.67.1.4  POST
Request:

```
POST /redfish/v1/TelemetryService/MetricReportDefinitions
Content-Type: application/json
{
   "Name": "CPU1 Metric Publisher",
   "Schedule": {
      "RecurrenceInterval": "PT1M"
   },
   "MetricReportType": "Periodic",
   "CollectionTimeScope": "Interval",
   "ReportActions": ["Transmit", "Log"],
   "MetricReport": {
      "@odata.id": "/redfish/v1/TelemetryService/MetricReports/TransmitCPU1Metrics"
   },
   "Status": {
      "State": "Enabled",
      "Health": "OK"
   },
   "MetricProperties": [
      "/redfish/v1/Systems/System1/Processors/CPU1/Metrics#/BandwidthPercent",
      "/redfish/v1/Systems/System1/Processors/CPU1/Metrics#/CPUHealth",
      "/redfish/v1/Systems/System1/Processors/CPU1/Metrics#/TemperatureCelsius"
   ]
}
```

Response:

HTTP/1.1 201 Created
Location: http://<IP>:<PORT/redfish/v1/TelemetryService/MetricReportDefinitions/1

4.67.1.5  DELETE
Operation is not allowed on this resource.

4.68  Metric Report Definition
Property details are available in the MetricReportDefinition.xml metadata file.

Note: In the Intel® RSD PSME implementation, the Metric Report Definition resource is not implemented.

4.68.1  Operations

4.68.1.1  GET
Request:

```
GET /redfish/v1/TelemetryService/MetricReportDefinitions/CPU1Metrics
Content-Type: application/json
```
Response:

```json
{
    "@odata.context": "/redfish/v1/$metadata#MetricReportDefinition",
    "@odata.type": ":MetricReportDefinition.1.0.0.MetricReportDefinition",
    "@odata.id": "/redfish/v1/TelemetryService/MetricReportDefinitions/CPU1Metrics",
    "Id": "CPUEventPublish",
    "Name": "CPU1 Metric Publisher",
    "Schedule": {
        "RecurrenceInterval": "PT1M"
    },
    "MetricReportType": "Periodic",
    "CollectionTimeScope": "Interval",
    "ReportActions": ["Transmit", "Log"],
    "MetricReport": {"@odata.id": "/redfish/v1/TelemetryService/MetricReports/TransmitCPU1Metrics"},
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "MetricProperties": [
        "/redfish/v1/Systems/System1/Processors/CPU1/Metrics#/BandwidthPercent",
        "/redfish/v1/Systems/System1/Processors/CPU1/Metrics#/CPUHealth",
        "/redfish/v1/Systems/System1/Processors/CPU1/Metrics#/TemperatureCelsius"
    ]
}
```

4.68.1.2 PUT

Operation is not allowed on this resource.

4.68.1.3 PATCH

Operation is not allowed on this resource.

4.68.1.4 POST

Operation is not allowed on this resource.

4.68.1.5 DELETE

Request:

```
DELETE /redfish/v1/TelemetryService/MetricReportDefinitions/CPUEventPublish
```

Response:

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

4.69 Metric Report Collection

Property details are available in the `MetricReportCollection.xml` metadata file.

**Note:** In the current PSME implementation, the Metric Report Collection resource is not implemented.
4.69.1 Operations

4.69.1.1 GET

Request:
GET /redfish/v1/TelemetryService/MetricReports
Content-Type: application/json

Response:
{
   "@odata.context": "/redfish/v1/$metadata#TelemetryService/MetricReports",
   "@odata.id": "/redfish/v1/TelemetryService/MetricReports",
   "Name": "MetricReports",
   "Members@odata.count": 1,
   "Members": [
      {
         "@odata.id": "/redfish/v1/TelemetryService/MetricReports/TransmitCPU1Metrics"
      }
   ]
}

4.69.1.2 PUT
Operation is not allowed on this resource.

4.69.1.3 PATCH
Operation is not allowed on this resource.

4.69.1.4 POST
Operation is not allowed on this resource.

4.69.1.5 DELETE
Operation is not allowed on this resource.

4.70 Metric Report

Property details are available in the MetricReport.xml metadata file.

Note: In the current PSME implementation, the Metric Report resource is not implemented.

4.70.1 Operations

4.70.1.1 GET

Request:
GET /redfish/v1/TelemetryService/MetricReports/TransmitCPU1Metrics
Content-Type: application/json

Response:
{
   "@odata.type": "#MetricReport.v1_0_0.MetricReport",
   "@odata.id": "/redfish/v1/TelemetryService/MetricReports/TransmitCPU1Metrics",
   "Name": "TransmitCPU1Metrics",
   "Description": "Transmit CPU1 metrics",
   "Type": "MetricReport",
   "MetricCollection@odata.id": "/redfish/v1/TelemetryService/MetricCollections/

"Id": "TransmitCPU1Metrics",
"Name": "CPU1 Metric Report",
"Description": "description-as-string",
"MetricReportDefinition": { "@odata.id": "/redfish/v1/TelemetryService/MetricReportDefinitions/CPU1Metrics" },
"MetricValues": [
  {
    "MetricValue": "29",
    "Timestamp": "2016-07-25T11:27:59.895513984+02:00",
    "MetricProperty": "/redfish/v1/Systems/System1/Processors/CPU1/Metrics#/BandwidthPercent",
    "MetricDefinition": { "@odata.id": "/redfish/v1/TelemetryService/MetricDefinitions/CPUBandwidth" } },
  {
    "MetricValue": "FRB1 BIST Failure",
    "Timestamp": "2016-07-25T11:27:59.795513984+02:00",
    "MetricProperty": { "@odata.id": "/redfish/v1/Systems/System1/Processors/CPU1/Metrics#/CPUHealth" },
    "MetricDefinition": { "@odata.id": "/redfish/v1/TelemetryService/MetricDefinitions/CPUHealth" } },
  {
    "MetricValue": "43",
    "Timestamp": "2016-07-25T11:27:59.595513984+02:00",
    "MetricProperty": { "@odata.id": "/redfish/v1/Systems/System1/Processors/CPU1/Metrics#/TemperatureCelsius" },
    "MetricDefinition": { "@odata.id": "/redfish/v1/TelemetryService/MetricDefinitions/CPUTemperature" } }
]}

### 4.70.1.2 PUT

Operation is not allowed on this resource.

### 4.70.1.3 PATCH

Operation is not allowed on this resource.

### 4.70.1.4 POST

Operation is not allowed on this resource.

### 4.70.1.5 DELETE

Operation is not allowed on this resource.
4.71 Triggers Collection

Property details are available in the TriggersCollection.xml metadata file.

Note: In the current PSME implementation, the TriggersCollection resource is not implemented.

4.71.1 Operations

4.71.1.1 GET

Request:
GET /redfish/v1/TelemetryService/Triggers
Content-Type: application/json

Response:

```json
{
   "@odata.context": "/redfish/v1/$metadata#TelemetryService/Triggers/$entity",
   "@odata.id": "/redfish/v1/TelemetryService/Triggers",
   "@odata.type": ">#TriggersCollection.TriggersCollection",
   "Name": "Triggers Collection",
   "Members@odata.count": 6,
   "Members": [
      { "@odata.id": "/redfish/v1/TelemetryService/Triggers/ProcessorCatastrophicError"
      },
      { "@odata.id": "/redfish/v1/TelemetryService/Triggers/ProcessorInitializationError"
      },
      { "@odata.id": "/redfish/v1/TelemetryService/Triggers/ProcessorMachineCheckError"
      },
      { "@odata.id": "/redfish/v1/TelemetryService/Triggers/ProcessorPOSTFailure"
      },
      { "@odata.id": "/redfish/v1/TelemetryService/Triggers/ProcessorTemperature"
      },
      { "@odata.id": "/redfish/v1/TelemetryService/Triggers/ProcessorThermalTrip"
      }
   ]
}
```

4.71.1.2 PUT

Operation is not allowed on this resource.

4.71.1.3 PATCH

Operation is not allowed on this resource.
4.71.1.4 POST (Numeric Trigger)

Request:

POST /redfish/v1/TelemetryService/Triggers
Content-Type: application/json

{
   "Name": "Triggers for Processor Temperature Malfunction",
   "Status": {
      "State": "Enabled",
      "Health": "OK"
   },
   "MetricType": "Numeric",
   "TriggerActions": [
      "Transmit"
   ],
   "NumericTriggers": [
      {
         "Name": "UpperThresholdCritical",
         "Value": "90",
         "DirectionOfCrossing": "Increasing",
         "DwellTimems": "1",
         "Severity": "Critical"
      },
      {
         "Name": "UpperThresholdNonCritical",
         "Value": "75",
         "DirectionOfCrossing": "Increasing",
         "DwellTimems": "4",
         "Severity": "Warning"
      }
   ],
   "MetricProperties": [
      "/redfish/v1/Systems/System1/Processors/CPU0/Metrics#/TemperatureCelsius",
      "/redfish/v1/Systems/System1/Processors/CPU1/Metrics#/TemperatureCelsius"
   ]
}

Response:

HTTP/1.1 201 Created
Location: http://<IP>:<PORT/redfish/v1/TelemetryService/Triggers/1

4.71.1.5 POST (Discrete Trigger)

Request:

POST /redfish/v1/TelemetryService/Triggers
Content-Type: application/json

{
   "Name": "Trigger for Processor Machine Check Error",
   "Description": "Triggers for System1 Processor Machine Check Error",
   "Status": {
      "State": "Enabled",
      "Health": "OK"
   },
   "TriggerActions": [
      "Transmit"
   ]
}

Response:

HTTP/1.1 201 Created
Location: http://<IP>:<PORT/redfish/v1/TelemetryService/Triggers/1
"MetricType": "Discrete",
"TriggerActions": [
  "Transmit"
],
"DiscreteTriggerCondition": "Specified",
"DiscreteTriggers": [
  {
    "Value": "Machine Check Exception",
    "DwellTimes": "1",
    "Severity": "Critical"
  }
],
"Status": {
  "State": "Enabled",
  "Health": "OK"
},
"MetricProperties": [
  "/redfish/v1/Systems/System1/Processors/CPU0/Metrics#/CPUHealth",
  "/redfish/v1/Systems/System1/Processors/CPU1/Metrics#/CPUHealth"
]
}

Response:
HTTP/1.1 201 Created
Location: http://<IP>:<PORT/redfish/v1/TelemetryService/Triggers/2

4.71.1.6 DELETE
Operation is not allowed on this resource.

4.72 Triggers
Property details are available in the Triggers.xml metadata file.

Note: In the current PSME implementation, the Triggers resource is not implemented.

4.72.1 Operations
4.72.1.1 GET (Numeric Trigger)
Request:
GET /redfish/v1/TelemetryService/Triggers/ProcessorTemperature
Content-Type: application/json

Response:
{
  "@odata.context": "/redfish/v1/$metadata#TelemetryService/Triggers/Members/$entity",
  "@odata.id": "/redfish/v1/TelemetryService/Triggers/ProcessorTemperature",
  "@odata.type": ">#Trigger.v1_0_0.Trigger",
  "Id": "ProcessorTemperature",
  "Name": "Triggers for Processor Temperature Malfunction",
  "Status": 
}
"State": "Enabled",
"Health": "OK"
},
"MetricType": "Numeric",
"TriggerActions": [
  "Transmit"
],
"NumericTriggers": [
  {
    "Name": "UpperThresholdCritical",
    "Value": "90",
    "DirectionOfCrossing": "Increasing",
    "DwellTimems": "1",
    "Severity": "Critical"
  },
  {
    "Name": "UpperThresholdNonCritical",
    "Value": "75",
    "DirectionOfCrossing": "Increasing",
    "DwellTimems": "4",
    "Severity": "Warning"
  }
],
"MetricProperties": [
  "/redfish/v1/Systems/System1/Processors/CPU0/Metrics#/TemperatureCelsius",
  "/redfish/v1/Systems/System1/Processors/CPU1/Metrics#/TemperatureCelsius"
]
}

## 4.72.1.2 GET (Discrete Trigger)

**Request:**

GET /redfish/v1/TelemetryService/Triggers/ProcessorMachineCheckError

**Content-Type: application/json**

**Response:**

```json
{
  "@odata.context": "/redfish/v1/$metadata#TelemetryService/Triggers/Members/$entity",
  "@odata.id": "/redfish/v1/TelemetryService/Triggers/ProcessorMachineCheckError",
  "@odata.type": "#Trigger.v1_0_0.Trigger",
  "Id": "ProcessorMachineCheckError",
  "Name": "Trigger for Processor Machine Check Error",
  "Description": "Triggers for System1 Processor Machine Check Error",
  "MetricType": "Discrete",
  "TriggerActions": [
    "Transmit"
  ],
  "DiscreteTriggerCondition": "Specified",
  "DiscreteTriggers": [
  
```
"Value": "Machine Check Exception",
"DwellTimems": "1",
"Severity": "Critical"
}
],

"Status": {
  "State": "Enabled",
  "Health": "OK"
},
"MetricProperties": [
  "/redfish/v1/Systems/System1/Processors/CPU0/Metrics#/CPUHealth",
  "/redfish/v1/Systems/System1/Processors/CPU1/Metrics#/CPUHealth"
]
}

4.72.1.3 PUT
Operation is not allowed on this resource.

4.72.1.4 PATCH
Operation is not allowed on this resource.

4.72.1.5 POST
Operation is not allowed on this resource.

4.72.1.6 DELETE
Request:
DELETE /redfish/v1/TelemetryService/Triggers/ProcessorMachineCheckError
Response:
HTTP/1.1 204 No Content

4.73 Power
The Power metrics resource represents the properties for Power Consumption and Power Limiting.
Detailed information about resource properties can be obtained from the metadata file: Power.xml. OEM extensions details are available in the IntelRackScaleOem.xml.

4.73.1 Operations
4.73.1.1 GET (Rack Level Power Metrics)
Request:
GET /redfish/v1/Chassis/Rack1/Power
Content-Type: application/json
Response:

```json
{
  "@odata.context": "/redfish/v1/$metadata#Power.Power",
  "@odata.id": "/redfish/v1/Chassis/Drawer1/Power",
  "@odata.type": "#Power.v1_0.Power",
  "Power": [],
  "PowerLimit": 0,
  "PduPowerConsumed": 0,
  "PduPowerLimit": 0
}
```
"Id": "Power",
"Name": "Power",
"Description": "PowerSubsystem",
"PowerControl": [
  {
    "MemberId": "0",
    "Name": "System Power Control",
    "PowerConsumedWatts": 8000,
    "PowerRequestedWatts": null,
    "PowerAvailableWatts": null,
    "PowerCapacityWatts": 10000,
    "PowerAllocatedWatts": null,
    "PowerMetrics": {
      "IntervalInMin": 30,
      "MinConsumedWatts": 7500,
      "MaxConsumedWatts": 8200,
      "AverageConsumedWatts": 8000
    },
    "PowerLimit": {
      "LimitInWatts": null,
      "LimitException": null,
      "CorrectionInMs": null
    },
    "RelatedItem": [
      {
        "@odata.id": "/redfish/v1/Systems/System1"
      }
    ],
    "Status": {
      "State": "Enabled",
      "Health": "OK",
      "HealthRollup": "OK"
    },
    "Oem": {}
  }
],
"Voltages": [
  {
    "MemberId": "0",
    "Name": "VRM1 Voltage",
    "SensorNumber": 11,
    "Status": {
      "State": "Enabled",
      "Health": "OK"
    },
    "ReadingVolts": 12,
    "PhysicalContext": "VoltageRegulator",
    "RelatedItem": [
      {
        "@odata.id": "/redfish/v1/Systems/System1"
      }
    ]
  }
],
"PowerSupplies": [
{  "MemberId": "0",  "Name": "Power Supply Bay 1",  "Status": {    "State": "Enabled",    "Health": "Warning"  },  "Oem": {},  "PowerSupplyType": "DC",  "LineInputVoltageType": "DCNeg48V",  "LineInputVoltage": -48,  "PowerCapacityWatts": 400,  "LastPowerOutputWatts": 192,  "Model": "499253-B21",  "Manufacturer": "ManufacturerName",  "FirmwareVersion": "1.00",  "SerialNumber": "1z0000001",  "PartNumber": "1z0000001A3a",  "SparePartNumber": "0000001A3a",  "InputRanges": [    ],  "IndicatorLED": "Off",  "RelatedItem": [    { "@odata.id": "/redfish/v1/Chassis/Drawer1" }  ],  "Redundancy": [    { "@odata.id": "/redfish/v1/Chassis/Drawer1/Power#/Redundancy/0" }  ]},  "Redundancy": [  {    "MemberId": "0",    "Name": "PowerSupply Redundancy Group 1",    "Mode": "Failover",    "MaxNumSupported": 2,    "MinNumNeeded": 1,    "RedundancySet": [      { "@odata.id": "/redfish/v1/Chassis/Drawer1/Power#/PowerSupplies/0" }    ],    "Status": {      "State": "Offline",      "Health": "OK"    }  }  ],  "Oem": {}}
4.73.1.2 GET (SLED level Power Metrics)

Chassis metrics that are available on the SLED level differ from those available on the Rack level; therefore, metadata file definition Power.xml contains a superset of all Chassis metrics.

Request:
GET /redfish/v1/Chassis/Sled1/Power
Content-Type: application/json

Response:

```
{
   "@odata.context": "/redfish/v1/$metadata#Power.Power",
   "@odata.id": "/redfish/v1/Chassis/Sled1/Power",
   "@odata.type": ":#Power.v1_1_0.Power",
   "Id": "Power",
   "Name": "Power",
   "PowerControl": [
      {
         "@odata.id": "/redfish/v1/Chassis/Sled1/Power#/PowerControl/0",
         "MemberId": "0",
         "Name": "System Power Control",
         "PowerConsumedWatts": 8000,
         "RelatedItem": [
            {
               "@odata.id": "/redfish/v1/Chassis/Sled1",
               "@odata.id": "/redfish/v1/Systems/System1"
            }
         ],
         "Status": {
            "State": "Enabled",
            "Health": "OK",
            "HealthRollup": "OK"
         },
         "Oem": {} }
   ],
   "Oem": {
      "Intel_RackScale": {
         "InputACPowerWatts": 245
      }
   }
}
```

4.73.1.3 PUT

Operation is not allowed on this resource.

4.73.1.4 PATCH

Operation is not allowed on this resource.

4.73.1.5 POST

Operation is not allowed on this resource.
4.73.1.6 **DELETE**
Operation is not allowed on this resource.

4.74 **Thermal**
The Thermal metrics resource represents the properties for temperature and cooling.
Detailed information about the resource properties can be obtained from the metadata file: `Thermal.xml` OEM extensions details available in `IntelRackScaleOem.xml`.

4.74.1 **Operations**
4.74.1.1 **GET (Rack Level Thermal Metrics)**

**Request:**

GET /redfish/v1/Chassis/Rack1/Thermal
Content-Type: application/json

**Response:**

```json
{
  "@odata.context": "/redfish/v1/$metadata#Thermal.Thermal",
  "@odata.id": "/redfish/v1/Chassis/Drawer1/Thermal",
  "@odata.type": "#Thermal.v1_1_0.Thermal",
  "Id": "Thermal",
  "Name": "Thermal",
  "Description": "Thermal Subsystem",
  "Temperatures": [
    {
      "MemberId": "0",
      "Name": "Drawer inlet Temp",
      "SensorNumber": 42,
      "Status": {
        "State": "Enabled",
        "Health": "OK"
      },
      "ReadingCelsius": 21,
      "PhysicalContext": "Intake",
      "RelatedItem": [
        {
          "@odata.id": "/redfish/v1/Chassis/Drawer1"
        }
      ]
    }
  ],
  "Fans": [
    {
      "MemberId": "0",
      "Name": "BaseBoard System Fan",
      "PhysicalContext": "Backplane",
      "Status": {
        "State": "Enabled",
        "Health": "OK"
      }.
    }
  ]
}```
"Reading": 2100,
"ReadingUnits": "RPM",
"Redundancy": [
    {"@odata.id": "/redfish/v1/Chassis/Drawer1/Thermal#/Redundancy/0"},
    "RelatedItem": [
        {"@odata.id": "/redfish/v1/Chassis/Drawer1" }]
],
"Redundancy": [
    {"MemberId": "0",
    "Name": "BaseBoard System Fans",
    "RedundancyEnabled": false,
    "RedundancySet": [
        {"@odata.id": "/redfish/v1/Chassis/Drawer1/Thermal#/Fans/0" }],
    "Mode": "N+m",
    "Status": {
        "State": "Disabled",
        "Health": "OK"
    },
    "MinNumNeeded": 1,
    "MaxNumSupported": 2 }
]

4.74.1.2  **PUT**
Operation is not allowed on this resource.

4.74.1.3  **PATCH**
Operation is not allowed on this resource.

4.74.1.4  **POST**
Operation is not allowed on this resource.

4.74.1.5  **DELETE**
Operation is not allowed on this resource.

4.74.1.6  **GET (SLED Level Thermal Metrics)**
SLED Level Thermal Metrics differ from Rack Level Thermal Metrics; therefore, metadata definition file Thermal.xml contains the superset of all available Thermal Metrics.

**Request:**
GET /redfish/v1/Chassis/Rack1/Thermal
Content-Type: application/json
Response:

```
{
    "@odata.context": "/redfish/v1/$metadata#Thermal.Thermal",
    "@odata.id": "/redfish/v1/Chassis/Sled1/Thermal",
    "@odata.type": ":Thermal.v1_1_0.Thermal",
    "Id": "Thermal",
    "Name": "Thermal",
    "Temperatures": [
        {
            "@odata.id": "/redfish/v1/Chassis/Sled1/Thermal#/Temperatures/0",
            "MemberId": "0",
            "Name": "SLED inlet Temp",
            "SensorNumber": 42,
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
            "ReadingCelsius": 21,
            "UpperThresholdNonCritical": 42,
            "UpperThresholdCritical": 42,
            "UpperThresholdFatal": 42,
            "LowerThresholdNonCritical": 42,
            "LowerThresholdCritical": 5,
            "LowerThresholdFatal": 42,
            "MinReadingRangeTemp": 0,
            "MaxReadingRangeTemp": 200,
            "PhysicalContext": "Intake",
            "RelatedItem": [
                {"@odata.id": "/redfish/v1/Chassis/Sled1/"
                }
            ]
        },
        {
            "@odata.id": "/redfish/v1/Chassis/Sled1/Thermal#/Temperatures/1",
            "MemberId": "0",
            "Name": "SLED Outlet Temp",
            "SensorNumber": 43,
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
            "ReadingCelsius": 44,
            "UpperThresholdNonCritical": 55,
            "UpperThresholdCritical": 55,
            "UpperThresholdFatal": 55,
            "LowerThresholdNonCritical": 55,
            "LowerThresholdCritical": 5,
            "LowerThresholdFatal": 42,
            "MinReadingRangeTemp": 0,
            "MaxReadingRangeTemp": 200,
            "PhysicalContext": "Exhaust",
            "RelatedItem": ["@odata.type": "Thermal.v1_1_0.Thermal",
```
```
4.74.1.7 PUT
Operation is not allowed on this resource.

4.74.1.8 PATCH
Operation is not allowed on this resource.

4.74.1.9 POST
Operation is not allowed on this resource.

4.74.1.10 DELETE
Operation is not allowed on this resource.

4.75 Network Interface Collection
Property details are available in the NetworkInterfaceCollection.xml metadata file.

4.75.1 Operations
4.75.1.1 GET
Request:
GET /redfish/v1/Systems/System1/NetworkInterfaces
Content-Type: application/json

Response:
{
   "@odata.context": "/redfish/v1/$metadata#$NetworkInterfaceCollection.Networ
4.75.1.2 PUT
Operation is not allowed on this resource.

4.75.1.3 PATCH
Operation is not allowed on this resource.

4.75.1.4 POST
Operation is not allowed on this resource.

4.75.1.5 DELETE
Operation is not allowed on this resource.

4.76 Network Interface
Network Interface contains references linking the NetworkDeviceFunction resources and represents network functionality available to the containing system.

Property details are available in the NetworkInterface.xml metadata file.

4.76.1 Operations

4.76.1.1 GET

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

Response:

```json
{
    "@odata.context": "/redfish/v1/$metadata#NetworkInterface.NetworkInterface",
    "@odata.id": "/redfish/v1/Systems/System1/NetworkInterfaces/1",
    "@odata.type": "# NetworkInterface.v1_0_0.NetworkInterface",
    "Id": "1",
    "Name": "Network Device View",
    "Description": "Network Device View",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollUp": "OK"
    },
    "NetworkDeviceFunctions": {
        "@odata.id": "/redfish/v1/Systems/System1/NetworkInterfaces/1/NetworkDeviceFunctions"
    },
    "Links": {
        "Oem": {}
    }
}
```
4.76.1.2 PUT
Operation is not allowed on this resource.

4.76.1.3 PATCH
Operation is not allowed on this resource.

4.76.1.4 POST
Operation is not allowed on this resource.

4.76.1.5 DELETE
Operation is not allowed on this resource.

4.77 Network Device Function Collection
Property details are available in the NetworkDeviceFunctionCollection.xml metadata file.

4.77.1 Operations

4.77.1.1 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"
      }
   ]
}

4.77.1.2 PUT
Operation is not allowed on this resource.

4.77.1.3 PATCH
Operation is not allowed on this resource.

4.77.1.4 POST
Operation is not allowed on this resource.
4.77.1.5 **DELETE**

Operation is not allowed on this resource.

4.78 **Network Device Function**

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

Property details are available in the NetworkDeviceFunction.xml metadata file.

4.78.1 **Operations**

4.78.1.1 **GET**

*Note:* Because of the confidential nature of CHAP secret fields, they cannot be shown in a GET request, **null** is shown instead.

**Request:**

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

**Response:**

```json
{
   "@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": {}

### 4.78.1.2 PUT

Operation is not allowed on this resource.

### 4.78.1.3 PATCH

The PATCH method should be used to enable iSCSI boot of the compute node (Table 30). After patching this resource, set the `BootOverride` target to `RemoteDrive` and submit a PATCH to the `ComputerSystem.Reset` action. Attributes for this method are listed in Table 30, Table 31, and Table 32.

<table>
<thead>
<tr>
<th>Table 30.</th>
<th>Properties Updated by Patch Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute</td>
<td>Type</td>
</tr>
<tr>
<td>Ethernet</td>
<td>Object</td>
</tr>
<tr>
<td>iSCSIBoot</td>
<td>Object</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 31.</th>
<th>Ethernet Object Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute</td>
<td>Type</td>
</tr>
<tr>
<td>MACAddress</td>
<td>String</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 32.</th>
<th>iSCSIBoot Object Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute</td>
<td>Type</td>
</tr>
<tr>
<td>IPAddressType</td>
<td>String (enum)</td>
</tr>
<tr>
<td>InitiatorIPAddress</td>
<td>String</td>
</tr>
<tr>
<td>InitiatorName</td>
<td>String</td>
</tr>
<tr>
<td>InitiatorDefaultGateway</td>
<td>String</td>
</tr>
<tr>
<td>InitiatorNetmask</td>
<td>String</td>
</tr>
<tr>
<td>TargetInfoViaDHCP</td>
<td>Boolean</td>
</tr>
<tr>
<td>PrimaryTargetName</td>
<td>String</td>
</tr>
<tr>
<td>Attribute</td>
<td>Type</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>PrimaryTargetIPAddress</td>
<td>String</td>
</tr>
<tr>
<td>PrimaryTargetTCPPort</td>
<td>Number</td>
</tr>
<tr>
<td>PrimaryLUN</td>
<td>Number</td>
</tr>
<tr>
<td>PrimaryVLANEnable</td>
<td>Boolean</td>
</tr>
<tr>
<td>PrimaryVLANId</td>
<td>Number</td>
</tr>
<tr>
<td>PrimaryDNS</td>
<td>String</td>
</tr>
<tr>
<td>SecondaryTargetName</td>
<td>String</td>
</tr>
<tr>
<td>SecondaryTargetIPAddress</td>
<td>String</td>
</tr>
<tr>
<td>SecondaryTargetTCPPort</td>
<td>Number</td>
</tr>
<tr>
<td>SecondaryLUN</td>
<td>Number</td>
</tr>
<tr>
<td>SecondaryVLANEnable</td>
<td>Boolean</td>
</tr>
<tr>
<td>SecondaryVLANId</td>
<td>Number</td>
</tr>
<tr>
<td>SecondaryDNS</td>
<td>String</td>
</tr>
<tr>
<td>IPMaskDNSViaDHCP</td>
<td>Boolean</td>
</tr>
<tr>
<td>RouterAdvertisementEnabled</td>
<td>Boolean</td>
</tr>
<tr>
<td>AuthenticationMethod</td>
<td>String (enum)</td>
</tr>
<tr>
<td>CHAPUsername</td>
<td>String</td>
</tr>
<tr>
<td>CHAPSecret</td>
<td>String</td>
</tr>
<tr>
<td>MutualCHAPUsername</td>
<td>String</td>
</tr>
<tr>
<td>MutualCHAPSecret</td>
<td>String</td>
</tr>
</tbody>
</table>

**Request:**

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

4.78.1.4 POST

Operation is not allowed on this resource.
4.78.1.5 DELETE
Operation is not allowed on this resource.

4.79 Update Service
The Update Service resource represents the properties required to invoke software/firmware update.

*Note:* In the current release, this functionality is not implemented.

4.79.1 Operations

4.79.1.1 GET

Request:

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

Response:

```
{
    "@odata.type": "#UpdateService.v1_0_2.UpdateService",
    "Id": "UpdateService",
    "Name": "Update service",
    "Status": {
        "State": "Disabled",
        "Health": null,
        "HealthRollup": null
    },
    "ServiceEnabled": false,
    "Actions": {
        "#UpdateService.SimpleUpdate": {
            "target": "/redfish/v1/UpdateService/Actions/SimpleUpdate",
            "@Redfish.ActionInfo": "/redfish/v1/UpdateService/SimpleUpdateActionInfo"
        },
        "Oem": {}
    },
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#UpdateService/$entity"
}
```

4.79.1.2 PUT
Operation is not allowed on this resource.

4.79.1.3 PATCH
Operation is not allowed on this resource.

4.79.1.4 POST
4.79.1.4.1 Simple Update Action
Operation is not allowed on this resource.
4.80 ActionInfo

ActionInfo describes the parameters and other information necessary to perform a Redfish Action to a particular Action target. Because parameter support can differ between implementations and even among instances of a resource, this data can be used to ensure Action requests from applications contain supported parameters.

4.80.1 Operations

4.80.1.1 GET (UpdateService SimpleUpdate Action)

Request:
GET /redfish/v1/UpdateService/SimpleUpdateActionInfo
Content-Type: application/json

Response:
{
   "@odata.type": "#ActionInfo.v1_0_0.ActionInfo",
   "Parameters": [
      {
         "Name": "ImageURI",
         "Required": true,
         "DataType": "String"
      },
      {
         "Name": "TransferProtocol",
         "Required": false,
         "DataType": "String",
         "AllowableValues": []
      },
      {
         "Name": "Targets",
         "Required": false,
         "DataType": "StringArray",
         "AllowableValues": []
      }
   ],
   "Oem": {},
   "@odata.context": "/redfish/v1/$metadata#ActionInfo.ActionInfo",
   "@odata.id": "/redfish/v1/UpdateService/SimpleUpdateActionInfo"
}

4.80.1.2 PUT
Operation is not allowed on this resource.

4.80.1.3 PATCH
Operation is not allowed on this resource.

4.80.1.4 POST
Operation is not allowed on this resource.
4.80.1.5 DELETE

Operation is not allowed on this resource.
## Required Resources per Service Type

Table 33 lists the types of resources that are required per service type.

R – Required
O – Optional/recommended

### Table 33. Required Resources per Service Type

<table>
<thead>
<tr>
<th>Resource</th>
<th>PSME Compute</th>
<th>PSME Storage</th>
<th>PSME Network</th>
<th>PSME PNC</th>
<th>PSME RMM</th>
</tr>
</thead>
<tbody>
<tr>
<td>$metadata.xml</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>AccountService.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chassis.xml</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>ChassisCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ComposedNode.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ComposedNodeCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ComputerSystem.xml</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ComputerSystemCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ComputerSystemMetrics.xml</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drive.xml</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endpoint.xml</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EndpointCollection.xml</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EthernetInterface.xml</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>EthernetInterfaceCollection.xml</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>EthernetSwitch.xml</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EthernetSwitchACL.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EthernetSwitchACLCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EthernetSwitchACLRule.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EthernetSwitchACLRuleCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EthernetSwitchCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EthernetSwitchMetrics.xml</td>
<td>O</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EthernetSwitchPort.xml</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EthernetSwitchPortCollection.xml</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EthernetSwitchPortMetrics.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EthernetSwitchStaticMAC.xml</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EthernetSwitchStaticMACCollection.xml</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Event.xml</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>EventDestination.xml</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>EventDestinationCollection.xml</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>EventService.xml</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Fabric.xml</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FabricCollection.xml</td>
<td>R</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IntelRackScaleOem.xml</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>JsonSchemaFile.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JsonSchemaFileCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LogEntry.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LogEntryCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LogService.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Resource Requirements

<table>
<thead>
<tr>
<th>Resource</th>
<th>PSME Compute</th>
<th>PSME Storage</th>
<th>PSME Network</th>
<th>PSME PNC</th>
<th>PSME RMM</th>
</tr>
</thead>
<tbody>
<tr>
<td>LogServiceCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manager.xml</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>ManagerAccount.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ManagerAccountCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ManagerCollection.xml</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>ManagerNetworkProtocol.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memory.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R</td>
</tr>
<tr>
<td>MemoryCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>MemoryMetrics.xml</td>
<td></td>
<td></td>
<td></td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Message.xml</td>
<td></td>
<td></td>
<td></td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>MessageRegistry.xml</td>
<td></td>
<td></td>
<td></td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>MessageRegistryCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>MessageRegistryFile.xml</td>
<td></td>
<td></td>
<td></td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>MessageRegistryFileCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>MetricDefinition_v1.xml</td>
<td>R</td>
<td></td>
<td></td>
<td>O</td>
<td>R</td>
</tr>
<tr>
<td>MetricDefinitionCollection_v1.xml</td>
<td>R</td>
<td></td>
<td></td>
<td>O</td>
<td>R</td>
</tr>
<tr>
<td>MetricReport.xml</td>
<td>O</td>
<td></td>
<td></td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>MetricReportCollection.xml</td>
<td>O</td>
<td></td>
<td></td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>MetricReportDefinition_v1.xml</td>
<td>O</td>
<td></td>
<td></td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>MetricReportDefinitionCollection_v1.xml</td>
<td>O</td>
<td></td>
<td></td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>NetworkDeviceFunction.xml</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NetworkDeviceFunctionCollection.xml</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NetworkInterface.xml</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NetworkInterfaceCollection.xml</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCleDevice.xml</td>
<td></td>
<td></td>
<td></td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>PCleFunction.xml</td>
<td></td>
<td></td>
<td></td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Port.xml</td>
<td></td>
<td></td>
<td></td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>PortCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>PortMetrics.xml</td>
<td></td>
<td></td>
<td></td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>Power.xml</td>
<td></td>
<td></td>
<td></td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>PowerZone.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PowerZoneCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Privileges.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Processor.xml</td>
<td></td>
<td></td>
<td></td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>ProcessorCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>ProcessorMetrics.xml</td>
<td></td>
<td></td>
<td></td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>Redundancy.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R</td>
</tr>
<tr>
<td>Role.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R</td>
</tr>
<tr>
<td>RoleCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SensorRegistry_v1.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SerialInterface.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SerialInterfaceCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ServiceRoot.xml</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Session.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SessionCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SessionService.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Required Resources per Service Type

<table>
<thead>
<tr>
<th>Resource</th>
<th>PSME Compute</th>
<th>PSME Storage</th>
<th>PSME Network</th>
<th>PSME PNC</th>
<th>PSME RMM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settings.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SimpleStorage.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SimpleStorageCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage.xml</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>StorageCollection.xml</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>StoragePool</td>
<td></td>
<td>R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>StorageService.xml</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>StorageServiceCollection.xml</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switch.xml</td>
<td></td>
<td>R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SwitchCollection.xml</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task.xml</td>
<td>R</td>
<td>O</td>
<td>O</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>TaskCollection.xml</td>
<td>R</td>
<td>O</td>
<td>O</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>TaskService.xml</td>
<td>R</td>
<td>O</td>
<td>O</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>TelemetryService_v1.xml</td>
<td>R</td>
<td>O</td>
<td>R</td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>Thermal.xml</td>
<td>O</td>
<td></td>
<td></td>
<td>O</td>
<td></td>
</tr>
<tr>
<td>ThermalZone.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ThermalZoneCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triggers_v1.xml</td>
<td>O</td>
<td></td>
<td></td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>TriggersCollection_v1.xml</td>
<td>O</td>
<td></td>
<td></td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>VirtualMedia.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VirtualMediaCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VLanNetworkInterface.xml</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VLanNetworkInterfaceCollection.xml</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume.xml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VolumeCollection.xml</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zone.xml</td>
<td></td>
<td></td>
<td></td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>ZoneCollection.xml</td>
<td></td>
<td></td>
<td></td>
<td>R</td>
<td></td>
</tr>
</tbody>
</table>

©
6.0 Common Property Description

6.1 Status

Table 34. 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.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Allowed values: Refer to Section 6.2.</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</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>dependent resources. Allowed values: Refer to Section 6.3.</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.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Allowed values: Refer to Section 6.3.</td>
</tr>
</tbody>
</table>

6.2 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 does not process any commands, but queues new requests.
- Quiesced: The element is enabled, but processes a restricted set of commands.
- Updating: The element is updating and may be unavailable or degraded.

6.3 Status -> Health

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

6.4 ComputerSystem.Reset

- On: Turns the system on
- ForceOff: Turns the system off immediately (nongraceful) shutdown
- GracefulRestart: Performs a graceful system shutdown followed by a restart of the system
- ForceRestart: Performs an immediate (non-graceful) shutdown, followed by a restart of the system
- Nmi: Generates a nonmaskable interrupt to cause an immediate system halt
- ForceOn: Turns the system on immediately
- PushPowerButton: Simulates the pressing of the physical power button on this system
- GracefulShutdown: Performs a graceful system shutdown and power off
6.5 **Bootsourceoverride/target/Supported**

- None: Boot from the normal boot device
- Pxe: Boot from the preboot execution (PXE) environment
- Floppy: Boot from the floppy disk drive
- Cd: Boot from the CD/DVD disc
- Usb: Boot from a USB device as specified by the system BIOS
- Hdd: Boot from a hard drive
- BiosSetup - Boot to the BIOS Setup Utility
- Utilities: Boot the manufacturer's Utilities programs
- Diags: Boot the manufacturer's Diagnostics program
- UefiShell: Boot to the UEFI Shell
- UefiTarget: Boot to the UEFI Device specified in the UefiTargetBootSourceOverride property
- SDCard: Boot from an SD Card
- UefiHttp: Boot from a UEFI HTTP network location
- RemoteDrive: Boot from a remote drive (e.g. iSCSI)