

OCP Ethernet Network Interface Card Profile

Version 1.0.0

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Overview & Scope

This document contains the Redfish interface requirements for reporting Network Interface Card (NIC) manageability information. NICs report inventory, configuration, metrics and other data using equivalent Redfish resources and properties as specified in this document.

Profile source: OCP-NIC.v1_0_0.json

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Capabilities

The following use cases and associated resources have been identified to allow BMC interface to provide baseline management capabilities.

Use Case	Manageable Capabilities	Requirement
NIC Configuration	- Get NIC Configuration	Mandatory
NIC Configuration	- Set NIC Configuration	
NIC Configuration	- Reset Settings To Default	
NIC Hardware	- Get FRU Information	Mandatory
Get Telemetry	- Get Metrics	Mandatory

Use Case	Manageable Capabilities	Requirement
FW Update	- Get FW Revision Information	Mandatory
FW Update	- Update FW	

NIC Management Use Cases

The purpose of this profile is to ensure that common desired software use cases can be achieved using the standard API and data model contents provided by the device. These common use cases are described below, and utilize the Redfish resources shown in the Profile Reference Guide section of this document. Portions of the JSON payload responses are shown as examples, and are the result of HTTP GET operations performed on the supported URIs shown in the reference sections.

Redfish Model for NICs

Some aspects of the Redfish model should be comprehend before the interaction with the Redfish model shown below is understood.

Redfish models a managed node in terms of its physical & logical aspects:

- The physical aspect is modeled via the Chassis resource. This includes NetworkAdapter, NetworkDeviceFunction, Ports, PCIeDevice and PCIeFunction. Some of these resources have subordinate metrics resources as well.
- The logical aspect is modeled via the ComputerSystem. This is done using EthernetInterface and represents the System view, or logical or OS view, of the NIC.

The relationship between the above resources are specified by the Links property.

- On the Chassis resource, there are links to the resources that together describe the NIC. This includes NetworkAdapter, NetworkDeviceFunction, Ports, PCIeDevice and PCIeFunction.
- On the ComputerSystem resource, there are links to the NetworkDeviceFunction that describes the NIC.

The following diagram helps to show the relationships between these Redfish resources:

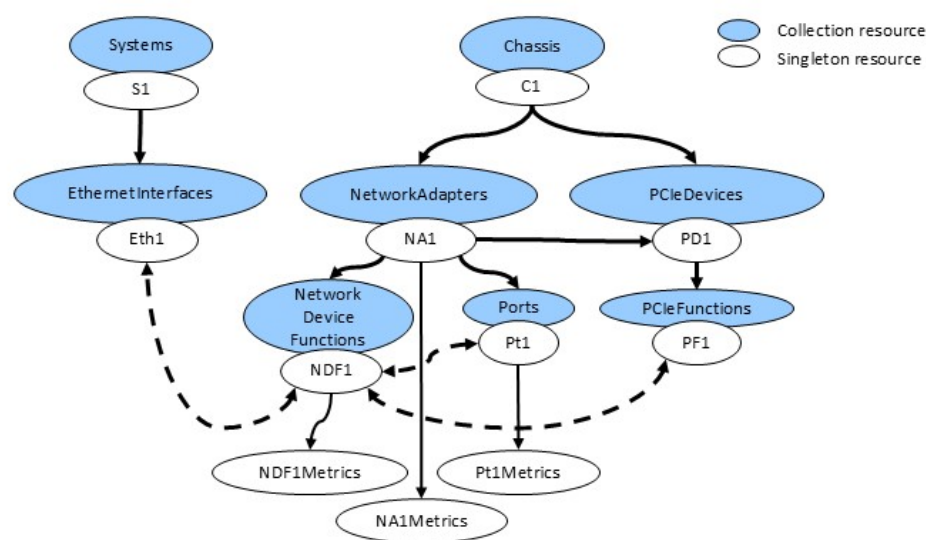


Figure 1: Redfish NIC Hierarchy

Get NIC Configuration

Many NICs are multi-function devices. It is important to discover the state of the physical card, the number of Ports and their information, how many functions are on the card and PCIe information for the card and the functions. This is begun by finding the NetworkAdapter under the Chassis.

GET NetworkAdapter

The following illustrates how to get the NetworkAdapter resource.

```
GET /redfish/v1/Chassis/1/NetworkAdapter/DE07A000
```

```
{
  "@odata.type": "#NetworkAdapter.v1_9_0.NetworkAdapter",
  "Id": "DE07A000",
  "Name": "Network Adapter",
  "Manufacturer": "Contoso",
  "Model": "Contoso 2",
  "SKU": "Contoso 2 function adapter",
  "SerialNumber": "LMNOP4279",
  "PartNumber": "ABCDEFG2",
  "Status": {
    "Health": "OK",
    "State": "Enabled"
  },
  "Ports": {
    "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Ports"
  },
  "NetworkDeviceFunctions": {
    "@odata.id":
"/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/NetworkDeviceFunctions"
  },
  "Metrics": {
    "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Metrics"
  },
  "Controllers": [
    {
      "FirmwarePackageVersion": "229.1.123.0",
      "Links": {
        "PCIeDevices": [
          {
            "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/DE07A000"
          }
        ]
      },
      "ControllerCapabilities": {
        "NetworkPortCount": 4,
        "NetworkDeviceFunctionCount": 16,
        "DataCenterBridging": {
          "Capable": true
        },
        "NPAR": {
          "NparCapable": true,

```

```

        "NparEnabled": true
    },
    "VirtualizationOffload": {
        "SRIOV": {
            "SRIOVVEPACapable": true
        },
        "VirtualFunction": {
            "DeviceMaxCount": 256,
            "MinAssignmentGroupSize": 8,
            "NetworkPortMaxCount": 256
        }
    }
},
"PCIEInterface": {
    "LanesInUse": 8,
    "MaxLanes": 16,
    "MaxPCIEType": "Gen4",
    "PCIEType": "Gen4"
}
},
"LLDPEnabled": true,
"Actions": {
    "#NetworkAdapter.ResetSettingsToDefault": {
        "target":
"/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Actions/NetworkAdapter.ResetSettingsToDefault",
        "@Redfish.OperationApplyTimeSupport": {
            "@odata.type": "#Settings.v1_3_3.OperationApplyTimeSupport",
            "SupportedValues": [
                "OnReset"
            ]
        }
    }
},
"@odata.context": "/redfish/v1/$metadata#NetworkAdapter.NetworkAdapter",
"@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000",
"@odata.etag": "W/\"4DFAAF27\"",
"@Redfish.Settings": {
    "@odata.type": "#Settings.v1_3_3.Settings",
    "SettingsObject": {
        "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Settings"
    },
    "SupportedApplyTimes": [
        "OnReset"
    ]
}
}
}

```

Retrieving NetworkDeviceFunction and Port information

Also found in the Network Adapter are the NetworkDeviceFunctions and the Ports, so retrieving those are needed. First we will get the NetworkDeviceFunction. Note that the NetDevFuncType must equal Ethernet for this profile to apply.

```
GET /redfish/v1/Chassis/1/NetworkAdapter/DE07A000/NetworkDeviceFunctions/1
```

```

{
  "@odata.type": "#NetworkDeviceFunction.v1_8_0.NetworkDeviceFunction",
  "Id": "1",
  "Name": "Network Device Function 1",
  "Status": {
    "Health": "OK",
    "State": "Enabled"
  },
  "Metrics": {
    "@odata.id":
"/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/NetworkDeviceFunctions/1/Metrics"
  },
  "NetDevFuncType": "Ethernet",
  "DeviceEnabled": true,
  "NetDevFuncCapabilities": [
    "Ethernet"
  ],
  "Ethernet": {
    "MACAddress": "9c:dc:71:c3:bb:0a",
    "PermanentMACAddress": "9c:dc:71:c3:bb:0a",
    "MTUSizeMaximum": 9600
  },
  "BootMode": "PXE",
  "VirtualFunctionsEnabled": true,
  "MaxVirtualFunctions": 8,
  "AssignablePhysicalNetworkPorts": [
    {
      "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Ports/1"
    }
  ],
  "Links": {
    "PCIeFunction": {
      "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/DE07A000/PCIeFunctions/1"
    },
    "PhysicalNetworkPortAssignment": {
      "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Ports/1"
    },
    "EthernetInterfaces": [
      {
        "@odata.id": "/redfish/v1/Systems/1/EthernetInterfaces/5"
      }
    ]
  },
  "@odata.context": "/redfish/v1/$metadata#NetworkDeviceFunction.NetworkDeviceFunction",
  "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/NetworkDeviceFunctions/1",
  "@odata.etag": "W/\"80212509\""
}

```

This is an example of retrieving a Port object

```
GET /redfish/v1/Chassis/1/NetworkAdapter/DE07A000/Ports/1
```

```

{
  "@odata.type": "#Port.v1_6_0.Port",
  "Id": "1",
  "Name": "Ethernet Port 1",
  "Status": {
    "Health": "OK",
    "State": "Enabled"
  },
  "Metrics": {
    "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Ports/1/Metrics"
  },
  "PortId": "1",
  "PortProtocol": "Ethernet",
  "PortType": "BidirectionalPort",
  "Enabled": true,
  "Ethernet": {
    "SupportedEthernetCapabilities": [
      "WakeOnLAN"
    ],
    "AssociatedMACAddresses": [
      "9c:dc:71:c3:bb:0a",
      "9c:dc:71:c3:bb:0e",
      "9c:dc:71:c3:bb:12",
      "9c:dc:71:c3:bb:16"
    ],
    "FlowControlConfiguration": "None",
    "FlowControlStatus": "None",
    "WakeOnLANEnabled": true,
    "LLDPEnabled": true,
    "LLDPReceive": {
      "ChassisId": "2c:23:3a:48:2f:5d",
      "ChassisIdSubtype": "MacAddr",
      "ManagementAddressIPv4": "",
      "ManagementAddressIPv6": "",
      "ManagementAddressMAC": "2c:23:3a:48:2f:ae",
      "ManagementVlanId": 4095,
      "PortId":
"54:65:6E:2D:47:69:67:61:62:69:74:45:74:68:65:72:6E:65:74:31:2F:32:2F:39",
      "PortIdSubtype": "IfName"
    },
    "LLDPTransmit": {
      "ChassisId": "9c:dc:71:c3:bb:16",
      "ChassisIdSubtype": "MacAddr",
      "ManagementAddressIPv4": "",
      "ManagementAddressIPv6": "",
      "ManagementAddressMAC": "9c:dc:71:c3:bb:16",
      "ManagementVlanId": 4095,
      "PortId": "9C:DC:71:C3:BB:16",
      "PortIdSubtype": "MacAddr"
    }
  },
  "LinkConfiguration": [
    {
      "AutoSpeedNegotiationCapable": true,
      "AutoSpeedNegotiationEnabled": true,
      "CapableLinkSpeedGbps": [
        25.0,
        10.0
      ]
    }
  ]
}

```



```

    ],
    "ConfiguredNetworkLinks": [
      {
        "ConfiguredLinkSpeedGbps": 25.0,
        "ConfiguredWidth": 1
      },
      {
        "ConfiguredLinkSpeedGbps": 10.0,
        "ConfiguredWidth": 1
      }
    ]
  },
  "LinkNetworkTechnology": "Ethernet",
  "MaxFrameSize": 9622,
  "MaxSpeedGbps": 25.0,
  "Width": 1,
  "InterfaceEnabled": true,
  "SignalDetected": true,
  "PortMedium": "Optical",
  "LinkState": "Enabled",
  "LinkStatus": "LinkUp",
  "LinkTransitionIndicator": 1,
  "CurrentSpeedGbps": 10.0,
  "ActiveWidth": 1,
  "SFP": {
    "SupportedSFPTypes": [
      "SFP",
      "SFPPlus",
      "SFP28"
    ],
    "Status": {
      "Health": "OK",
      "State": "Enabled"
    },
    "Manufacturer": "Contoso",
    "PartNumber": "844483-B21",
    "SerialNumber": "THY1020240",
    "MediumType": "FiberOptic",
    "FiberConnectionType": "SingleMode",
    "Type": "SFP28"
  },
  "@odata.context": "/redfish/v1/$metadata#Port.Port",
  "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Ports/1",
  "@odata.etag": "W/\"B40342B6\"",
  "@Redfish.Settings": {
    "@odata.type": "#Settings.v1_3_3.Settings",
    "SettingsObject": {
      "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Ports/1/Settings"
    },
    "SupportedApplyTimes": [
      "OnReset"
    ]
  }
}

```

The Network Adapter is analogous to a PCIe Device, so this next retrieval gets the PCIeDevice information for the link we found in the Network Adapter.

```
GET /redfish/v1/Chassis/1/PCIeDevices/DE07A000
```

```
{
  "@odata.type": "#PCIeDevice.v1_9_0.PCIeDevice",
  "Id": "DE07A000",
  "Name": "PCIe Device",
  "Manufacturer": "Contoso",
  "Model": "Contoso 2",
  "SKU": "Contoso 2 function adapter",
  "SerialNumber": "LMNOP4279",
  "PartNumber": "ABCDEFG2",
  "UUID": "00000000-0000-1000-8000-9cdc71c3bb0a",
  "DeviceType": "MultiFunction",
  "FirmwareVersion": "192.168.59.0",
  "Status": {
    "Health": "OK",
    "State": "Enabled"
  },
  "PCIeFunctions": {
    "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/DE07A000/PCIeFunctions"
  },
  "PCIeInterface": {
    "LanesInUse": 8,
    "MaxLanes": 16,
    "MaxPCIeType": "Gen4",
    "PCIeType": "Gen4"
  },
  "@odata.context": "/redfish/v1/$metadata#PCIeDevice.PCIeDevice",
  "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/DE07A000",
  "@odata.etag": "W/\"70C0367C\""
}
```

The PCIeFunction information is linked to the PCIeDevice as well as the NetworkDeviceFunction so we must retrieve that information.

```
GET /redfish/v1/Chassis/1/PCIeDevices/DE07A000/PCIeFunctions/1
```

```
{
  "@odata.type": "#PCIeFunction.v1_3_0.PCIeFunction",
  "Id": "1",
  "Name": "PCIe Function 1",
  "FunctionType": "Physical",
  "DeviceClass": "NetworkController",
  "FunctionId": 1,
  "DeviceId": "0x1801",
  "VendorId": "0x14e4",
  "ClassCode": "0x020000",
  "RevisionId": "0x11",
}
```

```

    "SubsystemId": "0x1598",
    "SubsystemVendorId": "0x14e4",
    "Status": {
      "Health": "OK",
      "State": "Enabled"
    },
    "Links": {
      "NetworkDeviceFunctions": [
        {
          "@odata.id":
"/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/NetworkDeviceFunctions/1"
        }
      ],
      "PCIeDevice": {
        "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/DE07A000"
      }
    },
    "@odata.context": "/redfish/v1/$metadata#PCIeFunction.PCIeFunction",
    "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/DE07A000/PCIeFunctions/1",
    "@odata.etag": "W/\"2D186009\""
  }
}

```

Retrieving System NIC information

EthernetInterface is the System's view of the NIC and will have constructs of what is traditionally the software stack, such as IPv4/IPv6 addresses.

```
GET /redfish/v1/Systems/1/EthernetInterfaces/5
```

```

{
  "@odata.type": "#EthernetInterface.v1_4_1.EthernetInterface",
  "Id": "5",
  "FullDuplex": false,
  "IPv4Addresses": [],
  "IPv4StaticAddresses": [],
  "IPv6AddressPolicyTable": [],
  "IPv6Addresses": [],
  "IPv6StaticAddresses": [],
  "IPv6StaticDefaultGateways": [],
  "InterfaceEnabled": null,
  "LinkStatus": "LinkUp",
  "MACAddress": "9c:dc:71:c3:bb:0a",
  "Name": "",
  "NameServers": [],
  "SpeedMbps": null,
  "StaticNameServers": [],
  "Status": {
    "Health": "OK",
    "State": "Enabled"
  },
  "Links": {
    "NetworkDeviceFunctions": [
      {
        "@odata.id":

```

```

"/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/NetworkDeviceFunctions/1"
    }
  ]
},
"UefiDevicePath": "PciRoot(0x3)/Pci(0x1,0x1)/Pci(0x0,0x0)",
"@odata.context": "/redfish/v1/$metadata#EthernetInterface.EthernetInterface",
"@odata.etag": "W/\"C4D4ADE7\"",
"@odata.id": "/redfish/v1/Systems/1/EthernetInterfaces/5"
}

```

Set NIC Information

Setting live network information is not required by this profile. If the implementation supports setting any of the properties at the next system reset, those settings are exposed through a **Settings** object in each resource, per the Redfish specification.

Finding the Settings object on the Network Adapter

The previous GETs returned the following properties. By performing a GET operation on that URI, the client can determine what properties can be changed and can set them by performing a PUT or PATCH operation on that resource.

```

"@Redfish.Settings": {
  "@odata.type": "#Settings.v1_3_3.Settings",
  "SettingsObject": {
    "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Settings"
  },
  "SupportedApplyTimes": [
    "OnReset"
  ]
}

```

Finding the Settings object on the Network Device Function

The previous GETs returned the following properties. By performing a GET operation on that URI, the client can determine what properties can be changed and can set them by performing a PUT or PATCH operation on that resource.

```

"@Redfish.Settings": {
  "@odata.type": "#Settings.v1_3_3.Settings",
  "SettingsObject": {
    "@odata.id":
"/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/NetworkDeviceFunctions/1/Settings"
  },
  "SupportedApplyTimes": [
    "OnReset"
  ]
}

```

Finding the Settings object on the Port

The previous GETs returned the following properties. By performing a GET operation on that URI, the client can determine what properties can be changed and can set them by performing a PUT or PATCH operation on that resource.

```

"@Redfish.Settings": {
  "@odata.type": "#Settings.v1_3_3.Settings",
  "SettingsObject": {
    "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Ports/1/Settings"
  },
  "SupportedApplyTimes": [
    "OnReset"
  ]
}

```

Retrieving Metrics

There are metrics objects on the NetworkAdapter, NetworkDeviceFunction and the Port.

Retrieving Network Adapter Metrics

As the NetworkAdapter resource represents the card, or PCIe device, it will have some global metrics that correspond to the device.

```
GET /redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Metrics
```

```

{
  "@odata.type": "#NetworkAdapterMetrics.v1_0_0.NetworkAdapterMetrics",
  "Id": "Metrics",
  "Name": "Network Adapter Metrics",
  "NCSIRXBytes": 20250,
  "NCSIRXFrames": 450,
  "NCSITXBytes": 16168,
  "NCSITXFrames": 450,
  "RXBytes": 1411160,
  "RXUnicastFrames": 9,
  "RXMulticastFrames": 6506,
  "TXBytes": 12179,
  "TXUnicastFrames": 0,
  "TXMulticastFrames": 69,
  "@odata.context": "/redfish/v1/$metadata#NetworkAdapterMetrics.NetworkAdapterMetrics",
  "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Metrics",
  "@odata.etag": "W/\"B85BFB25\""
}

```

Retrieving Network Device Function Metrics

For any individual PCIe or virtual function, those metrics can be found on the NetworkDeviceFunctionMetrics.

```
GET /redfish/v1/Chassis/1/NetworkAdapters/DE082000/NetworkDeviceFunctions/0/Metrics
```

```

{
  "@odata.type": "#NetworkDeviceFunctionMetrics.v1_1_0.NetworkDeviceFunctionMetrics",
  "Id": "Metrics",

```

```

    "Name": "Network Device Function 1 Metrics",
    "RXBytes": 286683,
    "RXFrames": 1867,
    "RXUnicastFrames": 0,
    "RXMulticastFrames": 1,
    "TXBytes": 0,
    "TXFrames": 0,
    "TXUnicastFrames": 0,
    "TXMulticastFrames": 0,
    "@odata.context":
"/redfish/v1/$metadata#NetworkDeviceFunctionMetrics.NetworkDeviceFunctionMetrics",
    "@odata.id":
"/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/NetworkDeviceFunctions/1/Metrics",
    "@odata.etag": "W/\"7BD1348E\""
  }

```

Retrieving Port Metrics

Any metrics on the port itself are represented by the PortMetrics object.

```
GET /redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Ports/1/Metrics
```

```

{
  "@odata.type": "#PortMetrics.v1_2_0.PortMetrics",
  "Id": "Metrics",
  "Name": "Ethernet Port 1 Metrics",
  "Networking": {
    "RXFrames": 8519,
    "RXUnicastFrames": 9,
    "RXMulticastFrames": 6467,
    "RXBroadcastFrames": 2043,
    "RXPFCEFrames": 0,
    "RXDiscards": 0,
    "RXFalseCarrierErrors": 0,
    "RXFCSErrors": 0,
    "RXFrameAlignmentErrors": 0,
    "RXOversizeFrames": 0,
    "RXUndersizeFrames": 0,
    "TXFrames": 69,
    "TXUnicastFrames": 0,
    "TXMulticastFrames": 69,
    "TXBroadcastFrames": 0,
    "TXPFCEFrames": 0,
    "TXDiscards": 0,
    "TXExcessiveCollisions": 0,
    "TXLateCollisions": 0,
    "TXMultipleCollisions": 0,
    "TXSingleCollisions": 0
  },
  "RXBytes": 1401596,
  "RXErrors": 169,
  "TXBytes": 12179,
  "TXErrors": 0,
  "Transceivers": [

```

```
{
  "RXInputPowerMilliWatts": 6985.0,
  "SupplyVoltage": 52096.0,
  "TXBiasCurrentMilliAmps": 3375.0,
  "TXOutputPowerMilliWatts": 7108.0
},
"@odata.context": "/redfish/v1/$metadata#PortMetrics.PortMetrics",
"@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Ports/1/Metrics",
"@odata.etag": "W/\"4E6105EA\""
}
```

Reset Settings To Default

In order to reset the settings to default, there is a required action called `ResetSettingsToDefault`. This action takes no parameters. It is invoked as follows:

```
POST
/redfish/v1/Chassis/1/NetworkAdapter/DE07A000/Actions/NetworkAdapter.ResetSettingsToDefault
```

Get FRU Information

FRU information is found on the NetworkAdapter. The properties Manufacturer, Model, SKU and SerialNumber are all required properties. For more information, see [GET NetworkAdapter](#).

```
GET /redfish/v1/Chassis/1/NetworkAdapter/DE07A000
```

```
{
  "Manufacturer": "Contoso",
  "Model": "Contoso 2",
  "SKU": "Contoso 2 function adapter",
  "SerialNumber": "LMNOP4279",
  "PartNumber": "ABCDEFGG2"
}
```

Firmware Information

Like FRU, the firmware version can be found on the NetworkAdapter object under the FirmwarePackageVersion property. This is a required property. For more information, see [GET NetworkAdapter](#).

```
GET /redfish/v1/Chassis/1/NetworkAdapter/DE07A000
```

```
{
  "FirmwarePackageVersion": "1.2.3"
}
```

Update Firmware

Updating firmware is done via the Redfish UpdateService, supported by the service (usually instantiated by the BMC). The following is an example of how to update firmware on a NetworkAdapter using HTTP multipart for BMC's that support it.

```
POST /redfish/v1/UpdateService/upload HTTP/1.1
Host: <host-path>
Content-Type: multipart/form-data; boundary=-----e67f97b6546ac967b
Content-Length: <computed-length>
Connection: keep-alive
X-Auth-Token: <session-auth-token>

-----e67f97b6546ac967b
Content-Disposition: form-data; name="UpdateParameters"
Content-Type: application/json

{
  "Targets": ["/redfish/v1/Chassis/1/NetworkAdapter/DE07A000"],
  "@Redfish.OperationApplyTime": "OnReset",
  "Oem": {}
}

-----e67f97b6546ac967b
Content-Disposition: form-data; name="UpdateFile"; filename="firmwareimage.bin"
Content-Type: application/octet-stream

<software image binary>
```

Appendix A: NIC Profile Reference Guide

To produce this guide, DMTF's [Redfish Documentation Generator](#) merges DMTF's Redfish Schema bundle (DSP8010) contents with supplemental text. All content below this point is automatically generated from the referenced Profile source.

Using the reference guide

Every Redfish response consists of a JSON payload containing properties that are strictly defined by a schema for that Resource. The schema defining a particular Resource can be determined from the value of the "@odata.type" property returned in every Redfish response. This guide details the definitions for every Redfish standard schema.

Each schema section contains:

- The schema's name, its current version, and description.
- The schema release history, which lists each minor schema version and the DSP8010 release bundle that includes it.
- The list of URIs where schema-defined Resources appear in a Redfish Service v1.6 and later. For more information, see [URI listings](#).
- The table of properties, which includes additional property details, when available.
- The list of available schema-defined actions.
- The example schema-defined JSON payload for a Resource.

The property-level details include:

Column	Purpose
--------	---------

Column	Purpose
Property name	The case-sensitive name of the JSON property as it appears in the JSON payload.
	Lists the schema version in parentheses when properties were added to or deprecated in the schema after the initial v1.0.0 release.
Requirements	The property-level read and write requirements as listed in the Redfish Profile.
Type	The JSON data types for the property, which can include boolean, number, string, or object.
	The string (enum) tag identifies enumerated strings.
	Number types that use units specify the units.
Description	The normative description of the property, as copied directly from the schema LongDescription definition.

EthernetInterface v1.1.0 (current release: v1.12.4)

Version	v1.12	v1.11	v1.10	v1.9	v1.8	v1.6	v1.5	v1.4	v1.3	v1.2	v1.1	...
Release	2023.3	2023.2	2023.1	2022.2	2021.2	2020.1	2019.1	2017.3	2017.1	2016.3	2016.2	...

Conditional Requirements:

Resource instance is subordinate to "EthernetInterfaceCollection"	Mandatory (Read)
---	------------------

URIs

/redfish/v1/Systems/{SystemId}/EthernetInterfaces/{EthernetInterfaceId}

Properties

Property	Type	Attributes	Notes
DHCPv4 (v1.4+) {	object	<i>Recommended (Read)</i>	DHCPv4 configuration for this interface.
DHCPEnabled (v1.4+)	boolean	<i>Mandatory (Read)</i>	An indication of whether DHCP v4 is enabled on this Ethernet interface.
FallbackAddress (v1.5+)	string (enum)	<i>Mandatory (Read)</i>	DHCPv4 fallback address method for this interface. <i>For the possible property values, see FallbackAddress in Property details.</i>
UseDNSServers (v1.4+)	boolean	<i>Mandatory (Read)</i>	An indication of whether this interface uses DHCP v4-supplied DNS servers.
UseDomainName (v1.4+)	boolean	<i>Mandatory (Read)</i>	An indication of whether this interface uses a DHCP v4-supplied domain name.

Property	Type	Attributes	Notes
UseGateway (v1.4+)	boolean	<i>Mandatory (Read)</i>	An indication of whether this interface uses a DHCP v4-supplied gateway.
UseNTPServers (v1.4+)	boolean	<i>Mandatory (Read)</i>	An indication of whether the interface uses DHCP v4-supplied NTP servers.
UseStaticRoutes (v1.4+)	boolean	<i>Mandatory (Read)</i>	An indication of whether the interface uses DHCP v4-supplied static routes.
}			
DHCPv6 (v1.4+) {	object	<i>Recommended (Read)</i>	DHCPv6 configuration for this interface.
OperatingMode (v1.4+)	string (enum)	<i>Mandatory (Read)</i>	Determines the DHCPv6 operating mode for this interface. <i>For the possible property values, see OperatingMode in Property details.</i>
UseDNSServers (v1.4+)	boolean	<i>Mandatory (Read)</i>	An indication of whether the interface uses DHCP v6-supplied DNS servers.
UseDomainName (v1.4+)	boolean	<i>Mandatory (Read)</i>	An indication of whether this interface uses a DHCP v6-supplied domain name.
UseNTPServers (v1.4+)	boolean	<i>Mandatory (Read)</i>	An indication of whether the interface uses DHCP v6-supplied NTP servers.
UseRapidCommit (v1.4+)	boolean	<i>Mandatory (Read)</i>	An indication of whether the interface uses DHCP v6 rapid commit mode for stateful mode address assignments. Do not enable this option in networks where more than one DHCP v6 server is configured to provide address assignments.
}			
FQDN	string	<i>Recommended (Read)</i>	The complete, fully qualified domain name that DNS obtains for this interface.
HostName	string	<i>Recommended (Read)</i>	The DNS host name, without any domain information.
InterfaceEnabled	boolean	<i>Mandatory (Read)</i>	An indication of whether this interface is enabled.
IPv4Addresses [{	array	<i>Recommended (Read)</i>	The IPv4 addresses currently in use by this interface.
Address	string	<i>Mandatory (Read)</i>	The IPv4 address.
AddressOrigin	string (enum)	<i>Mandatory (Read-only)</i>	This indicates how the address was determined. <i>For the possible property values, see AddressOrigin in Property details.</i>
Gateway	string	<i>Mandatory (Read)</i>	The IPv4 gateway for this address.

Property	Type	Attributes	Notes
SubnetMask	string	<i>Mandatory (Read)</i>	The IPv4 subnet mask.
}]			
IPv4StaticAddresses (v1.4+) [{	array	<i>Recommended (Read)</i>	The IPv4 static addresses assigned to this interface. See IPv4Addresses for the addresses in use by this interface.
Address	string	<i>Mandatory (Read)</i>	The IPv4 address.
AddressOrigin	string (enum)	<i>Mandatory (Read-only)</i>	This indicates how the address was determined. <i>For the possible property values, see AddressOrigin in Property details.</i>
Gateway	string	<i>Mandatory (Read)</i>	The IPv4 gateway for this address.
Oem {}	object	<i>Mandatory (Read)</i>	The OEM extension property. See the <i>Resource</i> schema for details on this property.
SubnetMask	string	<i>Mandatory (Read)</i>	The IPv4 subnet mask.
}]			
IPv6Addresses [{	array	<i>If Implemented (Read)</i>	The IPv6 addresses currently in use by this interface.
Address	string	<i>Mandatory (Read)</i>	The IPv6 address.
AddressOrigin	string (enum)	<i>Mandatory (Read-only)</i>	This indicates how the address was determined. <i>For the possible property values, see AddressOrigin in Property details.</i>
AddressState	string (enum)	<i>Mandatory (Read-only)</i>	The current RFC4862-defined state of this address. <i>For the possible property values, see AddressState in Property details.</i>
PrefixLength	integer	<i>Mandatory (Read-only)</i>	The IPv6 address prefix Length.
}]			
IPv6AddressPolicyTable [{	array	<i>Recommended (Read)</i>	An array that represents the RFC6724-defined address selection policy table.
Label	integer	<i>Mandatory (Read)</i>	The IPv6 label, as defined in RFC6724, section 2.1.
Precedence	integer	<i>Mandatory (Read)</i>	The IPv6 precedence, as defined in RFC6724, section 2.1.
Prefix	string	<i>Mandatory (Read)</i>	The IPv6 address prefix, as defined in RFC6724, section 2.1.

Property	Type	Attributes	Notes
}]			
IPv6StaticAddresses [{	array	<i>Recommended (Read)</i>	The IPv6 static addresses assigned to this interface. See IPv6Addresses for the addresses in use by this interface.
Address	string	<i>Mandatory (Read)</i>	A valid IPv6 address.
Oem {	object	<i>Mandatory (Read)</i>	The OEM extension property. See the <i>Resource</i> schema for details on this property.
PrefixLength	integer	<i>Mandatory (Read)</i>	The prefix length, in bits, of this IPv6 address.
}]			
IPv6StaticDefaultGateways (v1.4+) [{	array	<i>Recommended (Read)</i>	The IPv6 static default gateways for this interface.
Address (v1.1+)	string	<i>Mandatory (Read)</i>	A valid IPv6 address.
Oem (v1.1+) {	object	<i>Mandatory (Read)</i>	The OEM extension property. See the <i>Resource</i> schema for details on this property.
PrefixLength (v1.1+)	integer	<i>Mandatory (Read)</i>	The IPv6 network prefix length, in bits, for this address.
}]			
Links (v1.1+) {	object	<i>Mandatory (Read)</i>	The links to other resources that are related to this resource.
NetworkDeviceFunctions (v1.7+) [{	array	<i>Mandatory (Read-only)</i>	The link to the network device functions that constitute this Ethernet interface.
@odata.id	string	<i>Mandatory (Read-only)</i>	Link to a NetworkDeviceFunction resource. See the Links section and the <i>NetworkDeviceFunction</i> schema for details.
}]			
{			
LinkStatus (v1.1+)	string (enum)	<i>Mandatory (Read-only)</i>	The link status of this interface, or port. <i>For the possible property values, see LinkStatus in Property details.</i>
MACAddress	string	<i>Mandatory (Read)</i>	The currently configured MAC address of the interface, or logical port.
NameServers []	array (string)	<i>Recommended (Read-only)</i>	The DNS servers in use on this interface.
SpeedMbps	integer (Mbit/s)	<i>Mandatory (Read)</i>	The current speed, in Mbit/s, of this interface.

Property	Type	Attributes	Notes
StaticNameServers (v1.4+) []	array (string, null)	<i>Recommended (Read)</i>	The statically-defined set of DNS server IPv4 and IPv6 addresses.
Status {	object	<i>Mandatory (Read)</i>	The status and health of the resource and its subordinate or dependent resources.
Health	string (enum)	<i>Mandatory (Read-only)</i>	The health state of this resource in the absence of its dependent resources. <i>For the possible property values, see Health in Property details.</i>
State	string (enum)	<i>Mandatory (Read-only)</i>	The state of the resource. <i>For the possible property values, see State in Property details.</i>
}			

Property details

AddressOrigin

In IPv4Addresses, IPv4StaticAddresses:

This indicates how the address was determined.

string	Description	Profile Specifies
BOOTP	A BOOTP service-provided address.	
DHCP	A DHCPv4 service-provided address.	
IPv4LinkLocal	The address is valid for only this network segment, or link.	
Static	A user-configured static address.	

In IPv6Addresses:

This indicates how the address was determined.

string	Description	Profile Specifies
DHCPv6	A DHCPv6 service-provided address.	
LinkLocal	The address is valid for only this network segment, or link.	
SLAAC	A stateless autoconfiguration (SLAAC) service-provided address.	
Static	A static user-configured address.	

AddressState

The current RFC4862-defined state of this address.

string	Description	Profile Specifies
--------	-------------	-------------------

string	Description	Profile Specifies
Deprecated	This address is currently within its valid lifetime but is now outside its RFC4862-defined preferred lifetime.	
Failed	This address has failed Duplicate Address Detection (DAD) testing, as defined in RFC4862, section 5.4, and is not currently in use.	
Preferred	This address is currently within both its RFC4862-defined valid and preferred lifetimes.	
Tentative	This address is currently undergoing Duplicate Address Detection (DAD) testing, as defined in RFC4862, section 5.4.	

FallbackAddress

DHCPv4 fallback address method for this interface.

string	Description	Profile Specifies
AutoConfig	Fall back to an autoconfigured address.	
None	Continue attempting DHCP without a fallback address.	
Static	Fall back to a static address specified by IPv4StaticAddresses .	

Health

The health state of this resource in the absence of its dependent resources.

string	Description	Profile Specifies
Critical	A critical condition requires immediate attention.	
OK	Normal.	
Warning	A condition requires attention.	

LinkStatus

The link status of this interface, or port.

string	Description	Profile Specifies
LinkDown	No link is detected on this interface, but the interface is connected.	
LinkUp	The link is available for communication on this interface.	
NoLink	No link or connection is detected on this interface.	

OperatingMode

Determines the DHCPv6 operating mode for this interface.

string	Description	Profile Specifies
Disabled	DHCPv6 is disabled.	

string	Description	Profile Specifies
Enabled (v1.8+)	DHCPv6 is enabled.	
Stateful (deprecated v1.8)	DHCPv6 stateful mode. <i>Deprecated in v1.8 and later. This property has been deprecated in favor of Enabled. The control between 'stateful' and 'stateless' is managed by the DHCP server and not the client.</i>	
Stateless (deprecated v1.8)	DHCPv6 stateless mode. <i>Deprecated in v1.8 and later. This property has been deprecated in favor of Enabled. The control between 'stateful' and 'stateless' is managed by the DHCP server and not the client.</i>	

State

The state of the resource.

string	Description	Profile Specifies
Absent	This function or device is not currently present or detected. This resource represents a capability or an available location where a device can be installed.	
Deferring (v1.2+)	The element does not process any commands but queues new requests.	
Degraded (v1.19+)	The function or resource is degraded.	
Disabled	This function or resource is disabled.	
Enabled	This function or resource is enabled.	
InTest	This function or resource is undergoing testing or is in the process of capturing information for debugging.	
Qualified (v1.9+, deprecated v1.19)	The element quality is within the acceptable range of operation. <i>Deprecated in v1.19 and later. This value has been deprecated in favor of StandbySpare.</i>	
Quiesced (v1.2+)	The element is enabled but only processes a restricted set of commands.	
StandbyOffline	This function or resource is enabled but awaits an external action to activate it.	
StandbySpare	This function or resource is part of a redundancy set and awaits a failover or other external action to activate it.	
Starting	This function or resource is starting.	
UnavailableOffline (v1.1+)	This function or resource is present but cannot be used.	
Updating (v1.2+)	The element is updating and might be unavailable or degraded.	

Example response

```
{
  "@odata.type": "#EthernetInterface.v1_4_1.EthernetInterface",
  "Id": "5",
  "FullDuplex": false,
```

```

    "IPv4Addresses": [],
    "IPv4StaticAddresses": [],
    "IPv6AddressPolicyTable": [],
    "IPv6Addresses": [],
    "IPv6StaticAddresses": [],
    "IPv6StaticDefaultGateways": [],
    "InterfaceEnabled": null,
    "LinkStatus": "LinkUp",
    "MACAddress": "9c:dc:71:c3:bb:0a",
    "Name": "",
    "NameServers": [],
    "SpeedMbps": null,
    "StaticNameServers": [],
    "Status": {
      "Health": "OK",
      "State": "Enabled"
    },
    "Links": {
      "NetworkDeviceFunctions": [
        {
          "@odata.id":
"/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/NetworkDeviceFunctions/1"
        }
      ]
    },
    "UefiDevicePath": "PciRoot(0x3)/Pci(0x1,0x1)/Pci(0x0,0x0)",
    "@odata.context": "/redfish/v1/$metadata#EthernetInterface.EthernetInterface",
    "@odata.etag": "W/\"C4D4ADE7\"",
    "@odata.id": "/redfish/v1/Systems/1/EthernetInterfaces/5"
  }
}
```

EthernetInterfaceCollection

Conditional Requirements:

Resource instance is subordinate to "ComputerSystem" Mandatory (Read)

URIs

/redfish/v1/Systems/{ComputerSystemId}/EthernetInterfaces

Properties

Property	Type	Attributes	Notes
Members [{	array	Mandatory (Read-only), Minimum 1	The members of this collection.
@odata.id	string	Mandatory (Read-only)	Link to a EthernetInterface resource. See the Links section and the EthernetInterface schema for details.

}]

NetworkAdapter 1.11.0

Version	v1.11	v1.10	v1.9	v1.8	v1.7	v1.6	v1.5	v1.4	v1.3	v1.2	v1.1	...
Release	2024.1	2023.3	2021.4	2021.2	2021.1	2020.4	2020.3	2020.2	2019.2	2018.2	2017.3	...

Conditional Requirements:

Resource instance is subordinate to "NetworkAdapterCollection"	Mandatory (Read)
--	------------------

URIs

/redfish/v1/Chassis/{ChassisId}/NetworkAdapters/{NetworkAdapterId}

Properties

Property	Type	Attributes	Notes
Controllers [{	array	Mandatory (Read)	The set of network controllers ASICs that make up this NetworkAdapter.
ControllerCapabilities {	object	Mandatory (Read)	The capabilities of this controller.
NetworkDeviceFunctionCount	integer	Mandatory (Read-only)	The maximum number of physical functions available on this controller.
NetworkPortCount	integer	Mandatory (Read-only)	The number of physical ports on this controller.
NPAR (v1.2+) {	object	Mandatory (Read)	NIC Partitioning (NPAR) capabilities for this controller.
NparCapable (v1.2+)	boolean	Mandatory (Read-only)	An indication of whether the controller supports NIC function partitioning.
NparEnabled (v1.2+)	boolean	Mandatory (Read)	An indication of whether NIC function partitioning is active on this controller.
}			
VirtualizationOffload {	object	Mandatory (Read)	Virtualization offload for this controller.
SRIOV {	object	Mandatory (Read)	Single-root input/output virtualization (SR-IOV) capabilities.
SRIOVVEPACapable	boolean	Mandatory (Read-only)	An indication of whether this controller supports single root input/output virtualization (SR-IOV) in Virtual Ethernet Port Aggregator (VEPA) mode.
}			
VirtualFunction {	object	Mandatory (Read)	The virtual function of the controller.
DeviceMaxCount	integer	Mandatory (Read-only)	The maximum number of virtual functions supported by this controller.

Property	Type	Attributes	Notes
}			
}			
}			
FirmwarePackageVersion	string	<i>Mandatory (Read-only)</i>	The version of the user-facing firmware package.
}]			
Location (v1.4+) {	object	<i>Recommended (Read)</i>	The location of the network adapter.
PartLocation (v1.5+) {	object	<i>Mandatory (Read)</i>	The part location for a resource within an enclosure.
LocationOrdinalValue (v1.5+)	integer	<i>Mandatory (Read-only)</i>	The number that represents the location of the part. For example, if LocationType is Slot and this unit is in slot 2, the LocationOrdinalValue is 2 .
LocationType (v1.5+)	string (enum)	<i>Mandatory (Read-only)</i>	The type of location of the part. <i>For the possible property values, see LocationType in Property details.</i>
}			
Placement (v1.3+) {	object	<i>Mandatory (Read)</i>	A place within the addressed location.
AdditionalInfo (v1.7+)	string	<i>Mandatory (Read)</i>	Area designation or other additional info.
Rack (v1.3+)	string	<i>Mandatory (Read)</i>	The name of a rack location within a row.
RackOffset (v1.3+)	integer	<i>Mandatory (Read)</i>	The vertical location of the item, in terms of RackOffsetUnits.
RackOffsetUnits (v1.3+)	string (enum)	<i>Mandatory (Read)</i>	The type of rack units in use. <i>For the possible property values, see RackOffsetUnits in Property details.</i>
Row (v1.3+)	string	<i>Mandatory (Read)</i>	The name of the row.
}			
}			
Manufacturer	string	<i>Mandatory (Read-only)</i>	The manufacturer or OEM of this network adapter.
Metrics (v1.7+) {	object	<i>Mandatory (Read-only)</i>	The link to the metrics associated with this adapter. See the <i>NetworkAdapterMetrics</i> schema for details on this property.

Property	Type	Attributes	Notes
@odata.id	string	<i>Mandatory (Read-only)</i>	Link to a NetworkAdapterMetrics resource. See the Links section and the <i>NetworkAdapterMetrics</i> schema for details.
}			
Model	string	<i>Mandatory (Read-only)</i>	The model string for this network adapter. This shall be the long name for the network adapter that is customer identifiable and not an internal codename or non-customer string.
NetworkDeviceFunctions {	object	<i>Mandatory (Read-only)</i>	The link to the collection of network device functions associated with this network adapter. Contains a link to a resource.
@odata.id	string	<i>Mandatory (Read-only)</i>	Link to Collection of <i>NetworkDeviceFunction</i> . See the NetworkDeviceFunction schema for details.
}			
PartNumber	string	<i>Mandatory (Read-only)</i>	Part number for this network adapter.
Ports (v1.5+) {	object	<i>Mandatory (Read-only)</i>	The link to the collection of ports associated with this network adapter.
@odata.id	string (URI)	<i>Mandatory (Read-only)</i>	The unique identifier for a resource.
}			
SerialNumber	string	<i>Mandatory (Read-only)</i>	The serial number for this network adapter.
SKU	string	<i>Mandatory (Read-only)</i>	The manufacturer SKU for this network adapter.
Status {	object	<i>Mandatory (Read)</i>	The status and health of the resource and its subordinate or dependent resources.
Health	string (enum)	<i>Mandatory (Read-only)</i>	The health state of this resource in the absence of its dependent resources. <i>For the possible property values, see Health in Property details.</i>
State	string (enum)	<i>Mandatory (Read-only)</i>	The state of the resource. <i>For the possible property values, see State in Property details.</i>
}			

Actions

ResetSettingsToDefault

Description

This action is to clear the settings back to factory defaults.

Action URI

{Base URI of target resource}/Actions/NetworkAdapter.ResetSettingsToDefault

Action parameters

This action takes no parameters.

Property details

Health

The health state of this resource in the absence of its dependent resources.

string	Description	Profile Specifies
Critical	A critical condition requires immediate attention.	
OK	Normal.	
Warning	A condition requires attention.	

LocationType

The type of location of the part.

string	Description	Profile Specifies
Backplane (v1.12+)	A backplane.	
Bay	A bay.	
Connector	A connector or port.	
Embedded (v1.13+)	Embedded within a part.	
Slot	A slot.	
Socket	A socket.	

RackOffsetUnits

The type of rack units in use.

string	Description	Profile Specifies
EIA_310	A rack unit that is equal to 1.75 in (44.45 mm).	
OpenU	A rack unit that is equal to 48 mm (1.89 in).	

State

The state of the resource.

string	Description	Profile Specifies
--------	-------------	-------------------

string	Description	Profile Specifies
Absent	This function or device is not currently present or detected. This resource represents a capability or an available location where a device can be installed.	
Deferring (v1.2+)	The element does not process any commands but queues new requests.	
Degraded (v1.19+)	The function or resource is degraded.	
Disabled	This function or resource is disabled.	
Enabled	This function or resource is enabled.	
InTest	This function or resource is undergoing testing or is in the process of capturing information for debugging.	
Qualified (v1.9+, deprecated v1.19)	The element quality is within the acceptable range of operation. <i>Deprecated in v1.19 and later. This value has been deprecated in favor of StandbySpare.</i>	
Quiesced (v1.2+)	The element is enabled but only processes a restricted set of commands.	
StandbyOffline	This function or resource is enabled but awaits an external action to activate it.	
StandbySpare	This function or resource is part of a redundancy set and awaits a failover or other external action to activate it.	
Starting	This function or resource is starting.	
UnavailableOffline (v1.1+)	This function or resource is present but cannot be used.	
Updating (v1.2+)	The element is updating and might be unavailable or degraded.	

Example response

```
{
  "@odata.type": "#NetworkAdapter.v1_9_0.NetworkAdapter",
  "Id": "DE07A000",
  "Name": "Network Adapter",
  "Manufacturer": "Contoso",
  "Model": "Contoso 2",
  "SKU": "Contoso 2 function adapter",
  "SerialNumber": "LMNOP4279",
  "PartNumber": "ABCDEFG2",
  "Status": {
    "Health": "OK",
    "State": "Enabled"
  },
  "Ports": {
    "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Ports"
  },
  "NetworkDeviceFunctions": {
    "@odata.id":
"/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/NetworkDeviceFunctions"
  },
  "Metrics": {
    "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Metrics"
  }
}
```

```

    },
    "Controllers": [
      {
        "FirmwarePackageVersion": "229.1.123.0",
        "Links": {
          "PCIeDevices": [
            {
              "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/DE07A000"
            }
          ]
        },
        "ControllerCapabilities": {
          "NetworkPortCount": 4,
          "NetworkDeviceFunctionCount": 16,
          "DataCenterBridging": {
            "Capable": true
          },
          "NPAR": {
            "NparCapable": true,
            "NparEnabled": true
          },
          "VirtualizationOffload": {
            "SRIOV": {
              "SRIOVVEPACapable": true
            },
            "VirtualFunction": {
              "DeviceMaxCount": 256,
              "MinAssignmentGroupSize": 8,
              "NetworkPortMaxCount": 256
            }
          }
        },
        "PCIeInterface": {
          "LanesInUse": 8,
          "MaxLanes": 16,
          "MaxPCIeType": "Gen4",
          "PCIeType": "Gen4"
        }
      }
    ],
    "LLDPEnabled": true,
    "Actions": {
      "#NetworkAdapter.ResetSettingsToDefault": {
        "target":
"/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Actions/NetworkAdapter.ResetSettingsToDefault",
        "@Redfish.OperationApplyTimeSupport": {
          "@odata.type": "#Settings.v1_3_3.OperationApplyTimeSupport",
          "SupportedValues": [
            "OnReset"
          ]
        }
      }
    },
    "@odata.context": "/redfish/v1/$metadata#NetworkAdapter.NetworkAdapter",
    "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000",
    "@odata.etag": "W/\"4DFAAF27\"",
    "@Redfish.Settings": {
      "@odata.type": "#Settings.v1_3_3.Settings",

```

```
    "SettingsObject": {
      "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Settings"
    },
    "SupportedApplyTimes": [
      "OnReset"
    ]
  }
}
```

NetworkAdapterCollection

Conditional Requirements:

Resource instance is subordinate to "Chassis" Mandatory (Read)

URIs

/redfish/v1/Chassis/{ChassisId}/NetworkAdapters

Properties

Property	Type	Attributes	Notes
Members [{	array	<i>Mandatory (Read-only), Minimum 1</i>	The members of this collection.
@odata.id	string	<i>Mandatory (Read-only)</i>	Link to a NetworkAdapter resource. See the Links section and the <i>NetworkAdapter</i> schema for details.
}]			

NetworkAdapterMetrics 1.1.0

Version	v1.1	v1.0
Release	2024.1	2021.1

URIs

/redfish/v1/Chassis/{ChassisId}/NetworkAdapters/{NetworkAdapterId}/Metrics

Properties

Property	Type	Attributes	Notes
CPUCorePercent	number (%)	<i>Recommended (Read-only)</i>	The device CPU core utilization as a percentage.
HostBusRXPercent	number (%)	<i>Recommended (Read-only)</i>	The host bus, such as PCIe, RX utilization as a percentage.
HostBusTXPercent	number (%)	<i>Recommended (Read-only)</i>	The host bus, such as PCIe, TX utilization as a percentage.

Property	Type	Attributes	Notes
NCSIRXBytes	integer (bytes)	Recommended (Read-only)	The total number of NC-SI bytes received since reset.
NCSIRXFrames	integer	Recommended (Read-only)	The total number of NC-SI frames received since reset.
NCSITXBytes	integer (bytes)	Recommended (Read-only)	The total number of NC-SI bytes sent since reset.
NCSITXFrames	integer	Recommended (Read-only)	The total number of NC-SI frames sent since reset.
RXBytes	integer (bytes)	Mandatory (Read-only)	The total number of bytes received since reset.
RXMulticastFrames	integer	Mandatory (Read-only)	The total number of good multicast frames received since reset.
RXUnicastFrames	integer	Mandatory (Read-only)	The total number of good unicast frames received since reset.
TXBytes	integer (bytes)	Mandatory (Read-only)	The total number of bytes transmitted since reset.
TXMulticastFrames	integer	Mandatory (Read-only)	The total number of good multicast frames transmitted since reset.
TXUnicastFrames	integer	Mandatory (Read-only)	The total number of good unicast frames transmitted since reset.

Example response

```
{
  "@odata.type": "#NetworkAdapterMetrics.v1_0_0.NetworkAdapterMetrics",
  "Id": "Metrics",
  "Name": "Network Adapter Metrics",
  "NCSIRXBytes": 20250,
  "NCSIRXFrames": 450,
  "NCSITXBytes": 16168,
  "NCSITXFrames": 450,
  "RXBytes": 1411160,
  "RXUnicastFrames": 9,
  "RXMulticastFrames": 6506,
  "TXBytes": 12179,
  "TXUnicastFrames": 0,
  "TXMulticastFrames": 69,
  "@odata.context": "/redfish/v1/$metadata#NetworkAdapterMetrics.NetworkAdapterMetrics",
  "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Metrics",
  "@odata.etag": "W/\"B85BFB25\""
}
```

NetworkDeviceFunction 1.10.0 (EthernetNIC)

Description

This section describes a UseCase of NetworkDeviceFunction.

A service is required to implement this UseCase. (Mandatory)

These requirements apply to resources where NetDevFuncType is "Equal" to one of the following: "Ethernet"

This UseCase is must exist at the following URIs:

URIs

/redfish/v1/Chassis/{ChassisId}/NetworkAdapters/{NetworkAdapterId}/NetworkDeviceFunctions/{NetworkAdapterId}

Properties

Property	Type	Attributes	Notes
AssignablePhysicalNetworkPorts (v1.5+) [{	array	<i>Mandatory</i> (Read-only)	An array of physical ports to which this network device function can be assigned.
@odata.id	string	<i>Mandatory</i> (Read-only)	Link to a Port resource. See the Links section and the <i>Port</i> schema for details.
}]			
BootMode	string (enum)	<i>Mandatory</i> (Read)	The boot mode configured for this network device function. <i>For the possible property values, see BootMode in Property details.</i>
DeviceEnabled	boolean	<i>Mandatory</i> (Read)	An indication of whether the network device function is enabled.
Ethernet {	object	<i>Mandatory</i> (Read)	The Ethernet capabilities, status, and configuration values for this network device function.
MACAddress	string	<i>Mandatory</i> (Read), <i>Minimum 1</i>	The currently configured MAC address.
MTUSize	integer	<i>Recommended</i> (Read)	The hardware maximum transmission unit (MTU) configured for this network device function.
}			
Links {	object	<i>Mandatory</i> (Read)	The links to other resources that are related to this resource.
EthernetInterfaces (v1.7+) [{	array	<i>Mandatory</i> (Read)	The system Ethernet interfaces that use this network device function. This includes physical Ethernet interfaces or VLANs. Each member of this property is subordinate a ComputerSystem resource.
@odata.id	string	<i>Mandatory</i> (Read-only)	Link to a EthernetInterface resource. See the Links section and the <i>EthernetInterface</i> schema for details.
}]			

Property	Type	Attributes	Notes
PCleFunction {	object	<i>Mandatory (Read-only)</i>	The link to the PCIe function associated with this network device function. See the <i>PCleFunction</i> schema for details on this property.
@odata.id	string	<i>Mandatory (Read-only)</i>	Link to a PCIeFunction resource. See the Links section and the <i>PCleFunction</i> schema for details.
}			
PhysicalNetworkPortAssignment (v1.5+) {	object	<i>Mandatory (Read)</i>	The physical port to which this network device function is currently assigned. See the <i>Port</i> schema for details on this property.
@odata.id	string	<i>Mandatory (Read-only)</i>	Link to a Port resource. See the Links section and the <i>Port</i> schema for details.
}			
}			
MaxVirtualFunctions	integer	<i>Mandatory (Read-only)</i>	The number of virtual functions that are available for this network device function.
Metrics (v1.6+) {	object	<i>Mandatory (Read-only)</i>	The link to the metrics associated with this network function. See the <i>NetworkDeviceFunctionMetrics</i> schema for details on this property.
@odata.id	string	<i>Mandatory (Read-only)</i>	Link to a NetworkDeviceFunctionMetrics resource. See the Links section and the <i>NetworkDeviceFunctionMetrics</i> schema for details.
}			
NetDevFuncCapabilities []	array (string (enum))	<i>Mandatory (Read-only)</i>	An array of capabilities for this network device function. <i>For the possible property values, see NetDevFuncCapabilities in Property details.</i>
NetDevFuncType	string (enum)	<i>Mandatory (Read)</i>	The configured capability of this network device function. <i>For the possible property values, see NetDevFuncType in Property details.</i>
Status {	object	<i>Mandatory (Read)</i>	The status and health of the resource and its subordinate or dependent resources.
Health	string (enum)	<i>Mandatory (Read-only)</i>	The health state of this resource in the absence of its dependent resources. <i>For the possible property values, see Health in Property details.</i>
State	string (enum)	<i>Mandatory (Read-only)</i>	The state of the resource. <i>For the possible property values, see State in Property details.</i>
}			

Property	Type	Attributes	Notes
VirtualFunctionsEnabled	boolean	Mandatory (Read-only)	An indication of whether single root input/output virtualization (SR-IOV) virtual functions are enabled for this network device function.

Property details

BootMode

The boot mode configured for this network device function.

string	Description	Profile Specifies
Disabled	Do not indicate to UEFI/BIOS that this device is bootable.	
FibreChannel	Boot this device by using the embedded Fibre Channel support and configuration. Only applicable if the NetDevFuncType is FibreChannel.	
FibreChannelOverEthernet	Boot this device by using the embedded Fibre Channel over Ethernet (FCoE) boot support and configuration. Only applicable if the NetDevFuncType is FibreChannelOverEthernet.	
HTTP (v1.9+)	Boot this device by using the embedded HTTP/HTTPS support. Only applicable if the NetDevFuncType is Ethernet.	
iSCSI	Boot this device by using the embedded iSCSI boot support and configuration. Only applicable if the NetDevFuncType is iSCSI or Ethernet.	
PXE	Boot this device by using the embedded PXE support. Only applicable if the NetDevFuncType is Ethernet or InfiniBand.	

Health

The health state of this resource in the absence of its dependent resources.

string	Description	Profile Specifies
Critical	A critical condition requires immediate attention.	
OK	Normal.	
Warning	A condition requires attention.	

NetDevFuncCapabilities

An array of capabilities for this network device function.

string	Description	Profile Specifies
Disabled	Neither enumerated nor visible to the operating system.	
Ethernet	Appears to the operating system as an Ethernet device.	
FibreChannel	Appears to the operating system as a Fibre Channel device.	

string	Description	Profile Specifies
FibreChannelOverEthernet	Appears to the operating system as an FCoE device.	
InfiniBand	Appears to the operating system as an InfiniBand device.	
iSCSI	Appears to the operating system as an iSCSI device.	

NetDevFuncType

The configured capability of this network device function.

string	Description	Profile Specifies
Disabled	Neither enumerated nor visible to the operating system.	
Ethernet	Appears to the operating system as an Ethernet device.	
FibreChannel	Appears to the operating system as a Fibre Channel device.	
FibreChannelOverEthernet	Appears to the operating system as an FCoE device.	
InfiniBand (v1.5+)	Appears to the operating system as an InfiniBand device.	
iSCSI	Appears to the operating system as an iSCSI device.	

State

The state of the resource.

string	Description	Profile Specifies
Absent	This function or device is not currently present or detected. This resource represents a capability or an available location where a device can be installed.	
Deferring (v1.2+)	The element does not process any commands but queues new requests.	
Degraded (v1.19+)	The function or resource is degraded.	
Disabled	This function or resource is disabled.	
Enabled	This function or resource is enabled.	
InTest	This function or resource is undergoing testing or is in the process of capturing information for debugging.	
Qualified (v1.9+, deprecated v1.19)	The element quality is within the acceptable range of operation. <i>Deprecated in v1.19 and later. This value has been deprecated in favor of StandbySpare.</i>	
Quiesced (v1.2+)	The element is enabled but only processes a restricted set of commands.	
StandbyOffline	This function or resource is enabled but awaits an external action to activate it.	
StandbySpare	This function or resource is part of a redundancy set and awaits a failover or other external action to activate it.	
Starting	This function or resource is starting.	

string	Description	Profile Specifies
UnavailableOffline (v1.1+)	This function or resource is present but cannot be used.	
Updating (v1.2+)	The element is updating and might be unavailable or degraded.	

Example response

```
{
  "@odata.type": "#NetworkDeviceFunction.v1_8_0.NetworkDeviceFunction",
  "Id": "1",
  "Name": "Network Device Function 1",
  "Status": {
    "Health": "OK",
    "State": "Enabled"
  },
  "Metrics": {
    "@odata.id":
"/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/NetworkDeviceFunctions/1/Metrics"
  },
  "NetDevFuncType": "Ethernet",
  "DeviceEnabled": true,
  "NetDevFuncCapabilities": [
    "Ethernet"
  ],
  "Ethernet": {
    "MACAddress": "9c:dc:71:c3:bb:0a",
    "PermanentMACAddress": "9c:dc:71:c3:bb:0a",
    "MTUSizeMaximum": 9600
  },
  "BootMode": "PXE",
  "VirtualFunctionsEnabled": true,
  "MaxVirtualFunctions": 8,
  "AssignablePhysicalNetworkPorts": [
    {
      "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Ports/1"
    }
  ],
  "Links": {
    "PCIeFunction": {
      "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/DE07A000/PCIeFunctions/1"
    },
    "PhysicalNetworkPortAssignment": {
      "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Ports/1"
    },
    "EthernetInterfaces": [
      {
        "@odata.id": "/redfish/v1/Systems/1/EthernetInterfaces/5"
      }
    ]
  },
  "@odata.context": "/redfish/v1/$metadata#NetworkDeviceFunction.NetworkDeviceFunction",
  "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/NetworkDeviceFunctions/1",
  "@odata.etag": "W/\"80212509\""
}
```

NetworkDeviceFunctionCollection

Conditional Requirements:

Resource instance is subordinate to "NetworkAdapter" Mandatory (Read)

URIs

/redfish/v1/Chassis/{ChassisId}/NetworkAdapters/{NetworkAdapterId}/NetworkDeviceFunctions
/redfish/v1/Systems/{ComputerSystemId}/NetworkInterfaces/{NetworkInterfaceId}/NetworkDeviceFunctions
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

Properties

Property	Type	Attributes	Notes
Members [{	array	Mandatory (Read-only), Minimum 1	The members of this collection.
@odata.id	string	Mandatory (Read-only)	Link to a NetworkDeviceFunction resource. See the Links section and the NetworkDeviceFunction schema for details.
}]			

NetworkDeviceFunctionMetrics 1.2.0

Version	v1.2	v1.1	v1.0
Release	2024.1	2021.2	2021.1

URIs

/redfish/v1/Chassis/{ChassisId}/NetworkAdapters/{NetworkAdapterId}/NetworkDeviceFunctions/
{NetworkDeviceFunctionId}/Metrics

Properties

Property	Type	Attributes	Notes
Ethernet {	object	Recommended (Read)	The network function metrics specific to Ethernet adapters.
NumOffloadedIPv4Conns	integer	Recommended (Read-only)	The total number of offloaded TCP/IPv4 connections.
NumOffloadedIPv6Conns	integer	Recommended (Read-only)	The total number of offloaded TCP/IPv6 connections.
}			
RXAvgQueueDepthPercent	number (%)	Recommended (Read-only)	The average RX queue depth as the percentage.
RXBytes	integer (bytes)	Recommended (Read-only)	The total number of bytes received on a network function.

Property	Type	Attributes	Notes
RXFrames	integer	<i>Recommended (Read-only)</i>	The total number of frames received on a network function.
RXMulticastFrames	integer	<i>Recommended (Read-only)</i>	The total number of good multicast frames received on a network function since reset.
RXQueuesEmpty	boolean	<i>Recommended (Read-only)</i>	Whether nothing is in a network function's RX queues to DMA.
RXQueuesFull	integer	<i>Recommended (Read-only)</i>	The number of RX queues that are full.
RXUnicastFrames	integer	<i>Recommended (Read-only)</i>	The total number of good unicast frames received on a network function since reset.
TXAvgQueueDepthPercent	number (%)	<i>Recommended (Read-only)</i>	The average TX queue depth as the percentage.
TXBytes	integer (bytes)	<i>Recommended (Read-only)</i>	The total number of bytes sent on a network function.
TXFrames	integer	<i>Recommended (Read-only)</i>	The total number of frames sent on a network function.
TXMulticastFrames	integer	<i>Recommended (Read-only)</i>	The total number of good multicast frames transmitted on a network function since reset.
TXQueuesEmpty	boolean	<i>Recommended (Read-only)</i>	Whether all TX queues for a network function are empty.
TXQueuesFull	integer	<i>Recommended (Read-only)</i>	The number of TX queues that are full.
TXUnicastFrames	integer	<i>Recommended (Read-only)</i>	The total number of good unicast frames transmitted on a network function since reset.

Example response

```
{
  "@odata.type": "#NetworkDeviceFunctionMetrics.v1_1_0.NetworkDeviceFunctionMetrics",
  "Id": "Metrics",
  "Name": "Network Device Function 1 Metrics",
  "RXBytes": 286683,
  "RXFrames": 1867,
  "RXUnicastFrames": 0,
  "RXMulticastFrames": 1,
  "TXBytes": 0,
  "TXFrames": 0,
  "TXUnicastFrames": 0,
  "TXMulticastFrames": 0,
  "@odata.context":
    "/redfish/v1/$metadata#NetworkDeviceFunctionMetrics.NetworkDeviceFunctionMetrics",
  "@odata.id":
    "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/NetworkDeviceFunctions/1/Metrics",
  "@odata.etag": "W/\"7BD1348E\""
}
```

PCleDevice 1.18.0

Version	v1.18	v1.17	v1.16	v1.15	v1.14	v1.13	v1.12	v1.11	v1.10	v1.9	v1.8	...
Release	2025.1	2024.4	2024.3	2024.2	2024.1	2023.3	2023.2	2022.3	2022.2	2021.4	2021.3	...

URIs

/redfish/v1/Chassis/{ChassisId}/PCleDevices/{PCleDeviceId}
/redfish/v1/Systems/{ComputerSystemId}/PCleDevices/{PCleDeviceId}
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

Properties

Property	Type	Attributes	Notes
DeviceType	string (enum)	Mandatory (Read-only)	The device type for this PCIe device. <i>For the possible property values, see DeviceType in Property details.</i>
FirmwareVersion	string	Mandatory (Read-only)	The version of firmware for this PCIe device.
Manufacturer	string	Mandatory (Read-only)	The manufacturer of this PCIe device.
Model	string	Mandatory (Read-only)	The model number for the PCIe device. This shall be the long name for the network adapter that is customer identifiable and not an internal codename or non-customer string.
PartNumber	string	Mandatory (Read-only)	The part number for this PCIe device.
PCleFunctions (v1.4+) {	object	Mandatory (Read-only)	The link to the collection of PCIe functions associated with this PCIe device.
@odata.id	string (URI)	Mandatory (Read-only)	The unique identifier for a resource.
}			
PCleInterface (v1.3+) {	object	Mandatory (Read)	The PCIe interface details for this PCIe device.
LanesInUse (v1.3+)	integer	Mandatory (Read-only)	The number of PCIe lanes in use by this device.
MaxLanes (v1.3+)	integer	Mandatory (Read-only)	The number of PCIe lanes supported by this device.
MaxPCleType (v1.3+)	string (enum)	Mandatory (Read-only)	The highest version of the PCIe specification supported by this device. <i>For the possible property values, see MaxPCleType in Property details.</i>
PCleType (v1.3+)	string (enum)	Mandatory (Read-only)	The version of the PCIe specification in use by this device. <i>For the possible property values, see PCleType in Property details.</i>
}			

Property	Type	Attributes	Notes
SerialNumber	string	Mandatory (Read-only)	The serial number for this PCIe device.
SKU	string	Mandatory (Read-only)	The SKU for this PCIe device.
Status {	object	Mandatory (Read)	The status and health of the resource and its subordinate or dependent resources.
Health	string (enum)	Mandatory (Read-only)	The health state of this resource in the absence of its dependent resources. <i>For the possible property values, see Health in Property details.</i>
State	string (enum)	Mandatory (Read-only)	The state of the resource. <i>For the possible property values, see State in Property details.</i>
}			
UUID (v1.5+)	string (uuid)	Recommended (Read-only)	The UUID for this PCIe device.

Property details

DeviceType

The device type for this PCIe device.

string	Description	Profile Specifies
MultiFunction	A multi-function PCIe device.	
Retimer (v1.10+)	A PCIe retimer device.	
Simulated	A PCIe device that is not currently physically present, but is being simulated by the PCIe infrastructure.	
SingleFunction	A single-function PCIe device.	

Health

The health state of this resource in the absence of its dependent resources.

string	Description	Profile Specifies
Critical	A critical condition requires immediate attention.	
OK	Normal.	
Warning	A condition requires attention.	

MaxPCIeType

The highest version of the PCIe specification supported by this device.

string	Description	Profile Specifies
Gen1	A PCIe v1.0 slot.	
Gen2	A PCIe v2.0 slot.	
Gen3	A PCIe v3.0 slot.	
Gen4	A PCIe v4.0 slot.	
Gen5	A PCIe v5.0 slot.	
Gen6 (v1.16+)	A PCIe v6.0 slot.	

PCleType

The version of the PCIe specification in use by this device.

string	Description	Profile Specifies
Gen1	A PCIe v1.0 slot.	
Gen2	A PCIe v2.0 slot.	
Gen3	A PCIe v3.0 slot.	
Gen4	A PCIe v4.0 slot.	
Gen5	A PCIe v5.0 slot.	
Gen6 (v1.16+)	A PCIe v6.0 slot.	

State

The state of the resource.

string	Description	Profile Specifies
Absent	This function or device is not currently present or detected. This resource represents a capability or an available location where a device can be installed.	
Deferring (v1.2+)	The element does not process any commands but queues new requests.	
Degraded (v1.19+)	The function or resource is degraded.	
Disabled	This function or resource is disabled.	
Enabled	This function or resource is enabled.	
InTest	This function or resource is undergoing testing or is in the process of capturing information for debugging.	
Qualified (v1.9+, deprecated v1.19)	The element quality is within the acceptable range of operation. <i>Deprecated in v1.19 and later. This value has been deprecated in favor of StandbySpare.</i>	
Quiesced (v1.2+)	The element is enabled but only processes a restricted set of commands.	
StandbyOffline	This function or resource is enabled but awaits an external action to activate it.	

string	Description	Profile Specifies
StandbySpare	This function or resource is part of a redundancy set and awaits a failover or other external action to activate it.	
Starting	This function or resource is starting.	
UnavailableOffline (v1.1+)	This function or resource is present but cannot be used.	
Updating (v1.2+)	The element is updating and might be unavailable or degraded.	

Example response

```
{
  "@odata.type": "#PCIeDevice.v1_9_0.PCIeDevice",
  "Id": "DE07A000",
  "Name": "PCIe Device",
  "Manufacturer": "Contoso",
  "Model": "Contoso 2",
  "SKU": "Contoso 2 function adapter",
  "SerialNumber": "LMNOP4279",
  "PartNumber": "ABCDEFG2",
  "UUID": "00000000-0000-1000-8000-9cdc71c3bb0a",
  "DeviceType": "MultiFunction",
  "FirmwareVersion": "192.168.59.0",
  "Status": {
    "Health": "OK",
    "State": "Enabled"
  },
  "PCIeFunctions": {
    "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/DE07A000/PCIeFunctions"
  },
  "PCIeInterface": {
    "LanesInUse": 8,
    "MaxLanes": 16,
    "MaxPCIeType": "Gen4",
    "PCIeType": "Gen4"
  },
  "@odata.context": "/redfish/v1/$metadata#PCIeDevice.PCIeDevice",
  "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/DE07A000",
  "@odata.etag": "W/\"70C0367C\""
}
```

PCIeDeviceCollection

Conditional Requirements:

Resource instance is subordinate to "Chassis"	Mandatory (Read)
---	------------------

URIs

/redfish/v1/Chassis/{ChassisId}/PCIeDevices

Properties

Property	Type	Attributes	Notes
Members [{	array	<i>Mandatory (Read-only), Minimum 1</i>	The members of this collection.
@odata.id	string	<i>Mandatory (Read-only)</i>	Link to a PCIeDevice resource. See the Links section and the <i>PCIeDevice</i> schema for details.
}]			

PCIeFunction 1.6.0

Version	v1.6	v1.5	v1.4	v1.3	v1.2	v1.1	v1.0
Release	2024.1	2022.3	2022.2	2021.1	2018.1	2017.1	2016.2

URIs

/redfish/v1/Chassis/{ChassisId}/PCIeDevices/{PCIeDeviceId}/PCIeFunctions/{PCIeFunctionId}
/redfish/v1/Systems/{ComputerSystemId}/PCIeDevices/{PCIeDeviceId}/PCIeFunctions/{PCIeFunctionId}
* Note: Some URIs omitted for brevity, refer to schema for the complete list.

Properties

Property	Type	Attributes	Notes
ClassCode	string	<i>Mandatory (Read-only)</i>	The Class Code of this PCIe function.
DeviceClass	string (enum)	<i>Mandatory (Read-only)</i>	The class for this PCIe function. <i>For the possible property values, see DeviceClass in Property details.</i>
DeviceId	string	<i>Mandatory (Read-only)</i>	The Device ID of this PCIe function.
FunctionId	integer	<i>Mandatory (Read-only)</i>	The PCIe function number.
FunctionType	string (enum)	<i>Mandatory (Read-only)</i>	The type of the PCIe function. <i>For the possible property values, see FunctionType in Property details.</i>
Links {	object	<i>Recommended (Read)</i>	The links to other resources that are related to this resource.
NetworkDeviceFunctions (v1.2+) [{	array	<i>Recommended (Read-only)</i>	An array of links to the network device functions that the PCIe function produces.
@odata.id	string	<i>Recommended (Read-only)</i>	Link to a NetworkDeviceFunction resource. See the Links section and the <i>NetworkDeviceFunction</i> schema for details.
}]			
PCIeDevice {	object	<i>Recommended (Read-only)</i>	The link to the PCIe device on which this function resides. See the <i>PCIeDevice</i> schema for details on this property.

Property	Type	Attributes	Notes
@odata.id	string	Recommended (Read-only)	Link to a PCIeDevice resource. See the Links section and the PCIeDevice schema for details.
}			
{			
RevisionId	string	Mandatory (Read-only)	The Revision ID of this PCIe function.
Status {	object	Mandatory (Read)	The status and health of the resource and its subordinate or dependent resources.
Health	string (enum)	Mandatory (Read-only)	The health state of this resource in the absence of its dependent resources. For the possible property values, see Health in Property details.
State	string (enum)	Mandatory (Read-only)	The state of the resource. For the possible property values, see State in Property details.
}			
SubsystemId	string	Mandatory (Read-only)	The Subsystem ID of this PCIe function.
SubsystemVendorId	string	Mandatory (Read-only)	The Subsystem Vendor ID of this PCIe function.
VendorId	string	Mandatory (Read-only)	The Vendor ID of this PCIe function.

Property details

DeviceClass

The class for this PCIe function.

string	Description	Profile Specifies
Bridge	A bridge.	
CommunicationController	A communication controller.	
Coprocessor	A coprocessor.	
DisplayController	A display controller.	
DockingStation	A docking station.	
EncryptionController	An encryption controller.	
GenericSystemPeripheral	A generic system peripheral.	
InputDeviceController	An input device controller.	
IntelligentController	An intelligent controller.	
MassStorageController	A mass storage controller.	
MemoryController	A memory controller.	

string	Description	Profile Specifies
MultimediaController	A multimedia controller.	
NetworkController	A network controller.	
NonEssentialInstrumentation	A non-essential instrumentation.	
Other	Other class. The function Class Code needs to be verified.	
ProcessingAccelerators	A processing accelerators.	
Processor	A processor.	
SatelliteCommunicationsController	A satellite communications controller.	
SerialBusController	A serial bus controller.	
SignalProcessingController	A signal processing controller.	
UnassignedClass	An unassigned class.	
UnclassifiedDevice	An unclassified device.	
WirelessController	A wireless controller.	

FunctionType

The type of the PCIe function.

string	Description	Profile Specifies
Physical	A physical PCIe function.	
Virtual	A virtual PCIe function.	

Health

The health state of this resource in the absence of its dependent resources.

string	Description	Profile Specifies
Critical	A critical condition requires immediate attention.	
OK	Normal.	
Warning	A condition requires attention.	

State

The state of the resource.

string	Description	Profile Specifies
Absent	This function or device is not currently present or detected. This resource represents a capability or an available location where a device can be installed.	
Deferring (v1.2+)	The element does not process any commands but queues new requests.	

string	Description	Profile Specifies
Degraded (v1.19+)	The function or resource is degraded.	
Disabled	This function or resource is disabled.	
Enabled	This function or resource is enabled.	
InTest	This function or resource is undergoing testing or is in the process of capturing information for debugging.	
Qualified (v1.9+, deprecated v1.19)	The element quality is within the acceptable range of operation. <i>Deprecated in v1.19 and later. This value has been deprecated in favor of StandbySpare.</i>	
Quiesced (v1.2+)	The element is enabled but only processes a restricted set of commands.	
StandbyOffline	This function or resource is enabled but awaits an external action to activate it.	
StandbySpare	This function or resource is part of a redundancy set and awaits a failover or other external action to activate it.	
Starting	This function or resource is starting.	
UnavailableOffline (v1.1+)	This function or resource is present but cannot be used.	
Updating (v1.2+)	The element is updating and might be unavailable or degraded.	

Example response

```
{
  "@odata.type": "#PCIeFunction.v1_3_0.PCIeFunction",
  "Id": "1",
  "Name": "PCIe Function 1",
  "FunctionType": "Physical",
  "DeviceClass": "NetworkController",
  "FunctionId": 1,
  "DeviceId": "0x1801",
  "VendorId": "0x1AB4",
  "ClassCode": "0x020000",
  "RevisionId": "0x11",
  "SubsystemId": "0x1598",
  "SubsystemVendorId": "0x1AB4",
  "Status": {
    "Health": "OK",
    "State": "Enabled"
  },
  "Links": {
    "NetworkDeviceFunctions": [
      {
        "@odata.id":
"/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/NetworkDeviceFunctions/1"
      }
    ],
    "PCIeDevice": {
      "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/DE07A000"
    }
  }
}
```

```
    },
    "@odata.context": "/redfish/v1/$metadata#PCIeFunction.PCIeFunction",
    "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/DE07A000/PCIeFunctions/1",
    "@odata.etag": "W/\"2D186009\""
  }
}
```

Port 1.16.0

Version	v1.16	v1.15	v1.14	v1.13	v1.12	v1.11	v1.10	v1.9	v1.8	v1.7	v1.6	...
Release	2025.1	2024.4	2024.3	2024.2	2024.1	2023.3	2023.2	2023.1	2022.3	2022.2	2021.4	...

URIs

/redfish/v1/Chassis/{ChassisId}/FabricAdapters/{FabricAdapterId}/Ports/{PortId}
/redfish/v1/Chassis/{ChassisId}/MediaControllers/{MediaControllerId}/Ports/{PortId}
/redfish/v1/Chassis/{ChassisId}/NetworkAdapters/{NetworkAdapterId}/Ports/{PortId}
/redfish/v1/Fabrics/{FabricId}/Switches/{SwitchId}/Ports/{PortId}
/redfish/v1/Managers/{ManagerId}/DedicatedNetworkPorts/{PortId}
/redfish/v1/Managers/{ManagerId}/USBPorts/{PortId}
/redfish/v1/Storage/{StorageId}/Controllers/{StorageControllerId}/Ports/{PortId}
/redfish/v1/Storage/{StorageId}/StorageControllers/{StorageControllerId}/Ports/{PortId}
/redfish/v1/Systems/{ComputerSystemId}/FabricAdapters/{FabricAdapterId}/Ports/{PortId}
/redfish/v1/Systems/{ComputerSystemId}/GraphicsControllers/{ControllerId}/Ports/{PortId}
/redfish/v1/Systems/{ComputerSystemId}/Processors/{ProcessorId}/Ports/{PortId}
/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/Controllers/{StorageControllerId}/Ports/{PortId}
/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StorageControllers/{StorageControllerId}/Ports/{PortId}
/redfish/v1/Systems/{ComputerSystemId}/USBControllers/{ControllerId}/Ports/{PortId}

* Note: Some URIs omitted for brevity, refer to schema for the complete list.

Properties

Property	Type	Attributes	Notes
CurrentSpeedGbps	number (Gbit/s)	Mandatory (Read-only)	The current speed of this port.
Enabled (v1.4+, deprecated v1.10)	boolean	Recommended (Read)	An indication of whether this port is enabled. Deprecated in v1.10 and later. This property has been deprecated in favor of <i>InterfaceEnabled</i> .
Ethernet (v1.3+) {	object	Mandatory (Read)	Ethernet properties for this port.
AssociatedMACAddresses (v1.4+) []	array (string, null)	Mandatory (Read-only), Minimum 1	An array of configured MAC addresses that are associated with this network port, including the programmed address of the lowest-numbered network device function, the configured but not active address, if applicable, the address for hardware port teaming, or other network addresses.
}			

Property	Type	Attributes	Notes
FunctionMaxBandwidth (v1.4+) [{	array	<i>Recommended</i> (Read)	An array of maximum bandwidth allocation percentages for the functions associated with this port.
AllocationPercent (v1.4+)	integer (%)	<i>Mandatory</i> (Read)	The maximum bandwidth allocation percentage allocated to the corresponding network device function instance.
NetworkDeviceFunction (v1.4+) {	object	<i>Recommended</i> (Read-only)	The link to the network device function associated with this bandwidth setting of this network port. See the <i>NetworkDeviceFunction</i> schema for details on this property.
@odata.id	string	<i>Recommended</i> (Read-only)	Link to a NetworkDeviceFunction resource. See the Links section and the <i>NetworkDeviceFunction</i> schema for details.
}			
}]			
FunctionMinBandwidth (v1.4+) [{	array	<i>Recommended</i> (Read)	An array of minimum bandwidth allocation percentages for the functions associated with this port.
AllocationPercent (v1.4+)	integer (%)	<i>Mandatory</i> (Read)	The minimum bandwidth allocation percentage allocated to the corresponding network device function instance.
NetworkDeviceFunction (v1.4+) {	object	<i>Recommended</i> (Read-only)	The link to the network device function associated with this bandwidth setting of this network port. See the <i>NetworkDeviceFunction</i> schema for details on this property.
@odata.id	string	<i>Recommended</i> (Read-only)	Link to a NetworkDeviceFunction resource. See the Links section and the <i>NetworkDeviceFunction</i> schema for details.
}			
}]			
LinkConfiguration (v1.3+) [{	array	<i>Mandatory</i> (Read)	The link configuration of this port.
AutoSpeedNegotiationCapable (v1.3+)	boolean	<i>Mandatory</i> (Read-only)	An indication of whether the port is capable of autonegotiating speed.
AutoSpeedNegotiationEnabled (v1.3+)	boolean	<i>Recommended</i> (Read)	Controls whether this port is configured to enable autonegotiating speed.
CapableLinkSpeedGbps (v1.3+) []	array (Gbit/s (number, null))	<i>Mandatory</i> (Read-only)	The set of link speed capabilities of this port.

Property	Type	Attributes	Notes
ConfiguredNetworkLinks (v1.3+) [{	array	Mandatory (Read)	The set of link speed and width pairs this port is configured to use for autonegotiation.
ConfiguredLinkSpeedGbps (v1.3+)	number (Gbit/s)	Mandatory (Read)	The link speed per lane this port is configured to use for autonegotiation.
}]			
}]			
LinkNetworkTechnology (v1.2+)	string (enum)	Mandatory (Read-only)	The current link network technology for this port. <i>For the possible property values, see LinkNetworkTechnology in Property details.</i>
LinkState (v1.2+)	string (enum)	Mandatory (Read)	The desired link state for this interface. <i>For the possible property values, see LinkState in Property details.</i>
LinkStatus (v1.2+)	string (enum)	Mandatory (Read-only)	The link status for this interface. <i>For the possible property values, see LinkStatus in Property details.</i>
Metrics (v1.2+) {	object	Mandatory (Read-only)	The link to the metrics associated with this port. See the <i>PortMetrics</i> schema for details on this property.
@odata.id	string	Mandatory (Read-only)	Link to a PortMetrics resource. See the Links section and the <i>PortMetrics</i> schema for details.
}			
PortId	string	Mandatory (Read-only)	The hardware-defined identifier of this port.
PortProtocol	string (enum)	Recommended (Read-only)	The protocol being sent over this port. <i>For the possible property values, see PortProtocol in Property details.</i>
SignalDetected (v1.2+)	boolean	Recommended (Read-only)	An indication of whether a signal is detected on this interface.

Property details

LinkNetworkTechnology

The current link network technology for this port.

string	Description	Profile Specifies
Ethernet	The port is capable of connecting to an Ethernet network.	
FibreChannel	The port is capable of connecting to a Fibre Channel network.	
GenZ	The port is capable of connecting to a Gen-Z fabric.	
InfiniBand	The port is capable of connecting to an InfiniBand network.	
PCIe (v1.8+)	The port is capable of connecting to PCIe and CXL fabrics.	

LinkState

The desired link state for this interface.

string	Description	Profile Specifies
Disabled	The link is disabled and not operational.	
Enabled	The link is enabled and operational.	

LinkStatus

The link status for this interface.

string	Description	Profile Specifies
LinkDown	The link on this interface is down.	
LinkUp	This link on this interface is up.	
NoLink	No physical link detected on this interface.	
Starting	This link on this interface is starting. A physical link has been established, but the port is not able to transfer data.	
Training	This physical link on this interface is training.	

PortProtocol

The protocol being sent over this port.

string	Description	Profile Specifies
AHCI	Advanced Host Controller Interface (AHCI).	
CXL	Compute Express Link.	
DisplayPort	DisplayPort.	
DVI	DVI.	
eMMC	Embedded MultiMediaCard (e.MMC).	
Ethernet	Ethernet.	
FC	Fibre Channel.	
FCoE	Fibre Channel over Ethernet (FCoE).	
FCP	Fibre Channel Protocol for SCSI.	
FICON	Fibre CONnection (FICON).	
FTP	File Transfer Protocol (FTP).	
GenZ	GenZ.	
HDMI	HDMI.	
HTTP	Hypertext Transport Protocol (HTTP).	

string	Description	Profile Specifies
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).	
I2C	Inter-Integrated Circuit Bus.	
InfiniBand	InfiniBand.	
iSCSI	Internet SCSI.	
iWARP	Internet Wide Area RDMA Protocol (iWARP).	
MultiProtocol	Multiple Protocols.	
NFSv3	Network File System (NFS) version 3.	
NFSv4	Network File System (NFS) version 4.	
NVLink	NVLink.	
NVMe	Non-Volatile Memory Express (NVMe).	
NVMeOverFabrics	NVMe over Fabrics.	
OEM	OEM-specific.	
PCIe	PCI Express.	
QPI	Intel QuickPath Interconnect (QPI).	
RoCE	RDMA over Converged Ethernet Protocol.	
RoCEv2	RDMA over Converged Ethernet Protocol Version 2.	
SAS	Serial Attached SCSI.	
SATA	Serial AT Attachment.	
SFTP	SSH File Transfer Protocol (SFTP).	
SMB	Server Message Block (SMB). Also known as the Common Internet File System (CIFS).	
TCP	Transmission Control Protocol (TCP).	
TFTP	Trivial File Transfer Protocol (TFTP).	
UDP	User Datagram Protocol (UDP).	
UEC	Ultra Ethernet (UEC).	
UHCI	Universal Host Controller Interface (UHCI).	
UPI	Intel UltraPath Interconnect (UPI).	
USB	Universal Serial Bus (USB).	
VGA	VGA.	

Example response

```
{
  "@odata.type": "#Port.v1_6_0.Port",

```

```

    "Id": "1",
    "Name": "Ethernet Port 1",
    "Status": {
      "Health": "OK",
      "State": "Enabled"
    },
    "Metrics": {
      "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Ports/1/Metrics"
    },
    "PortId": "1",
    "PortProtocol": "Ethernet",
    "PortType": "BidirectionalPort",
    "Enabled": true,
    "Ethernet": {
      "SupportedEthernetCapabilities": [
        "WakeOnLAN"
      ],
      "AssociatedMACAddresses": [
        "9c:dc:71:c3:bb:0a",
        "9c:dc:71:c3:bb:0e",
        "9c:dc:71:c3:bb:12",
        "9c:dc:71:c3:bb:16"
      ],
      "FlowControlConfiguration": "None",
      "FlowControlStatus": "None",
      "WakeOnLANEnabled": true,
      "LLDPEnabled": true,
      "LLDPReceive": {
        "ChassisId": "2c:23:3a:48:2f:5d",
        "ChassisIdSubtype": "MacAddr",
        "ManagementAddressIPv4": "",
        "ManagementAddressIPv6": "",
        "ManagementAddressMAC": "2c:23:3a:48:2f:ae",
        "ManagementVlanId": 4095,
        "PortId":
"54:65:6E:2D:47:69:67:61:62:69:74:45:74:68:65:72:6E:65:74:31:2F:32:2F:39",
        "PortIdSubtype": "IfName"
      },
      "LLDPTransmit": {
        "ChassisId": "9c:dc:71:c3:bb:16",
        "ChassisIdSubtype": "MacAddr",
        "ManagementAddressIPv4": "",
        "ManagementAddressIPv6": "",
        "ManagementAddressMAC": "9c:dc:71:c3:bb:16",
        "ManagementVlanId": 4095,
        "PortId": "9C:DC:71:C3:BB:16",
        "PortIdSubtype": "MacAddr"
      }
    },
    "LinkConfiguration": [
      {
        "AutoSpeedNegotiationCapable": true,
        "AutoSpeedNegotiationEnabled": true,
        "CapableLinkSpeedGbps": [
          25.0,
          10.0
        ],
        "ConfiguredNetworkLinks": [
          {

```

```

        "ConfiguredLinkSpeedGbps": 25.0,
        "ConfiguredWidth": 1
    },
    {
        "ConfiguredLinkSpeedGbps": 10.0,
        "ConfiguredWidth": 1
    }
]
}
],
"LinkNetworkTechnology": "Ethernet",
"MaxFrameSize": 9622,
"MaxSpeedGbps": 25.0,
"Width": 1,
"InterfaceEnabled": true,
"SignalDetected": true,
"PortMedium": "Optical",
"LinkState": "Enabled",
"LinkStatus": "LinkUp",
"LinkTransitionIndicator": 1,
"CurrentSpeedGbps": 10.0,
"ActiveWidth": 1,
"SFP": {
    "SupportedSFPTypes": [
        "SFP",
        "SFPPlus",
        "SFP28"
    ],
    "Status": {
        "Health": "OK",
        "State": "Enabled"
    },
    "Manufacturer": "Contoso",
    "PartNumber": "844483",
    "SerialNumber": "20240",
    "MediumType": "FiberOptic",
    "FiberConnectionType": "SingleMode",
    "Type": "SFP28"
},
"Actions": {
    "#Port.Reset": {
        "target":
"/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Ports/1/Actions/Port.Reset",
        "ResetType@Redfish.AllowableValues": [
            "ForceRestart",
            "ForceOn",
            "ForceOff"
        ],
        "@Redfish.OperationApplyTimeSupport": {
            "@odata.type": "#Settings.v1_3_3.OperationApplyTimeSupport",
            "SupportedValues": [
                "Immediate"
            ]
        }
    }
}
},
"@odata.context": "/redfish/v1/$metadata#Port.Port",
"@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Ports/1",
"@odata.etag": "W/\"B40342B6\"",

```

```
    "@Redfish.Settings": {
      "@odata.type": "#Settings.v1_3_3.Settings",
      "SettingsObject": {
        "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Ports/1/Settings"
      },
      "SupportedApplyTimes": [
        "OnReset"
      ]
    }
  }
}
```

PortMetrics 1.7.0

Version	v1.7	v1.6	v1.5	v1.4	v1.3	v1.2	v1.1	v1.0
Release	2024.3	2024.1	2023.2	2022.3	2022.1	2021.2	2021.1	2019.4

URIs

/redfish/v1/Chassis/{ChassisId}/FabricAdapters/{FabricAdapterId}/Ports/{PortId}/Metrics
/redfish/v1/Chassis/{ChassisId}/MediaControllers/{MediaControllerId}/Ports/{PortId}/Metrics
/redfish/v1/Chassis/{ChassisId}/NetworkAdapters/{NetworkAdapterId}/Ports/{PortId}/Metrics
/redfish/v1/Fabrics/{FabricId}/Switches/{SwitchId}/Ports/{PortId}/Metrics
/redfish/v1/Managers/{ManagerId}/DedicatedNetworkPorts/{PortId}/Metrics
/redfish/v1/Managers/{ManagerId}/USBPorts/{PortId}/Metrics
/redfish/v1/Storage/{StorageId}/Controllers/{StorageControllerId}/Ports/{PortId}/Metrics
/redfish/v1/Storage/{StorageId}/StorageControllers/{StorageControllerId}/Ports/{PortId}/Metrics
/redfish/v1/Systems/{ComputerSystemId}/FabricAdapters/{FabricAdapterId}/Ports/{PortId}/Metrics
/redfish/v1/Systems/{ComputerSystemId}/GraphicsControllers/{ControllerId}/Ports/{PortId}/Metrics
/redfish/v1/Systems/{ComputerSystemId}/Processors/{ProcessorId}/Ports/{PortId}/Metrics
/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/Controllers/{StorageControllerId}/Ports/{PortId}/Metrics
/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StorageControllers/{StorageControllerId}/Ports/{PortId}/Metrics
/redfish/v1/Systems/{ComputerSystemId}/USBControllers/{ControllerId}/Ports/{PortId}/Metrics

* Note: Some URIs omitted for brevity, refer to schema for the complete list.

Properties

Property	Type	Attributes	Notes
Networking (v1.1+) {	object	<i>Mandatory (Read)</i>	The port metrics for network ports, including Ethernet, Fibre Channel, and InfiniBand, that are not specific to one of these protocols.
RDMAProtectionErrors (v1.1+)	integer	<i>If Implemented (Read-only)</i>	The total number of RDMA protection errors.
RDMAProtocolErrors (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of RDMA protocol errors.
RDMARXBytes (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of RDMA bytes received on a port since reset.

Property	Type	Attributes	Notes
RDMA RX Requests (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of RDMA requests received on a port since reset.
RDMA TX Bytes (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of RDMA bytes transmitted on a port since reset.
RDMA TX Read Requests (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of RDMA read requests transmitted on a port since reset.
RDMA TX Requests (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of RDMA requests transmitted on a port since reset.
RDMA TX Send Requests (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of RDMA send requests transmitted on a port since reset.
RDMA TX Write Requests (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of RDMA write requests transmitted on a port since reset.
RX Broadcast Frames (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of valid broadcast frames received on a port since reset.
RX Discards (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of frames discarded in a port's receive path since reset.
RX False Carrier Errors (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of false carrier errors received from phy on a port since reset.
RX FCS Errors (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of frames received with frame check sequence (FCS) errors on a port since reset.
RX Frame Alignment Errors (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of frames received with alignment errors on a port since reset.
RX Frames (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of frames received on a port since reset.
RX Multicast Frames (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of valid multicast frames received on a port since reset.
RX Oversize Frames (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of frames that exceed the maximum frame size.
RX Pause XOFF Frames (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of flow control frames from the network to pause transmission.
RX Pause XON Frames (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of flow control frames from the network to resume transmission.
RX PFC Frames (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of priority flow control (PFC) frames received on a port since reset.
RX Undersize Frames (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of frames that are smaller than the minimum frame size of 64 bytes.
RX Unicast Frames (v1.1+)	integer	<i>Recommended (Read-only)</i>	The total number of valid unicast frames received on a port since reset.

Property	Type	Attributes	Notes
TXBroadcastFrames (v1.1+)	integer	<i>Recommended</i> (Read-only)	The total number of good broadcast frames transmitted on a port since reset.
TXDiscards (v1.1+)	integer	<i>Recommended</i> (Read-only)	The total number of frames discarded in a port's transmit path since reset.
TXExcessiveCollisions (v1.1+)	integer	<i>Recommended</i> (Read-only)	The number of times a single transmitted frame encountered more than 15 collisions.
TXFrames (v1.1+)	integer	<i>Recommended</i> (Read-only)	The total number of frames transmitted on a port since reset.
TXLateCollisions (v1.1+)	integer	<i>Recommended</i> (Read-only)	The total number of collisions that occurred after one slot time as defined by IEEE 802.3.
TXMulticastFrames (v1.1+)	integer	<i>Recommended</i> (Read-only)	The total number of good multicast frames transmitted on a port since reset.
TXMultipleCollisions (v1.1+)	integer	<i>Recommended</i> (Read-only)	The times that a transmitted frame encountered 2-15 collisions.
TXPauseXOFFFrames (v1.1+)	integer	<i>Recommended</i> (Read-only)	The total number of XOFF frames transmitted to the network.
TXPauseXONFrames (v1.1+)	integer	<i>Recommended</i> (Read-only)	The total number of XON frames transmitted to the network.
TXPFCFrames (v1.1+)	integer	<i>Recommended</i> (Read-only)	The total number of priority flow control (PFC) frames sent on a port since reset.
TXSingleCollisions (v1.1+)	integer	<i>Recommended</i> (Read-only)	The times that a successfully transmitted frame encountered a single collision.
TXUnicastFrames (v1.1+)	integer	<i>Recommended</i> (Read-only)	The total number of good unicast frames transmitted on a port since reset.
}			
RXBytes (v1.1+)	integer (bytes)	<i>Mandatory</i> (Read-only)	The total number of bytes received on a port since reset.
RXErrors (v1.1+)	integer	<i>Mandatory</i> (Read-only)	The total number of received errors on a port since reset.
Transceivers (v1.1+) [{	array	<i>Mandatory</i> (Read)	The metrics for the transceivers in this port. Each member represents a single transceiver.
RXInputPowerMilliWatts (v1.1+)	number (milliwatts)	<i>Mandatory</i> (Read-only)	The RX input power value of a small form-factor pluggable (SFP) transceiver.
SupplyVoltage (v1.1+)	number (volts)	<i>Mandatory</i> (Read-only)	The supply voltage of a small form-factor pluggable (SFP) transceiver.
TXBiasCurrentMilliAmps (v1.1+)	number (mA)	<i>Mandatory</i> (Read-only)	The TX bias current value of a small form-factor pluggable (SFP) transceiver.
TXOutputPowerMilliWatts (v1.1+)	number (milliwatts)	<i>Mandatory</i> (Read-only)	The TX output power value of a small form-factor pluggable (SFP) transceiver.

Property	Type	Attributes	Notes
}}			
TXBytes (v1.1+)	integer (bytes)	<i>Mandatory</i> (Read-only)	The total number of bytes transmitted on a port since reset.
TxEErrors (v1.1+)	integer	<i>Recommended</i> (Read-only)	The total number of transmission errors on a port since reset.

Example response

```
{
  "@odata.type": "#PortMetrics.v1_2_0.PortMetrics",
  "Id": "Metrics",
  "Name": "Ethernet Port 1 Metrics",
  "Networking": {
    "RXFrames": 8519,
    "RXUnicastFrames": 9,
    "RXMulticastFrames": 6467,
    "RXBroadcastFrames": 2043,
    "RXPFCEFrames": 0,
    "RXDiscards": 0,
    "RXFalseCarrierErrors": 0,
    "RXFCSErrors": 0,
    "RXFrameAlignmentErrors": 0,
    "RXOversizeFrames": 0,
    "RXUndersizeFrames": 0,
    "TXFrames": 69,
    "TXUnicastFrames": 0,
    "TXMulticastFrames": 69,
    "TXBroadcastFrames": 0,
    "TXPFCEFrames": 0,
    "TXDiscards": 0,
    "TXExcessiveCollisions": 0,
    "TXLateCollisions": 0,
    "TXMultipleCollisions": 0,
    "TXSingleCollisions": 0
  },
  "RXBytes": 1401596,
  "RXErrors": 169,
  "TXBytes": 12179,
  "TXErrors": 0,
  "Transceivers": [
    {
      "RXInputPowerMilliWatts": 6985.0,
      "SupplyVoltage": 52096.0,
      "TXBiasCurrentMilliAmps": 3375.0,
      "TXOutputPowerMilliWatts": 7108.0
    }
  ],
  "@odata.context": "/redfish/v1/$metadata#PortMetrics.PortMetrics",
  "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/DE07A000/Ports/1/Metrics",
  "@odata.etag": "W/\"4E6105EA\""
}
```

Base Registry v1.0.0+ (current release: v1.21.0)

Requirement: Mandatory

This registry defines the base messages for Redfish.

Messages

	Requirement
ActionNotSupported	Mandatory
ActionParameterMissing	Mandatory
ActionParameterNotSupported	Mandatory
ActionParameterValueError	Mandatory
ActionParameterValueFormatError	Mandatory
ActionParameterValueNotInList	Mandatory
ActionParameterValueTypeError	Mandatory
PropertyNotUpdated	Mandatory
PropertyNotWritable	Mandatory
PropertyValueConflict	Mandatory
PropertyValueError	Mandatory
PropertyValueFormatError	Mandatory
PropertyValueModified	Mandatory
PropertyValueOutOfRange	Mandatory
PropertyValueTypeError	Mandatory
QueryCombinationInvalid	Mandatory
QueryNotSupported	Mandatory
QueryNotSupportedOnOperation	Mandatory
QueryNotSupportedOnResource	Mandatory
QueryParameterOutOfRange	Mandatory
QueryParameterUnsupported	Mandatory
QueryParameterValueError	Mandatory
QueryParameterValueFormatError	Mandatory
QueryParameterValueTypeError	Mandatory

NetworkDevice Registry v1.0.0+ (current release: v1.1.0)

Requirement: Mandatory

This registry defines the messages for networking devices.

Messages

	Requirement
ConnectionDropped	Mandatory
ConnectionEstablished	Mandatory
DegradedConnectionEstablished	Recommended
LinkFlapDetected	Recommended

Redfish documentation generator

This document was created using the Redfish Documentation Generator utility, which uses the contents of the Redfish schema files (in JSON schema format) to automatically generate the bulk of the text. The source code for the utility is available for download at DMTF's GitHub repository located at <https://www.github.com/DMTF/Redfish-Tools>.

For this document, a Markdown file (NICProfileIntro.md) provides the text for the introduction and use cases sections, and a second file (NICProfilePostscript.md) provides the text for this section and the change log. These files are fed to the documentation generator, which merges those files with the generated Reference Guide text to produce the final document. This process is controlled with a configuration file (NICn-config.json) for the documentation generator.

Edits or additions to this document must be made in the source documents listed above, as any changes to this final output file will be lost whenever the document is re-generated.

ANNEX A (informative) Change log

Version	Date	Description
0.1	2024-09-21	Work in progress release to gather feedback on content.