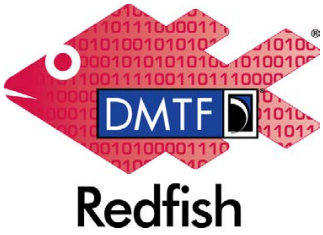

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Redfish Schema Supplement

Information for Work-in-Progress version:
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Overview

The Redfish standard comprises a set of specifications maintained by the Redfish Forum, a working group within the DMTF. The standard defines a protocol that uses RESTful interfaces to provide access to data and operations associated with the management of systems and networks. One of the strengths of the Redfish protocol is that it works with a wide range of servers: from stand-alone servers to rack-mount and bladed environments to large-scale data centers and cloud environments.

The Redfish standard addresses several key issues for infrastructures that require scalability. Large infrastructures often consist of many simple servers of different makes and types. This hyper-scale usage model requires a new approach to systems management. The Redfish Scalable Platforms Management ("Redfish") protocol addresses these needs by providing a standard protocol based on out-of-band systems management.

With the above goals in mind, the Redfish protocol was designed as an open industry standard to meet scalability requirements in multi-vendor deployments. It easily integrates with commonly used tools, using RESTful interfaces to perform operations and using JSON and OData formats for data payloads.

Who should read this document?

This document is intended for Redfish Service developers or application software developers. This document includes the normative language copied from the "LongDescription" text in the Redfish schema (DSP8010) bundle, and adds supplemental normative text to further explain the usage of particular properties or resources.

This document differs from the Redfish Resource and Schema Guide (DSP2046) by incorporating the normative description text rather than the end-user-focused, informative (non-normative) "Description" text from the schema.

Where can I find more information?

The following web sites provide more information about the Redfish standard:

- **Redfish Developer Hub:** http://redfish.dmtf.org Resources for developers building applications using Redfish. Contains an interactive s chema explorer, hosted schema and other links.
- **Redfish User Forum:** http://www.redfishforum.com User forum monitored by DMTF Redfish personnel to answer questions about any Redfish-related topics:
- **DMTF Github Repositories:** http://www.github.com/DMTF Open source tools and libraries for working with Redfish.
- **Redfish Standards:** http://www.dmtf.org/standards/redfish Schemas, specs, mockups, white papers, FAQ, educational material and m ore.
- **DMTF Redfish Forum** (Working group that maintains the Redfish standard): http://www.dmtf.org/standards/spmf Companies involved, upcoming schedules and future work, charter, and information about joining.

Using this 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 name, current version and description of the schema.
- The release history of the schema, listing each minor schema version and the DSP8010 release bundle which included it.
- A listing of the possible URIs where resources defined by this schema can appear in a Redfish Service (v1.6 or later). See URI listings below for more information.
- A table defining each property with additional details for those properties when needed.
- A listing of the available Actions defined for the schema.
- An example JSON payload for a resource using the schema.

The property-level details include:

Column	Purpose
Property Name	The name of the JSON property as it will appear (case sensitive) in the JSON payload. For properties added to the schema after the initial release (v1.0.0), the version that the property was added will be shown in parenthesis. Properties that have been deprecated will also be indicated (along with the version where the deprecation occurred).
Type	The JSON data type(s) for the property. This can include boolean, number, string or object. String types that use defined enumerations will state "(enum)". Number types will state their units where used.
Attributes	Designates whether the property is read-only or read-write (if supported by the implementation), and whether a 'null' value may be returned by the Service if the value of the property is temporarily unavailable.
Description	The normative description of the property, as copied directly from the schema 'LongDescription' definition.

URI listings

The Redfish Specification v1.6.0 added mandatory support for the OpenAPI Specification v3.0. As part of this support, the URIs for every Redfish Resource are defined to appear at known, fixed locations. Resource Collections also appear at fixed locations, with the Members of each collection appearing at URIs constructed using a fixed path structure, with appropriate path segments equal to the value of "Id" properties of Members along the path.

Support for v1.6.0 and OpenAPI can be determined by comparing the value of the "RedfishVersion" property in the Service Root (\redfish\v1). Services reporting a value of "1.6.0" or higher (such as "1.6.1" or "1.7.0") adhere to the URI definitions shown.

The URI listings do not apply to Redfish Services reporting support of Specification versions prior to v1.6.0. For those Services, clients must utilize the hypermedia features of the API to discover links from the Service Root to each resource. While Services will typically match the URIs listed in this documents for many of their resources, this is not guaranteed and will result in errors.

Common properties

Properties defined for all Redfish schemas

The following properties are defined for inclusion in every Redfish schema, and therefore may be encountered in any Response payload. They are documented here to avoid repetition in the Reference Guide property tables. Note that several of these properties are payload annotations, but are listed here as they are required for all Redfish resources.

@odata.context	string	read-only	The value of this property shall be the context URL that describes the resource according to OData-Protocol and shall be of the form defined in the Redfish specification.
@odata.etag	string	read-only	The value of this property shall be a string that is defined by the ETag HTTP header definition in RFC7232.
@odata.id	string	read-only required	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
@odata.type	string	read-only required	The value of this property shall be an absolute URL that specifies the type of the resource and it shall be of the form defined in the Redfish specification.
Description	string	read-only	This object represents the Description property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
Id	string	read-only	This property represents an identifier for the resource. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
Name	string	read-only required	This object represents the Name property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification. The value of this string shall be of the format for the reserved word *Name*.
Oem { }	object		This is the manufacturer/provider specific extension moniker used to divide the Oem object into sections.

Frequently used properties

In addition, the following properties are frequently defined in Redfish schemas. Their definition and usage is the same throughout the Redfish data model.

Actions { }	object		This object contains definitions for the Redfish Actions available for this resource.
Links { }	object		The Links property represents the links associated with the resource, as defined by that resource's schema definition. All associated reference properties defined for a resource are nested under the Links property. All directly referenced (subordinate) properties defined for a resource can be found from the root of the resource.
RelatedItem [{	array		The RelatedItem property is represented as a set of links. The links point to a resource, or part of a resource, as defined by that resource's schema definition. This representation is not intended to be a strong linking methodology like other references. Instead it is used to show a relationship between elements or sub-elements in disparate parts of the service. For example, Fans may be in one area of the system and Processors in another area of the system. It could be that the relationship between the two is not obvious. The RelatedItem property can be used to show that one is related to the other. In this example, it might indicate that a specific fan is cooling a specific processor.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.

Payload annotations

Payload annotations are a mechanism in which a service provides additional information about a given property or object. Redfish limits usage of these annotations to OData core terms, Redfish Extensions or Redfish Messages.

Property-level annotations

A payload annotation for a single property takes the form of an additional property named `Property@Schema.Term`, where `Property` is the JSON property being annotated, `Schema` is the schema file where the definition for the annotation is found, and `Term` is the name of the Annotation.

@Message.ExtendedInfo { }	object		Allows the service to provide a set of Message structures for a given property to indicate additional information; this can be useful when a property is `null` due to an error condition, and the service wants to convey why the property is `null`.
@odata.count	integer	read-only	The value of this property shall be an integer representing the number of items in a collection.
@Redfish.AllowableValues [ ]	array (string)	read-only	Indicates to the client the different string values the service accepts for a given property or action parameter.

In the example below, the property `ResetType` is being annotated with the `AllowableValues` term, which is defined in the `Redfish` schema (an alias for RedfishExtensions). This is used to indicate to the client that the service supports the values `On` and `ForceOff` for `ResetType`.

```
{
    "ResetType@Redfish.AllowableValues": [
        "On",
        "ForceOff"
    ]
}
```

Resource or object-level annotations

A payload annotation for an entire resource or a JSON object takes the form of `@Schema.Term`, where `Namespace` is the schema file where the definition is found and `Term` is the name of the Annotation. These payload annotations are used to provide further information about the object itself.

@Redfish.ActionInfo	string	read-only	The term can be applied to an Action to specify a URI to an ActionInfo resource which describes the parameters supported by this instance of the Action.
@Redfish.CollectionCapabilities { }	object		This type shall describe any capabilities of a collection in terms of how a client is able to create new resources within the collection. *See the CollectionCapabilities object for details on this property.*
@Redfish.MaintenanceWindow { }	object		This object shall indicate if a given resource has a maintenance window assignment for applying settings or operations. Other resources may reference this object in order to convey a common control surface for the configuration of the maintenance window. *See the MaintenanceWindow object for details on this property.*
@Redfish.OperationApplyTime	string (enum)	read-write	The requested apply time from a client when performing a Create, Delete, or Action operation. *See @Redfish.OperationApplyTime in Property Details, below, for the possible values of this property.*
@Redfish.OperationApplyTimeSupport { }	object		This object shall specify the support a service has for a client to request a specific apply time of a Create, Delete, or Action operation of a given resource. *See the OperationApplyTimeSupport object for details on this property.*
@Redfish.Settings { }	object		This type shall describe any attributes of a resouce. *See the Settings object for details on this property.*
@Redfish.SettingsApplyTime { }	object		This object shall be specified by client in a request to indicate its preference on when to apply the values in this Settings resource. *See the PreferredApplyTime object for details on this property.*

Property Details

@Redfish.OperationApplyTime:

The requested apply time from a client when performing a Create, Delete, or Action operation.

string	Description
AtMaintenanceWindowStart	This OperationApplyTime value shall be used to indicate the requested Create, Delete, or Action operation is applied during the maintenance window specified by the MaintenanceWindowStartTime and MaintenanceWindowDurationInSeconds properties. A service may perform resets during this maintenance window.
Immediate	This OperationApplyTime value shall be used to indicate the requested Create, Delete, or Action operation is applied immediately.
InMaintenanceWindowOnReset	This OperationApplyTime value shall be used to indicate the requested Create, Delete, or Action operation is applied during the maintenance window specified by the MaintenanceWindowStartTime and MaintenanceWindowDurationInSeconds properties, and if a reset occurs within the maintenance window.
OnReset	This OperationApplyTime value shall be used to indicate the requested Create, Delete, or Action operation is applied when the system or service is reset.

In the example below, the object is being annotated with the `ActionInfo` term, which is defined in the `Redfish` schema (an alias for RedfishExtensions). This is used to indicate to the client that it can find more information about the given action, in this case `#ComputerSystem.Reset`, at the URI `/redfish/v1/Systems/1/ResetActionInfo`.

```
{
    "#ComputerSystem.Reset": {
        "target": "/redfish/v1/Systems/1/Actions/ComputerSystem.Reset",
        "@Redfish.ActionInfo": "/redfish/v1/Systems/1/ResetActionInfo"
    }
}
```

~pagebreak~

Common objects

The following JSON objects are frequently defined in Redfish schemas. Like the individual common properties listed above, these objects share a common definition which is shown here to avoid repetition in the Reference Guide property tables.

Actions

The Actions object contains descriptions of the actions defined and available for this resource.

#{action name} {	object		This object describes a single Redfish Action.
@Redfish.ActionInfo	string	read-only	The URI for an ActionInfo resource describing this action.
target }	string	read-only	The target URI for the POST operation to invoke the action.

Identifier

This type shall contain any additional identifiers of a resource.

DurableName *(v1.1+)*	string	read-only (null)	This property shall contain the world wide unique identifier for the resource. The string shall be in the format described by the value of the Identifier.DurableNameFormat property.
DurableNameFormat *(v1.1+)*	string (enum)	read-only (null)	This property shall represent the format of the DurableName property. *See DurableNameFormat in Property Details, below, for the possible values of this property.*

Property Details

DurableNameFormat:

This property shall represent the format of the DurableName property.

string	Description
EUI	This durable name shall be the hexadecimal representation of the IEEE-defined 64-bit Extended Unique Identifier

	as defined in the IEEE's Guidelines for 64-bit Global Identifier (EUI-64) Specification.
FC_WWN	This durable name shall be a hexadecimal representation of the World Wide Name format as defined in the T11 Fibre Channel Physical and Signaling Interface Specification.
iQN	This durable name shall be in the iSCSI Qualified Name format as defined in RFC 3720 and RFC 3721.
NAA	This durable name shall be a hexadecimal representation of the Name Address Authority structure as defined in the T11 Fibre Channel - Framing and Signaling - 3 (FC-FS-3) specification.
NQN	This durable name shall be in the NVMe Qualified Name format as defined in the NVN Express over Fabric Specification.
NSID	This durable name shall be in the NVM Namespace Identifier format as defined in the NVN Express Specification.
UUID	This durable name shall be the hexadecimal representation of the Universal Unique Identifier as defined in the Internation Telecom Union's OSI networking and system aspects - Naming, Addressing and Registration Specification.

IPv4Address

This type shall describe an IPv4 address assigned to an interface.

Address	string	read-write (null)	The value of this property shall be an IPv4 address assigned to this interface. If DHCPv4 is enabled on the interface, this property becomes read-only. Pattern: ^(?:[0-9]{1,3}.){3}[0-9]{1,3}$
AddressOrigin	string (enum)	read-only (null)	The value of this property shall be the IP address origin for this network interface. *See AddressOrigin in Property Details, below, for the possible values of this property.*
Gateway	string	read-write (null)	The value of this property shall be the IPv4 default gateway address for this interface. If DHCPv4 is enabled on the interface and is configured to set the IPv4 default gateway address, this property becomes read-only. Pattern: ^(?:[0-9]{1,3}.){3}[0-9]{1,3}$
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
SubnetMask	string	read-write (null)	The value of this property shall be the IPv4 subnet mask for this address. If DHCPv4 is enabled on the interface, this property becomes read-only. Pattern: ^(?:[0-9]{1,3}.){3}[0-9]{1,3}$

Property Details

AddressOrigin:

The value of this property shall be the IP address origin for this network interface.

string	Description
BOOTP	Address is provided by a BOOTP service.
DHCP	Address is provided by a DHCPv4 service.
IPv4LinkLocal	Address is valid only for this network segment (link).
Static	A static address as configured by the user.

IPv6Address

This type shall describe an IPv6 address assigned to an interface.

Address	string	read-write (null)	This property lists an IPv6 address that is currently assigned on this interface.
AddressOrigin	string (enum)	read-only (null)	The value of this property shall be the IPv6 address origin for this interface. *See AddressOrigin in Property Details, below, for the possible values of this property.*
AddressState	string (enum)	read-only (null)	Preferred and Deprecated states follow the definitions given RFC4862 Section 5.5.4. An address is in the Tentative state while undergoing Duplicate Address Detection (DAD) per RFC4862 Section 5.4. The Failed state indicates a Static addresses which did not pass DAD. A Static address in the Failed state is not in use on the network stack, and corrective action will be

			needed to remedy this condition. *See AddressState in Property Details, below, for the possible values of this property.*
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
PrefixLength	integer	read-only (null)	The value of this property shall be the IPv6 address prefix length for this interface.

Property Details

AddressOrigin:

The value of this property shall be the IPv6 address origin for this interface.

string	Description
DHCPv6	Address is provided by a DHCPv6 service.
LinkLocal	Address is valid only for this network segment (link).
SLAAC	Address is provided by a Stateless Address AutoConfiguration (SLAAC) service.
Static	A static address as configured by the user.

AddressState:

Preferred and Deprecated states follow the definitions given RFC4862 Section 5.5.4. An address is in the Tentative state while undergoing Duplicate Address Detection (DAD) per RFC4862 Section 5.4. The Failed state indicates a Static addresses which did not pass DAD. A Static address in the Failed state is not in use on the network stack, and corrective action will be needed to remedy this condition.

string	Description
Deprecated	This address is currently within it's valid lifetime, but is now outside of it's preferred lifetime as defined in RFC 4862.
Failed	This address has failed Duplicate Address Detection testing as defined in RFC 4862 section 5.4 and is not currently in use.
Preferred	This address is currently within both it's valid and preferred lifetimes as defined in RFC 4862.
Tentative	This address is currently undergoing Duplicate Address Detection testing as defined in RFC 4862 section 5.4.

IPv6GatewayStaticAddress

This type shall represent a single IPv6 static address to be assigned on a network interface.

Address	string	read-write required (null)	This property provides access to a static IPv6 address that is currently assigned on a network interface.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
PrefixLength	integer	read-write (null)	Provides the IPv6 network prefix length in bits for this address.

IPv6StaticAddress

This type shall represent a single IPv6 static address to be assigned on a network interface.

Address	string	read-write required (null)	This property provides access to a static IPv6 address that is currently assigned on a network interface.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.

PrefixLength	integer	read-write required (null)	Provides the IPv6 network prefix length in bits for this address.

Location

This type shall describe the location of a resource.

AltitudeMeters *(v1.6+)*	number (meters)	read-write (null)	The altitude of the resource in meters.
Contacts *(v1.7+)* [{	array		The value shall contain contact information used to obtain more information from an individual or organization responsible for this resource.
ContactName	string	read-write (null)	The value shall contain the name of a person or organization to contact for information about this resource.
EmailAddress	string	read-write (null)	The value shall contain the email address for a person or organization to contact for information about this resource.
PhoneNumber }]	string	read-write (null)	The value shall contain the phone number for a person or organization to contact for information about this resource.
Info *(v1.1+, deprecated v1.5)*	string	read-only (null)	This property shall represent the location of the resource. *Deprecated v1.5+. This property has been Deprecated in favor of new properties defined in Resource.v1_3_0.Location and Resource.v1_5_0.Location.*
InfoFormat *(v1.1+, deprecated v1.5)*	string	read-only (null)	This property shall represent the format of the Info property. *Deprecated v1.5+. This property has been Deprecated in favor of new properties defined in Resource.v1_3_0.Location and Resource.v1_5_0.Location.*
Latitude *(v1.6+)*	number (deg)	read-write (null)	The value shall be the latitude of the resource specified in degrees using a decimal format and not minutes or seconds.
Longitude *(v1.6+)*	number (deg)	read-write (null)	The value shall be the longitude of the resource specified in degrees using a decimal format and not minutes or seconds.
Oem *(v1.1+)* {	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
(pattern) { } [ ]	array, boolean, integer, number, object, string	(null)	Property names follow regular expression pattern "^([a-zA-Z_][a-zA-Z0-9_]*)?@(odata|Redfish|Message)\.[a-zA-Z_][a-zA-Z0-9_]*$"
(pattern) {	object		Property names follow regular expression pattern "^[A-Za-z0-9_]+$"
(pattern) { } [ ] } }	array, boolean, integer, number, object, string	(null)	Property names follow regular expression pattern "^([a-zA-Z_][a-zA-Z0-9_]*)?@(odata|Redfish|Message)\.[a-zA-Z_][a-zA-Z0-9_]*$"
PartLocation *(v1.5+)* {	object		The value shall describe a location within a resource. This representation shall be used to indicate the location within the Placement.
LocationOrdinalValue	integer	read-only (null)	The value shall be the number that represents the location of the part based on the LocationType. LocationOrdinalValue shall be measured based on the Orientation value starting with 0.
LocationType	string (enum)	read-only (null)	The value shall be a LocationType enumeration literal indicating the type of rack units in use. *See LocationType in Property Details, below, for the possible values of this property.*
Orientation	string	read-only	The value shall be a Orientation enumeration literal indicating the

	(enum)	(null)	orientation for the ordering used by the LocationOrdinalValue property. *See Orientation in Property Details, below, for the possible values of this property.*
Reference	string (enum)	read-only (null)	The value shall be a Reference enumeration literal indicating the general location within the unit of the part. *See Reference in Property Details, below, for the possible values of this property.*
ServiceLabel }	string	read-only (null)	The value shall be the label assigned for service at the part location.
Placement *(v1.3+)* {	object		The value shall be a place within the addressed location.
AdditionalInfo *(v1.7+)*	string	read-write (null)	The value shall contain additional information, such as Tile, Column (Post), Wall, or other designation used to describe a location that cannot be conveyed with other properties defined for the Placement object.
Rack	string	read-write (null)	The value shall be the name of the rack within a row.
RackOffset	integer	read-write (null)	Vertical location of the item in the rack. Rack offset units shall be measured from bottom to top starting with 0.
RackOffsetUnits	string (enum)	read-write (null)	The value shall be a RackUnit enumeration literal indicating the type of rack units in use. *See RackOffsetUnits in Property Details, below, for the possible values of this property.*
Row }	string	read-write (null)	The value shall be the name of the row.
PostalAddress *(v1.3+)* {	object		The value shall be a postal address of the resource.
AdditionalCode	string	read-write (null)	The value shall conform the requirements of the ADDCODE field as defined in RFC5139.
AdditionalInfo *(v1.7+)*	string	read-write (null)	The value shall conform the requirements of the LOC field as defined in RFC5139. It is used to provide additional information.
Building	string	read-write (null)	The value shall conform the requirements of the BLD field as defined in RFC5139. The value shall be name a building used to locate the resource.
City	string	read-write (null)	The value shall conform the requirements of the A3 field as defined in RFC5139. It is used to name a city, township, or shi (JP).
Community	string	read-write (null)	The value shall conform the requirements of the PCN field as defined in RFC5139. The value shall be a postal community name.
Country	string	read-write (null)	The value shall conform the requirements of the Country field as defined in RFC5139.
District	string	read-write (null)	The value shall conform the requirements of the A2 field as defined in RFC5139. It is used to name a county, parish, gun (JP), or district (IN).
Division	string	read-write (null)	The value shall conform the requirements of the A4 field as defined in RFC5139. It is used to name a city division, borough, dity district, ward, chou (JP).
Floor	string	read-write (null)	The value shall conform the requirements of the FLR field as defined in RFC5139. It is used to provide a floor designation.
GPSCoords *(deprecated v1.6)*	string	read-write (null)	The value shall conform the requirements of the ADDCODE field as defined in RFC5139. The value shall be the GPS coordinates of the location. If furnished, this shall be expressed in the format '[-][nn]n.nnnnnn, [-][nn]n.nnnnn', i.e. two numbers, either positive or negative, with six decimal places of precision, comma-separated. *Deprecated v1.6+. This property has been Deprecated in favor of Location.v1_6_0.Longitude and Location.v1_6_0.Latitude*
HouseNumber	integer	read-write (null)	The value shall conform the requirements of the HNO field as defined in RFC5139. It is the numeric portion of the house number.

HouseNumberSuffix	string	read-write (null)	The value shall conform the requirements of the HNS field as defined in RFC5139. It is used to provide a suffix to a house number, (F, B, 1/2).
Landmark	string	read-write (null)	The value shall conform the requirements of the LMK field as defined in RFC5139. It is used to identify a landmark or vanity address.
LeadingStreetDirection	string	read-write (null)	The value shall conform the requirements of the PRD field as defined in RFC5139. It is used to name a leading street direction, (N, W, SE).
Location *(deprecated v1.7)*	string	read-write (null)	The value shall conform the requirements of the LOC field as defined in RFC5139. It is used to provide additional information. *Deprecated v1.7+. This property has been Deprecated in favor of the property AdditionalInfo found in the 1.7.0 definition of PostalAddress.*
Name	string	read-write (null)	The value shall conform the requirements of the NAM field as defined in RFC5139. It is used to name the occupant.
Neighborhood	string	read-write (null)	The value shall conform the requirements of the A5 field as defined in RFC5139. It is used to name a neighborhood or block.
PlaceType	string	read-write (null)	The value shall conform the requirements of the PLC field as defined in RFC5139. Examples include: office, residence,...).
POBox	string	read-write (null)	The value shall conform the requirements of the POBOX field as defined in RFC5139. The value shall be a Post office box (P.O. box).
PostalCode	string	read-write (null)	The value shall conform the requirements of the PC field as defined in RFC5139. The value shall be a Postal code (or zip code).
Road	string	read-write (null)	The value shall conform the requirements of the RD field as defined in RFC5139. The value designates a primary road or street.
RoadBranch	string	read-write (null)	The value shall conform the requirements of the RDBR field as defined in RFC5139. The value shall be a Post office box (P.O. box)road branch.
RoadPostModifier	string	read-write (null)	The value shall conform the requirements of the POM field as defined in RFC5139. (Extended).
RoadPreModifier	string	read-write (null)	The value shall conform the requirements of the PRM field as defined in RFC5139. (Old, New).
RoadSection	string	read-write (null)	The value shall conform the requirements of the RDSEC field as defined in RFC5139. The value shall be a road section.
RoadSubBranch	string	read-write (null)	The value shall conform the requirements of the RDSUBBR field as defined in RFC5139.
Room	string	read-write (null)	The value shall conform the requirements of the ROOM field as defined in RFC5139. The value shall be a name or number of a room used to locate the resource within the unit.
Seat	string	read-write (null)	The value shall conform the requirements of the SEAT field as defined in RFC5139. The value shall be a name or number of a Seat (desk, cubicle, workstation).
Street	string	read-write (null)	The value shall conform the requirements of the A6 field as defined in RFC5139. It is used to name a street.
StreetSuffix	string	read-write (null)	The value shall conform the requirements of the STS field as defined in RFC5139. It is used to name a street suffix.
Territory	string	read-write (null)	The value shall conform the requirements of the A1 field as defined in RFC5139 when used to name a territory, state, region, province, or prefecture within a country.
TrailingStreetSuffix	string	read-write (null)	The value shall conform the requirements of the POD field as defined in RFC5139. It is used to name a trailing street suffix.
Unit }	string	read-write (null)	The value shall conform the requirements of the UNIT field as defined in RFC5139. The value shall be a name or number of a unit (apartment, suite) used to locate the resource.

Property Details

LocationType:

The value shall be a LocationType enumeration literal indicating the type of rack units in use.

string	Description
Bay	Bay shall be used to indicate the type of PartLocation is of type bay.
Connector	Connector shall be used to indicate the type of PartLocation is of type connector.
Slot	Slot shall be used to indicate the type of PartLocation is of type slot.
Socket	Socket shall be used to indicate the type of PartLocation is of type socket.

Orientation:

The value shall be a Orientation enumeration literal indicating the orientation for the ordering used by the LocationOrdinalValue property.

string	Description
BackToFront	This value shall be used to specify the ordering for LocationOrdinalValue is back to front.
BottomToTop	This value shall be used to specify the ordering for LocationOrdinalValue is bottom to top.
FrontToBack	This value shall be used to specify the ordering for LocationOrdinalValue is front to back.
LeftToRight	This value shall be used to specify the ordering for LocationOrdinalValue is left to right.
RightToLeft	This value shall be used to specify the ordering for LocationOrdinalValue is right to left.
TopToBottom	This value shall be used to specify the ordering for LocationOrdinalValue is top to bottom.

RackOffsetUnits:

The value shall be a RackUnit enumeration literal indicating the type of rack units in use.

string	Description
EIA_310	Rack units shall be specified as defined by the EIA-310 standard.
OpenU	Rack units shall be specifie3d in terms of the Open Compute Open Rack specification.

Reference:

The value shall be a Reference enumeration literal indicating the general location within the unit of the part.

string	Description
Bottom	Top shall be used to specify the part location is in the bottom of the unit.
Front	Top shall be used to specify the part location is in the front of the unit.
Left	Top shall be used to specify the part location is in the left of the unit.
Middle	Top shall be used to specify the part location is in the middle of the unit.
Rear	Top shall be used to specify the part location is in the rear of the unit.
Right	Top shall be used to specify the part location is in the right of the unit.
Top	Top shall be used to specify the part location is in the top of the unit.

MaintenanceWindow

This object shall indicate if a given resource has a maintenance window assignment for applying settings or operations. Other resources may reference this object in order to convey a common control surface for the configuration of the maintenance window.

MaintenanceWindowDurationInSeconds *(v1.2+)*	integer (seconds)	read-write required	The value of this property shall indicate the end of the maintenance window as the number of seconds after the time specified by the MaintenanceWindowStartTime

			property.
MaintenanceWindowStartTime *(v1.2+)*	string	read-write required	The value of this property shall indicate the date and time as to when the service is allowed to start applying the requested settings or operation as part of a maintenance window.

Message

This type shall define a Message as described in the Redfish specification.

Message	string	read-only (null)	This property shall contain an optional human readable message.
MessageArgs [ ]	array (string)	read-only	This property shall contain the message substitution arguments for the specific message referenced by the MessageId and shall only be included if the MessageId is present. Number and integer type arguments shall be converted to strings.
MessageId	string	read-only required	This property shall be a key into message registry as described in the Redfish specification.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
RelatedProperties [ ]	array (string)	read-only	This property shall contain an array of JSON Pointers indicating the properties described by the message, if appropriate for the message.
Resolution	string	read-only (null)	This property shall contain an override of the Resolution of the message in message registry, if present.
Severity	string	read-only (null)	The value of this property shall be the severity of the error, as defined in the Status section of the Redfish specificaiton.

OperationApplyTimeSupport

This object shall specify the support a service has for a client to request a specific apply time of a Create, Delete, or Action operation of a given resource.

MaintenanceWindowDurationInSeconds *(v1.2+)*	integer (seconds)	read-only	The value of this property shall be the same as the MaintenanceWindowDurationInSeconds property found in the MaintenanceWindow structure on the MaintenanceWindowResource. This property shall be required if the SupportedValues property contains AtMaintenanceWindowStart or InMaintenanceWindowOnReset.
MaintenanceWindowResource *(v1.2+)* {	object		The value of this property shall be a reference to a resource that contains the @Redfish.MaintenanceWindow property which governs this resource. This property shall be required if the SupportedValues property contains AtMaintenanceWindowStart or InMaintenanceWindowOnReset.
@odata.id }	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
MaintenanceWindowStartTime *(v1.2+)*	string	read-only	The value of this property shall be the same as the MaintenanceWindowStartTime property found in the MaintenanceWindow structure on the MaintenanceWindowResource. This property shall be required if the SupportedValues property contains AtMaintenanceWindowStart or InMaintenanceWindowOnReset.
SupportedValues [ ]	array (string	read-only	The value of this property shall indicate the types of apply times the client is allowed request when performing a

	(enum))		Create, Delete, or Action operation. *See SupportedValues in Property Details, below, for the possible values of this property.*

Property Details

SupportedValues:

The value of this property shall indicate the types of apply times the client is allowed request when performing a Create, Delete, or Action operation.

string	Description
AtMaintenanceWindowStart	This OperationApplyTime value shall be used to indicate the requested Create, Delete, or Action operation is applied during the maintenance window specified by the MaintenanceWindowStartTime and MaintenanceWindowDurationInSeconds properties. A service may perform resets during this maintenance window.
Immediate	This OperationApplyTime value shall be used to indicate the requested Create, Delete, or Action operation is applied immediately.
InMaintenanceWindowOnReset	This OperationApplyTime value shall be used to indicate the requested Create, Delete, or Action operation is applied during the maintenance window specified by the MaintenanceWindowStartTime and MaintenanceWindowDurationInSeconds properties, and if a reset occurs within the maintenance window.
OnReset	This OperationApplyTime value shall be used to indicate the requested Create, Delete, or Action operation is applied when the system or service is reset.

PreferredApplyTime

This object shall be specified by client in a request to indicate its preference on when to apply the values in this Settings resource.

ApplyTime *(v1.1+)*	string (enum)	read-write	The value of this property shall indicate the preference on to when to apply the values in this Settings resource. *See ApplyTime in Property Details, below, for the possible values of this property.*
MaintenanceWindowDurationInSeconds *(v1.1+)*	integer (seconds)	read-write	The value of this property shall indicate the end of the maintenance window as the number of seconds after the time specified by the MaintenanceWindowStartTime property. This property shall be required if the ApplyTime property is specified as AtMaintenanceWindowStart or InMaintenanceWindowOnReset.
MaintenanceWindowStartTime *(v1.1+)*	string	read-write	The value of this property shall indicate the date and time as to when the service is allowed to start applying the future configuration as part of a maintenance window. This property shall be required if the ApplyTime property is specified as AtMaintenanceWindowStart or InMaintenanceWindowOnReset.

Property Details

ApplyTime:

The value of this property shall indicate the preference on to when to apply the values in this Settings resource.

string	Description
AtMaintenanceWindowStart	This ApplyTime value shall be used to indicate the values within the Settings resource are applied during the maintenance window specified by the MaintenanceWindowStartTime and MaintenanceWindowDurationInSeconds properties. A service may perform resets during this maintenance window.
Immediate	This ApplyTime value shall be used to indicate the values within the Settings resource are applied immediately.
InMaintenanceWindowOnReset	This ApplyTime value shall be used to indicate the values within the Settings resource are applied during the maintenance window specified by the MaintenanceWindowStartTime and

	MaintenanceWindowDurationInSeconds properties, and if a reset occurs within the maintenance window.
OnReset	This ApplyTime value shall be used to indicate the values within the Settings resource are applied when the system or service is reset.

Schedule

The properties of this type shall be used to Schedule a series of occurrences.

EnabledDaysOfMonth [ ]	array (integer, null)	read-write	Days of month when scheduled occurrences are enabled, for enabled days of week and months of year. If the array contains a single value of zero, or if the property is not present, all days of the month shall be enabled.
EnabledDaysOfWeek [ ]	array (string (enum))	read-write (null)	Days of the week when scheduled occurrences are enabled. If not present, all days of the week shall be enabled. Days of the Week. *See EnabledDaysOfWeek in Property Details, below, for the possible values of this property.*
EnabledIntervals *(v1.1+)* [ ]	array (string, null)	read-write	Each value shall be an ISO 8601 conformant interval specifying when occurences are enabled.
EnabledMonthsOfYear [ ]	array (string (enum))	read-write (null)	Months of year when scheduled occurrences are enabled, for enabled days of week and days of month. If not present, all months of the year shall be enabled. Months of the year. *See EnabledMonthsOfYear in Property Details, below, for the possible values of this property.*
InitialStartTime	string	read-write (null)	The value shall be a date and time of day on which the initial occurrence is scheduled to occur.
Lifetime	string	read-write (null)	The value shall be a Redfish Duration describing the time after provisioning when the schedule expires. Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(.\d+)?S)?)?
MaxOccurrences	integer	read-write (null)	Maximum number of scheduled occurrences.
Name	string	read-write (null)	The name of the Schedule. It should be constructed as OrgID:ScheduleName. Examples: ACME:Daily, ACME:Weekly, ACME:FirstTuesday.
RecurrenceInterval	string	read-write (null)	The value shall be a Redfish Duration describing the time until the next occurrence. Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(.\d+)?S)?)?

Property Details

EnabledDaysOfWeek:

Days of the week when scheduled occurrences are enabled. If not present, all days of the week shall be enabled. Days of the Week.

string	Description
Every	This value indicates that every day of the week has been selected. When used in array properties (such as for enabling a function on certain days) it shall be the only member in the array.
Friday	
Monday	
Saturday	
Sunday	
Thursday	
Tuesday	
Wednesday	

EnabledMonthsOfYear:

Months of year when scheduled occurrences are enabled, for enabled days of week and days of month. If not present, all months of the year shall be enabled. Months of the year.

string	Description
April	
August	
December	
Every	This value indicates that every month of the year has been selected. When used in array properties (such as for enabling a function for certain months) it shall be the only member in the array.
February	
January	
July	
June	
March	
May	
November	
October	
September	

Settings

This type shall describe any attributes of a resouce.

ETag	string	read-only (null)	The value of this property shall be the ETag of the resource to which the settings were applied, after the application. This is here so that the client can check it against the ETag of the current resource to see if any other changes have also happened to the resource.
MaintenanceWindowResource *(v1.2+)* {	object		The value of this property shall be a reference to a resource that contains the @Redfish.MaintenanceWindow property which governs this resource. This property should be supported if the SupportedApplyTimes property contains AtMaintenanceWindowStart or InMaintenanceWindowOnReset.
@odata.id }	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Messages [{ }]	array (object)		The value of this property shall be an array of messages associated with the task. This type shall define a Message as described in the Redfish specification. *See the Message object for details on this property.*
SettingsObject {	object		The value of this property shall be the URI of the resource to which a client must do a PUT or PATCH in order to modify this resource.
@odata.id }	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
SupportedApplyTimes [ ]	array (string (enum))	read-only	A service shall advertise its applytime capabilities using this property as to when a Setting resource can be applied. *See SupportedApplyTimes in Property Details, below, for the possible values of this property.*
Time	string	read-only (null)	The value of this property shall indicate the time that the settings object was applied to the resource.

Property Details

SupportedApplyTimes:

A service shall advertise its applytime capabilities using this property as to when a Setting resource can be applied.

string	Description
AtMaintenanceWindowStart	This ApplyTime value shall be used to indicate the values within the Settings resource are applied during the maintenance window specified by the MaintenanceWindowStartTime and MaintenanceWindowDurationInSeconds properties. A service may perform resets during this maintenance window.
Immediate	This ApplyTime value shall be used to indicate the values within the Settings resource are applied immediately.
InMaintenanceWindowOnReset	This ApplyTime value shall be used to indicate the values within the Settings resource are applied during the maintenance window specified by the MaintenanceWindowStartTime and MaintenanceWindowDurationInSeconds properties, and if a reset occurs within the maintenance window.
OnReset	This ApplyTime value shall be used to indicate the values within the Settings resource are applied when the system or service is reset.

Status

This type shall contain any status or health properties of a resource.

Health	string (enum)	read-only (null)	This property shall represent the HealthState of the resource without considering its dependent resources. The values shall conform to those defined in the Redfish specification. *See Health in Property Details, below, for the possible values of this property.*
HealthRollup	string (enum)	read-only (null)	This property shall represent the HealthState of the resource and its dependent resources. The values shall conform to those defined in the Redfish specification. *See HealthRollup in Property Details, below, for the possible values of this property.*
Oem {	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
(pattern) { } [ ]	array, boolean, integer, number, object, string	(null)	Property names follow regular expression pattern "^([a-zA-Z_][a-zA-Z0-9_]*)?@(odata|Redfish|Message)\.[a-zA-Z_][a-zA-Z0-9_]*$"
(pattern) {	object		Property names follow regular expression pattern "^[A-Za-z0-9_]+$"
(pattern) { } [ ] } }	array, boolean, integer, number, object, string	(null)	Property names follow regular expression pattern "^([a-zA-Z_][a-zA-Z0-9_]*)?@(odata|Redfish|Message)\.[a-zA-Z_][a-zA-Z0-9_]*$"
State	string (enum)	read-only (null)	This property shall represent if this component is available or not and why. Enabled indicates the resource is available. Disabled indicates the resource has been intentionally made unavailable but it can be enabled. Offline indicates the resource is unavailable intentionally and requires action to be made available. InTest indicates that the component is undergoing testing. Starting indicates that the resource is on its way to becoming available. Absent indicates the resources is physically unavailable. *See State in Property Details, below, for the possible values of this property.*

Property Details

Health:

This property shall represent the HealthState of the resource without considering its dependent resources. The values shall conform to those defined in the Redfish specification.

string	Description
Critical	A critical condition exists that requires immediate attention.
OK	Normal.
Warning	A condition exists that requires attention.

HealthRollup:

This property shall represent the HealthState of the resource and its dependent resources. The values shall conform to those defined in the Redfish specification.

string	Description
Critical	A critical condition exists that requires immediate attention.
OK	Normal.
Warning	A condition exists that requires attention.

State:

This property shall represent if this component is available or not and why. Enabled indicates the resource is available. Disabled indicates the resource has been intentionally made unavailable but it can be enabled. Offline indicates the resource is unavailable intentionally and requires action to be made available. InTest indicates that the component is undergoing testing. Starting indicates that the resource is on its way to becoming available. Absent indicates the resources is physically unavailable.

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

Redundancy

This is the redundancy definition to be used in other resource schemas.

@odata.id	string	read-only required	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Actions { }	object		The Actions property shall contain the available actions for this resource.
MaxNumSupported	integer	read-only required (null)	The value of this property shall contain the maximum number of members allowed in the redundancy group.
MemberId	string	read-only required	The value of this string shall uniquely identify the member within the collection.
MinNumNeeded	integer	read-only required (null)	The value of this property shall contain the minimum number of members allowed in the redundancy group for the current redundancy mode to still be fault tolerant.

Mode	string (enum)	read-write required (null)	The value of this property shall contain the information about the redundancy mode of this subsystem. *See Mode in Property Details, below, for the possible values of this property.*
Name	string	read-only required	This object represents the Name property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification. The value of this string shall be of the format for the reserved word *Name*.
Oem { }	object		The value of this string shall be of the format for the reserved word *Oem*. *See the Oem object for details on this property.*
RedundancyEnabled	boolean	read-write (null)	The value of this property shall be a boolean indicating whether the redundancy is enabled.
RedundancySet [{	array	required	The value of this property shall contain the ids of components that are part of this redundancy set. The id values may or may not be dereferenceable.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
RedundancySet@odata.count	integer	read-only	The value of this property shall be an integer representing the number of items in a collection.
Status { }	object	required	This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*

Property Details

Mode:

The value of this property shall contain the information about the redundancy mode of this subsystem.

string	Description
Failover	Failure of one unit will automatically cause its functions to be taken over by a standby or offline unit in the redundancy set.
N+m	Multiple units are available and active such that normal operation will continue if one or more units fail.
NotRedundant	The subsystem is not configured in a redundancy mode, either due to configuration or the functionality has been disabled by the user.
Sharing	Multiple units contribute or share such that operation will continue, but at a reduced capacity, if one or more units fail.
Sparing	One or more spare units are available to take over the function of a failed unit, but takeover is not automatic.

Resource collections

A core concept in Redfish is a Collection of resources. A Collection is a group of like resources where the number of instances in the group can shrink or grow depending on the scope of the Redfish Service or the configuration of the devices being managed. Every Resource Collection resource has the same set of supported properties, and all contain "Collection" in the name of their schema. Every resource linked in the "Members" array within a Resource Collection will have the same resource type (same schema with the same major version, but can vary in minor or errata schema versions, which are all compatible).

The properties of a Resource Collection are as follows:

@odata.context	string	read-only	The value of this property shall be the context URL that describes the resource according to OData-Protocol and shall be of the form defined in the Redfish specification.
@odata.id	string	read-only required	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
@odata.type	string	read-only required	The value of this property shall be a URI fragment that specifies the type of the resource and it shall be of the form defined in the Redfish specification.
Description	string	read-only (null)	This object represents the Description property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
Members [{	array	required	Contains the members of this collection.
@odata.id }]	string	read-only	A link to a resource instance which is a member of this collection.
Members@odata.count	integer	read-only	The value of this property shall be an integer representing the number of items in a collection.
Members@odata.navigationLink	string	read-write	
Name	string	read-only required	This object represents the Name property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification. The value of this string shall be of the format for the reserved word *Name*.
Oem { }	object		The value of this string shall be of the format for the reserved word *Oem*.

As shown in the example below, a Redfish Service may provide management functionality for several Computer Systems, and therefore a ComputerSystemCollection resource is provided. This example shows a Service with four ComputerSystem instances ("Members").


```
{
    "@odata.type": "#ComputerSystemCollection.ComputerSystemCollection",
    "Name": "Computer System Collection",
    "Members@odata.count": 4,
    "Members": [
        {
            "@odata.id": "/redfish/v1/Systems/529QB9450R6"
        },
        {
            "@odata.id": "/redfish/v1/Systems/529QB9451R6"
        },
        {
            "@odata.id": "/redfish/v1/Systems/529QB9452R6"
        },
        {
            "@odata.id": "/redfish/v1/Systems/529QB9453R6"
        }
    ],
    "@odata.context": "/redfish/v1/$metadata#ComputerSystemCollection.ComputerSystemCollection",
    "@odata.id": "/redfish/v1/Systems"
}
```

Resource Collection URIs (Redfish v1.6+)

The following table lists all of the Redfish-defined Resource Collections and the URIs where they can appear. NOTE: The URIs listed are valid for Redfish Services conforming to the Redfish Specification v1.6.0 or higher. Services built on earlier versions of the Specification may use different URIs which must be discovered by following the links from the Service Root (/redfish/v1/).

Collection Type	URIs
AccelerationFunctionCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/AccelerationFunctions /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/AccelerationFunctions /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/AccelerationFunctions /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/AccelerationFunctions /redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/AccelerationFunctions
BootOptionCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/BootOptions /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/BootOptions /redfish/v1/Systems/*{ComputerSystemId}*/BootOptions
CertificateCollection	/redfish/v1/AccountService/Accounts/*{ManagerAccountId}*/Certificates /redfish/v1/AccountService/ActiveDirectory/Certificates /redfish/v1/AccountService/ExternalAccountProviders/*{ExternalAccountProviderId}*/Certificates /redfish/v1/AccountService/LDAP/Certificates /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Boot/Certificates /redfish/v1/Managers/*{ManagerId}*/NetworkProtocol/HTTPS/Certificates /redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/Accounts/*{ManagerAccountId}*/Certificates /redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/ActiveDirectory/Certificates /redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/ExternalAccountProviders/*{ExternalAccountProviderId}*/Certificates /redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/LDAP/Certificates /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Boot/Certificates /redfish/v1/Systems/*{ComputerSystemId}*/Boot/Certificates
ChassisCollection	/redfish/v1/Chassis
ComputerSystemCollection	/redfish/v1/Systems
EndpointCollection	/redfish/v1/Fabrics/*{FabricId}*/Endpoints
EthernetInterfaceCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/EthernetInterfaces /redfish/v1/Managers/*{ManagerId}*/EthernetInterfaces /redfish/v1/Managers/*{ManagerId}*/HostInterfaces/*{HostInterfaceId}*/HostEthernetInterfaces /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/EthernetInterfaces /redfish/v1/Systems/*{ComputerSystemId}*/EthernetInterfaces
EventDestinationCollection	/redfish/v1/EventService/Subscriptions
ExternalAccountProviderCollection	/redfish/v1/AccountService/ExternalAccountProviders /redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/ExternalAccountProviders
FabricCollection	/redfish/v1/Fabrics
HostInterfaceCollection	/redfish/v1/Managers/*{ManagerId}*/HostInterfaces
JobCollection	/redfish/v1/JobService/Jobs /redfish/v1/JobService/Jobs/*{JobId}*/Steps
JsonSchemaFileCollection	/redfish/v1/JsonSchemas
LogEntryCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/LogServices/*{LogServiceId}*/Entries /redfish/v1/Managers/*{ManagerId}*/LogServices/*{LogServiceId}*/Entries /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/LogServices/*{LogServ*

	iceId}/Entries /redfish/v1/Systems/*{ComputerSystemId}*/LogServices/*{LogServiceId}*/Entries
LogServiceCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/LogServices /redfish/v1/Managers/*{ManagerId}*/LogServices /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/LogServices /redfish/v1/Systems/*{ComputerSystemId}*/LogServices
ManagerAccountCollection	/redfish/v1/AccountService/Accounts /redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/Accounts
ManagerCollection	/redfish/v1/Managers
MemoryChunksCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/MemoryDomains/*{MemoryDomainId}*/MemoryChunks /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/MemoryDomains/*{MemoryDomainId}*/MemoryChunks /redfish/v1/Systems/*{ComputerSystemId}*/MemoryDomains/*{MemoryDomainId}*/MemoryChunks
MemoryCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory /redfish/v1/Systems/*{ComputerSystemId}*/Memory
MemoryDomainCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/MemoryDomains /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/MemoryDomains /redfish/v1/Systems/*{ComputerSystemId}*/MemoryDomains
MessageRegistryCollection	
MessageRegistryFileCollection	/redfish/v1/Registries
MetricDefinitionCollection	/redfish/v1/TelemetryService/MetricDefinitions
MetricReportCollection	/redfish/v1/TelemetryService/MetricReports
MetricReportDefinitionCollection	/redfish/v1/TelemetryService/MetricReportDefinitions
NetworkAdapterCollection	/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters
NetworkDeviceFunctionCollection	/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/NetworkDeviceFunctions /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkDeviceFunctions /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkDeviceFunctions /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkDeviceFunctions /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkDeviceFunctions /redfish/v1/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkDeviceFunctions
NetworkInterfaceCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/NetworkInterfaces /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/NetworkInterfaces /redfish/v1/Systems/*{ComputerSystemId}*/NetworkInterfaces
NetworkPortCollection	/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/NetworkPorts /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkPorts /redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkPorts /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkPorts /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkPorts /redfish/v1/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*/NetworkPorts
PortCollection	/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/StorageController/*{StorageControllerMemberId}*/Ports

	/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage/{StorageId}/StorageController/{StorageControllerMemberId}/Ports /redfish/v1/Fabrics/{FabricId}/Switches/{SwitchId}/Ports /redfish/v1/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/StorageController/{StorageControllerMemberId}/Ports /redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage/{StorageId}/StorageController/{StorageControllerMemberId}/Ports /redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StorageController/{StorageControllerMemberId}/Ports
ProcessorCollection	/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Processors/{ProcessorId}/SubProcessors /redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Processors /redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Processors/{ProcessorId}/SubProcessors /redfish/v1/ResourceBlocks/{ResourceBlockId}/Processors/{ProcessorId}/SubProcessors /redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Processors /redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Processors/{ProcessorId}/SubProcessors /redfish/v1/Systems/{ComputerSystemId}/Processors /redfish/v1/Systems/{ComputerSystemId}/Processors/{ProcessorId}/SubProcessors
ResourceBlockCollection	/redfish/v1/CompositionService/ResourceBlocks /redfish/v1/ResourceBlocks
RoleCollection	/redfish/v1/AccountService/Roles /redfish/v1/Managers/{ManagerId}/RemoteAccountService/Roles
SensorCollection	/redfish/v1/Chassis/{ChassisId}/Sensors
SerialInterfaceCollection	/redfish/v1/Managers/{ManagerId}/SerialInterfaces
SessionCollection	/redfish/v1/SessionService/Sessions
SimpleStorageCollection	/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/SimpleStorage /redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/SimpleStorage /redfish/v1/Systems/{ComputerSystemId}/SimpleStorage
SoftwareInventoryCollection	/redfish/v1/UpdateService/FirmwareInventory /redfish/v1/UpdateService/SoftwareInventory
StorageCollection	/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Storage /redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage /redfish/v1/ResourceBlocks/{ResourceBlockId}/Storage /redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage /redfish/v1/Systems/{ComputerSystemId}/Storage
SwitchCollection	/redfish/v1/Fabrics/{FabricId}/Switches
TaskCollection	/redfish/v1/TaskService/Tasks
TriggersCollection	/redfish/v1/TelemetryService/Triggers
VirtualMediaCollection	/redfish/v1/Managers/{ManagerId}/VirtualMedia
VLanNetworkInterfaceCollection	/redfish/v1/Chassis/{ChassisId}/NetworkAdapters/{NetworkAdapterId}/NetworkDeviceFunctions/{NetworkDeviceFunctionId}/Ethernet/VLANs /redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/EthernetInterfaces/{EthernetInterfaceId}/VLANs /redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/EthernetInterfaces/{EthernetInterfaceId}/VLANs /redfish/v1/Managers/{ManagerId}/EthernetInterfaces/{EthernetInterfaceId}/VLANs /redfish/v1/ResourceBlocks/{ResourceBlockId}/EthernetInterfaces/{EthernetInterfaceId}/VLANs /redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/EthernetInterfaces/{EthernetInterfaceId}/VLANs /redfish/v1/Systems/{ComputerSystemId}/EthernetInterfaces/{EthernetInterfaceId}/VLANs
VolumeCollection	/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/Volumes /redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/S

	torage/*{StorageId}*/Volumes /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Volumes /redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Volumes /redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Volumes
ZoneCollection	/redfish/v1/CompositionService/ResourceZones /redfish/v1/Fabrics/*{FabricId}*/Zones

Schema Reference Guide

This guide was produced using the contents of the schema files from DMTF Redfish Schema bundle DSP8010 version 2019.1 and merged with supplemental text using the DMTF's Redfish Documentation Generator.

AccelerationFunction 1.0.1

v1.0
2018.3

This resource shall be used to represent the acceleration function, implemented in a Processor, in a Redfish implementation.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/AccelerationFunctions/*{AccelerationFunctionId}*

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/AccelerationFunctions/*{AccelerationFunctionId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/AccelerationFunctions/*{AccelerationFunctionId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/AccelerationFunctions/*{AccelerationFunctionId}*

/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/AccelerationFunctions/*{AccelerationFunctionId}*

AccelerationFunctionType	string (enum)	read-only (null)	This property shall contain the string which identifies the type of acceleration function. *See AccelerationFunctionType in Property Details, below, for the possible values of this property.*
FpgaReconfigurationSlots [ ]	array (string)	read-only	The value of this property shall be an array of the FPGA reconfiguration slots identifiers that this acceleration function occupies.
Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Endpoints [{	array		The value of this property shall be an array of references to resources of type Endpoint that are associated with this acceleration function.
@odata.id }]	string	read-only	*Link to a Endpoint resource. See the Links section and the Endpoint schema for details.*
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
PCIeFunctions [{	array		The value of this property shall be an array of references of type PCIeFunction that represent the PCI-e Functions associated with this acceleration function.
@odata.id }] }	string	read-only	*Link to a PCIeFunction resource. See the Links section and the PCIeFunction schema for details.*
Manufacturer	string	read-only	This property shall contain a string which identifies the manufacturer of the acceleration function.
PowerWatts	integer (Watts)	read-only	The total acceleration function power consumtion in watts.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
UUID	string	read-only (null)	The value of this property shall be used to contain a universal unique identifier number for the acceleration function. RFC4122 describes methods that can be used to create the value. The value should be considered to be opaque. Client software should only treat the overall value as a universally unique identifier and should not interpret any sub-fields within the UUID. Pattern: ([0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12})

Version	string	read-only	The value of this property shall contain a string decsribing the acceleration function version.

Property Details

AccelerationFunctionType:

This property shall contain the string which identifies the type of acceleration function.

string	Description
AudioProcessing	An audio processing function.
Compression	A compression function.
Encryption	An encryption function.
OEM	An OEM-defined acceleration function.
PacketInspection	A packet inspection function.
PacketSwitch	A packet switch function.
Scheduler	A scheduler function.
VideoProcessing	A video processing function.

Example Response

```
{
    "@odata.type": "#AccelerationFunction.v1_0_0.AccelerationFunction",
    "Id": "Compression",
    "Name": "Compression Accelerator",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "FpgaReconfigurationSlots": [
        "AFU0"
    ],
    "AccelerationFunctionType": "Compression",
    "Manufacturer": "Intel (R) Corporation",
    "Version": "Green Compression Type 1 v.1.00.86",
    "PowerWatts": 15,
    "Links": {
        "Endpoints": [],
        "PCIeFunctions": []
    },
    "Oem": {},
    "@odata.id": "/redfish/v1/Systems/1/Processors/FPGA1/AccelerationFunctions/Compression"
}
```

AccountService 1.5.0

v1.5	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
2019.1	2018.3	2018.1	2017.1	2016.3	1.0

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

URIs:

/redfish/v1/AccountService

/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService

AccountLockoutCounterResetAfter	integer (seconds)	read-write	This property shall reference the threshold of time in seconds from the last failed login attempt at which point the AccountLockoutThreshold counter (that counts number of failed login attempts) is reset back to zero (at which point AccountLockoutThreshold failures would be required before the account is locked). This value shall be less than or equal to AccountLockoutDuration. The threshold counter also resets to zero after each successful login. If AccountLockoutCounterResetEnabled is set to false, the value of this property will be ignored.
AccountLockoutCounterResetEnabled *(v1.5+)*	boolean	read-write	This property shall indicate whether the threshold counter will

			be reset after the AccountLockoutCounterResetAfter has expired. Setting the value to false shall indicate that only a successful login will reset the threshold counter. In addition, if the user reaches the limit specified in AccountLockoutThreshold, the account shall be locked out indefinitely and only a reset by administrator will clear the threshold counter. If this property is absent the value shall be assumed to be true.
AccountLockoutDuration	integer (seconds)	read-write (null)	This property shall reference the period of time in seconds that an account is locked after the number of failed login attempts reaches the threshold referenced by AccountLockoutThreshold, within the window of time referenced by AccountLockoutCounterResetAfter. The value shall be greater than or equal to the value of AccountLockoutResetAfter. If set to 0, no lockout shall occur. If AccountLockoutCounterResetEnabled is set to false, the value of this property will be ignored.
AccountLockoutThreshold	integer	read-write (null)	This property shall reference the threshold of failed login attempts at which point the user's account is locked. If set to 0, no lockout shall ever occur.
Accounts {	object		This property shall contain the link to a collection of type ManagerAccountCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of ManagerAccount. See the ManagerAccount schema for details.*
ActiveDirectory *(v1.3+)* {	object		This property shall contain the first ActiveDirectory external account provider this AccountService supports. If the AccountService supports 1 or more ActiveDirectory services as an external account provider this entity must be populated by default. This entity shall not be present in the AdditionalExternalAccountProviders collection.
AccountProviderType *(deprecated v1.5)*	string (enum)	read-only (null)	The value of this property shall be the type of external account provider referenced by this resource. *See AccountProviderType in Property Details, below, for the possible values of this property. Deprecated v1.5+. This property has been Deprecated as the Account Provider type is known when used in the LDAP and ActiveDirectory objects.*
Authentication {	object		The value of this property shall contain the authentication information for the external account provider.
AuthenticationType	string (enum)	read-write (null)	The value of this property shall be the type of authentication used to connect to the external account provider. *See AuthenticationType in Property Details, below, for the possible values of this property.*
KerberosKeytab	string	read-write (null)	The value of this property shall be a base64 encoded version of the kerberos keytab for this account service. The value shall be null for GET requests.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
Password	string	read-write (null)	The value of this property shall be the password for this account service. The value shall be null for GET requests.
Token	string	read-write (null)	The value of this property shall be the token for this account service. The value shall be null for GET requests.
Username }	string	read-write	The value of this property shall be the user name for this account service.
Certificates *(v1.4+)* {	object		The value of this property shall be a link to a collection of type CertificateCollection.

			Contains a link to a resource.
@odata.id }	string	read-only	*Link to Collection of Certificate. See the Certificate schema for details.*
LDAPService {	object		The value of this property shall contain any additional mapping information needed to parse a generic LDAP service.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
SearchSettings {	object		The value of this property shall contain the settings needed to search an external LDAP service.
BaseDistinguishedNames [ ]	array (string, null)	read-write	The value of this property shall be a collection of base distinguished names to use when searching the LDAP service.
GroupNameAttribute	string	read-write (null)	The value of this property shall be the attribute name that contains the name of the Group.
GroupsAttribute	string	read-write (null)	The value of this property shall be the attribute name that contains the Groups for a user.
UsernameAttribute }	string	read-write (null)	The value of this property shall be the attribute name that contains the Username.
RemoteRoleMapping [{	array		This property shall contain a collection of the mapping rules to convert the external account providers account information to the local Redfish Role.
LocalRole	string	read-write (null)	The value of this property shall contain the value of the RoleId property within a Role resource on this Redfish service in which to map the remote user or group.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
RemoteGroup	string	read-write (null)	The value of this property shall contain the name of the remote group (or in the case of a Redfish Service, remote role) that will be mapped to the local role referenced by this entity.
RemoteUser }]	string	read-write (null)	The value of this property shall contain the name of the remote user that will be mapped to the local role referenced by this entity.
ServiceAddresses [ ]	array (string, null)	read-write	The value of this property shall be the addresses of the account providers this resource references. The format of this field depends on the Type of the ExternalAccountProvider. Each item in the array shall contain a single address. Services may define their own behavior for managing multiple addresses.
ServiceEnabled }	boolean	read-write (null)	The value of this property shall be a boolean indicating whether this service is enabled.
AdditionalExternalAccountProviders *(v1.3+)* {	object		This property shall contain an additional external account providers this AccountService is using. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of ExternalAccountProvider. See the ExternalAccountProvider schema for details.*
AuthFailureLoggingThreshold	integer	read-write	This property shall reference the threshold for when an authorization failure is logged. This represents a modulo function value, thus the failure shall be logged every nth occurrence where n represents the value of this property.

LDAP *(v1.3+)* {	object		This property shall contain the first LDAP external account provider this AccountService supports. If the AccountService supports 1 or more LDAP services as an external account provider this entity must be populated by default. This entity shall not be present in the AdditionalExternalAccountProviders collection.
AccountProviderType *(deprecated v1.5)*	string (enum)	read-only (null)	The value of this property shall be the type of external account provider referenced by this resource. *See AccountProviderType in Property Details, below, for the possible values of this property. Deprecated v1.5+. This property has been Deprecated as the Account Provider type is known when used in the LDAP and ActiveDirectory objects.*
Authentication {	object		The value of this property shall contain the authentication information for the external account provider.
AuthenticationType	string (enum)	read-write (null)	The value of this property shall be the type of authentication used to connect to the external account provider. *See AuthenticationType in Property Details, below, for the possible values of this property.*
KerberosKeytab	string	read-write (null)	The value of this property shall be a base64 encoded version of the kerberos keytab for this account service. The value shall be null for GET requests.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
Password	string	read-write (null)	The value of this property shall be the password for this account service. The value shall be null for GET requests.
Token	string	read-write (null)	The value of this property shall be the token for this account service. The value shall be null for GET requests.
Username }	string	read-write	The value of this property shall be the user name for this account service.
Certificates *(v1.4+)* {	object		The value of this property shall be a link to a collection of type CertificateCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Certificate. See the Certificate schema for details.*
LDAPService {	object		The value of this property shall contain any additional mapping information needed to parse a generic LDAP service.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
SearchSettings {	object		The value of this property shall contain the settings needed to search an external LDAP service.
BaseDistinguishedNames [ ]	array (string, null)	read-write	The value of this property shall be a collection of base distinguished names to use when searching the LDAP service.
GroupNameAttribute	string	read-write (null)	The value of this property shall be the attribute name that contains the name of the Group.
GroupsAttribute	string	read-write (null)	The value of this property shall be the attribute name that contains the Groups for a user.
UsernameAttribute } }	string	read-write (null)	The value of this property shall be the attribute name that contains the Username.

RemoteRoleMapping [{	array		This property shall contain a collection of the mapping rules to convert the external account providers account information to the local Redfish Role.
LocalRole	string	read-write (null)	The value of this property shall contain the value of the RoleId property within a Role resource on this Redfish service in which to map the remote user or group.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
RemoteGroup	string	read-write (null)	The value of this property shall contain the name of the remote group (or in the case of a Redfish Service, remote role) that will be mapped to the local role referenced by this entity.
RemoteUser }]	string	read-write (null)	The value of this property shall contain the name of the remote user that will be mapped to the local role referenced by this entity.
ServiceAddresses [ ]	array (string, null)	read-write	The value of this property shall be the addresses of the account providers this resource references. The format of this field depends on the Type of the ExternalAccountProvider. Each item in the array shall contain a single address. Services may define their own behavior for managing multiple addresses.
ServiceEnabled }	boolean	read-write (null)	The value of this property shall be a boolean indicating whether this service is enabled.
LocalAccountAuth *(v1.3+)*	string (enum)	read-write	This property shall govern how the service uses the Accounts collection within this AccountService as part of authentication. Details about each of the modes are found in the description of the enum values. *See LocalAccountAuth in Property Details, below, for the possible values of this property.*
MaxPasswordLength	integer	read-only	This property shall reference the maximum password length that the implementation will allow a password to be set to.
MinPasswordLength	integer	read-only	This property shall reference the minimum password length that the implementation will allow a password to be set to.
PrivilegeMap *(v1.1+)* {	object		The value of this property shall be a link to a resource of type PrivilegeMappoing that defines the privileges a user context needs in order to perform a requested operation on a URI associated with this service. *See the PrivilegeRegistry schema for details on this property.*
@odata.id }	string	read-only	*Link to a PrivilegeRegistry resource. See the Links section and the PrivilegeRegistry schema for details.*
Roles {	object		This property shall contain the link to a collection of type RoleCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Role. See the Role schema for details.*
ServiceEnabled	boolean	read-write (null)	The value of this property shall be a boolean indicating whether this service is enabled. If this is set to false, the AccountService is disabled. This means no users can be created, deleted or modified. Any service attempting to access the Account Service, like the Session Service, will fail accessing. Thus new sessions cannot be started with the service disabled (though established sessions may still continue operating). Note: this does not affect Basic AUTH connections.
Status { }	object		This property shall contain any status or health properties of the resource.

			See the Status object for details on this property.

Property Details

AccountProviderType:

The value of this property shall be the type of external account provider referenced by this resource.

string	Description
ActiveDirectoryService	The external account provider shall be a service conforming to the Microsoft Active Directory Technical specification. The format of ServiceAddresses shall be a collection of FQDNs or Netbios names that references the set of domain servers for the Active Directory service.
LDAPService	The external account provider shall be a service conforming to RFC4511. The format of ServiceAddresses shall be a collection of FQDNs that references the set of LDAP servers for the service.
OEM	
RedfishService	The external account provider shall be a service conforming to the DMTF Redfish specification. The format of ServiceAddresses shall be a collection of URIs which corresponds to a Redfish AccountService entity.

AuthenticationType:

The value of this property shall be the type of authentication used to connect to the external account provider.

string	Description
KerberosKeytab	A kerberos keytab.
OEM	An OEM specific authentication mechanism.
Token	An opaque authentication token.
UsernameAndPassword	Username and password combination.

LocalAccountAuth:

This property shall govern how the service uses the Accounts collection within this AccountService as part of authentication. Details about each of the modes are found in the description of the enum values.

string	Description
Disabled	This value shall be used to indicate that the service will never authenticate users based on the Accounts collection within this AccountService.
Enabled	This value shall be used to indicate that the service will authenticate users based on the Accounts collection within this AccountService.
Fallback	This value shall be used to indicate that the service will authenticate users based on the Accounts collection within this AccountService only if there are external account providers that are currently unreachable.

Example Response


```
{
    "@odata.type": "#AccountService.v1_3_1.AccountService",
    "Id": "AccountService",
    "Name": "Account Service",
    "Description": "Local Manager Account Service",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "ServiceEnabled": true,
    "AuthFailureLoggingThreshold": 3,
    "MinPasswordLength": 8,
    "AccountLockoutThreshold": 5,
    "AccountLockoutDuration": 30,
    "AccountLockoutCounterResetAfter": 30,
    "Accounts": {
        "@odata.id": "/redfish/v1/AccountService/Accounts"
    },
    "Roles": {
        "@odata.id": "/redfish/v1/AccountService/Roles"
    },
    "LocalAccountAuth": "Enabled",
    "LDAP": {
        "AccountProviderType": "LDAPService",
        "ServiceEnabled": false,
        "ServiceAddresses": [
```

```
            "ldaps://ldap.example.org:636"
        ],
        "Authentication": {
            "AuthenticationType": "UsernameAndPassword",
            "Username": "cn=Manager,dc=example,dc=org",
            "Password": null
        },
        "LDAPService": {
            "SearchSettings": {
                "BaseDistinguishedNames": [
                    "dc=example,dc=org"
                ],
                "UsernameAttribute": "uid",
                "GroupsAttribute": "memberof"
            }
        },
        "RemoteRoleMapping": [
            {
                "RemoteUser": "cn=Manager,dc=example,dc=org",
                "LocalRole": "Administrator"
            },
            {
                "RemoteGroup": "cn=Admins,ou=Groups,dc=example,dc=org",
                "LocalRole": "Administrator"
            },
            {
                "RemoteGroup": "cn=PowerUsers,ou=Groups,dc=example,dc=org",
                "LocalRole": "Operator"
            },
            {
                "RemoteGroup": "(cn=*)",
                "LocalRole": "ReadOnly"
            }
        ]
    },
    "ActiveDirectory": {
        "AccountProviderType": "ActiveDirectoryService",
        "ServiceEnabled": true,
        "ServiceAddresses": [
            "ad1.example.org",
            "ad2.example.org",
            null,
            null
        ],
        "Authentication": {
            "AuthenticationType": "KerberosKeytab",
            "KerberosKeytab": null
        },
        "RemoteRoleMapping": [
            {
                "RemoteGroup": "Administrators",
                "LocalRole": "Administrator"
            },
            {
                "RemoteUser": "DOMAIN\\Bob",
                "LocalRole": "Operator"
            },
            {
                "RemoteGroup": "PowerUsers",
                "LocalRole": "Operator"
            },
            {
                "RemoteGroup": "Everybody",
                "LocalRole": "ReadOnly"
            }
        ]
    },
    "AdditionalExternalAccountProviders": {
        "@odata.id": "/redfish/v1/AccountService/ExternalAccountProviders"
    },
    "@odata.context": "/redfish/v1/$metadata#AccountService.AccountService",
    "@odata.id": "/redfish/v1/AccountService"
}
```


ActionInfo 1.1.1

v1.1	*v1.0*
2018.2	2016.2

This resource shall be used to represent information about the supported parameters for an Action within a Redfish implementation.

Parameters [{	array		This property shall contain a list of parameters associated with a Redfish Action associated with this resource.
AllowableValues [ ]	array (string, null)	read-only	This property shall indicate the allowable values for this parameter as applied to this Action target.
DataType	string (enum)	read-only (null)	This property shall indicate the JSON property type of the parameter. *See DataType in Property Details, below, for the possible values of this property.*
MaximumValue *(v1.1+)*	number	read-only (null)	This property shall indicate the maximum value of an integer or number type parameter supported by this service. This property shall not be present for parameters that are of types other than integer or number.

MinimumValue *(v1.1+)*	number	read-only (null)	This property shall indicate the minimum value of an integer or number type parameter supported by this service. This property shall not be present for parameters that are of types other than integer or number.
Name	string	read-only required	This property shall contain the name of the parameter used by the associated Redfish Action.
ObjectDataType	string	read-only (null)	This property shall describe the entity type definition (in @odata.type format) for the parameter. This property shall be required for parameters with a DataType of Object or ObjectArray, and shall not be present for parameters with other DataType(s).
Required }]	boolean	read-only	This property shall return true if the parameter is required to be present to perform the associated Action, and shall be false if the parameter is not required (optional) to perform the associated Action.

Property Details

DataType:

This property shall indicate the JSON property type of the parameter.

string	Description
Boolean	A boolean (true or false).
Number	A number.
NumberArray	An array of numbers.
Object	An embedded JSON object.
ObjectArray	An array of JSON objects.
String	A string.
StringArray	An array of strings.

Example Response

```
{
    "@odata.type": "#ActionInfo.v1_1_0.ActionInfo",
    "Id": "ResetActionInfo",
    "Name": "Reset Action Info",
    "Parameters": [
        {
            "Name": "ResetType",
            "Required": true,
            "DataType": "String",
            "AllowableValues": [
                "On",
                "ForceOff",
                "GracefulShutdown",
                "GracefulRestart",
                "ForceRestart",
                "Nmi",
                "ForceOn",
                "PushPowerButton"
            ]
        }
    ],
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#ActionInfo.ActionInfo",
    "@odata.id": "/redfish/v1/Systems/1/ResetActionInfo"
}
```

Assembly 1.2.1

v1.2	*v1.1*	*v1.0*
2018.2	2018.1	2017.3

This resource shall be used to represent an assembly information resource for a Redfish implementation.

URIs:

/redfish/v1/Chassis/*{ChassisId}*/Assembly

/redfish/v1/Chassis/*{ChassisId}*/Drives/*{DriveId}*/Assembly

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

/redfish/v1/Chassis/*{ChassisId}*/PCIeDevices/*{PCIeDeviceId}*/Assembly

/redfish/v1/Chassis/*{ChassisId}*/Power/PowerSupplies/*{PowerSupplyId}*/Assembly

/redfish/v1/Chassis/*{ChassisId}*/Thermal/Fans/*{FanId}*/Thermal

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Drives/*{DriveId}*/Assembly

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*/Assembly

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/Assembly

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/Assembly

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Assembly

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Drives/*{DriveId}*/Assembly

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Assembly

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/Assembly

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/Assembly

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Assembly

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Drives/*{DriveId}*/Assembly

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Drives/*{DriveId}*/Assembly

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*/Assembly

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/Assembly

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/Assembly

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Assembly

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Drives/*{DriveId}*/Assembly

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Assembly

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/Assembly

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/Assembly

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Assembly

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Drives/*{DriveId}*/Assembly

/redfish/v1/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Assembly

/redfish/v1/Systems/*{ComputerSystemId}*/PCIeDevices/*{PCIeDeviceId}*/Assembly

/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/Assembly

/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/Assembly

/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Assembly

/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Drives/*{DriveId}*/Assembly

Assemblies [{	array		These properties shall be the definition for assembly records for a Redfish implementation.
@odata.id *(v1.2+)*	string	read-only required	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Actions { }	object		The Actions property shall contain the available actions for this resource.
BinaryDataURI	string	read-only (null)	The value of this property shall be a URI at which the Service provides for the download of the OEM-specific binary image of the assembly data. An HTTP GET from this URI shall return a response payload of MIME time application/octet-stream. An HTTP PUT to this URI, if supported by the Service, shall replace the binary image of the assembly.
Description	string	read-only (null)	The value of this property shall be a description of this assembly.
EngineeringChangeLevel	string	read-only (null)	The value of this property shall be the Engineering Change Level (ECL) or revision of the assembly.
MemberId	string	read-only required	The value of this string shall uniquely identify the member within the collection. For services supporting Redfish v1.6 or higher, this value shall be the zero-based array index.

Model	string	read-only (null)	The value of this property shall be the name by which the manufacturer generally refers to the assembly.
Name	string	read-only (null)	The value of this property shall be the name of the assembly.
Oem { }	object		The value of this string shall be of the format for the reserved word *Oem*.
PartNumber	string	read-only (null)	The value of this property shall be the name of the assembly.
PhysicalContext *(v1.2+)*	string (enum)	read-only	The value of this property shall be a description of the physical context for this assembly data. *See PhysicalContext in Property Details, below, for the possible values of this property.*
Producer	string	read-only (null)	The value of this property shall be the name of the company which supplied or manufactured this assembly. This value shall be equal to the 'Manufacturer' field in a PLDM FRU structure, if applicable, for this assembly.
ProductionDate	string	read-only (null)	The value of this property shall be the date of production or manufacture for this assembly. The time of day portion of the property shall be '00:00:00Z' if the time of day is unknown.
SerialNumber *(v1.2+)*	string	read-only (null)	The value of this property shall be a manufacturer-allocated number used to identify the assembly.
SKU	string	read-only (null)	The value of this property shall be the name of the assembly.
SparePartNumber	string	read-only (null)	The value of this property shall be the name of the assembly.
Status *(v1.1+)* { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
Vendor	string	read-only (null)	The value of this property shall be the name of the company which provides the final product that includes this assembly. This value shall be equal to the 'Vendor' field in a PLDM FRU structure, if applicable, for this assembly.
Version }]	string	read-only (null)	The value of this property shall be the version of the assembly as determined by the vendor or supplier.

Property Details

PhysicalContext:

The value of this property shall be a description of the physical context for this assembly data.

string	Description
Accelerator	An Accelerator.
ACInput	An AC Input.
ACMaintenanceBypassInput	An AC Maintenance Bypass Input.
ACOutput	An AC Output.
ACStaticBypassInput	An AC Static Bypass Input.
ACUtilityInput	An AC Utility Input.
ASIC	An ASIC device, such as networking chip or a chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Chassis	The entire chassis.
ComputeBay	Within a compute bay.
CoolingSubsystem	The entire cooling (air and liquid) subsystem.

CPU	A Processor (CPU).
CPUSubsystem	The entire Processor (CPU) subsystem.
DCBus	A DC Bus.
Exhaust	The air exhaust point(s) or region of the chassis.
ExpansionBay	Within an expansion bay.
Fan	A fan.
FPGA	A Field Programmable Gate Array (FPGA).
Front	The front of the chassis.
GPU	A Graphics Processor (GPU).
GPUSubsystem	The entire Graphics Processor (GPU) subsystem.
Intake	The air intake point(s) or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Memory	A memory device.
MemorySubsystem	The entire Memory subsystem.
Motor	A motor.
NetworkBay	Within a networking bay.
NetworkingDevice	A networking device.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	Within a power supply bay.
Rectifier	A rectifier device.
Room	The room.
StorageBay	Within a storage bay.
StorageDevice	A storage device.
SystemBoard	The system board (PCB).
Transformer	A Transformer.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

Example Response


```
{
    "@odata.type": "#Assembly.v1_2_0.Assembly",
    "Id": "Assembly",
    "Name": "System-related Assembly data",
    "Assemblies": [
        {
            "@odata.id": "/redfish/v1/Chassis/1/Assembly#/Assemblies/0",
            "MemberId": "0",
            "Name": "System Board",
            "Description": "PCA System Board",
            "Model": "345TTT",
            "PartNumber": "923943",
            "SparePartNumber": "55-434",
            "SKU": "55ZZATR",
            "SerialNumber": "345394834",
            "Vendor": "Contoso",
            "ProductionDate": "2017-04-01T14:55:33+03:00",
            "Producer": "Contoso Supply Co.",
            "Version": "1.44B",
```

```
            "EngineeringChangeLevel": "9",
            "BinaryDataURI": "/dumpster/434",
            "Oem": {
                "Contoso": {
                    "Region": "C",
                    "Packaging": "Retail"
                }
            }
        },
        {
            "@odata.id": "/redfish/v1/Chassis/1/Assembly#/Assemblies/1",
            "MemberId": "1",
            "Name": "Fan Controller",
            "Description": "PCA Fan Controller",
            "Model": "F58AS",
            "PartNumber": "3434-149",
            "Vendor": "Contoso",
            "Version": "2.4.481",
            "BinaryDataURI": "/dumpster/422",
            "Status": {
                "State": "Enabled",
                "Health": "Warning"
            }
        }
    ],
    "@odata.id": "/redfish/v1/Chassis/1/Assembly"
}
```


AttributeRegistry 1.3.1

v1.3	*v1.2*	*v1.1*	*v1.0*
2018.3	2018.1	2017.1	2016.1

This resource shall be used to represent an Attribute registry for a Redfish implementation.

Language	string	read-only required	The value of this property shall be a string consisting of an RFC 5646 language code.
OwningEntity	string	read-only required	The value of this property shall be a string that represents the publisher of this registry.
RegistryEntries {	object		The value of this property shall a list of all attributes for this component, along with their possible values, dependencies, and other metadata.
Attributes [{	array		The value of this property shall be an array containing the attributes and their possible values and other metadata.
AttributeName	string	read-only required	The value of this property shall be the name of this attribute that is unique in this registry. Pattern: ^[A-Za-z][A-Za-z0-9_]+$
CurrentValue	string, boolean, number	read-only (null)	Placeholder of the current value of the attribute, to aid in evaluating dependencies. The current value of an attribute might be affected by the results of evaluating the 'Dependencies' array.
DefaultValue	string, boolean, number	read-only (null)	The value of this property shall be the default value of the attribute.
DisplayName	string	read-only (null)	The value of this property shall be the user-readable display string of the attribute in the defined 'Language'.
DisplayOrder	integer	read-only (null)	The value of this property shall be a number the describes the ascending order in which this attribute is displayed, relative to other attributes.
GrayOut	boolean	read-only (null)	The value of this property shall be a boolean describing the gray-out state of this attribute. When set to true, a grayed-out attribute should be grayed out in user interfaces. But, unlike ReadOnly, the value of grayed-out attributes might still be modified. The grayout state of an attribute might be affected by the results of evaluating the 'Dependencies' array.
HelpText	string	read-only (null)	The value of this property shall be the help text of the attribute.
Hidden	boolean	read-only (null)	The value of this property shall be a boolean describing the visibility state of this attribute. When set to true, a hidden attribute should be hidden in user interfaces. The hidden state of an attribute might be affected by the results of evaluating the 'Dependencies' array.

Immutable	boolean	read-only (null)	The value of this property shall be a boolean describing the immutable state of this attribute. Immutable attributes should not be modified and are typically used to reflect a hardware state.
IsSystemUniqueProperty	boolean	read-only (null)	The value of this property shall be a boolean describing this attribute is unique or not. A value of true indicates that the attribute is unique and should not be replicated.
LowerBound	integer	read-only (null)	The value of this property shall be a number indicating the lower limit of the value of an attribute of type 'Integer'.
MaxLength	integer	read-only (null)	The value of this property shall be a number indicating the maximum character length of the value of an attribute of type 'String'.
MenuPath	string	read-only (null)	The value of this property shall be a string indicating the menu hierarchy of this attribute, in the form of a path to the menu names. It shall start with './' to indicate the root menu, followed by the menu names with '/' characters to delineate the menu traversal. Pattern: ^.\/([^/]+(\/[^/]+)*)?$
MinLength	integer	read-only (null)	The value of this property shall be a number indicating the minimum character length of the value of an attribute of type 'String'.
Oem *(v1.3+)* { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
ReadOnly	boolean	read-only (null)	The value of this property shall be a boolean describing the read-only state of attribute. A read-only attribute cannot be modified, and should be grayed out in user interfaces. The read-only state of an attribute might be affected by the results of evaluating the 'Dependencies' array.
ResetRequired *(v1.2+)*	boolean	read-only (null)	The value of this property shall be a boolean describing the requirement for a system or device reset for this attribute value change to take effect.
ScalarIncrement	integer	read-only (null)	The value of this property shall be a number indicating the amount to increment or decrement the value of an attribute of type 'Integer' each time a user requests a value change. A ScalarIncrement value of 0 indicates a free-form numeric user input.
Type	string (enum)	read-only	The value of this property shall be an enumeration describing type of the attribute. *See Type in Property Details, below, for the possible values of this property.*
UefiDevicePath *(v1.2+)*	string	read-only (null)	This property shall contain the UEFI device path string used to qualify and locate the specific device for this Attribute, as defined by the UEFI Specification.
UefiKeywordName *(v1.2+)*	string	read-only	The value of this property shall be the configuration KeywordString of this attribute, as defined in the UEFI Specification.
UefiNamespaceId *(v1.2+)*	string	read-only	The value of this property shall be the configuration NamespaceId of this attribute, as defined in the UEFI Specification.
UpperBound	integer	read-only (null)	The value of this property shall be a number indicating the upper limit of the value of an attribute of type 'Integer'.
Value [{	array		The value of this property shall be an array containing the possible values of an attribute of type 'Enumeration'.
ValueDisplayName	string	read-only (null)	The value of this property shall be a string representing the user-readable display string of the value of the attribute in the defined 'Language'.
ValueName }]	string	read-only required	The value of this property shall be a string representing the value name of the attribute. ValueName is a unique string within the list of possible values in the 'Value' array of a given attribute.
ValueExpression	string	read-only (null)	The value of this property shall be a regular expression that is valid according to the Perl regular expression dialect. This string is used to validate the value of the attribute. This is only applicable to attributes of type 'String' or 'Integer'.
WarningText	string	read-only (null)	The value of this property shall be the warning text of the attribute.

WriteOnly }]	boolean	read-only (null)	The value of this property shall be a boolean describing the write-only state of this attribute. A write-only attribute reverts back to it's initial value after settings are applied.
Dependencies [{	array		The value of this property shall be an array containing a list of dependencies of attributes on this component.
Dependency {	object		The value of this property shall be the dependency expression for one or more Attributes in this Attribute Registry.
MapFrom [{	array		The value of this property shall be an array containing the map-from conditions for a dependency of Type 'Map'.
MapFromAttribute	string	read-only	The value of this property shall be the AttributeName of the attribute that is used in evaluating this dependency expression term. Pattern: ^[A-Za-z][A-Za-z0-9_]+$
MapFromCondition	string (enum)	read-only	The value of this property shall be the condition that is used to evaluate this dependency expression. For example, 'EQU' or 'NEQ'. *See MapFromCondition in Property Details, below, for the possible values of this property.*
MapFromProperty	string (enum)	read-only	The value of this property shall be the meta-data property of the attribute specified in MapFromAttribute that is used to evaluate this dependency expression. For example, this could be the MapFromAttribute CurrentValue, or ReadOnly state. *See MapFromProperty in Property Details, below, for the possible values of this property.*
MapFromValue	string, boolean, number	read-only (null)	The value that the property specified in MapFromProperty (in the attribute specified in MapFromAttribute) that is used to evaluate this dependency expression.
MapTerms }]	string (enum)	read-only	The value of this property shall be the logical term used to combine two or more MapFrom conditions in this dependency expression. For example, 'AND' for logical AND, or 'OR' for logical OR of the conditions. *See MapTerms in Property Details, below, for the possible values of this property.*
MapToAttribute	string	read-only	The value of this property shall be the AttributeName of the attribute that is affected by this dependency expression. Pattern: ^[A-Za-z][A-Za-z0-9_]+$
MapToProperty	string (enum)	read-only	The value of this property shall be the meta-data property of the attribute specified in MapFromAttribute that is used to evaluate this dependency expression. For example, this could be the MapFromAttribute CurrentValue, or ReadOnly state. *See MapToProperty in Property Details, below, for the possible values of this property.*
MapToValue }	string, boolean, number	read-only (null)	The value that the property specified in MapToProperty (in the attribute specified in MapToAttribute) is changed to if the dependency expression evaluates to true.
DependencyFor	string	read-only	The value of this property shall be the AttributeName of the attribute whose change triggers the evaluation of this dependency expression. Pattern: ^[A-Za-z][A-Za-z0-9_]+$
Type }]	string (enum)	read-only	The value of this property shall be an enumeration describing type of the attribute dependency. *See Type in Property Details, below, for the possible values of this property.*
Menus [{	array		The value of this property shall be an array containing the attributes menus and their hierarchy.
DisplayName	string	read-only (null)	The value of this property shall be the user-readable display string of the menu in the defined 'Language'.
DisplayOrder	integer	read-only (null)	The value of this property shall be a number the describes the ascending order in which this menu is displayed, relative to other menus.
GrayOut	boolean	read-only	The value of this property shall be a boolean describing the gray-out state of

		(null)	this menu. When set to true, a grayed-only menu is not accessible in user interfaces.
Hidden *(v1.3+)*	boolean	read-only (null)	The value of this property shall be a boolean describing the visibility state of this menu. When set to true, a hidden menu should be hidden in user interfaces. The hidden state of a menu might be affected by the results of evaluating the 'Dependencies' array.
MenuName	string	read-only	The value of this property shall be the name of this menu that is unique in this registry. Pattern: ^[^/]+$
MenuPath	string	read-only (null)	The value of this property shall be a string indicating the menu hierarchy of this menu, in the form of a path to the menu names. It shall start with './' to indicate the root menu, followed by the menu names with '/' characters to delineate the menu traversal. Pattern: ^.\/([^/]+(\/[^/]+)*)?$
Oem *(v1.3+)* { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
ReadOnly }] }	boolean	read-only (null)	The value of this property shall be a boolean describing the read-only state of this menu. A read-only menu is not accessible in user interfaces, and all properties contained in that menu and its sub-menus become read-only.
RegistryVersion	string	read-only required	The value of this property shall be the version of this attribute registry. The format of this string shall be of the format majorversion.minorversion.errata in compliance with Protocol Version section of the Redfish specification.
SupportedSystems [{	array		The value of this property shall be an array containing a list of systems supported by this attribute registry.
FirmwareVersion *(v1.1+)*	string	read-only (null)	The version of the component firmware image that this registry applies to.
ProductName	string	read-only (null)	The value of this property shall be the product name of the computer system that this registry applies to.
SystemId }]	string	read-only (null)	The value of this property shall be the system ID that identifies the computer system model that this registry applies to. Pattern: ^[A-Za-z0-9]+$

Property Details

MapFromCondition:

The value of this property shall be the condition that is used to evaluate this dependency expression. For example, 'EQU' or 'NEQ'.

string	Description
EQU	The logical operation for 'Equal'.
GEQ	The logical operation for 'Greater than or Equal'.
GTR	The logical operation for 'Greater than'.
LEQ	The logical operation for 'Less than or Equal'.
LSS	The logical operation for 'Less than'.
NEQ	The logical operation for 'Not Equal'.

MapFromProperty:

The value of this property shall be the meta-data property of the attribute specified in MapFromAttribute that is used to evaluate this dependency expression. For example, this could be the MapFromAttribute CurrentValue, or ReadOnly state.

string	Description
CurrentValue	The dependency on an attribute's CurrentValue.
DefaultValue	The dependency on an attribute's DefaultValue.
GrayOut	The dependency on an attribute's GrayOut state.

Hidden	The dependency on an attribute's Hidden state.
LowerBound	The dependency on an attribute's LowerBound.
MaxLength	The dependency on an attribute's MaxLength.
MinLength	The dependency on an attribute's MinLength.
ReadOnly	The dependency on an attribute's ReadOnly state.
ScalarIncrement	The dependency on an attribute's ScalarIncrement.
UpperBound	The dependency on an attribute's UpperBound.
WriteOnly	The dependency on an attribute's WriteOnly state.

MapTerms:

The value of this property shall be the logical term used to combine two or more MapFrom conditions in this dependency expression. For example, 'AND' for logical AND, or 'OR' for logical OR of the conditions.

string	Description
AND	The operation used for logical 'AND' of dependency terms.
OR	The operation used for logical 'OR' of dependency terms.

MapToProperty:

The value of this property shall be the meta-data property of the attribute specified in MapFromAttribute that is used to evaluate this dependency expression. For example, this could be the MapFromAttribute CurrentValue, or ReadOnly state.

string	Description
CurrentValue	The dependency that affects an attribute's CurrentValue.
DefaultValue	The dependency that affects an attribute's DefaultValue.
DisplayName	The dependency that affects an attribute's DisplayName.
DisplayOrder	The dependency that affects an attribute's DisplayName.
GrayOut	The dependency that affects an attribute's GrayOut state.
HelpText	The dependency that affects an attribute's HelpText.
Hidden	The dependency that affects an attribute's Hidden state.
Immutable	The dependency that affects an attribute's Immutable state.
LowerBound	The dependency that affects an attribute's LowerBound.
MaxLength	The dependency that affects an attribute's MaxLength.
MinLength	The dependency that affects an attribute's MinLength.
ReadOnly	The dependency that affects an attribute's ReadOnly state.
ScalarIncrement	The dependency that affects an attribute's ScalarIncrement.
UpperBound	The dependency that affects an attribute's UpperBound.
ValueExpression	The dependency that affects an attribute's ValueExpression.
WarningText	The dependency that affects an attribute's WarningText.
WriteOnly	The dependency that affects an attribute's WriteOnly state.

Type:

The value of this property shall be an enumeration describing type of the attribute dependency.

string	Description
Map	A simple mapping dependency. The attribute value or state is changed to the mapped value if the condition evaluates

	to true.

Example Response


```
{
    "@odata.type": "#AttributeRegistry.v1_1_0.AttributeRegistry",
    "Description": "This registry defines a representation of BIOS Attribute instances",
    "Id": "BiosAttributeRegistryG9000.v1_0_0",
    "Language": "en",
    "Name": "G9000 BIOS Attribute Registry",
    "OwningEntity": "Contoso",
    "RegistryVersion": "1.0.0",
    "SupportedSystems": [
        {
            "ProductName": "Contoso Server GLH9000",
            "SystemId": "G9000",
            "FirmwareVersion": "v1.00 (06/02/2014)"
        }
    ],
    "RegistryEntries": {
        "Attributes": [
            {
                "CurrentValue": null,
                "DisplayName": "Embedded NIC 1 Boot",
                "DisplayOrder": 5,
                "HelpText": "Select this option to enable network boot (PXE, iSCSI, or FCoE) for the selected NIC. You
may need to configure the NIC firmware for the boot option to be active.",
                "MenuPath": "./SystemOptions/NetworkBootOptions",
                "AttributeName": "NicBoot1",
                "ReadOnly": false,
                "Hidden": false,
                "Type": "Enumeration",
                "Value": [
                    {
                        "ValueDisplayName": "Network Boot",
                        "ValueName": "NetworkBoot"
                    },
                    {
                        "ValueDisplayName": "Disabled",
                        "ValueName": "Disabled"
                    }
                ],
                "WarningText": "Important: When enabling network boot support for an embedded NIC, the NIC boot option
does not appear in the UEFI Boot Order or Legacy IPL lists until the next system reboot."
            },
            {
                "CurrentValue": null,
                "DisplayName": "Embedded SATA Configuration",
                "DisplayOrder": 74,
                "HelpText": "Important: Select this option to configure the embedded chipset SATA controller.",
                "MenuPath": "./SystemOptions/SataOptions",
                "AttributeName": "EmbeddedSata",
                "ReadOnly": false,
                "Hidden": false,
                "Type": "Enumeration",
                "Value": [
                    {
                        "ValueDisplayName": "Enable SATA AHCI Support",
                        "ValueName": "Ahci"
                    },
                    {
                        "ValueDisplayName": "Enable Software RAID Support",
                        "ValueName": "Raid"
                    }
                ],
                "WarningText": "Important: Software RAID is not supported when the Boot Mode is configured in Legacy BIOS
Mode."
            }
        ],
        "Dependencies": [
            {
                "Dependency": {
                    "MapFrom": [
                        {
                            "MapFromAttribute": "BootMode",
                            "MapFromCondition": "EQU",
                            "MapFromProperty": "CurrentValue",
                            "MapFromValue": "LegacyBios"
                        }
                    ],
                    "MapToAttribute": "EmbeddedSata",
                    "MapToProperty": "ReadOnly",
                    "MapToValue": true
                },
                "DependencyFor": "EmbeddedSata",
                "Type": "Map"
            }
        ],
        "Menus": [
            {
                "DisplayName": "BIOS Configuration",
                "DisplayOrder": 1,
                "MenuPath": "./",
                "MenuName": "BiosMainMenu",
                "Hidden": false,
                "ReadOnly": false
            },
            {
                "DisplayName": "System Options",
                "DisplayOrder": 2,
                "MenuPath": "./SystemOptions",
                "MenuName": "SystemOptions",
                "Hidden": false,
                "ReadOnly": false
            }
        ]
    }
}
```

Bios 1.0.6

v1.0
2016.1

This resource shall be used to represent BIOS attributes for a Redfish implementation.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Bios

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Bios

/redfish/v1/Systems/*{ComputerSystemId}*/Bios

AttributeRegistry	string	read-only (null)	The reference to the Attribute Registry that lists the metadata describing the BIOS attribute settings in this resource.
Attributes {	object		BIOS Attribute settings appear as additional properties in this object, and can be looked up in the Attribute Registry by their AttributeName.
(pattern) { } [ ]	array, boolean, integer, number, object, string	(null)	Property names follow regular expression pattern "^([a-zA-Z_][a-zA-Z0-9_]*)?@(odata|Redfish|Message)\.[a-zA-Z_][a-zA-Z0-9_]*$"
(pattern) }	string, boolean, number	read-write (null)	Property names follow regular expression pattern "^[A-Za-z][A-Za-z0-9_]+$"

Actions

ChangePassword

This action shall perform a change of the selected BIOS password.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Bios/Actions/Bios.ChangePassword

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Bios/Actions/Bios.ChangePassword

/redfish/v1/Systems/*{ComputerSystemId}*/Bios/Actions/Bios.ChangePassword

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
NewPassword	string	read-write required	This parameter shall define the value of the new BIOS password.
OldPassword	string	read-write required	This parameter shall define the value of the existing BIOS password that is about to be changed.
PasswordName }	string	read-write required	This parameter shall define the BIOS password name to change. For instance, this could be the AdminPassword or UserPassword.

ResetBios

This action shall perform a reset of the BIOS attributes to their default values. A system reset may be required for the default values to be applied. This action may impact other resources.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Bios/Actions/Bios.ResetBios

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Bios/Actions/Bios.ResetBios

/redfish/v1/Systems/*{ComputerSystemId}*/Bios/Actions/Bios.ResetBios

(This action takes no parameters.)

Example Response


```
{
    "@odata.type": "#Bios.v1_0_4.Bios",
    "Id": "BIOS",
    "Name": "BIOS Configuration Current Settings",
    "AttributeRegistry": "BiosAttributeRegistryP89.v1_0_0",
```

```
    "Attributes": {
        "AdminPhone": "",
        "BootMode": "Uefi",
        "EmbeddedSata": "Raid",
        "NicBoot1": "NetworkBoot",
        "NicBoot2": "Disabled",
        "PowerProfile": "MaxPerf",
        "ProcCoreDisable": 0,
        "ProcHyperthreading": "Enabled",
        "ProcTurboMode": "Enabled",
        "UsbControl": "UsbEnabled"
    },
    "@Redfish.Settings": {
        "@odata.type": "#Settings.v1_0_0.Settings",
        "ETag": "9234ac83b9700123cc32",
        "Messages": [
            {
                "MessageId": "Base.1.0.SettingsFailed",
                "RelatedProperties": [
                    "#/Attributes/ProcTurboMode"
                ]
            }
        ],
        "SettingsObject": {
            "@odata.id": "/redfish/v1/Systems/437XR1138R2/BIOS/Settings"
        },
        "Time": "2016-03-07T14:44.30-05:00"
    },
    "Actions": {
        "#Bios.ResetBios": {
            "target": "/redfish/v1/Systems/437XR1138R2/BIOS/Actions/Bios.ResetBios"
        },
        "#Bios.ChangePassword": {
            "target": "/redfish/v1/Systems/437XR1138R2/BIOS/Actions/Bios.ChangePassword"
        }
    },
    "@odata.context": "/redfish/v1/$metadata#Bios.Bios",
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/BIOS"
}
```


BootOption 1.0.2

v1.0
2017.3

This resource shall be used to represent a single boot option contained within a system.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/BootOptions/*{BootOptionId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/BootOptions/*{BootOptionId}*

/redfish/v1/Systems/*{ComputerSystemId}*/BootOptions/*{BootOptionId}*

Alias	string (enum)	read-only (null)	The value of this property shall contain the string alias of this Boot Source that describes the type of boot that will be performed. *See Alias in Property Details, below, for the possible values of this property.*
BootOptionEnabled	boolean	read-write (null)	The value of this property shall indicate if the Boot Option is enabled. If this property is set to false, the Boot Option referenced in the Boot Order array found on the Computer System shall be skipped. In the UEFI context, this property shall influence the Load Option Active flag for the Boot Option.
BootOptionReference	string	read-only required (null)	The value of this property shall contain a string that corresponds to the bootable option or device. For UEFI systems, this string shall match the UEFI Boot Option variable name (e.g. Boot####). This value is referenced by the ComputerSystem BootOrder array.
DisplayName	string	read-only (null)	The value of this property shall be a user readable string that describes this Boot Option as it should show up in the Boot Order list in user interfaces.
RelatedItem [{	array		The value of this property shall be an array of IDs containing pointers consistent with JSON pointer syntax to the resource that is being used for this Boot Option.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
UefiDevicePath	string	read-only (null)	This property shall contain the UEFI device path used to identify and locate the specific device for this UEFI Boot Option, as defined by the UEFI Specification.

Property Details

Alias:

The value of this property shall contain the string alias of this Boot Source that describes the type of boot that will be performed.

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

Example Response


```
{
    "@odata.context": "/redfish/v1/$metadata#BootOption.BootOption",
    "@odata.id": "/redfish/v1/Systems/1/BootOptions/1",
    "@odata.type": "#BootOption.v1_0_0.BootOption",
    "Id": "1",
    "Name": "Boot Option",
    "Description": "UEFI Boot Option",
    "BootOptionReference": "Boot0000",
    "DisplayName": "Windows Boot Manager",
    "UefiDevicePath": "PciRoot(0x0)/Pci(0x1,0x0)/Pci(0x0,0x0)/Scsi(0x0,0x0)/HD(2,GPT,B02BF459-8975-4222-A1C4-
17915C29E5E5,0x96800,0x31800)/\\EFI\\Microsoft\\Boot\\bootmgfw.efi",
    "Alias": "Hdd",
    "RelatedItem": [
        {
            "@odata.id": "/redfish/v1/Systems/1/SimpleStorage/1"
        }
    ],
    "Oem": {}
}
```


Certificate 1.1.0

v1.1	*v1.0*
2019.1	2018.3

This resource shall be used to represent a Certificate for a Redfish implementation.

URIs:

/redfish/v1/AccountService/Accounts/*{ManagerAccountId}*/Certificates/*{CertificateId}*

/redfish/v1/AccountService/ActiveDirectory/Certificates/*{CertificateId}*

/redfish/v1/AccountService/ExternalAccountProviders/*{ExternalAccountProviderId}*/Certificates/*{CertificateId}*

/redfish/v1/AccountService/LDAP/Certificates/*{CertificateId}*

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Boot/Certificates/*{CertificateId}*

/redfish/v1/Managers/*{ManagerId}*/NetworkProtocol/HTTPS/Certificates/*{CertificateId}*

/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/Accounts/*{ManagerAccountId}*/Certificates/*{CertificateId}*

/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/ActiveDirectory/Certificates/*{CertificateId}*

/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/ExternalAccountProviders/*{ExternalAccountProviderId}*/Certificates/*{Certifica*

teId}

/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/LDAP/Certificates/*{CertificateId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Boot/Certificates/*{CertificateId}*

/redfish/v1/Systems/*{ComputerSystemId}*/Boot/Certificates/*{CertificateId}*

CertificateString	string	read-only required on create (null)	The value of this property shall be the string of the certificate, and the format shall follow the requirements specified by the value of the CertificateType property. If the certificate contains any private keys, they shall be removed from the string on GET requests. If the private key for the certificate is not known by the service and is needed to use the certificate, the client shall provide the private key as part of the string in the POST request.
CertificateType	string (enum)	read-only required on create (null)	This property shall contain the format type for the certificate. *See CertificateType in Property Details, below, for the possible values of this property.*
Issuer {	object		The value of this property shall be an object containing information about the issuer of the certificate.
City	string	read-only	This property shall contain the city or locality of the organization of the entity.
CommonName	string	read-only	This property shall contain the fully qualified domain name of the entity.
Country	string	read-only	This property shall contain the two letter ISO code for the country of the organization of the entity.
Email	string	read-only (null)	This property shall contain the email address of the contact within the organization of the entity.
Organization	string	read-only	This property shall contain the name of the organization of the entity.
OrganizationalUnit	string	read-only	This property shall contain the name of the unit or division of the organization of the entity.
State }	string	read-only	This property shall contain the state, province, or region of the organization of the entity.
KeyUsage [ ]	array (string (enum))	read-only (null)	This property shall contain the usage of the key contained in the certificate. This type shall contain the usages of a key contained within a certificate as specified by the Key Usage and Extended Key Usage definitions in RFC5280. *See KeyUsage in Property Details, below, for the possible values of this property.*
Subject {	object		The value of this property shall be an object containing information about the subject of the certificate.
City	string	read-only	This property shall contain the city or locality of the organization of the entity.
CommonName	string	read-only	This property shall contain the fully qualified domain name of the entity.
Country	string	read-only	This property shall contain the two letter ISO code for the country of the organization of the entity.
Email	string	read-only (null)	This property shall contain the email address of the contact within the organization of the entity.
Organization	string	read-only	This property shall contain the name of the organization of the entity.
OrganizationalUnit	string	read-only	This property shall contain the name of the unit or division of the organization of the entity.
State }	string	read-only	This property shall contain the state, province, or region of the organization of the entity.
ValidNotAfter	string	read-only	The value of this property shall indicate the date on which the certificate validity period ends.
ValidNotBefore	string	read-only	The value of this property shall indicate the date on which the certificate validity period begins.

Actions

Rekey

This action shall generate a new key pair for an existing certificate using the existing certificate data. The response shall contain a signing request that is used to be signed by a certificate authority (CA). The service should retain the private key used for the generation of this request for when the certificate is installed. The private key should not be part of the response.

URIs:

/redfish/v1/AccountService/Accounts/*{ManagerAccountId}*/Certificates/*{CertificateId}*/Actions/Certificate.Rekey

/redfish/v1/AccountService/ActiveDirectory/Certificates/*{CertificateId}*/Actions/Certificate.Rekey

/redfish/v1/AccountService/ExternalAccountProviders/*{ExternalAccountProviderId}*/Certificates/*{CertificateId}*/Actions/Certificate.Rekey

/redfish/v1/AccountService/LDAP/Certificates/*{CertificateId}*/Actions/Certificate.Rekey

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Boot/Certificates/*{CertificateId}*/Actions/Certificate.Rekey

/redfish/v1/Managers/*{ManagerId}*/NetworkProtocol/HTTPS/Certificates/*{CertificateId}*/Actions/Certificate.Rekey

/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/Accounts/*{ManagerAccountId}*/Certificates/*{CertificateId}*/Actions/Certificate.Rekey

/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/ActiveDirectory/Certificates/*{CertificateId}*/Actions/Certificate.Rekey

/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/ExternalAccountProviders/*{ExternalAccountProviderId}*/Certificates/*{CertificateId}*/Actions/Certificate.Rekey

/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/LDAP/Certificates/*{CertificateId}*/Actions/Certificate.Rekey

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Boot/Certificates/*{CertificateId}*/Actions/Certificate.Rekey

/redfish/v1/Systems/*{ComputerSystemId}*/Boot/Certificates/*{CertificateId}*/Actions/Certificate.Rekey

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
ChallengePassword	string	read-write	The value of this property shall contain the challenge password to be applied to the certificate for revocation requests as defined by the challengePassword attribute in RFC2985.
KeyBitLength	integer	read-write	The value of this property shall be the length of the key in bits, if needed based on the value of the 'KeyPairAlgorithm' parameter.
KeyCurveId	string	read-write	The value of this property shall be the curve ID to be used with the key, if needed based on the value of the 'KeyPairAlgorithm' parameter. The allowable values for this parameter shall be the strings in the 'Name' field of the 'TPM_ECC_CURVE Constants' table within the 'Trusted Computing Group Algorithm Registry'.
KeyPairAlgorithm	string	read-write	The value of this property shall be the type of key pair for use with signing algorithms. The allowable values for this parameter shall be the strings in the 'Algorithm Name' field of the 'TPM_ALG_ID Constants' table within the 'Trusted Computing Group Algorithm Registry'.
}			

Renew

This action shall generate a certificate signing request using the existing information and key pair of the certificate. The response shall contain a signing request that is used to be signed by a certificate authority (CA). The service should retain the private key used for the generation of this request for when the certificate is installed. The private key should not be part of the response.

URIs:

/redfish/v1/AccountService/Accounts/*{ManagerAccountId}*/Certificates/*{CertificateId}*/Actions/Certificate.Renew

/redfish/v1/AccountService/ActiveDirectory/Certificates/*{CertificateId}*/Actions/Certificate.Renew

/redfish/v1/AccountService/ExternalAccountProviders/*{ExternalAccountProviderId}*/Certificates/*{CertificateId}*/Actions/Certificate.Renew

/redfish/v1/AccountService/LDAP/Certificates/*{CertificateId}*/Actions/Certificate.Renew

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Boot/Certificates/*{CertificateId}*/Actions/Certificate.Renew

/redfish/v1/Managers/*{ManagerId}*/NetworkProtocol/HTTPS/Certificates/*{CertificateId}*/Actions/Certificate.Renew

/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/Accounts/*{ManagerAccountId}*/Certificates/*{CertificateId}*/Actions/Certificate.Renew

/redfish/v1/Managers/{ManagerId}/RemoteAccountService/ActiveDirectory/Certificates/{CertificateId}/Actions/Certificate.Renew

/redfish/v1/Managers/{ManagerId}/RemoteAccountService/ExternalAccountProviders/{ExternalAccountProviderId}/Certificates/{CertificateId}/Actions/Certificate.Renew

/redfish/v1/Managers/{ManagerId}/RemoteAccountService/LDAP/Certificates/{CertificateId}/Actions/Certificate.Renew

/redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Boot/Certificates/{CertificateId}/Actions/Certificate.Renew

/redfish/v1/Systems/{ComputerSystemId}/Boot/Certificates/{CertificateId}/Actions/Certificate.Renew

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
ChallengePassword }	string	read-write	The value of this property shall contain the challenge password to be applied to the certificate for revocation requests as defined by the challengePassword attribute in RFC2985.

Property Details

CertificateType:

This property shall contain the format type for the certificate.

string	Description
PEM	The format of the certificate shall be a Privacy Enhanced Mail (PEM) encoded string, containing structures specified by RFC5280.
PKCS7	The format of the certificate shall be a Privacy Enhanced Mail (PEM) encoded string, containing structures specified by RFC5280 and RFC2315. The service may discard additional certificates or other data in the structure.

KeyUsage:

This property shall contain the usage of the key contained in the certificate. This type shall contain the usages of a key contained within a certificate as specified by the Key Usage and Extended Key Usage definitions in RFC5280.

string	Description
ClientAuthentication	The public key is used for TLS WWW client authentication.
CodeSigning	The public key is used for the signing of executable code.
CRLSigning	The public key is used for verifying signatures on certificate revocation lists (CLRs).
DataEncipherment	The public key is used for directly enciphering raw user data without the use of an intermediate symmetric cipher.
DecipherOnly	The public key could be used for deciphering data while performing key agreement.
DigitalSignature	The public key is used for verifying digital signatures, other than signatures on certificates and CRLs.
EmailProtection	The public key is used for email protection.
EncipherOnly	The public key could be used for enciphering data while performing key agreement.
KeyAgreement	The public key is used for key agreement.
KeyCertSign	The public key is used for verifying signatures on public key certificates.
KeyEncipherment	The public key is used for enciphering private or secret keys.
NonRepudiation	The public key is used to verify digital signatures, other than signatures on certificates and CRLs, and used to provide a non-repudiation service that protects against the signing entity falsely denying some action.
OCSPSigning	The public key is used for signing OCSP responses.
ServerAuthentication	The public key is used for TLS WWW server authentication.
Timestamping	The public key is used for binding the hash of an object to a time.

Example Response


```
{
    "@odata.type": "#Certificate.v1_0_0.Certificate",
    "Id": "1",
    "Name": "HTTPS Certificate",
    "CertificateString": "-----BEGIN CERTIFICATE-----\nMIIFsTCC [**truncated example**] GXG5zljlu\n-----END CERTIFICATE--
---",
    "CertificateType": "PEM",
    "Issuer": {
        "Country": "US",
        "State": "Oregon",
        "City": "Portland",
        "Organization": "Contoso",
        "OrganizationalUnit": "ABC",
        "CommonName": "manager.contoso.org"
    },
    "Subject": {
        "Country": "US",
        "State": "Oregon",
        "City": "Portland",
        "Organization": "Contoso",
        "OrganizationalUnit": "ABC",
        "CommonName": "manager.contoso.org"
    },
    "ValidNotBefore": "2018-09-07T13:22:05Z",
    "ValidNotAfter": "2019-09-07T13:22:05Z",
    "KeyUsage": [
        "KeyEncipherment",
        "ServerAuthentication"
    ],
    "Oem": {},
    "@odata.id": "/redfish/v1/Managers/BMC/NetworkProtocol/HTTPS/Certificates/1"
}
```


CertificateLocations 1.0.1

v1.0
2018.3

This resource shall be used to represent the Certificate Location Properties for a Redfish implementation.

URIs:

/redfish/v1/CertificateService/CertificateLocations

Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Certificates [{	array		This property shall contain an array of references to Certificate resources that are installed on this service.
@odata.id	string	read-only	*Link to a Certificate resource. See the Links section and the Certificate schema for details.*
}]			
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
}			

Example Response


```
{
    "@odata.type": "#CertificateLocations.v1_0_0.CertificateLocations",
    "Id": "CertificateLocations",
    "Name": "Certificate Locations",
    "Links": {
        "Certificates": [
            {
                "@odata.id": "/redfish/v1/Managers/BMC/NetworkProtocol/HTTPS/Certificates/1"
            }
        ]
    },
    "Oem": {},
    "@odata.id": "/redfish/v1/CertificateService/CertificateLocations"
}
```


CertificateService 1.0.1

v1.0
2018.3

This resource shall be used to represent the Certificate Service Properties for a Redfish implementation.

URIs:

/redfish/v1/CertificateService

CertificateLocations {	object		This property shall contain the link to a resource of type CertificateLocations. *See the CertificateLocations schema for details on this property.*
@odata.id }	string	read-only	*Link to a CertificateLocations resource. See the Links section and the CertificateLocations schema for details.*

Actions

GenerateCSR

This action shall perform a certificate signing request. The response shall contain a signing request that is used to be signed by a certificate authority (CA). The service should retain the private key used for the generation of this request for when the certificate is installed. The private key should not be part of the response.

URIs:

/redfish/v1/CertificateService/Actions/CertificateService.GenerateCSR

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
AlternativeNames [ ]	array (string)	read-write	This parameter shall contain an array of additional hostnames of the component that is being secured as defined by the Subject Alternative Name extension in RFC5280.
CertificateCollection {	object		This parameter shall contain the URI of the Certificate Collection where the certificate will be installed once the CA has signed the certificate. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Certificate. See the Certificate schema for details.*
ChallengePassword	string	read-write	The value of this property shall contain the challenge password to be applied to the certificate for revocation requests as defined by the challengePassword attribute in RFC2985.
City	string	read-write required	This parameter shall contain the city or locality of the organization making the request as defined by the localityName attribute in RFC5280.
CommonName	string	read-write required	This parameter shall contain the fully qualified domain name of the component that is being secured as defined by the commonName attribute in RFC5280.
ContactPerson	string	read-write	The value of this property shall contain the name of the user making the request as defined by the name attribute in RFC5280.
Country	string	read-write required	This parameter shall contain the two letter ISO code for the country of the organization making the request as defined by the countryName attribute in RFC5280.
Email	string	read-write	This parameter shall contain the email address of the contact within the organization making the request as defined by the emailAddress attribute in RFC2985.
GivenName	string	read-write	The value of this property shall contain the given name of the user making the request as defined by the givenName attribute in RFC5280.
Initials	string	read-write	The value of this property shall contain the initials of the user making the request as defined by the initials attribute in RFC5280.
KeyBitLength	integer	read-write	The value of this property shall be the length of the key in bits, if needed based on the value of the 'KeyPairAlgorithm' parameter.
KeyCurveId	string	read-write	The value of this property shall be the curve ID to be used with the key, if needed based on the value of the 'KeyPairAlgorithm' parameter. The allowable values for this parameter shall be the strings in the 'Name' field of the 'TPM_ECC_CURVE Constants' table within the 'Trusted Computing Group Algorithm Registry'.

KeyPairAlgorithm	string	read-write	The value of this property shall be the type of key pair for use with signing algorithms. The allowable values for this parameter shall be the strings in the 'Algorithm Name' field of the 'TPM_ALG_ID Constants' table within the 'Trusted Computing Group Algorithm Registry'.
KeyUsage [ ]	array (string (enum))	read-write	This parameter shall contain the usage of the key contained in the certificate. If not provided by the client, the service may determine the appropriate key usage settings in the certificate signing request. This type shall contain the usages of a key contained within a certificate as specified by the Key Usage and Extended Key Usage definitions in RFC5280. *See KeyUsage in Property Details, below, for the possible values of this property.*
Organization	string	read-write required	This parameter shall contain the name of the organization making the request as defined by the organizationName attribute in RFC5280.
OrganizationalUnit	string	read-write required	This parameter shall contain the name of the unit or division of the organization making the request as defined by the organizationalUnitName attribute in RFC5280.
State	string	read-write required	This parameter shall contain the state, province, or region of the organization making the request as defined by the stateOrProvinceName attribute in RFC5280.
Surname	string	read-write	The value of this property shall contain the surname of the user making the request as defined by the surname attribute in RFC5280.
UnstructuredName }	string	read-write	The value of this property shall contain the unstructured name of the subject as defined by the unstructuredName attribute in RFC2985.

ReplaceCertificate

This action shall replace an existing certificate. The Location header in the response shall contain the URI of the new Certificate resource.

URIs:

/redfish/v1/CertificateService/Actions/CertificateService.ReplaceCertificate

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
CertificateString	string	read-write required	The value of this property shall be the string of the certificate, and the format shall follow the requirements specified by the value of the CertificateType property. If the certificate contains any private keys, they shall be removed from the string on GET requests. If the private key for the certificate is not known by the service and is needed to use the certificate, the client shall provide the private key as part of the string in the POST request.
CertificateType	string (enum)	read-write	The value of this parameter shall contain the format type for the certificate. *See CertificateType in Property Details, below, for the possible values of this property.*
CertificateUri {	object		This parameter shall contain the URI of the Certificate that is being replaced. *See the Certificate schema for details on this property.*
@odata.id } }	string	read-only	*Link to a Certificate resource. See the Links section and the Certificate schema for details.*

Property Details

CertificateType:

The value of this parameter shall contain the format type for the certificate.

string	Description
PEM	The format of the certificate shall be a Privacy Enhanced Mail (PEM) encoded string, containing structures specified by RFC5280.

PKCS7	The format of the certificate shall be a Privacy Enhanced Mail (PEM) encoded string, containing structures specified by RFC5280 and RFC2315. The service may discard additional certificates or other data in the structure.

KeyUsage:

This parameter shall contain the usage of the key contained in the certificate. If not provided by the client, the service may determine the appropriate key usage settings in the certificate signing request. This type shall contain the usages of a key contained within a certificate as specified by the Key Usage and Extended Key Usage definitions in RFC5280.

string	Description
ClientAuthentication	The public key is used for TLS WWW client authentication.
CodeSigning	The public key is used for the signing of executable code.
CRLSigning	The public key is used for verifying signatures on certificate revocation lists (CLRs).
DataEncipherment	The public key is used for directly enciphering raw user data without the use of an intermediate symmetric cipher.
DecipherOnly	The public key could be used for deciphering data while performing key agreement.
DigitalSignature	The public key is used for verifying digital signatures, other than signatures on certificates and CRLs.
EmailProtection	The public key is used for email protection.
EncipherOnly	The public key could be used for enciphering data while performing key agreement.
KeyAgreement	The public key is used for key agreement.
KeyCertSign	The public key is used for verifying signatures on public key certificates.
KeyEncipherment	The public key is used for enciphering private or secret keys.
NonRepudiation	The public key is used to verify digital signatures, other than signatures on certificates and CRLs, and used to provide a non-repudiation service that protects against the signing entity falsely denying some action.
OCSPSigning	The public key is used for signing OCSP responses.
ServerAuthentication	The public key is used for TLS WWW server authentication.
Timestamping	The public key is used for binding the hash of an object to a time.

Example Response


```
{
    "@odata.type": "#CertificateService.v1_0_0.CertificateService",
    "Id": "CertificateService",
    "Name": "Certificate Service",
    "Actions": {
        "#CertificateService.GenerateCSR": {
            "target": "/redfish/v1/CertificateService/Actions/CertificateService.GenerateCSR",
            "@Redfish.ActionInfo": "/redfish/v1/CertificateService/GenerateCSRActionInfo"
        },
        "#CertificateService.ReplaceCertificate": {
            "target": "/redfish/v1/CertificateService/Actions/CertificateService.ReplaceCertificate",
            "@Redfish.ActionInfo": "/redfish/v1/CertificateService/ReplaceCertificateActionInfo"
        }
    },
    "CertificateLocations": {
        "@odata.id": "/redfish/v1/CertificateService/CertificateLocations"
    },
    "Oem": {},
    "@odata.id": "/redfish/v1/CertificateService"
}
```


Chassis 1.9.1

v1.9	*v1.8*	*v1.7*	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
2018.3	2018.2	2018.1	2017.3	2017.1	2016.3	2016.2	2016.1	1.1	1.0

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

URIs:

/redfish/v1/Chassis/*{ChassisId}*

Assembly *(v1.6+)* {	object		The value of this property shall be a link to a resource of type Assembly. *See the Assembly schema for details on this property.*
@odata.id }	string	read-only	*Link to a Assembly resource. See the Links section and the Assembly schema for details.*
AssetTag	string	read-write (null)	The value of this property shall be an identifying string used to track the chassis for inventory purposes.
ChassisType	string (enum)	read-only required	ChassisType shall indicate the physical form factor for the type of chassis. *See ChassisType in Property Details, below, for the possible values of this property.*
DepthMm *(v1.4+)*	number (mm)	read-only (null)	The value of this property shall represent the depth (length) of the chassis (in millimeters) as specified by the manufacturer.
EnvironmentalClass *(v1.9+)*	string (enum)	read-only (null)	The value of this property shall be the ASHRAE Environmental Specification Class for this Chassis, as defined by ASHRAE Thermal Guidelines for Data Processing Environments. These classes define respective environmental limits which include temperature, relative humidity, dew point, and maximum allowable elevation. *See EnvironmentalClass in Property Details, below, for the possible values of this property.*
HeightMm *(v1.4+)*	number (mm)	read-only (null)	The value of this property shall represent the height of the chassis (in millimeters) as specified by the manufacturer.
IndicatorLED	string (enum)	read-write (null)	This value of this property shall contain the indicator light state for the indicator light associated with this system. *See IndicatorLED in Property Details, below, for the possible values of this property.*
Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
ComputerSystems [{	array		The value of this property shall be a reference to the resource that this physical container is associated with and shall reference a resource of type ComputerSystem. If a ComputerSystem is also referenced in a Chassis that is referenced in a Contains link from this resource, that ComputerSystem shall not be referenced in this Chassis.
@odata.id }]	string	read-only	*Link to a ComputerSystem resource. See the Links section and the ComputerSystem schema for details.*
ContainedBy {	object		The value of this property shall be a reference to the resource that represents the chassis that contains this chassis and shall be of type Chassis.
@odata.id }	string	read-only	*Link to another Chassis resource.*
Contains [{	array		The value of this property shall be a reference to the resource that represents the chassis that this chassis contains and shall be of type Chassis.
@odata.id }]	string	read-only	*Link to another Chassis resource.*
CooledBy [{	array		The value of this property shall be an array of IDs containing pointers consistent with JSON pointer syntax to the resource that cools this chassis.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Drives *(v1.2+)* [{	array		The value of this property shall reference one or more resources of type Drive that are in this Chassis.
@odata.id }]	string	read-only	*Link to a Drive resource. See the Links section and the Drive schema for details.*
ManagedBy [{	array		The value of this property shall be a reference to the resource that manages

			this chassis and shall reference a resource of type Manager.
@odata.id }]	string	read-only	*Link to a Manager resource. See the Links section and the Manager schema for details.*
ManagersInChassis *(v1.2+)* [{	array		The value of this property shall reference one or more resources of type Manager that are in this Chassis.
@odata.id }]	string	read-only	*Link to a Manager resource. See the Links section and the Manager schema for details.*
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
PCIeDevices *(v1.4+)* [{	array		The value of this property shall reference one or more resources of type PCIeDevices.
@odata.id }]	string	read-only	*Link to a PCIeDevice resource. See the Links section and the PCIeDevice schema for details.*
PoweredBy [{	array		The value of this property shall be an array of IDs containing pointers consistent with JSON pointer syntax to the resource that powers this chassis.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Processors *(v1.9+)* [{	array		The value of this property shall be an array of references of type Processor that are contained in this Chassis.
@odata.id }]	string	read-only	*Link to a Processor resource. See the Links section and the Processor schema for details.*
ResourceBlocks *(v1.5+)* [{	array		The value of this property shall be an array of references of type ResourceBlock that are contained in this Chassis.
@odata.id }]	string	read-only	*Link to a ResourceBlock resource. See the Links section and the ResourceBlock schema for details.*
Storage *(v1.2+)* [{	array		The value of this property shall reference one or more resources of type Storage that are connected to or contained inside this Chassis.
@odata.id }]	string	read-only	*Link to a Storage resource. See the Links section and the Storage schema for details.*
Switches *(v1.7+)* [{	array		The value of this property shall be an array of references of type Switch that are contained in this Chassis.
@odata.id }] }	string	read-only	*Link to a Switch resource. See the Links section and the Switch schema for details.*
Location *(v1.2+)* { }	object		This property shall contain location information of the associated chassis. *See the Location object for details on this property.*
LogServices {	object		The value of this property shall be a link to a collection of type LogServiceCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of LogService. See the LogService schema for details.*
Manufacturer	string	read-only (null)	The value of this property shall be the name of the organization responsible for producing the chassis. This organization might be the entity from whom the chassis is purchased, but this is not necessarily true.
Model	string	read-only (null)	The value of this property shall be the name by which the manufacturer generally refers to the chassis.
NetworkAdapters *(v1.4+)* {	object		The value of this property shall be a link to a collection of type NetworkAdapterCollection. *Contains a link to a resource.*

@odata.id }	string	read-only	*Link to Collection of NetworkAdapter. See the NetworkAdapter schema for details.*
PartNumber	string	read-only (null)	The value of this property shall be a part number assigned by the organization that is responsible for producing or manufacturing the chassis.
PCIeSlots *(v1.8+)* {	object		The value of this property shall be a reference to the resource that represents the PCIe Slot information for this chassis and shall be of type PCIeSlot. *See the PCIeSlots schema for details on this property.*
@odata.id }	string	read-only	*Link to a PCIeSlots resource. See the Links section and the PCIeSlots schema for details.*
PhysicalSecurity *(v1.1+)* {	object		This value of this property shall contain the sensor state of the physical security.
IntrusionSensor	string (enum)	read-write (null)	This property shall represent the state of this physical security sensor. Hardware intrusion indicates the internal hardware is detected as being accessed in an insecure state. Tampering detected indicates the physical tampering of the monitored entity is detected. *See IntrusionSensor in Property Details, below, for the possible values of this property.*
IntrusionSensorNumber	integer	read-only (null)	The value of this property shall be a numerical identifier for this physical security sensor that is unique within this resource.
IntrusionSensorReArm }	string (enum)	read-only (null)	This property shall represent the method to set back to the Normal statue of this physical security sensor. Manual indicates manual re-arm is needed. Automatic indicates the state is restored automatically as no abnormal physical security conditions are detected. *See IntrusionSensorReArm in Property Details, below, for the possible values of this property.*
Power {	object		The value of this property shall be a reference to the resource that represents the power characteristics of this chassis and shall be of type Power. *See the Power schema for details on this property.*
@odata.id }	string	read-only	*Link to a Power resource. See the Links section and the Power schema for details.*
PowerState *(v1.1+)*	string (enum)	read-only (null)	The value of this property shall contain the power state of the chassis. *See PowerState in Property Details, below, for the possible values of this property.*
Sensors *(v1.9+)* {	object		This property shall be a reference to a resource of type SensorCollection that contains the sensors located in the Chassis and sub-components. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Sensor. See the Sensor schema for details.*
SerialNumber	string	read-only (null)	The value of this property shall be a manufacturer-allocated number used to identify the chassis.
SKU	string	read-only (null)	The value of this property shall be the stock-keeping unit number for this chassis.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
Thermal {	object		The value of this property shall be a reference to the resource that represents the thermal characteristics of this chassis and shall be of type Thermal. *See the Thermal schema for details on this property.*
@odata.id }	string	read-only	*Link to a Thermal resource. See the Links section and the Thermal schema for details.*
UUID	string	read-only (null)	The value of this property shall contain the universal unique identifier number for the chassis. Pattern: ([0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-

			F]{4}-[0-9a-fA-F]{12})
WeightKg *(v1.4+)*	number (kg)	read-only (null)	The value of this property shall represent the published mass (commonly referred to as weight) of the chassis (in kilograms).
WidthMm *(v1.4+)*	number (mm)	read-only (null)	The value of this property shall represent the width of the chassis (in millimeters) as specified by the manufacturer.

Actions

Reset

This action shall reset the chassis. This action shall not reset Systems or other contained resource, although side effects may occur which affect those resources.

URIs:

/redfish/v1/Chassis/*{ChassisId}*/Actions/Chassis.Reset

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
ResetType }	string (enum)	read-write	This parameter shall define the type of reset to be performed. The service may accept a request without the parameter and perform an implementation specific default reset. *See ResetType in Property Details, below, for the possible values of this property.*

Property Details

ChassisType:

ChassisType shall indicate the physical form factor for the type of chassis.

string	Description
Blade	An enclosed or semi-enclosed, typically vertically-oriented, system chassis which must be plugged into a multi-system chassis to function normally.
Card	A loose device or circuit board intended to be installed in a system or other enclosure.
Cartridge	A small self-contained system intended to be plugged into a multi-system chassis.
Component	A small chassis, card, or device which contains devices for a particular subsystem or function.
Drawer	An enclosed or semi-enclosed, typically horizontally-oriented, system chassis which may be slid into a multi-system chassis.
Enclosure	A generic term for a chassis that does not fit any other description.
Expansion	A chassis which expands the capabilities or capacity of another chassis.
IPBasedDrive *(v1.3+)*	A chassis in a drive form factor with IP-based network connections.
Module	A small, typically removable, chassis or card which contains devices for a particular subsystem or function.
Other	A chassis that does not fit any of these definitions.
Pod	A collection of equipment racks in a large, likely transportable, container.
Rack	An equipment rack, typically a 19-inch wide freestanding unit.
RackGroup *(v1.4+)*	A group of racks which form a single entity or share infrastructure.
RackMount	A single system chassis designed specifically for mounting in an equipment rack.
Row	A collection of equipment racks.
Shelf	An enclosed or semi-enclosed, typically horizontally-oriented, system chassis which must be plugged into a multi-system chassis to function normally.
Sidecar	A chassis that mates mechanically with another chassis to expand its capabilities or capacity.

Sled	An enclosed or semi-enclosed, system chassis which must be plugged into a multi-system chassis to function normally similar to a blade type chassis.
StandAlone	A single, free-standing system, commonly called a tower or desktop chassis.
StorageEnclosure *(v1.6+)*	A chassis which encloses storage.
Zone	A logical division or portion of a physical chassis that contains multiple devices or systems that cannot be physically separated.

EnvironmentalClass:

The value of this property shall be the ASHRAE Environmental Specification Class for this Chassis, as defined by ASHRAE Thermal Guidelines for Data Processing Environments. These classes define respective environmental limits which include temperature, relative humidity, dew point, and maximum allowable elevation.

string	Description
A1	ASHRAE Environmental Specification Class 'A1'.
A2	ASHRAE Environmental Specification Class 'A2'.
A3	ASHRAE Environmental Specification Class 'A3'.
A4	ASHRAE Environmental Specification Class 'A4'.

IndicatorLED:

This value of this property shall contain the indicator light state for the indicator light associated with this system.

string	Description
Blinking	This value shall represent the Indicator LED is in a blinking state where the LED is being turned on and off in repetition. If this value is not supported by the service, the service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request).
Lit	This value shall represent the Indicator LED is in a solid on state. If this value is not supported by the service, the service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request).
Off	This value shall represent the Indicator LED is in a solid off state. If this value is not supported by the service, the service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request).
Unknown *(deprecated v1.5)*	This value shall represent the Indicator LED is in an unknown state. The service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request). *Deprecated v1.5+. This value has been Deprecated in favor of returning null if the state is unknown.*

IntrusionSensor:

This property shall represent the state of this physical security sensor. Hardware intrusion indicates the internal hardware is detected as being accessed in an insecure state. Tampering detected indicates the physical tampering of the monitored entity is detected.

string	Description
HardwareIntrusion	A door, lock, or other mechanism protecting the internal system hardware from being accessed is detected as being in an insecure state.
Normal	No abnormal physical security conditions are detected at this time.
TamperingDetected	Physical tampering of the monitored entity is detected.

IntrusionSensorReArm:

This property shall represent the method to set back to the Normal statue of this physical security sensor. Manual indicates manual re-arm is needed. Automatic indicates the state is restored automatically as no abnormal physical security conditions are detected.

string	Description
Automatic	This sensor would be restored to the Normal state automatically as no abnormal physical security conditions are detected.
Manual	This sensor would be restored to the Normal state by a manual re-arm.

PowerState:

The value of this property shall contain the power state of the chassis.

string	Description
Off	The components within the chassis has no power, except some components may continue to have AUX power such as management controller.
On	The components within the chassis has power on.
PoweringOff	A temporary state between On and Off. The components within the chassis can take time to process the power off action.
PoweringOn	A temporary state between Off and On. The components within the chassis can take time to process the power on action.

ResetType:

This parameter shall define the type of reset to be performed. The service may accept a request without the parameter and perform an implementation specific default reset.

string	Description
ForceOff	Turn the unit off immediately (non-graceful shutdown).
ForceOn	Turn the unit on immediately.
ForceRestart	Perform an immediate (non-graceful) shutdown, followed by a restart.
GracefulRestart	Perform a graceful shutdown followed by a restart of the system.
GracefulShutdown	Perform a graceful shutdown and power off.
Nmi	Generate a Diagnostic Interrupt (usually an NMI on x86 systems) to cease normal operations, perform diagnostic actions and typically halt the system.
On	Turn the unit on.
PowerCycle	Perform a power cycle of the unit.
PushPowerButton	Simulate the pressing of the physical power button on this unit.

Example Response


```
{
    "@odata.type": "#Chassis.v1_8_0.Chassis",
    "Id": "1U",
    "Name": "Computer System Chassis",
    "ChassisType": "RackMount",
    "AssetTag": "Chicago-45Z-2381",
    "Manufacturer": "Contoso",
    "Model": "3500RX",
    "SKU": "8675309",
    "SerialNumber": "437XR1138R2",
    "PartNumber": "224071-J23",
    "PowerState": "On",
    "IndicatorLED": "Lit",
    "HeightMm": 44.45,
    "WidthMm": 431.8,
    "DepthMm": 711,
    "WeightKg": 15.31,
    "Location": {
        "PostalAddress": {
            "Country": "US",
            "Territory": "OR",
            "City": "Portland",
            "Street": "1001 SW 5th Avenue",
            "HouseNumber": 1100,
            "Name": "DMTF",
            "PostalCode": "97204"
        },
        "Placement": {
            "Row": "North",
            "Rack": "WEB43",
            "RackOffsetUnits": "EIA_310",
            "RackOffset": 12
        }
    },
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Thermal": {
        "@odata.id": "/redfish/v1/Chassis/1U/Thermal"
    },
    "Power": {
```

```
        "@odata.id": "/redfish/v1/Chassis/1U/Power"
    },
    "Assembly": {
        "@odata.id": "/redfish/v1/Chassis/1U/Assembly"
    },
    "Links": {
        "ComputerSystems": [
            {
                "@odata.id": "/redfish/v1/Systems/437XR1138R2"
            }
        ],
        "ManagedBy": [
            {
                "@odata.id": "/redfish/v1/Managers/BMC"
            }
        ],
        "ManagersInChassis": [
            {
                "@odata.id": "/redfish/v1/Managers/BMC"
            }
        ]
    },
    "@odata.context": "/redfish/v1/$metadata#Chassis.Chassis",
    "@odata.id": "/redfish/v1/Chassis/1U"
}
```


CompositionService 1.1.1

v1.1	*v1.0*
2018.2	2017.1

This resource shall be used to represent the Composition Service Properties for a Redfish implementation.

URIs:

/redfish/v1/CompositionService

AllowOverprovisioning *(v1.1+)*	boolean	read-write (null)	The value of this property shall be a boolean indicating whether this service is allowed to overprovision a composition relative to the composition request.
AllowZoneAffinity *(v1.1+)*	boolean	read-only (null)	The value of this property shall be a boolean indicating whether a client is allowed to request that given composition request is fulfilled by a specified Resource Zone.
ResourceBlocks {	object		This property shall contain the link to a collection of type ResourceBlockCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of ResourceBlock. See the ResourceBlock schema for details.*
ResourceZones {	object		This property shall contain the link to a collection of type ZoneCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Zone. See the Zone schema for details.*
ServiceEnabled	boolean	read-write (null)	The value of this property shall be a boolean indicating whether this service is enabled.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*

Example Response


```
{
    "@odata.type": "#CompositionService.v1_1_0.CompositionService",
    "Id": "CompositionService",
    "Name": "Composition Service",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "ServiceEnabled": true,
    "AllowOverprovisioning": true,
    "AllowZoneAffinity": true,
    "ResourceBlocks": {
        "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks"
    },
    "ResourceZones": {
        "@odata.id": "/redfish/v1/CompositionService/ResourceZones"
    },
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#CompositionService.CompositionService",
    "@odata.id": "/redfish/v1/CompositionService"
```

}

ComputerSystem 1.7.0

v1.7	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
2019.1	2018.3	2017.3	2017.1	2016.3	2016.2	2016.1	1.0

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

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*

/redfish/v1/Systems/*{ComputerSystemId}*

AssetTag	string	read-write (null)	The value of this property shall contain the value of the asset tag of the system.
Bios *(v1.1+)* {	object		The value of this property shall be a link to a resource of type Bios that lists the BIOS settings for this system. *See the Bios schema for details on this property.*
@odata.id }	string	read-only	*Link to a Bios resource. See the Links section and the Bios schema for details.*
BiosVersion	string	read-only (null)	The value of this property shall be the version string of the currently installed and running BIOS (for x86 systems). For other systems, the value may contain a version string representing the primary system firmware.
Boot {	object		This object shall contain properties which describe boot information for the current resource.
AliasBootOrder [ ]	array (string (enum))	read-write (null)	The value of this property shall be an ordered array of boot source aliases (of type BootSource) representing the persistent Boot Order of this computer system. *See AliasBootOrder in Property Details, below, for the possible values of this property.*
BootNext *(v1.5+)*	string	read-write (null)	The value of this property shall be the BootOptionReference of the UEFI Boot Option for one time boot, as defined by the UEFI Specification. The valid values for this property are specified in the values of the BootOrder array. BootSourceOverrideEnabled = Continuous is not supported for UEFI BootNext as this setting is defined in UEFI as a one-time boot only.
BootOptions *(v1.5+)* {	object		The value of this property shall be a link to a collection of type BootOptionCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of BootOption. See the BootOption schema for details.*
BootOrder *(v1.5+)* [ ]	array (string, null)	read-write	The value of this property shall be an ordered array of BootOptionReference strings representing the persistent Boot Order of this computer system. For UEFI systems, this is the UEFI BootOrder as defined by the UEFI Specification.
BootOrderPropertySelection *(v1.6+)*	string (enum)	read-write (null)	The value of this property shall indicate which boot order property the system uses when specifying the persistent boot order. *See BootOrderPropertySelection in Property Details, below, for the possible values of this property.*
BootSourceOverrideEnabled	string (enum)	read-write (null)	The value of this property shall be Once if this is a one time boot override and Continuous if this selection should remain active until cancelled. If the property value is set to Once, the value will be reset back to Disabled after the

			BootSourceOverrideTarget actions have been completed. Changes to this property do not alter the BIOS persistent boot order configuration. *See BootSourceOverrideEnabled in Property Details, below, for the possible values of this property.*
BootSourceOverrideMode *(v1.1+)*	string (enum)	read-write (null)	The value of this property shall be Legacy for non-UEFI BIOS boot or UEFI for UEFI boot from boot source specified in BootSourceOverrideTarget property. *See BootSourceOverrideMode in Property Details, below, for the possible values of this property.*
BootSourceOverrideTarget	string (enum)	read-write (null)	The value of this property shall contain the source to boot the system from, overriding the normal boot order. The valid values for this property are specified through the Redfish.AllowableValues annotation. Pxe indicates to PXE boot from the primary NIC; Floppy, Cd, Usb, Hdd indicates to boot from their devices respectively. BiosSetup indicates to boot into the native BIOS screen setup. Utilities and Diags indicate to boot from the local utilities or diags partitions. UefiTarget indicates to boot from the UEFI device path found in UefiTargetBootSourceOverride. UefiBootNext indicates to boot from the UEFI BootOptionReference found in BootNext. Changes to this property do not alter the BIOS persistent boot order configuration. *See BootSourceOverrideTarget in Property Details, below, for the possible values of this property.*
Certificates *(v1.7+)* {	object		The value of this property shall be a link to a collection of type CertificateCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Certificate. See the Certificate schema for details.*
UefiTargetBootSourceOverride }	string	read-write (null)	The value of this property shall be the UEFI device path of the override boot target. The valid values for this property are specified through the Redfish.AllowableValues annotation. BootSourceOverrideEnabled = Continuous is not supported for UEFI Boot Source Override as this setting is defined in UEFI as a one time boot only. Changes to this property do not alter the BIOS persistent boot order configuration.
EthernetInterfaces {	object		The value of this property shall be a link to a collection of type EthernetInterfaceCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of EthernetInterface. See the EthernetInterface schema for details.*
HostedServices *(v1.2+)* {	object		The values of this collection shall describe services supported by this computer system.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
StorageServices {	object		The value of this property shall be a link to a collection of type HostedStorageServices.
@odata.id } }	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
HostingRoles *(v1.2+)* [ ]	array (string (enum))	read-only	The values of this collection shall be the hosting roles supported by this computer system. The enumerations of HostingRoles specify different features that the hosting ComputerSystem supports. *See HostingRoles in Property Details, below, for the possible values of this property.*

HostName	string	read-write (null)	The value of this property shall be the host name for this system, as reported by the operating system or hypervisor. This value is typically provided to the Manager by a service running in the host operating system.
HostWatchdogTimer *(v1.5+)* {	object		This object shall contain properties which describe the host watchdog timer functionality for this ComputerSystem.
FunctionEnabled	boolean	read-write required (null)	The value of this property shall indicate whether the host watchdog timer functionality has been enabled or not. This property indicates only that the functionality is enabled or disabled by the user, and updates to this property shall not initiate a watchdog timer countdown.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
TimeoutAction	string (enum)	read-write required (null)	This property shall contain the action to perform upon the expiration of the Watchdog Timer. *See TimeoutAction in Property Details, below, for the possible values of this property.*
WarningAction }	string (enum)	read-write (null)	This property shall contain the action to perform prior to the expiration of the Watchdog Timer. This action typically occurs 3-10 seconds prior to the timeout value, but the exact timing is dependent on the implementation. *See WarningAction in Property Details, below, for the possible values of this property.*
IndicatorLED	string (enum)	read-write (null)	The value of this property shall contain the indicator light state for the indicator light associated with this system. *See IndicatorLED in Property Details, below, for the possible values of this property.*
Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Chassis [{	array		The value of this property shall reference a resource of type Chassis that represents the physical container associated with this resource.
@odata.id }]	string	read-only	*Link to a Chassis resource. See the Links section and the Chassis schema for details.*
ConsumingComputerSystems *(v1.5+)* [{	array		The value shall be an array of references to ComputerSystems that are realized, in whole or in part, from this ComputerSystem.
@odata.id }]	string	read-only	*Link to another ComputerSystem resource.*
CooledBy [{	array		The value of this property shall be an array of IDs containing pointers consistent with JSON pointer syntax to the resource that powers this computer system.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Endpoints *(v1.2+)* [{	array		The value of this property shall be a reference to the resources that this system is associated with and shall reference a resource of type Endpoint.
@odata.id }]	string	read-only	*Link to a Endpoint resource. See the Links section and the Endpoint schema for details.*

ManagedBy [{	array		The value of this property shall reference a resource of type manager that represents the resource with management responsibility for this resource.
@odata.id }]	string	read-only	*Link to a Manager resource. See the Links section and the Manager schema for details.*
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
PoweredBy [{	array		The value of this property shall be an array of IDs containing pointers consistent with JSON pointer syntax to the resource that powers this computer system.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
ResourceBlocks *(v1.4+)* [{	array		The value of this property shall be an array of references of type ResourceBlock that show the Resource Blocks that are used in this Computer System.
@odata.id }]	string	read-only	*Link to a ResourceBlock resource. See the Links section and the ResourceBlock schema for details.*
SupplyingComputerSystems *(v1.5+)* [{	array		The value shall be an array of references to ComputerSystems that contribute, in whole or in part, to the implementation of this ComputerSystem.
@odata.id }] }	string	read-only	*Link to another ComputerSystem resource.*
LogServices {	object		The value of this property shall be a link to a collection of type LogServiceCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of LogService. See the LogService schema for details.*
Manufacturer	string	read-only (null)	The value of this property shall contain a value that represents the manufacturer of the system.
Memory *(v1.1+)* {	object		The value of this property shall be a link to a collection of type MemoryCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Memory. See the Memory schema for details.*
MemoryDomains *(v1.2+)* {	object		The value of this property shall be a link to a collection of type MemoryDomainCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of MemoryDomain. See the MemoryDomain schema for details.*
MemorySummary {	object		This object shall contain properties which describe the central memory for the current resource.
MemoryMirroring *(v1.1+)*	string (enum)	read-only (null)	This property shall contain the ability and type of memory mirring supported by this system. *See MemoryMirroring in Property Details, below, for the possible values of this property.*
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
TotalSystemMemoryGiB	number (GiBy)	read-only (null)	This property shall contain the amount of configured system general purpose volatile (RAM) memory as measured in gibibytes.

TotalSystemPersistentMemoryGiB *(v1.4+)* }	number (GiBy)	read-only (null)	This property shall contain the total amount of configured persistent memory available to the system as measured in gibibytes.
Model	string	read-only (null)	The value of this property shall contain the information about how the manufacturer references this system. This is typically the product name, without the manufacturer name.
NetworkInterfaces *(v1.3+)* {	object		The value of this property shall be a link to a collection of type NetworkInterfaceCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of NetworkInterface. See the NetworkInterface schema for details.*
PartNumber	string	read-only (null)	The value of this property shall contain the part number for the system as defined by the manufacturer.
PCIeDevices *(v1.2+)* [{	array		The value of this property shall be an array of references of type PCIeDevice.
@odata.id }]	string	read-only	*Link to a PCIeDevice resource. See the Links section and the PCIeDevice schema for details.*
PCIeFunctions *(v1.2+)* [{	array		The value of this property shall be an array of references of type PCIeFunction.
@odata.id }]	string	read-only	*Link to a PCIeFunction resource. See the Links section and the PCIeFunction schema for details.*
PowerRestorePolicy *(v1.6+)*	string (enum)	read-write	This property shall indicate the desired PowerState of the system when power is applied to the system. A value of 'LastState' shall return the system to the PowerState it was in when power was lost. *See PowerRestorePolicy in Property Details, below, for the possible values of this property.*
PowerState	string (enum)	read-only (null)	The value of this property shall contain the power state of the system. *See PowerState in Property Details, below, for the possible values of this property.*
Processors {	object		The value of this property shall be a link to a collection of type ProcessorCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Processor. See the Processor schema for details.*
ProcessorSummary {	object		This object shall contain properties which describe the central processors for the current resource.
Count	integer	read-only (null)	This property shall contain the number of physical central processors in the system.
LogicalProcessorCount *(v1.5+)*	integer	read-only (null)	This property shall contain the number of logical central processors in the system.
Metrics *(v1.7+)* {	object		This property shall be a reference to the Metrics associated with all Processors in this system. *See the ProcessorMetrics schema for details on this property.*
@odata.id }	string	read-only	*Link to a ProcessorMetrics resource. See the Links section and the ProcessorMetrics schema for details.*
Model	string	read-only (null)	This property shall contain the processor model for the central processors in the system, per the description in the Processor Information - Processor Family section of the SMBIOS Specification DSP0134 2.8 or later.
Status { } }	object		This property shall contain any status or health properties of the resource.

			See the Status object for details on this property.
Redundancy *(v1.5+)* [{	array		If present, each entry shall reference a redundancy entity that specifies a kind and level of redundancy and a collection (RedundancySet) of other ComputerSystems that provide the specified redundancy to this ComputerSystem.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
SecureBoot *(v1.1+)* {	object		The value of this property shall be a link to a resource of type SecureBoot. *See the SecureBoot schema for details on this property.*
@odata.id }	string	read-only	*Link to a SecureBoot resource. See the Links section and the SecureBoot schema for details.*
SerialNumber	string	read-only (null)	The value of this property shall contain the serial number for the system.
SimpleStorage {	object		The value of this property shall be a link to a collection of type SimpleStorageCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of SimpleStorage. See the SimpleStorage schema for details.*
SKU	string	read-only (null)	The value of this property shall contain the Stock Keeping Unit (SKU) for the system.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
Storage *(v1.1+)* {	object		The value of this property shall be a link to a collection of type StorageCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Storage. See the Storage schema for details.*
SubModel *(v1.5+)*	string	read-only (null)	The value of this property shall contain the information about the sub-model (or config) of the system. This shall not include the model/product name or the manufacturer name.
SystemType	string (enum)	read-only	An enumeration that indicates the kind of system that this resource represents. *See SystemType in Property Details, below, for the possible values of this property.*
TrustedModules *(v1.1+)* [{	array		This object shall contain an array of objects with properties which describe the truted modules for the current resource.
FirmwareVersion	string	read-only (null)	This property shall contain the firwmare version as defined by the manufacturer for the Trusted Module.
FirmwareVersion2 *(v1.3+)*	string	read-only (null)	This property shall contain the 2nd firmware version, if applicable, as defined by the manufacturer for the Trusted Module.
InterfaceType	string (enum)	read-only (null)	This property shall contain the interface type of the installed Trusted Module. *See InterfaceType in Property Details, below, for the possible values of this property.*
InterfaceTypeSelection *(v1.3+)*	string (enum)	read-only (null)	This property shall contain the Interface Type Selection method (for example to switch between TPM1_2 and TPM2_0) that is supported by this TrustedModule. *See InterfaceTypeSelection in Property Details, below, for the possible values of this property.*
Oem { }	object		This object represents the Oem property. All values for

			resources described by this schema shall comply to the requirements as described in the Redfish specification.
Status { } }]	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
UUID	string	read-only (null)	The value of this property shall be used to contain a universal unique identifier number for the system. RFC4122 describes methods that can be used to create the value. The value should be considered to be opaque. Client software should only treat the overall value as a universally unique identifier and should not interpret any sub-fields within the UUID. If the system supports SMBIOS, the value of the property should be formed by following the SMBIOS 2.6+ recommendation for converting the SMBIOS 16-byte UUID structure into the redfish canonical xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx string format so that the property value matches the byte order presented by current OS APIs such as WMI and dmidecode. Pattern: ([0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}) *See Property Details, below, for more information about this property.*

Actions

AddResourceBlock

This action shall be used to add a Resource Block to a system.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Actions/ComputerSystem.AddResourceBlock

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Actions/ComputerSystem.AddResourceBlock

/redfish/v1/Systems/*{ComputerSystemId}*/Actions/ComputerSystem.AddResourceBlock

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
ComputerSystemETag	string	read-write	This parameter shall be a the current ETag of the system. If provided by the client, the service shall reject the request by returning HTTP 428 (Precondition Required) if the provided ETag does not match the current ETag of the system.
ResourceBlock {	object		This parameter shall be a link to the specified Resource Block to add to the system. *See the ResourceBlock schema for details on this property.*
@odata.id }	string	read-only	*Link to a ResourceBlock resource. See the Links section and the ResourceBlock schema for details.*
ResourceBlockETag }	string	read-write	This parameter shall be a the current ETag of the Resource Block to add to the system. If provided by the client, the service shall reject the request by returning HTTP 428 (Precondition Required) if the provided ETag does not match the current ETag of the Resource Block specified by the ResourceBlock parameter.

RemoveResourceBlock

This action shall be used to remove a Resource Block from a system.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Actions/ComputerSystem.RemoveResourceBlock

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Actions/ComputerSystem.RemoveResourceBlock

/redfish/v1/Systems/*{ComputerSystemId}*/Actions/ComputerSystem.RemoveResourceBlock

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
ComputerSystemETag	string	read-write	This parameter shall be a the current ETag of the system. If provided by the client, the service shall reject the request by returning HTTP 428 (Precondition Required) if the provided ETag does not match the current ETag of the system.
ResourceBlock {	object		This parameter shall be a link to the specified Resource Block to remove from the system. *See the ResourceBlock schema for details on this property.*
@odata.id }	string	read-only	*Link to a ResourceBlock resource. See the Links section and the ResourceBlock schema for details.*
ResourceBlockETag }	string	read-write	This parameter shall be a the current ETag of the Resource Block to remove from the system. If provided by the client, the service shall reject the request by returning HTTP 428 (Precondition Required) if the provided ETag does not match the current ETag of the Resource Block specified by the ResourceBlock parameter.

Reset

This action shall perform a reset of the ComputerSystem. For systems which implement ACPI Power Button functionality, the PushPowerButton value shall perform or emulate an ACPI Power Button push. The ForceOff value shall remove power from the system or perform an ACPI Power Button Override (commonly known as a 4-second hold of the Power Button). The ForceRestart value shall perform a ForceOff action followed by a On action.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Actions/ComputerSystem.Reset

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Actions/ComputerSystem.Reset

/redfish/v1/Systems/*{ComputerSystemId}*/Actions/ComputerSystem.Reset

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
ResetType }	string (enum)	read-write	This parameter shall define the type of reset to be performed. The service may accept a request without the parameter and perform an implementation specific default reset. *See ResetType in Property Details, below, for the possible values of this property.*

SetDefaultBootOrder

This action shall perform a set the BootOrder to the default values.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Actions/ComputerSystem.SetDefaultBootOrder

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Actions/ComputerSystem.SetDefaultBootOrder

/redfish/v1/Systems/*{ComputerSystemId}*/Actions/ComputerSystem.SetDefaultBootOrder

(This action takes no parameters.)

Property Details

AliasBootOrder:

The value of this property shall be an ordered array of boot source aliases (of type BootSource) representing the persistent Boot Order of this computer system.

string	Description
BiosSetup	Boot to the BIOS Setup Utility.
Cd	Boot from the CD/DVD disc.
Diags	Boot the manufacturer's Diagnostics program.
Floppy	Boot from the floppy disk drive.
Hdd	Boot from a hard drive.

None	Boot from the normal boot device.
Pxe	Boot from the Pre-Boot EXecution (PXE) environment.
RemoteDrive *(v1.2+)*	Boot from a remote drive (e.g. iSCSI).
SDCard	Boot from an SD Card.
UefiBootNext *(v1.5+)*	Boot to the UEFI Device specified in the BootNext property.
UefiHttp	Boot from a UEFI HTTP network location.
UefiShell	Boot to the UEFI Shell.
UefiTarget	Boot to the UEFI Device specified in the UefiTargetBootSourceOverride property.
Usb	Boot from a USB device as specified by the system BIOS.
Utilities	Boot the manufacturer's Utilities program(s).

BootOrderPropertySelection:

The value of this property shall indicate which boot order property the system uses when specifying the persistent boot order.

string	Description
AliasBootOrder	The system uses the AliasBootOrder property for specifying persistent boot order.
BootOrder	The system uses the BootOrder property for specifying persistent boot order.

BootSourceOverrideEnabled:

The value of this property shall be Once if this is a one time boot override and Continuous if this selection should remain active until cancelled. If the property value is set to Once, the value will be reset back to Disabled after the BootSourceOverrideTarget actions have been completed. Changes to this property do not alter the BIOS persistent boot order configuration.

string	Description
Continuous	The system will boot to the target specified in the BootSourceOverrideTarget until this property is set to Disabled.
Disabled	The system will boot normally.
Once	On its next boot cycle, the system will boot (one time) to the Boot Source Override Target. The value of BootSourceOverrideEnabled is then reset back to Disabled.

BootSourceOverrideMode:

The value of this property shall be Legacy for non-UEFI BIOS boot or UEFI for UEFI boot from boot source specified in BootSourceOverrideTarget property.

string	Description
Legacy	The system will boot in non-UEFI boot mode to the Boot Source Override Target.
UEFI	The system will boot in UEFI boot mode to the Boot Source Override Target.

BootSourceOverrideTarget:

The value of this property shall contain the source to boot the system from, overriding the normal boot order. The valid values for this property are specified through the Redfish.AllowableValues annotation. Pxe indicates to PXE boot from the primary NIC; Floppy, Cd, Usb, Hdd indicates to boot from their devices respectively. BiosSetup indicates to boot into the native BIOS screen setup. Utilities and Diags indicate to boot from the local utilities or diags partitions. UefiTarget indicates to boot from the UEFI device path found in UefiTargetBootSourceOverride. UefiBootNext indicates to boot from the UEFI BootOptionReference found in BootNext. Changes to this property do not alter the BIOS persistent boot order configuration.

string	Description
BiosSetup	Boot to the BIOS Setup Utility.
Cd	Boot from the CD/DVD disc.
Diags	Boot the manufacturer's Diagnostics program.

Floppy	Boot from the floppy disk drive.
Hdd	Boot from a hard drive.
None	Boot from the normal boot device.
Pxe	Boot from the Pre-Boot EXecution (PXE) environment.
RemoteDrive *(v1.2+)*	Boot from a remote drive (e.g. iSCSI).
SDCard	Boot from an SD Card.
UefiBootNext *(v1.5+)*	Boot to the UEFI Device specified in the BootNext property.
UefiHttp	Boot from a UEFI HTTP network location.
UefiShell	Boot to the UEFI Shell.
UefiTarget	Boot to the UEFI Device specified in the UefiTargetBootSourceOverride property.
Usb	Boot from a USB device as specified by the system BIOS.
Utilities	Boot the manufacturer's Utilities program(s).

HostingRoles:

The values of this collection shall be the hosting roles supported by this computer system. The enumerations of HostingRoles specify different features that the hosting ComputerSystem supports.

string	Description
ApplicationServer	The system hosts functionality that supports general purpose applications.
StorageServer	The system hosts functionality that supports the system acting as a storage server.
Switch	The system hosts functionality that supports the system acting as a switch.

IndicatorLED:

The value of this property shall contain the indicator light state for the indicator light associated with this system.

string	Description
Blinking	This value shall represent the Indicator LED is in a blinking state where the LED is being turned on and off in repetition. If this value is not supported by the service, the service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request).
Lit	This value shall represent the Indicator LED is in a solid on state. If this value is not supported by the service, the service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request).
Off	This value shall represent the Indicator LED is in a solid off state. If this value is not supported by the service, the service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request).
Unknown *(deprecated v1.4)*	This value shall represent the Indicator LED is in an unknown state. The service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request). *Deprecated v1.4+. This value has been Deprecated in favor of returning null if the state is unknown.*

InterfaceType:

This property shall contain the interface type of the installed Trusted Module.

string	Description
TCM1_0	Trusted Cryptography Module (TCM) 1.0.
TPM1_2	Trusted Platform Module (TPM) 1.2.
TPM2_0	Trusted Platform Module (TPM) 2.0.

InterfaceTypeSelection:

This property shall contain the Interface Type Selection method (for example to switch between TPM1_2 and TPM2_0) that is supported by this TrustedModule.

string	Description
BiosSetting	The TrustedModule supports switching InterfaceType via platform software, such as a BIOS configuration Attribute.
FirmwareUpdate	The TrustedModule supports switching InterfaceType via a firmware update.
None	The TrustedModule does not support switching the InterfaceType.
OemMethod	The TrustedModule supports switching InterfaceType via an OEM proprietary mechanism.

MemoryMirroring:

This property shall contain the ability and type of memory mirring supported by this system.

string	Description
DIMM	The system supports DIMM mirroring at the DIMM level. Individual DIMMs can be mirrored.
Hybrid	The system supports a hybrid mirroring at the system and DIMM levels. Individual DIMMs can be mirrored.
None	The system does not support DIMM mirroring.
System	The system supports DIMM mirroring at the System level. Individual DIMMs are not paired for mirroring in this mode.

PowerRestorePolicy:

This property shall indicate the desired PowerState of the system when power is applied to the system. A value of 'LastState' shall return the system to the PowerState it was in when power was lost.

string	Description
AlwaysOff	The system will always remain powered off when power is applied.
AlwaysOn	The system will always power on when power is applied.
LastState	The system will return to its last power state (on or off) when power is applied.

PowerState:

The value of this property shall contain the power state of the system.

string	Description
Off	The system is powered off, although some components may continue to have AUX power such as management controller.
On	The system is powered on.
PoweringOff	A temporary state between On and Off. The power off action can take time while the OS is in the shutdown process.
PoweringOn	A temporary state between Off and On. This temporary state can be very short.

ResetType:

This parameter shall define the type of reset to be performed. The service may accept a request without the parameter and perform an implementation specific default reset.

string	Description
ForceOff	Turn the unit off immediately (non-graceful shutdown).
ForceOn	Turn the unit on immediately.
ForceRestart	Perform an immediate (non-graceful) shutdown, followed by a restart.
GracefulRestart	Perform a graceful shutdown followed by a restart of the system.
GracefulShutdown	Perform a graceful shutdown and power off.
Nmi	Generate a Diagnostic Interrupt (usually an NMI on x86 systems) to cease normal operations, perform diagnostic actions and typically halt the system.

On	Turn the unit on.
PowerCycle	Perform a power cycle of the unit.
PushPowerButton	Simulate the pressing of the physical power button on this unit.

SystemType:

An enumeration that indicates the kind of system that this resource represents.

string	Description
Composed *(v1.4+)*	A SystemType of Composed is typically used when representating a single system constructed from disaggregated resource via the Redfish Composition service.
OS	A SystemType of OS is typically used when representating an OS or hypervisor view of the system.
Physical	A SystemType of Physical is typically used when representating the hardware aspects of a system such as is done by a management controller.
PhysicallyPartitioned	A SystemType of PhysicallyPartition is typically used when representating a single system constructed from one or more physical systems via a firmware or hardware-based service.
Virtual	A SystemType of Virtual is typically used when representating a system that is actually a virtual machine instance.
VirtuallyPartitioned	A SystemType of VirtuallyPartition is typically used when representating a single system constructed from one or more virtual systems via a software-based service.

TimeoutAction:

This property shall contain the action to perform upon the expiration of the Watchdog Timer.

string	Description
None	No action taken.
OEM	Perform an OEM-defined action.
PowerCycle	Power cycle the system.
PowerDown	Power down the system.
ResetSystem	Reset the system.

UUID:

The value of this property shall be used to contain a universal unique identifier number for the system. RFC4122 describes methods that can be used to create the value. The value should be considered to be opaque. Client software should only treat the overall value as a universally unique identifier and should not interpret any sub-fields within the UUID. If the system supports SMBIOS, the value of the property should be formed by following the SMBIOS 2.6+ recommendation for converting the SMBIOS 16-byte UUID structure into the redfish canonical xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx string format so that the property value matches the byte order presented by current OS APIs such as WMI and dmidecode. Pattern: ([0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12})

The UUID property contains the value of the Universally Unique IDentifier (UUID) of a system, also known in some systems as GUIDs (Globally Unique IDentifier). A UUID is 128 bits long (16 bytes).

Redfish clients should consider the value of the property to be opaque and should not interpret any sub-fields within the UUID.

The UUID property is a string data type. The format of the string is the 35-character string format specified in RFC4122: "xxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx". Each x represents a hexadecimal digit (0-f).

If the computer system supports SMBIOS, then the UUID string should be formed from the raw binary 16-byte SMBIOS UUID structure. This allows out-of-band clients to correlate the UUID that in-band agents are reading from SMBIOS. The UUID is represented out-of-band through the Redfish API.

Case sensitivity

Regarding the case of the hex values, RFC4122 specifies that the hex values should be lowercase characters. Most modern scripting languages typically also represent hex values in lowercase characters following the RFC. However, dmidecode, WMI and some Redfish implementations currently use uppercase characters for UUID on output.

Comparisons between UUID values should always be case-insensitive.

For new Redfish implementations, the recommendation is to follow RFC4122 guidelines: output using lower-case hex values when converting from the SMBIOS raw binary data.

Redfish implementations and operating system APIs are permitted to output in uppercase. For that reason, Redfish clients

MUST compare UUIDs using a case-insensitive comparison (as recommended by RFC4122).

Conversion of UUID format

The SMBIOS 2.6+ specification specifies the proper algorithm for converting the raw binary SMBIOS 16-byte structure into the canonical string format of form "xxxxxx-xxxx-xxxx-xxxx-xxxxxx"). Redfish services should follow the SMBIOS 2.6+ specification for implementing this conversion.

WMI and Linux dmidecode also follow the SMBIOS guidelines.

Specifically, RFC4122 defines that the canonical string value should follow network byte ordering. The SMBIOS represents the UUID as five fields:

```
{
 DWORD    time_low,
 WORD     time_mid,
 WORD     time_hi_and_version,
 BYTE     clock_seq_hi_and_reserved,
 BYTE     clock_seq_low,
 BYTE[6]  node
}
```

Little-endian systems (including x86 systems) require a little-endian to network-byte-order conversion for the first three fields in order to convert the SMBIOS binary UUID to network byte order.

As specified in the SMBIOS 2.6+ specification, if the canonical UUID string is:

```
"00112233-4455-6677-8899-aabbccddeeff"
```

then the corresponding raw representation in the SMBIOS UUID structure would be:

```
raw_smbios_uuid={ 0x33, 0x22, 0x11, 0x00, 0x55, 0x44, 0x77, 0x66, 0x88, 0x99, 0xAA, 0xBB, 0xCC, 0xDD, 0xEE, 0xFF
}
```

Notice in the above SMBIOS representation that each of the first three words boundaries are in little-endian order. For example, the hex digits "00112233" are represented by the first raw SMBIOS 4-byte DWORD "0x33, 0x22, 0x11, 0x00".

The following sample code (written in C) could be used to convert the raw SMBIOS UUID struct in a little-endian system to the 35-character canonical string:

```
/* routine to convert raw little-endian smbios structure to canonical string */
sprintf(redfishUUID,"%02x%02x%02x%02x-%02x%02x-%02x%02x-%02x%02x-%02x%02x%02x%02x%02x%02x")
    raw_smbios_uuid[3], raw_smbios_uuid[2], raw_smbios_uuid[1],raw_smbios_uuid[0],
    raw_smbios_uuid[5],raw_smbios_uuid[4],
    raw_smbios_uuid[7],raw_smbios_uuid[6],
    raw_smbios_uuid[8],raw_smbios_uuid[9],
    raw_smbios_uuid[10],raw_smbios_uuid[11],
    raw_smbios_uuid[12],raw_smbios_uuid[13],
raw_smbios_uuid[14],raw_smbios_uuid[15]
    );
```

The above sample code creates the same canonical-formated string as WMI and dmidecode for little-endian X86 systems.

If the computer architecture is not little-endian, then the conversion and canonical representation should be the same as the operating system's APIs, such as WMI and dmidecode.

Note that as specified in RFC4122, the fields in the string should be zero-filled hex values as shown in the conversion code above so that the overall string length and format is of the form xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxx.

WarningAction:

This property shall contain the action to perform prior to the expiration of the Watchdog Timer. This action typically occurs 3-10 seconds prior to the timeout value, but the exact timing is dependent on the implementation.

string	Description
DiagnosticInterrupt	Raise a (typically non-maskable) Diagnostic Interrupt.
MessagingInterrupt	Raise a legacy IPMI messaging interrupt.
None	No action taken.
OEM	Perform an OEM-defined action.
SCI	Raise an interrupt using the ACPI System Control Interrupt (SCI).
SMI	Raise a Systems Management Interrupt (SMI).

Example Response

```
{
    "@odata.type": "#ComputerSystem.v1_5_1.ComputerSystem",
    "Id": "437XR1138R2",
    "Name": "WebFrontEnd483",
    "SystemType": "Physical",
    "AssetTag": "Chicago-45Z-2381",
    "Manufacturer": "Contoso",
    "Model": "3500RX",
    "SKU": "8675309",
    "SerialNumber": "437XR1138R2",
    "PartNumber": "224071-J23",
    "Description": "Web Front End node",
    "UUID": "38947555-7742-3448-3784-823347823834",
    "HostName": "web483",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollup": "OK"
```

```
    },
    "HostingRoles": [
        "ApplicationServer"
    ],
    "IndicatorLED": "Off",
    "PowerState": "On",
    "Boot": {
        "BootSourceOverrideEnabled": "Once",
        "BootSourceOverrideTarget": "Pxe",
        "BootSourceOverrideTarget@Redfish.AllowableValues": [
            "None",
            "Pxe",
            "Cd",
            "Usb",
            "Hdd",
            "BiosSetup",
            "Utilities",
            "Diags",
            "SDCard",
            "UefiTarget"
        ],
        "BootSourceOverrideMode": "UEFI",
        "UefiTargetBootSourceOverride": "/0x31/0x33/0x01/0x01"
    },
    "TrustedModules": [
        {
            "FirmwareVersion": "1.13b",
            "InterfaceType": "TPM1_2",
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            }
        }
    ],
    "Oem": {
        "Contoso": {
            "@odata.type": "#Contoso.ComputerSystem",
            "ProductionLocation": {
                "FacilityName": "PacWest Production Facility",
                "Country": "USA"
            }
        },
        "Chipwise": {
            "@odata.type": "#Chipwise.ComputerSystem",
            "Style": "Executive"
        }
    },
    "BiosVersion": "P79 v1.33 (02/28/2015)",
    "ProcessorSummary": {
        "Count": 2,
        "Model": "Multi-Core Intel(R) Xeon(R) processor 7xxx Series",
        "Status": {
            "State": "Enabled",
            "Health": "OK",
            "HealthRollup": "OK"
        }
    },
    "MemorySummary": {
        "TotalSystemMemoryGiB": 96,
        "TotalSystemPersistentMemoryGiB": 0,
        "MemoryMirroring": "None",
        "Status": {
            "State": "Enabled",
            "Health": "OK",
            "HealthRollup": "OK"
        }
    },
    "Bios": {
        "@odata.id": "/redfish/v1/Systems/437XR1138R2/BIOS"
    },
    "Processors": {
        "@odata.id": "/redfish/v1/Systems/437XR1138R2/Processors"
    },
    "Memory": {
        "@odata.id": "/redfish/v1/Systems/437XR1138R2/Memory"
    },
    "EthernetInterfaces": {
        "@odata.id": "/redfish/v1/Systems/437XR1138R2/EthernetInterfaces"
    },
    "SimpleStorage": {
        "@odata.id": "/redfish/v1/Systems/437XR1138R2/SimpleStorage"
    },
    "LogServices": {
        "@odata.id": "/redfish/v1/Systems/437XR1138R2/LogServices"
    },
    "Links": {
        "Chassis": [
            {
                "@odata.id": "/redfish/v1/Chassis/1U"
            }
        ],
        "ManagedBy": [
            {
                "@odata.id": "/redfish/v1/Managers/BMC"
            }
        ]
    },
    "Actions": {
        "#ComputerSystem.Reset": {
            "target": "/redfish/v1/Systems/437XR1138R2/Actions/ComputerSystem.Reset",
            "ResetType@Redfish.AllowableValues": [
                "On",
                "ForceOff",
                "GracefulShutdown",
                "GracefulRestart",
                "ForceRestart",
                "Nmi",
                "ForceOn",
                "PushPowerButton"
            ]
        },
```

```
        "Oem": {
            "#Contoso.Reset": {
                "target": "/redfish/v1/Systems/437XR1138R2/Oem/Contoso/Actions/Contoso.Reset"
            }
        }
    },
    "@odata.context": "/redfish/v1/$metadata#ComputerSystem.ComputerSystem",
    "@odata.id": "/redfish/v1/Systems/437XR1138R2"
}
```

Drive 1.6.0

v1.6	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
2019.1	2018.2	2018.1	2017.3	2017.1	2016.2	2016.1

This resource shall be used to represent a disk drive or other physical storage medium for a Redfish implementation.

URIs:

/redfish/v1/Chassis/*{ChassisId}*/Drives/*{DriveId}*

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Drives/*{DriveId}*

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Drives/*{DriveId}*

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Drives/*{DriveId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Drives/*{DriveId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Drives/*{DriveId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Drives/*{DriveId}*

/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Drives/*{DriveId}*

Assembly *(v1.3+)* {	object		The value of this property shall be a link to a resource of type Assembly. *See the Assembly schema for details on this property.*
@odata.id }	string	read-only	*Link to a Assembly resource. See the Links section and the Assembly schema for details.*
AssetTag	string	read-write (null)	The value of this property shall be an identifying string used to track the drive for inventory purposes.
BlockSizeBytes	integer (bytes)	read-only (null)	This property shall contain size of the smallest addressible unit of the associated drive.
CapableSpeedGbs	number (Gbit/s)	read-only (null)	This property shall contain fastest capable bus speed of the associated drive.
CapacityBytes	integer (bytes)	read-only (null)	This property shall contain the raw size in bytes of the associated drive.
EncryptionAbility	string (enum)	read-only (null)	This property shall contain the encryption ability for the associated drive. *See EncryptionAbility in Property Details, below, for the possible values of this property.*
EncryptionStatus	string (enum)	read-only (null)	This property shall contain the encrytion status for the associated drive. *See EncryptionStatus in Property Details, below, for the possible values of this property.*
FailurePredicted	boolean	read-only (null)	This property shall contain failure information as defined by the manufacturer for the associated drive.
HotspareReplacementMode *(v1.5+)*	string (enum)	read-write (null)	This property shall specify if a commissioned hotspare will continue to serve as a hotspare once the failed drive is replaced. *See HotspareReplacementMode in Property Details, below, for the possible values of this property.*
HotspareType	string (enum)	read-only (null)	This property shall contain the hot spare type for the associated drive. If the drive is currently serving as a hot spare its Status.State field shall be 'StandbySpare' and 'Enabled' when it is being used as part of a Volume. *See HotspareType in Property Details, below, for the possible values of this property.*
Identifiers [{ }]	array (object)		This property shall contain a list of all known durable names for the associated drive. This type shall contain any additional identifiers of a

			resource. *See the Identifier object for details on this property.*
IndicatorLED	string (enum)	read-write (null)	This value of this property shall contain the indicator light state for the indicator light associated with this drive. *See IndicatorLED in Property Details, below, for the possible values of this property.*
Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Chassis *(v1.2+)* {	object		The value of this property shall be a reference to a resource of type Chassis that represent the physical container associated with this Drive. *See the Chassis schema for details on this property.*
@odata.id }	string	read-only	*Link to a Chassis resource. See the Links section and the Chassis schema for details.*
Endpoints *(v1.1+)* [{	array		The value of this property shall be a reference to the resources that this drive is associated with and shall reference a resource of type Endpoint.
@odata.id }]	string	read-only	*Link to a Endpoint resource. See the Links section and the Endpoint schema for details.*
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
PCIeFunctions *(v1.6+)* [{	array		The value of this property shall reference a resource of type PCIeFunction that represents the PCIe functions associated with this resource.
@odata.id }]	string	read-only	*Link to a PCIeFunction resource. See the Links section and the PCIeFunction schema for details.*
Volumes [{	array		The value of this property shall be a reference to the resources that this drive is associated with and shall reference a resource of type Volume. This shall include all Volume resources of which this Drive is a member and all Volumes for which this Drive is acting as a spare if the HotspareType is Dedicated.
@odata.id }] }	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Location [{ }]	array (object)		This property shall contain location information of the associated drive. This type shall describe the location of a resource. *See the Location object for details on this property.*
Manufacturer	string	read-only (null)	The value of this property shall be the name of the organization responsible for producing the drive. This organization might be the entity from whom the drive is purchased, but this is not necessarily true.
MediaType	string (enum)	read-only (null)	This property shall contain the type of media contained in the associated drive. *See MediaType in Property Details, below, for the possible values of this property.*
Model	string	read-only (null)	The value of this property shall be the name by which the manufacturer generally refers to the drive.
NegotiatedSpeedGbs	number (Gbit/s)	read-only (null)	This property shall contain current bus speed of the associated drive.
Operations *(v1.1+)* [{	array		This property shall contain a list of all operations currently running on the Drive.
AssociatedTask *(v1.3+)* {	object		The value of this property shall be a reference to a resource of type Task that represents the task associated with the operation. *See the Task schema for details on this property.*
@odata.id }	string	read-only	*Link to a Task resource. See the Links section and the Task schema for details.*

OperationName *(v1.3+)*	string	read-only (null)	This property shall be a string of the name of the operation.
PercentageComplete *(v1.3+)* }]	integer (%)	read-only (null)	This property shall be an interger of the percentage of the operation that has been completed.
PartNumber	string	read-only (null)	The value of this property shall be a part number assigned by the organization that is responsible for producing or manufacturing the drive.
PhysicalLocation *(v1.4+)* { }	object		This property shall contain location information of the associated drive. *See the Location object for details on this property.*
PredictedMediaLifeLeftPercent	number (%)	read-only (null)	This property shall contain an indicator of the percentage of life remaining in the Drive's media.
Protocol	string (enum)	read-only (null)	This property shall contain the protocol the associated drive is using to communicate to the storage controller for this system. *See Protocol in Property Details, below, for the possible values of this property.*
Revision	string	read-only (null)	This property shall contain the revision as defined by the manufacturer for the associated drive.
RotationSpeedRPM	number (RPM)	read-only (null)	This property shall contain rotation speed of the associated drive.
SerialNumber	string	read-only (null)	The value of this property shall be a manufacturer-allocated number used to identify the drive.
SKU	string	read-only (null)	The value of this property shall be the stock-keeping unit number for this drive.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
StatusIndicator	string (enum)	read-write (null)	The value of this property shall contain the status indicator state for the status indicator associated with this drive. The valid values for this property are specified through the Redfish.AllowableValues annotation. *See StatusIndicator in Property Details, below, for the possible values of this property.*

Actions

SecureErase

This action shall perform a secure erase of the drive.

URIs:

/redfish/v1/Chassis/*{ChassisId}*/Drives/*{DriveId}*/Actions/Drive.SecureErase

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Drives/*{DriveId}*/Actions/Drive.SecureErase

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Drives/*{DriveId}*/Actions/Drive.SecureErase

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Drives/*{DriveId}*/Actions/Drive.SecureErase

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Drives/*{DriveId}*/Actions/Drive.SecureErase

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Drives/*{DriveId}*/Actions/Drive.SecureErase

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Drives/*{DriveId}*/Actions/Drive.SecureErase

/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Drives/*{DriveId}*/Actions/Drive.SecureErase

(This action takes no parameters.)

Property Details

EncryptionAbility:

This property shall contain the encryption ability for the associated drive.

string	Description

None	The drive is not capable of self encryption.
Other	The drive is capable of self encryption through some other means.
SelfEncryptingDrive	The drive is capable of self encryption per the Trusted Computing Group's Self Encrypting Drive Standard.

EncryptionStatus:

This property shall contain the encrytion status for the associated drive.

string	Description
Foreign	The drive is currently encrypted, the data is not accessible to the user, and the system requires user intervention to expose the data.
Locked	The drive is currently encrypted and the data is not accessible to the user, however the system has the ability to unlock the drive automatically.
Unecrypted *(deprecated v1.2)*	The drive is not currently encrypted. *Deprecated v1.2+. This value has been Deprecated in favor of Unencrypted.*
Unencrypted *(v1.1+)*	The drive is not currently encrypted.
Unlocked	The drive is currently encrypted but the data is accessible to the user unencrypted.

HotspareReplacementMode:

This property shall specify if a commissioned hotspare will continue to serve as a hotspare once the failed drive is replaced.

string	Description
NonRevertible	A hotspare drive that is commissioned due to a drive failure will remain as a data drive and will not revert to a hotspare if the failed drive is replaced.
Revertible	A hotspare drive that is commissioned due to a drive failure will revert to being a hotspare once the failed drive is replaced and rebuilt.

HotspareType:

This property shall contain the hot spare type for the associated drive. If the drive is currently serving as a hot spare its Status.State field shall be 'StandbySpare' and 'Enabled' when it is being used as part of a Volume.

string	Description
Chassis	The drive is currently serving as a hotspare for all other drives in the chassis.
Dedicated	The drive is currently serving as a hotspare for a user defined set of drives.
Global	The drive is currently serving as a hotspare for all other drives in the storage system.
None	The drive is not currently a hotspare.

IndicatorLED:

This value of this property shall contain the indicator light state for the indicator light associated with this drive.

string	Description
Blinking	This value shall represent the Indicator LED is in a blinking state where the LED is being turned on and off in repetition. If this value is not supported by the service, the service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request).
Lit	This value shall represent the Indicator LED is in a solid on state. If this value is not supported by the service, the service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request).
Off	This value shall represent the Indicator LED is in a solid off state. If this value is not supported by the service, the service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request).

MediaType:

This property shall contain the type of media contained in the associated drive.

string	Description

HDD	The drive media type is traditional magnetic platters.
SMR	The drive media type is shingled magnetic recording.
SSD	The drive media type is solid state or flash memory.

Protocol:

This property shall contain the protocol the associated drive is using to communicate to the storage controller for this system.

string	Description
AHCI	This value shall mean that this device conforms to the Intel Advanced Host Controller Interface Specification.
FC	This value shall mean that this device conforms to the T11 Fibre Channel Physical and Signaling Interface Specification.
FCoE	This value shall mean that this device conforms to the T11 FC-BB-5 Specification.
FCP	This enumeration literal shall indicate the INCITS 481: Information technology - Fibre Channel Protocol for SCSI. The Fibre Channel SCSI Protocol.
FICON	This enumeration literal shall indicate the (ANSI FC-SB-3 Single-Byte Command Code Sets-3 Mapping Protocol for the Fibre Channel(FC) protocol. FICON (FIbre CONnection) is the IBM proprietary name for this protocol.
FTP	This value shall mean that this device conforms to the File Transfer protocol as defined by RFC 114.
HTTP	This value shall mean that this device conforms to the Hypertext Transfer protocol as defined by RFC 2068 or RFC 2616.
HTTPS	This value shall mean that this device conforms to the Hypertext Transfer protocol as defined by RFC 2068 or RFC 2616 utilizing Transport Layer Security as specified by RFC 5246 or RFC 6176.
I2C	This value shall mean that this device conforms to the NXP Semiconductors I2C-bus Specification.
iSCSI	This value shall mean that this device conforms to the IETF Internet Small Computer Systems Interface (iSCSI) Specification.
iWARP	This value shall mean that this device conforms to the iWARP protocol as defined by RFC 5042 utilizing Transport Layer mechanisms as specified by RFC 5043 or RFC 5044.
NFSv3	This value shall mean that this device conforms to the Network File System protocol as defined by RFC 1813.
NFSv4	This value shall mean that this device conforms to the Network File System protocol as defined by RFC 3010 or RFC 5661.
NVMe	This value shall mean that this device conforms to the Non-Volatile Memory Host Controller Interface Specification Specification.
NVMeOverFabrics	This value shall mean that this device conforms to the NVM Express over Fabrics Specification.
OEM	This value shall mean that this device conforms to an OEM specific architecture and additional information may be included in the OEM section.
PCIe	This value shall mean that this device conforms to the PCI-SIG PCI Express Base Specification.
RoCE	This value shall mean that this device conforms to the RDMA over Converged Ethernet protocol as defined by the Infiniband Architecture Specification.
RoCEv2	This value shall mean that this device conforms to the RDMA over Converged Ethernet version 2 protocol as defined by the Infiniband Architecture Specification.
SAS	This value shall mean that this device conforms to the T10 SAS Protocol Layer Specification.
SATA	This value shall mean that this device conforms to the Serial ATA International Organization Serial ATA Specification.
SFTP	This value shall mean that this device conforms to the File Transfer protocol as defined by RFC 114 utilizing Transport Layer Security as specified by RFC 5246 or RFC 6176.
SMB	This value shall mean that this device conforms to the Microsoft Server Message Block Protocol.

UHCI	This value shall mean that this device conforms to the Intel Universal Host Controller Interface Specification, Enhanced Host Controller Interface Specification, or the Extensible Host Controller Interface specification.
USB	This value shall mean that this device conforms to the USB Implementers Forum Universal Serial Bus Specification.

StatusIndicator:

The value of this property shall contain the status indicator state for the status indicator associated with this drive. The valid values for this property are specified through the Redfish.AllowableValues annotation.

string	Description
Fail	The drive has failed.
Hotspare	The drive is marked to be automatically rebuilt and used as a replacement for a failed drive.
InACriticalArray	The array that this drive is a part of is degraded.
InAFailedArray	The array that this drive is a part of is failed.
OK	The drive is OK.
PredictiveFailureAnalysis	The drive is still working but predicted to fail soon.
Rebuild	The drive is being rebuilt.

Example Response


```
{
    "@odata.type": "#Drive.v1_5_0.Drive",
    "Id": "3D58ECBC375FD9F2",
    "Name": "Drive Sample",
    "IndicatorLED": "Lit",
    "Model": "C123",
    "Revision": "100A",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "CapacityBytes": 899527000000,
    "FailurePredicted": false,
    "Protocol": "SAS",
    "MediaType": "HDD",
    "Manufacturer": "Contoso",
    "SerialNumber": "1234568",
    "PartNumber": "C123-1111",
    "Identifiers": [
        {
            "DurableNameFormat": "NAA",
            "DurableName": "32ADF365C6C1B7BD"
        }
    ],
    "HotspareType": "None",
    "EncryptionAbility": "SelfEncryptingDrive",
    "EncryptionStatus": "Unlocked",
    "RotationSpeedRPM": 15000,
    "BlockSizeBytes": 512,
    "CapableSpeedGbs": 12,
    "NegotiatedSpeedGbs": 12,
    "Links": {
        "Volumes": [
            {
                "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1/Volumes/2"
            },
            {
                "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1/Volumes/3"
            }
        ]
    },
    "Actions": {
        "#Drive.SecureErase": {
            "target": "/redfish/v1/Systems/437XR1138R2/Storage/1/Drives/3D58ECBC375FD9F2/Actions/Drive.SecureErase"
        }
    },
    "@odata.context": "/redfish/v1/$metadata#Drive.Drive",
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1/Drives/3D58ECBC375FD9F2"
}
```


Endpoint 1.3.1

v1.3	*v1.2*	*v1.1*	*v1.0*
2018.3	2018.2	2017.3	2016.2

This resource shall be used to represent a fabric endpoint for a Redfish implementation.

URIs:

/redfish/v1/Fabrics/*{FabricId}*/Endpoints/*{EndpointId}*

ConnectedEntities [{	array		This value of this property shall contain all the entities which this endpoint allows access to.
EntityLink		read-only	This property shall be a reference to an entity of the type specified by the description of the value of the EntityType property.
EntityPciId {	object		The value of this property shall be the PCI ID of the connected PCIe entity.
ClassCode *(v1.2+)*	string	read-only (null)	The value of this property shall be the PCI Class Code, Subclass code, and Programming Interface code of the PCIe device function. Pattern: ^0xX{3}$
DeviceId	string	read-only (null)	The value of this property shall be the PCI Subsystem Vendor ID of the PCIe device function. Pattern: ^0xX{2}$
FunctionNumber *(v1.2+)*	integer	read-only (null)	The value of this property shall be the PCI Function Number of the connected PCIe entity.
SubsystemId	string	read-only (null)	The value of this property shall be the PCI Subsystem Vendor ID of the PCIe device function. Pattern: ^0xX{2}$
SubsystemVendorId	string	read-only (null)	The value of this property shall be the PCI Subsystem Vendor ID of the PCIe device function. Pattern: ^0xX{2}$
VendorId }	string	read-only (null)	The value of this property shall be the PCI Vendor ID of the PCIe device function. Pattern: ^0xX{2}$
EntityRole	string (enum)	read-only (null)	The value of this property shall indicate if the specified entity is an initiator, target, or both. *See EntityRole in Property Details, below, for the possible values of this property.*
EntityType	string (enum)	read-only (null)	The value of this property shall indicate if type of connected entity. *See EntityType in Property Details, below, for the possible values of this property.*
Identifiers [{ }]	array (object)		Identifiers for the remote entity shall be unique in the context of other resources that can reached over the connected network. This type shall contain any additional identifiers of a resource. *See the Identifier object for details on this property.*
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
PciClassCode *(deprecated v1.2)*	string	read-only (null)	The value of this property shall be the PCI Class Code, Subclass code, and Programming Interface code of the PCIe device function. Pattern: ^0xX{3}$ *Deprecated v1.2+. This property has been deprecated in favor of the ClassCode property inside the EntityPciId object.*
PciFunctionNumber *(deprecated v1.2)* }]	integer	read-only (null)	The value of this property shall be the PCI Function Number of the connected PCIe entity. *Deprecated v1.2+. This property has been deprecated in favor of the FunctionNumber property inside the EntityPciId object.*
EndpointProtocol	string (enum)	read-only (null)	The value of this property shall contain the protocol this endpoint uses to communicate with other endpoints on this fabric. *See EndpointProtocol in Property Details, below, for the possible values of this property.*
HostReservationMemoryBytes	integer (bytes)	read-only (null)	The value of this property shall be the amount of memory in Bytes that the Host should allocate to connect to this endpoint.
Identifiers [{ }]	array (object)		Identifiers for this endpoint shall be unique in the context of other endpoints that can reached over the connected network. This type

			shall contain any additional identifiers of a resource. *See the Identifier object for details on this property.*
IPTransportDetails *(v1.1+)* [{	array		This array shall contain the details for each IP transport supported by this endpoint.
IPv4Address { }	object		The value of this property shall specify the IPv4Address. *See the IPv4Address object for details on this property.*
IPv6Address { }	object		The value of this property shall specify the IPv6Address. *See the IPv6Address object for details on this property.*
Port	number	read-only	The value of this property shall be an specify UDP or TCP port number used for communication with the Endpoint.
TransportProtocol }]	string (enum)	read-only	The value shall be the protocol used by the connection entity. *See TransportProtocol in Property Details, below, for the possible values of this property.*
Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
MutuallyExclusiveEndpoints [{	array		The value of this property shall be an array of references of type Endpoint that cannot be used in a zone if this endpoint is used in a zone.
@odata.id }]	string	read-only	*Link to another Endpoint resource.*
NetworkDeviceFunction *(v1.1+)* [{	array		The value of this property shall be a reference to a NetworkDeviceFunction resource, with which this endpoint is associated.
@odata.id }]	string	read-only	*Link to a NetworkDeviceFunction resource. See the Links section and the NetworkDeviceFunction schema for details.*
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
Ports [{	array		The value of this property shall be an array of references of type Port that are utilized by this endpoint.
@odata.id }] }	string	read-only	*Link to a Port resource. See the Links section and the Port schema for details.*
PciId {	object		The value of this property shall be the PCI ID of the endpoint.
ClassCode *(v1.2+)*	string	read-only (null)	The value of this property shall be the PCI Class Code, Subclass code, and Programming Interface code of the PCIe device function. Pattern: ^0xX{3}$
DeviceId	string	read-only (null)	The value of this property shall be the PCI Subsystem Vendor ID of the PCIe device function. Pattern: ^0xX{2}$
FunctionNumber *(v1.2+)*	integer	read-only (null)	The value of this property shall be the PCI Function Number of the connected PCIe entity.
SubsystemId	string	read-only (null)	The value of this property shall be the PCI Subsystem Vendor ID of the PCIe device function. Pattern: ^0xX{2}$
SubsystemVendorId	string	read-only (null)	The value of this property shall be the PCI Subsystem Vendor ID of the PCIe device function. Pattern: ^0xX{2}$
VendorId }	string	read-only (null)	The value of this property shall be the PCI Vendor ID of the PCIe device function. Pattern: ^0xX{2}$
Redundancy [{	array		The values of the properties in this array shall be used to show how this endpoint is grouped with other endpoints for form redundancy sets.

@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*

Property Details

EndpointProtocol:

The value of this property shall contain the protocol this endpoint uses to communicate with other endpoints on this fabric.

string	Description
AHCI	This value shall mean that this device conforms to the Intel Advanced Host Controller Interface Specification.
FC	This value shall mean that this device conforms to the T11 Fibre Channel Physical and Signaling Interface Specification.
FCoE	This value shall mean that this device conforms to the T11 FC-BB-5 Specification.
FCP	This enumeration literal shall indicate the INCITS 481: Information technology - Fibre Channel Protocol for SCSI. The Fibre Channel SCSI Protocol.
FICON	This enumeration literal shall indicate the (ANSI FC-SB-3 Single-Byte Command Code Sets-3 Mapping Protocol for the Fibre Channel(FC) protocol. FICON (FIbre CONnection) is the IBM proprietary name for this protocol.
FTP	This value shall mean that this device conforms to the File Transfer protocol as defined by RFC 114.
HTTP	This value shall mean that this device conforms to the Hypertext Transfer protocol as defined by RFC 2068 or RFC 2616.
HTTPS	This value shall mean that this device conforms to the Hypertext Transfer protocol as defined by RFC 2068 or RFC 2616 utilizing Transport Layer Security as specified by RFC 5246 or RFC 6176.
I2C	This value shall mean that this device conforms to the NXP Semiconductors I2C-bus Specification.
iSCSI	This value shall mean that this device conforms to the IETF Internet Small Computer Systems Interface (iSCSI) Specification.
iWARP	This value shall mean that this device conforms to the iWARP protocol as defined by RFC 5042 utilizing Transport Layer mechanisms as specified by RFC 5043 or RFC 5044.
NFSv3	This value shall mean that this device conforms to the Network File System protocol as defined by RFC 1813.
NFSv4	This value shall mean that this device conforms to the Network File System protocol as defined by RFC 3010 or RFC 5661.
NVMe	This value shall mean that this device conforms to the Non-Volatile Memory Host Controller Interface Specification Specification.
NVMeOverFabrics	This value shall mean that this device conforms to the NVM Express over Fabrics Specification.
OEM	This value shall mean that this device conforms to an OEM specific architecture and additional information may be included in the OEM section.
PCIe	This value shall mean that this device conforms to the PCI-SIG PCI Express Base Specification.
RoCE	This value shall mean that this device conforms to the RDMA over Converged Ethernet protocol as defined by the Infiniband Architecture Specification.
RoCEv2	This value shall mean that this device conforms to the RDMA over Converged Ethernet version 2 protocol as defined by the Infiniband Architecture Specification.
SAS	This value shall mean that this device conforms to the T10 SAS Protocol Layer Specification.
SATA	This value shall mean that this device conforms to the Serial ATA International Organization Serial ATA Specification.

SFTP	This value shall mean that this device conforms to the File Transfer protocol as defined by RFC 114 utilizing Transport Layer Security as specified by RFC 5246 or RFC 6176.
SMB	This value shall mean that this device conforms to the Microsoft Server Message Block Protocol.
UHCI	This value shall mean that this device conforms to the Intel Universal Host Controller Interface Specification, Enhanced Host Controller Interface Specification, or the Extensible Host Controller Interface specification.
USB	This value shall mean that this device conforms to the USB Implementers Forum Universal Serial Bus Specification.

EntityRole:

The value of this property shall indicate if the specified entity is an initiator, target, or both.

string	Description
Both	The entity is able to both send and receive commands, messages, or other types of requests to other entities on the fabric.
Initiator	The entity sends commands, messages, or other types of requests to other entities on the fabric, but does not have the ability to recieve commands from other entities.
Target	The entity receives commands, messages, or other types of requests from other entities on the fabric, but does not have the ability to send commands to other entities.

EntityType:

The value of this property shall indicate if type of connected entity.

string	Description
AccelerationFunction *(v1.3+)*	The entity is an acceleration function realized through a device, such as an FPGA. The EntityLink property (if present) should be a AccelerationFunction.AccelerationFunction entity.
Bridge	The entity is a PCI(e) bridge.
DisplayController	The entity is a display controller.
Drive	The entity is a disk drive. The EntityLink property (if present) should be a Drive.Drive entity.
NetworkController	The entity is a network controller. The EntityLink property (if present) should be an EthernetInterface.EthernetInterface entity.
Processor	The entity is a processor device.
RootComplex	The entity is a PCI(e) root complex. The EntityLink property (if present) should be a ComputerSystem.ComputerSystem entity.
StorageExpander	The entity is a storage expander. The EntityLink property (if present) should be a Chassis.Chassis entity.
StorageInitiator	The entity is a storage initator. The EntityLink property (if present) should be a Storage.StorageController entity.
Volume *(v1.1+)*	The entity is a volume. The EntityLink property (if present) should be a Volume.Volume entity.

TransportProtocol:

The value shall be the protocol used by the connection entity.

string	Description
AHCI	This value shall mean that this device conforms to the Intel Advanced Host Controller Interface Specification.
FC	This value shall mean that this device conforms to the T11 Fibre Channel Physical and Signaling Interface Specification.
FCoE	This value shall mean that this device conforms to the T11 FC-BB-5 Specification.
FCP	This enumeration literal shall indicate the INCITS 481: Information technology - Fibre Channel Protocol for SCSI. The Fibre Channel SCSI Protocol.

FICON	This enumeration literal shall indicate the (ANSI FC-SB-3 Single-Byte Command Code Sets-3 Mapping Protocol for the Fibre Channel(FC) protocol. FICON (FIbre CONnection) is the IBM proprietary name for this protocol.
FTP	This value shall mean that this device conforms to the File Transfer protocol as defined by RFC 114.
HTTP	This value shall mean that this device conforms to the Hypertext Transfer protocol as defined by RFC 2068 or RFC 2616.
HTTPS	This value shall mean that this device conforms to the Hypertext Transfer protocol as defined by RFC 2068 or RFC 2616 utilizing Transport Layer Security as specified by RFC 5246 or RFC 6176.
I2C	This value shall mean that this device conforms to the NXP Semiconductors I2C-bus Specification.
iSCSI	This value shall mean that this device conforms to the IETF Internet Small Computer Systems Interface (iSCSI) Specification.
iWARP	This value shall mean that this device conforms to the iWARP protocol as defined by RFC 5042 utilizing Transport Layer mechanisms as specified by RFC 5043 or RFC 5044.
NFSv3	This value shall mean that this device conforms to the Network File System protocol as defined by RFC 1813.
NFSv4	This value shall mean that this device conforms to the Network File System protocol as defined by RFC 3010 or RFC 5661.
NVMe	This value shall mean that this device conforms to the Non-Volatile Memory Host Controller Interface Specification Specification.
NVMeOverFabrics	This value shall mean that this device conforms to the NVM Express over Fabrics Specification.
OEM	This value shall mean that this device conforms to an OEM specific architecture and additional information may be included in the OEM section.
PCIe	This value shall mean that this device conforms to the PCI-SIG PCI Express Base Specification.
RoCE	This value shall mean that this device conforms to the RDMA over Converged Ethernet protocol as defined by the Infiniband Architecture Specification.
RoCEv2	This value shall mean that this device conforms to the RDMA over Converged Ethernet version 2 protocol as defined by the Infiniband Architecture Specification.
SAS	This value shall mean that this device conforms to the T10 SAS Protocol Layer Specification.
SATA	This value shall mean that this device conforms to the Serial ATA International Organization Serial ATA Specification.
SFTP	This value shall mean that this device conforms to the File Transfer protocol as defined by RFC 114 utilizing Transport Layer Security as specified by RFC 5246 or RFC 6176.
SMB	This value shall mean that this device conforms to the Microsoft Server Message Block Protocol.
UHCI	This value shall mean that this device conforms to the Intel Universal Host Controller Interface Specification, Enhanced Host Controller Interface Specification, or the Extensible Host Controller Interface specification.
USB	This value shall mean that this device conforms to the USB Implementers Forum Universal Serial Bus Specification.

Example Response

```
{
    "@odata.type": "#Endpoint.v1_2_0.Endpoint",
    "Id": "Drive1",
    "Name": "SAS Drive",
    "Description": "The SAS Drive in Enclosure 2 Bay 0",
    "EndpointProtocol": "SAS",
    "ConnectedEntities": [
        {
            "EntityType": "Drive",
            "EntityRole": "Target",
            "Identifiers": [
                {
                    "DurableNameFormat": "NAA",
                    "DurableName": "32ADF365C6C1B7C3"
                }
            ],
            "Oem": {}
        }
```

```
    ],
    "Links": {
        "MutuallyExclusiveEndpoints": [
            {
                "@odata.id": "/redfish/v1/Fabrics/SAS/Endpoints/Enclosure2"
            }
        ],
        "Ports": [
            {
                "@odata.id": "/redfish/v1/Fabrics/SAS/Switches/Switch1/Ports/8"
            },
            {
                "@odata.id": "/redfish/v1/Fabrics/SAS/Switches/Switch2/Ports/8"
            }
        ],
        "Oem": {}
    },
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#Endpoint.Endpoint",
    "@odata.id": "/redfish/v1/Fabrics/SAS/Endpoints/Drive1"
}
```


EthernetInterface 1.5.0

v1.5	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
2019.1	2017.3	2017.1	2016.3	2016.2	1.0

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

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/EthernetInterfaces/*{EthernetInterfaceId}*

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/EthernetInterfaces/*{EthernetInterfaceId}*

/redfish/v1/Managers/*{ManagerId}*/EthernetInterfaces/*{EthernetInterfaceId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/EthernetInterfaces/*{EthernetInterfaceId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/EthernetInterfaces/*{EthernetInterfaceId}*

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

AutoNeg	boolean	read-write (null)	The value of this property shall be true if auto negotiation of speed and duplex is enabled on this interface and false if it is disabled.
DHCPv4 *(v1.4+)* {	object		This property shall contain the configuration of DHCP v4.
DHCPEnabled	boolean	read-write (null)	This property shall indicate whether DHCP v4 is enabled for this EthernetInterface.
FallbackAddress *(v1.5+)*	string (enum)	read-write (null)	This property shall contain the fallback address method of DHCPv4. *See FallbackAddress in Property Details, below, for the possible values of this property.*
UseDNSServers	boolean	read-write (null)	This property shall indicate whether the interface will use DHCPv4-supplied DNS servers.
UseDomainName	boolean	read-write (null)	This property shall indicate whether the interface will use a DHCPv4-supplied domain name.
UseGateway	boolean	read-write (null)	This property shall indicate whether the interface will use a DHCPv4-supplied gateway.
UseNTPServers	boolean	read-write (null)	This property shall indicate whether the interface will use DHCPv4-supplied NTP servers.
UseStaticRoutes }	boolean	read-write (null)	This property shall indicate whether the interface will use a DHCPv4-supplied static routes.
DHCPv6 *(v1.4+)* {	object		This property shall contain the configuration of DHCP v6.
OperatingMode	string (enum)	read-write (null)	This property shall control the operating mode of DHCPv6 on this interface. DHCPv6 stateful mode is used to configure addresses, and when it is enabled, stateless mode is also implicitly enabled. *See OperatingMode in Property Details, below, for the possible values of this property.*
UseDNSServers	boolean	read-write	This property shall indicate whether the interface will use DHCPv6-

		(null)	supplied DNS servers.
UseDomainName	boolean	read-write (null)	This property shall indicate whether the interface will use a domain name supplied through DHCPv6 stateless mode.
UseNTPServers	boolean	read-write (null)	This property shall indicate whether the interface will use DHCPv6-supplied NTP servers.
UseRapidCommit }	boolean	read-write (null)	This property shall indicate whether the interface will use DHCPv6 rapid commit mode for stateful mode address assignments.
FQDN	string	read-write (null)	The value of this property shall be the fully qualified domain name for this interface.
FullDuplex	boolean	read-write (null)	The value of this property shall represent the duplex status of the Ethernet connection on this interface.
HostName	string	read-write (null)	The value of this property shall be host name for this interface.
InterfaceEnabled	boolean	read-write (null)	The value of this property shall be a boolean indicating whether this interface is enabled.
IPv4Addresses [{ }]	array (object)		The value of this property shall be an array of objects used to represent the IPv4 connection characteristics for this interface. It is recommended that this propety be regarded as read-only, with configuration of static addresses performed by updating the values within IPv4StaticAddessses. Services may reject updates to this array for this reason. This type shall describe an IPv4 address assigned to an interface. *See the IPv4Address object for details on this property.*
IPv4StaticAddresses [{ }]	array (object)		The value of this property shall be an array of objects used to represent all IPv4 static addresses assigned (but not necessarily in use) to this interface. Addresses in use by this interface shall also appear in the IPv4Addresses property. This type shall describe an IPv4 address assigned to an interface. *See the IPv4Address object for details on this property.*
IPv6Addresses [{ }]	array (object)		The value of this property shall be an array of objects used to represent the IPv6 connection characteristics for this interface. This type shall describe an IPv6 address assigned to an interface. *See the IPv6Address object for details on this property.*
IPv6AddressPolicyTable [{	array		The value of this property shall be an array of objects used to represent the Address Selection Policy Table as defined in RFC 6724.
Label	integer	read-write (null)	This property shall contain the IPv6 Label value for this table entry as defined in RFC 6724 section 2.1.
Precedence	integer	read-write (null)	This property shall contain the IPv6 Precedence value for this table entry as defined in RFC 6724 section 2.1.
Prefix }]	string	read-write (null)	This property shall contain the IPv6 Address Prefix for this table entry as defined in RFC 6724 section 2.1.
IPv6DefaultGateway	string	read-only (null)	The value of this property shall be the current IPv6 default gateway address that is in use on this interface.
IPv6StaticAddresses [{ }]	array (object)		The value of this property shall be an array of objects used to represent the IPv6 static connection characteristics for this interface. This type shall represent a single IPv6 static address to be assigned on a network interface. *See the IPv6StaticAddress object for details on this property.*
IPv6StaticDefaultGateways [{ }]	array (object)		The values in this array shall represent the IPv6 static default gateway addresses for this interface. This type shall represent a single IPv6 static address to be assigned on a network interface. *See the IPv6GatewayStaticAddress object (v1.1.0) for details on this property.*
Links *(v1.1+)* {	object		The Links property, as described by the Redfish Specification, shall

			contain references to resources that are related to, but not contained by (subordinate to), this resource.
Chassis *(v1.3+)* {	object		The value of this property shall be a reference to a resource of type Chassis that represent the physical container associated with this Ethernet Interface. *See the Chassis schema for details on this property.*
@odata.id }	string	read-only	*Link to a Chassis resource. See the Links section and the Chassis schema for details.*
Endpoints [{	array		The value of this property shall be a reference to the resources that this ethernet interface is associated with and shall reference a resource of type Endpoint.
@odata.id }]	string	read-only	*Link to a Endpoint resource. See the Links section and the Endpoint schema for details.*
HostInterface *(v1.2+)* {	object		The value of this property shall be a reference to a resource of type HostInterface which represents the interface used by a host to communicate with a Manager. *See the HostInterface schema for details on this property.*
@odata.id }	string	read-only	*Link to a HostInterface resource. See the Links section and the HostInterface schema for details.*
Oem { } }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
LinkStatus *(v1.1+)*	string (enum)	read-only (null)	The value of this property shall be the link status of this interface (port). *See LinkStatus in Property Details, below, for the possible values of this property.*
MACAddress	string	read-write (null)	The value of this property shall be the effective current MAC Address of this interface. If an assignable MAC address is not supported, this is a read only alias of the PermanentMACAddress. Pattern: ^([0-9A-Fa-f]{2}[:-]){5}([0-9A-Fa-f]{2})$
MaxIPv6StaticAddresses	integer	read-only (null)	The value of this property shall indicate the number of array items supported by IPv6StaticAddresses.
MTUSize	integer	read-write (null)	The value of this property shall be the size in bytes of largest Protocol Data Unit (PDU) that can be passed in an Ethernet (MAC) frame on this interface.
NameServers [ ]	array (string)	read-only	The value of this property shall be the DNS name servers used on this interface.
PermanentMACAddress	string	read-only (null)	The value of this property shall be the Permanent MAC Address of this interface (port). This value is typically programmed during the manufacturing time. This address is not assignable. Pattern: ^([0-9A-Fa-f]{2}[:-]){5}([0-9A-Fa-f]{2})$
SpeedMbps	integer (Mbit/s)	read-write (null)	The value of this property shall be the link speed of the interface in Mbps.
StatelessAddressAutoConfig *(v1.4+)* {	object		This object shall contain the IPv4 and IPv6 Stateless Address Automatic Configuration (SLAAC) properties for this interface.
IPv4AutoConfigEnabled	boolean	read-write (null)	This property shall indicate whether IPv4 Stateless Address Auto-Configuration (SLAAC) is enabled for this interface.
IPv6AutoConfigEnabled }	boolean	read-write (null)	This property shall indicate whether IPv6 Stateless Address Auto-Configuration (SLAAC) is enabled for this interface.
StaticNameServers *(v1.4+)* [ ]	array (string, null)	read-write	A statically defined set of DNS server IP addresses to be used when DHCP provisioning is not in enabled for name server configuration. As an implementation option they may also be used in addition to DHCP provided addresses, or in cases where the DHCP server provides no DNS assigments.
Status { }	object		This property shall contain any status or health properties of the

			resource. *See the Status object for details on this property.*
UefiDevicePath	string	read-only (null)	The value of this property shall be the UEFI device path to the device which implements this interface (port).
VLAN {	object		The value of this property shall be the VLAN for this interface. If this interface supports more than one VLAN, the VLAN property shall not be present and the VLANS collection link shall be present instead. *See the VLanNetworkInterface schema for details on this property.*
@odata.id }	string	read-only	*Link to a VLAN resource. See the Links section and the VLanNetworkInterface schema for details.*
VLANs {	object		The value of this property shall reference a collection of VLAN resources. If this property is used, the VLANEnabled and VLANId property shall not be used. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of VLanNetworkInterface. See the VLanNetworkInterface schema for details.*

Property Details

FallbackAddress:

This property shall contain the fallback address method of DHCPv4.

string	Description
AutoConfig	DHCP shall fall back to an address generated by the implementation.
None	DHCP shall continue trying to obtain an address without falling back to a fixed address.
Static	DHCP shall fall back to a static address specified by IPv4StaticAddresses.

LinkStatus:

The value of this property shall be the link status of this interface (port).

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

OperatingMode:

This property shall control the operating mode of DHCPv6 on this interface. DHCPv6 stateful mode is used to configure addresses, and when it is enabled, stateless mode is also implicitly enabled.

string	Description
Disabled	DHCPv6 shall be disabled for this interface.
Stateful	DHCPv6 shall operate in stateful mode on this interface. DHCPv6 stateful mode is used to configure addresses, and when it is enabled, stateless mode is also implicitly enabled.
Stateless	DHCPv6 shall operate in stateless mode on this interface. DHCPv6 stateless mode allows configuring the interface using DHCP options but does not configure addresses. It is always enabled by default whenever DHCPv6 Stateful mode is also enabled.

Example Response


```
{
    "@odata.type": "#EthernetInterface.v1_4_1.EthernetInterface",
    "Id": "1",
    "Name": "Ethernet Interface",
    "Description": "Manager NIC 1",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "LinkStatus": "LinkUp",
    "PermanentMACAddress": "12:44:6A:3B:04:11",
```

```
    "MACAddress": "12:44:6A:3B:04:11",
    "SpeedMbps": 1000,
    "AutoNeg": true,
    "FullDuplex": true,
    "MTUSize": 1500,
    "HostName": "web483",
    "FQDN": "web483.contoso.com",
    "NameServers": [
        "names.contoso.com"
    ],
    "IPv4Addresses": [
        {
            "Address": "192.168.0.10",
            "SubnetMask": "255.255.252.0",
            "AddressOrigin": "DHCP",
            "Gateway": "192.168.0.1"
        }
    ],
    "DHCPv4": {
        "DHCPEnabled": true,
        "UseDNSServers": true,
        "UseGateway": true,
        "UseNTPServers": false,
        "UseStaticRoutes": true,
        "UseDomainName": true
    },
    "DHCPv6": {
        "OperatingMode": "Stateful",
        "UseDNSServers": true,
        "UseDomainName": false,
        "UseNTPServers": false,
        "UseRapidCommit": false
    },
    "StatelessAddressAutoConfig": {
        "IPv4AutoConfigEnabled": false,
        "IPv6AutoConfigEnabled": true
    },
    "IPv4StaticAddresses": [
        {
            "Address": "192.168.88.130",
            "SubnetMask": "255.255.0.0",
            "Gateway": "192.168.0.1"
        }
    ],
    "IPv6AddressPolicyTable": [
        {
            "Prefix": "::1/128",
            "Precedence": 50,
            "Label": 0
        }
    ],
    "MaxIPv6StaticAddresses": 1,
    "IPv6StaticAddresses": [
        {
            "Address": "fc00:1234::a:b:c:d",
            "PrefixLength": 64
        }
    ],
    "IPv6StaticDefaultGateways": [
        {
            "Address": "fe80::fe15:b4ff:fe97:90cd",
            "PrefixLength": 64
        }
    ],
    "IPv6DefaultGateway": "fe80::214:c1ff:fe4c:5c4d",
    "IPv6Addresses": [
        {
            "Address": "fe80::1ec1:deff:fe6f:1e24",
            "PrefixLength": 64,
            "AddressOrigin": "SLAAC",
            "AddressState": "Preferred",
            "Oem": {}
        },
        {
            "Address": "fc00:1234::a:b:c:d",
            "PrefixLength": 64,
            "AddressOrigin": "Static",
            "AddressState": "Preferred",
            "Oem": {}
        },
        {
            "Address": "2001:1:3:5::100",
            "PrefixLength": 64,
            "AddressOrigin": "DHCPv6",
            "AddressState": "Preferred",
            "Oem": {}
        },
        {
            "Address": "2002:2:5::1ec1:deff:fe6f:1e24",
            "PrefixLength": 64,
            "AddressOrigin": "SLAAC",
            "AddressState": "Preferred",
            "Oem": {}
        }
    ],
    "StaticNameServers": [
        "192.168.150.1",
        "fc00:1234:200:2500"
    ],
    "VLAN": {
        "VLANEnable": true,
        "VLANId": 101
    },
    "@odata.context": "/redfish/v1/$metadata#EthernetInterface.EthernetInterface",
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/EthernetInterfaces/12446A3B0411"
}
```

Event 1.4.0

v1.4	*v1.3*	*v1.2*	*v1.1*	*v1.0*
2019.1	2018.2	2017.1	2016.1	1.0

This resource shall be used to represent an event for a Redfish implementation.

Context *(v1.1+)*	string	read-only	This property shall contain a client supplied context for the Event Destination to which this event is being sent.
Events [{	array	required	The value of this resource shall be an array of Event objects used to represent the occurrence of one or more events.
Actions *(v1.2+)* { }	object		The Actions property shall contain the available actions for this resource.
Context *(deprecated v1.2)*	string	read-only	This property shall contain a client supplied context for the Event Destination to which this event is being sent. *Deprecated v1.2+. Events are triggered independently from subscriptions to those events. This property has been Deprecated in favor of Event.v1_0_2.Event.Context*
EventGroupId *(v1.3+)*	integer	read-only	The value of this property shall indicate that events are related and shall have the same value in the case where multiple Event messages are produced by the same root cause. Implementations shall use separate values for events with separate root cause. There shall not be ordering of events implied by the value of this property.
EventId	string	read-only	The value of this property shall indicate a unique identifier for the event, the format of which is implementation dependent.
EventTimestamp	string	read-only	The value of this property shall indicate the time the event occurred where the value shall be consistent with the Redfish service time that is also used for the values of the Modified property.
EventType *(deprecated v1.3)*	string (enum)	read-only required	The value of this property shall indicate the type of event as defined in the EventService schema. *See EventType in Property Details, below, for the possible values of this property. Deprecated v1.3+. This property has been deprecated. Starting Redfish Spec 1.6 (Event 1.3), subscriptions are based on RegistryId and ResourceType and not EventType.*
MemberId	string	read-only required	The value of this string shall uniquely identify the member within the collection. For services supporting Redfish v1.6 or higher, this value shall be the zero-based array index.
Message	string	read-only	This property shall contain an optional human readable message.
MessageArgs [ ]	array (string)	read-only	This property has the same semantics as the MessageArgs property in the Event schema for Redfish.
MessageId	string	read-only required	This property shall be a key into message registry as described in the Redfish specification. Pattern: ^[A-Za-z0-9]+.\d+.\d+.[A-Za-z0-9.]+$
Oem { }	object		The value of this string shall be of the format for the reserved word *Oem*.
OriginOfCondition {	object		The value of this property shall contain a pointer consistent with JSON pointer syntax to the resource that caused the event to be generated.
@odata.id }	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Severity }]	string	read-only	The value of this property shall be the severity of the event, as defined in the Status section of the Redfish specification.

Property Details

EventType:

The value of this property shall indicate the type of event as defined in the EventService schema.

string	Description

Alert	
MetricReport	Events of type MetricReport shall be sent to a client in accordance with the MetricReport schema definition.
Other	Events of type 'Other' shall be sent to a client in accordance with subscriptions to RegistryPrefixes or ResourceTypes.
ResourceAdded	
ResourceRemoved	
ResourceUpdated	
StatusChange	

EventDestination 1.5.0

v1.5	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
2019.1	2018.2	2018.1	2017.1	2016.2	1.0

This resource shall be used to represent the target of an event subscription, including the types of events subscribed and context to provide to the target in the Event payload.

URIs:

/redfish/v1/EventService/Subscriptions/*{EventDestinationId}*

Context	string	read-write required (null)	This property shall contain a client supplied context that will remain with the connection through the connections lifetime.
Destination	string	read-only required on create	This property shall contain a URI to the destination where the events will be sent.
EventFormatType *(v1.4+)*	string (enum)	read-only (null)	The value of this property shall indicate the the content types of the message that this service will send to the EventDestination. If this property is not present, the EventFormatType shall be assumed to be Event. *See EventFormatType in Property Details, below, for the possible values of this property.*
EventTypes [ ]	array (string (enum))	read-only	This property shall be an array that contains the types of events that shall be sent to the destination. To specify that a client is subscribing for Metric Reports, the EventTypes property should include 'MetricReport'. If this property is not included in a subscription, the service shall use a single element with a default value of 'Other'. *See EventTypes in Property Details, below, for the possible values of this property.*
HttpHeaders [{	array		This property shall contain an object consisting of the names and values of of HTTP header to be included with every event POST to the Event Destination. This property shall be null or an empty array on a GET. An empty array is the preferred return value on GET.
(pattern) { } [ ]	array, boolean, integer, number, object, string	(null)	Property names follow regular expression pattern "^([a-zA-Z_][a-zA-Z0-9_]*)?@(odata|Redfish|Message)\.[a-zA-Z_][a-zA-Z0-9_]*$"
(pattern) }]	string	read-write	Property names follow regular expression pattern "^[^:\\s]+$"
MessageIds *(v1.1+)* [ ]	array (string, null)	read-only	The value of this property shall specify an array of MessageIds that are the only allowable values for the MessageId property within an EventRecord sent to the subscriber. Events with MessageIds not contained in this array shall not be sent to the subscriber. If this property is absent or the array is empty, the service shall send Events

			with any MessageId to the subscriber.
OriginResources *(v1.1+)* [{	array		The value of this property shall specify an array of Resources, Resource Collections, or Referenceable Members that are the only allowable values for the OriginOfCondition property within an EventRecord sent to the subscriber. Events originating from Resources, Resource Collections, or Referenceable Members not contained in this array shall not be sent to the subscriber. If this property is absent or the array is empty, the service shall send Events originating from any Resource, Resource Collection, or Referenceable Member to the subscriber.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Protocol	string (enum)	read-only required on create	This property shall contain the protocol type that the event will use for sending the event to the destination. A value of Redfish shall be used to indicate that the event type shall adhere to that defined in the Redfish specification. *See Protocol in Property Details, below, for the possible values of this property.*
RegistryPrefixes *(v1.4+)* [ ]	array (string, null)	read-only	The value of this property is the array of the Prefixes of the Message Registries that contain the MessageIds in the Events that shall be sent to the EventDestination. If this property is absent or the array is empty, the service shall send Events with MessageIds from any Message Registry.
ResourceTypes *(v1.4+)* [ ]	array (string, null)	read-only	The value of this property shall specify an array of Resource Type values. When an event is generated, if the OriginOfCondition's Resource Type matches a value in this array, the event shall be sent to the event destination (unless it would be filtered by other property conditions such as RegistryPrefix). If this property is absent or the array is empty, the service shall send Events from any Resource Type to the subscriber. The value of this property shall be only the general namespace for the type and not the versioned value. For example, it shall not be Task.v1_2_0.Task and instead shall just be Task. To specify that a client is subscribing for Metric Reports, the EventTypes property should include 'MetricReport'.
SubordinateResources *(v1.4+)*	boolean	read-only (null)	When set to true and OriginResources is specified, indicates the subscription shall be for events from the OriginsResources specified and all subordinate resources. When set to false and OriginResources is specified, indicates subscription shall be for events only from the OriginResources. If OriginResources is not specified, it has no relevance.
SubscriptionType *(v1.3+)*	string (enum)	read-only required (null)	The value of this property shall indicate the type of subscription for events. If this property is not present, the SubscriptionType shall be assumed to be RedfishEvent. *See SubscriptionType in Property Details, below, for the possible values of this property.*

Property Details

EventFormatType:

The value of this property shall indicate the the content types of the message that this service will send to the EventDestination. If this property is not present, the EventFormatType shall be assumed to be Event.

string	Description
Event	The subscription destination will receive JSON Bodies of the Resource Type Event.
MetricReport	The subscription destination will receive JSON Bodies of the Resource Type MetricReport.

EventTypes:

This property shall be an array that contains the types of events that shall be sent to the destination. To specify that a client is subscribing for Metric Reports, the EventTypes property should include 'MetricReport'. If this property is not included in a subscription, the service shall use a single element with a default value of 'Other'.

string	Description
Alert	
MetricReport	Events of type MetricReport shall be sent to a client in accordance with the MetricReport schema definition.
Other	Events of type 'Other' shall be sent to a client in accordance with subscriptions to RegistryPrefixes or ResourceTypes.
ResourceAdded	
ResourceRemoved	
ResourceUpdated	
StatusChange	

Protocol:

This property shall contain the protocol type that the event will use for sending the event to the destination. A value of Redfish shall be used to indicate that the event type shall adhere to that defined in the Redfish specification.

string	Description
Redfish	The destination follows the Redfish specification for event notifications.

SubscriptionType:

The value of this property shall indicate the type of subscription for events. If this property is not present, the SubscriptionType shall be assumed to be RedfishEvent.

string	Description
RedfishEvent	The subscription follows the Redfish specification for event notifications, which is done by a service sending an HTTP POST to the subscriber's destination URI.
SSE	The subscription follows the HTML5 Server-Sent Event definition for event notifications.

Example Response

```
{
    "@odata.type": "#EventDestination.v1_4_0.EventDestination",
    "Id": "1",
    "Name": "EventSubscription 1",
    "Destination": "http://www.dnsname.com/Destination1",
    "SubscriptionType": "RedfishEvent",
    "EventTypes": [
        "Alert"
    ],
    "Context": "WebUser3",
    "Protocol": "Redfish",
    "@odata.context": "/redfish/v1/$metadata#EventDestination.EventDestination",
    "@odata.id": "/redfish/v1/EventService/Subscriptions/1"
}
```

EventService 1.3.0

v1.3	*v1.2*	*v1.1*	*v1.0*
2019.1	2018.2	2018.1	1.0

This resource shall be used to represent an event service for a Redfish implementation.

URIs:

/redfish/v1/EventService

DeliveryRetryAttempts	integer	read-write	The value of this property shall be the number of retrys attempted for any given event to the subscription destination before the subscription is terminated. This retry is at the service level, meaning the HTTP POST to the Event Destination was returned by the HTTP operation as unsuccessful (4xx or 5xx return code) or an HTTP timeout occurred this many times before the Event Destination subscription is terminated.

DeliveryRetryIntervalSeconds	integer (seconds)	read-write	The value of this property shall be the interval in seconds between the retry attempts for any given event to the subscription destination.
EventFormatTypes [ ]	array (string (enum))	read-only (null)	The value of this property shall indicate the the content types of the message that this service can send to the event destination. If this property is not present, the EventFormatType shall be assumed to be Event. *See EventFormatTypes in Property Details, below, for the possible values of this property.*
EventTypesForSubscription [ ]	array (string (enum))	read-only	The value of this property shall be the types of events that subscriptions can subscribe to. The semantics associated with the enumerations values are defined in the Redfish specification. *See EventTypesForSubscription in Property Details, below, for the possible values of this property.*
RegistryPrefixes *(v1.2+)* [ ]	array (string, null)	read-only	The value of this property is the array of the Prefixes of the Message Registries that shall be allowed for an Event Subscription.
ResourceTypes *(v1.2+)* [ ]	array (string, null)	read-only	The value of this property shall specify an array of the valid @odata.type values that can be used for an Event Subscription.
ServerSentEventUri *(v1.1+)*	string	read-only	The value of this property shall be a URI that specifies an HTML5 Server-Sent Event conformant endpoint.
ServiceEnabled	boolean	read-write (null)	The value of this property shall be a boolean indicating whether this service is enabled.
SSEFilterPropertiesSupported *(v1.2+)* {	object		The value of this property shall contain a set of properties that indicate which properties are supported in the $filter query parameter for the URI indicated by the ServerSentEventUri property.
EventFormatType	boolean	read-only	The value of this property shall be a boolean indicating if this service supports the use of the EventFormatType property in the $filter query parameter as described by the specification.
EventType *(deprecated v1.3)*	boolean	read-only	The value of this property shall be a boolean indicating if this service supports the use of the EventType property in the $filter query parameter as described by the specification. *Deprecated v1.3+. This property has been deprecated. Starting Redfish Spec 1.6 (Event 1.3), subscriptions are based on RegistryId and ResourceType and not EventType.*
MessageId	boolean	read-only	The value of this property shall be a boolean indicating if this service supports the use of the MessageId property in the $filter query parameter as described by the specification.
MetricReportDefinition	boolean	read-only	The value of this property shall be a boolean indicating if this service supports the use of the MetricReportDefinition property in the $filter query parameter as described by the specification.
OriginResource	boolean	read-only	The value of this property shall be a boolean indicating if this service supports the use of the OriginResource property in the $filter query parameter as described by the specification.
RegistryPrefix	boolean	read-only	The value of this property shall be a boolean indicating if this service supports the use of the RegistryPrefix property in the $filter query parameter as described by the specification.
ResourceType }	boolean	read-only	The value of this property shall be a boolean indicating if this service supports the use of the ResourceType property in the $filter query parameter as described by the specification.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
SubordinateResourcesSupported *(v1.2+)*	boolean	read-only	When set to true, the service is indicating that it supports the

		(null)	SubordinateResource property on Event Subscriptions and on generated Events.
Subscriptions {	object		The value of this property shall contain the link to a collection of type EventDestinationCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of EventDestination. See the EventDestination schema for details.*

Actions

SubmitTestEvent

This action shall add a test event to the event service with the event data specified in the action parameters. This message should then be sent to any appropriate ListenerDestination targets.

URIs:

/redfish/v1/EventService/Actions/EventService.SubmitTestEvent

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
EventGroupId	integer	read-write	The parameter shall have the same semantics as the EventGroupId property in the Event schema for Redfish.
EventId	string	read-write required	This parameter shall have the same semantics as the EventId property in the Event schema for Redfish.
EventTimestamp	string	read-write required	This parameter shall have the same semantics as the EventTimestamp property in the Event schema for Redfish.
EventType	string (enum)	read-write	This parameter shall define the property name for which the following allowable values apply. *See EventType in Property Details, below, for the possible values of this property.*
Message	string	read-write required	This parameter shall have the same semantics as the Message property in the Event schema for Redfish.
MessageArgs [ ]	array (string)	read-write required	This parameter shall have the same semantics as the MessageArgs property in the Event schema for Redfish.
MessageId	string	read-write required	This parameter shall have the same semantics as the MessageId property in the Event schema for Redfish.
OriginOfCondition	string	read-write required	This parameter shall be a string that represents the URL contained by the OriginOfCondition property in the Event schema for Redfish.
Severity }	string	read-write required	This parameter shall have the same semantics as the Severity property in the Event schema for Redfish.

Property Details

EventFormatTypes:

The value of this property shall indicate the the content types of the message that this service can send to the event destination. If this property is not present, the EventFormatType shall be assumed to be Event.

string	Description
Event	The subscription destination will receive JSON Bodies of the Resource Type Event.
MetricReport	The subscription destination will receive JSON Bodies of the Resource Type MetricReport.

EventType:

This parameter shall define the property name for which the following allowable values apply.

string	Description
Alert	

MetricReport	Events of type MetricReport shall be sent to a client in accordance with the MetricReport schema definition.
Other	Events of type 'Other' shall be sent to a client in accordance with subscriptions to RegistryPrefixes or ResourceTypes.
ResourceAdded	
ResourceRemoved	
ResourceUpdated	
StatusChange	

EventTypesForSubscription:

The value of this property shall be the types of events that subscriptions can subscribe to. The semantics associated with the enumerations values are defined in the Redfish specification.

string	Description
Alert	
MetricReport	Events of type MetricReport shall be sent to a client in accordance with the MetricReport schema definition.
Other	Events of type 'Other' shall be sent to a client in accordance with subscriptions to RegistryPrefixes or ResourceTypes.
ResourceAdded	
ResourceRemoved	
ResourceUpdated	
StatusChange	

Example Response


```
{
    "@odata.type": "#EventService.v1_2_0.EventService",
    "Id": "EventService",
    "Name": "Event Service",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "ServiceEnabled": true,
    "DeliveryRetryAttempts": 3,
    "DeliveryRetryIntervalSeconds": 60,
    "ServerSentEventUri": "/redfish/v1/EventService/SSE",
    "EventTypesForSubscription": [
        "StatusChange",
        "ResourceUpdated",
        "ResourceAdded",
        "ResourceRemoved",
        "Alert"
    ],
    "Subscriptions": {
        "@odata.id": "/redfish/v1/EventService/Subscriptions"
    },
    "Actions": {
        "#EventService.SubmitTestEvent": {
            "target": "/redfish/v1/EventService/Actions/EventService.SubmitTestEvent",
            "EventType@Redfish.AllowableValues": [
                "StatusChange",
                "ResourceUpdated",
                "ResourceAdded",
                "ResourceRemoved",
                "Alert"
            ]
        },
        "Oem": {}
    },
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#EventService.EventService",
    "@odata.id": "/redfish/v1/EventService"
}
```


ExternalAccountProvider 1.1.1

v1.1	*v1.0*
2018.3	2018.1

This resource shall be used to represent resources that represent external user account services for this manager.

URIs:

/redfish/v1/AccountService/ExternalAccountProviders/*{ExternalAccountProviderId}*

/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/ExternalAccountProviders/*{ExternalAccountProviderId}*

AccountProviderType	string (enum)	read-only required on create (null)	The value of this property shall be the type of external account provider referenced by this resource. *See AccountProviderType in Property Details, below, for the possible values of this property.*
Authentication {	object		The value of this property shall contain the authentication information for the external account provider.
AuthenticationType	string (enum)	read-write (null)	The value of this property shall be the type of authentication used to connect to the external account provider. *See AuthenticationType in Property Details, below, for the possible values of this property.*
KerberosKeytab	string	read-write (null)	The value of this property shall be a base64 encoded version of the kerberos keytab for this account service. The value shall be null for GET requests.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
Password	string	read-write (null)	The value of this property shall be the password for this account service. The value shall be null for GET requests.
Token	string	read-write (null)	The value of this property shall be the token for this account service. The value shall be null for GET requests.
Username }	string	read-write	The value of this property shall be the user name for this account service.
Certificates *(v1.1+)* {	object		The value of this property shall be a link to a collection of type CertificateCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Certificate. See the Certificate schema for details.*
LDAPService {	object		The value of this property shall contain any additional mapping information needed to parse a generic LDAP service.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
SearchSettings {	object		The value of this property shall contain the settings needed to search an external LDAP service.
BaseDistinguishedNames [ ]	array (string, null)	read-write	The value of this property shall be a collection of base distinguished names to use when searching the LDAP service.
GroupNameAttribute	string	read-write (null)	The value of this property shall be the attribute name that contains the name of the Group.
GroupsAttribute	string	read-write (null)	The value of this property shall be the attribute name that contains the Groups for a user.
UsernameAttribute } }	string	read-write (null)	The value of this property shall be the attribute name that contains the Username.
Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.

Oem { } }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
RemoteRoleMapping [{	array		This property shall contain a collection of the mapping rules to convert the external account providers account information to the local Redfish Role.
LocalRole	string	read-write (null)	The value of this property shall contain the value of the RoleId property within a Role resource on this Redfish service in which to map the remote user or group.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
RemoteGroup	string	read-write (null)	The value of this property shall contain the name of the remote group (or in the case of a Redfish Service, remote role) that will be mapped to the local role referenced by this entity.
RemoteUser }]	string	read-write (null)	The value of this property shall contain the name of the remote user that will be mapped to the local role referenced by this entity.
ServiceAddresses [ ]	array (string, null)	read-write	The value of this property shall be the addresses of the account providers this resource references. The format of this field depends on the Type of the ExternalAccountProvider. Each item in the array shall contain a single address. Services may define their own behavior for managing multiple addresses.
ServiceEnabled	boolean	read-write (null)	The value of this property shall be a boolean indicating whether this service is enabled.

Property Details

AccountProviderType:

The value of this property shall be the type of external account provider referenced by this resource.

string	Description
ActiveDirectoryService	The external account provider shall be a service conforming to the Microsoft Active Directory Technical specification. The format of ServiceAddresses shall be a collection of FQDNs or Netbios names that references the set of domain servers for the Active Directory service.
LDAPService	The external account provider shall be a service conforming to RFC4511. The format of ServiceAddresses shall be a collection of FQDNs that references the set of LDAP servers for the service.
OEM	
RedfishService	The external account provider shall be a service conforming to the DMTF Redfish specification. The format of ServiceAddresses shall be a collection of URIs which corresponds to a Redfish AccountService entity.

AuthenticationType:

The value of this property shall be the type of authentication used to connect to the external account provider.

string	Description
KerberosKeytab	A kerberos keytab.
OEM	An OEM specific authentication mechanism.
Token	An opaque authentication token.
UsernameAndPassword	Username and password combination.

Example Response

```
{
    "@odata.type": "#ExternalAccountProvider.v1_0_1.ExternalAccountProvider",
    "Id": "ExternalRedfishService",
    "Name": "Remote Redfish Service",
```

```
    "Description": "Remote Redfish Service providing additional Accounts to this Redfish Service",
    "AccountProviderType": "RedfishService",
    "ServiceAddresses": [
        "http://redfish.dmtf.org/redfish/v1/AccountService"
    ],
    "Authentication": {
        "AuthenticationType": "Token",
        "Token": null
    },
    "RemoteRoleMapping": [
        {
            "RemoteGroup": "Admin",
            "LocalRole": "Administrator"
        },
        {
            "RemoteGroup": "Operator",
            "LocalRole": "Operator"
        },
        {
            "RemoteGroup": "ReadOnly",
            "LocalRole": "ReadOnly"
        }
    ],
    "@odata.context": "/redfish/v1/$metadata#ExternalAccountProvider.ExternalAccountProvider",
    "@odata.id": "/redfish/v1/AccountService/ExternalAccountProviders/ExternalRedfishService"
}
```


Fabric 1.0.5

v1.0
2016.2

This resource shall be used to represent a simple switchable fabric for a Redfish implementation.

URIs:

/redfish/v1/Fabrics/*{FabricId}*

Endpoints {	object		The value of this property shall be a reference to the resources that this fabric uses and shall reference a resource of type Endpoint. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Endpoint. See the Endpoint schema for details.*
FabricType	string (enum)	read-only (null)	The value of this property shall contain the type of fabric being represented by this simple fabric. *See FabricType in Property Details, below, for the possible values of this property.*
Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Oem { } }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
MaxZones	integer	read-only (null)	The value of this property shall contain the maximum number of zones the switch can currently configure. This value can change based on changes in the logical or physical configuration of the system.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
Switches {	object		The value of this property shall be a reference to the resources that this fabric uses and shall reference a resource of type Switch. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Switch. See the Switch schema for details.*
Zones {	object		The value of this property shall be a reference to the resources that this fabric uses and shall reference a resource of type Zone. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Zone. See the Zone schema for details.*

Property Details

FabricType:

The value of this property shall contain the type of fabric being represented by this simple fabric.

string	Description
AHCI	This value shall mean that this device conforms to the Intel Advanced Host Controller Interface Specification.
FC	This value shall mean that this device conforms to the T11 Fibre Channel Physical and Signaling Interface Specification.
FCoE	This value shall mean that this device conforms to the T11 FC-BB-5 Specification.
FCP	This enumeration literal shall indicate the INCITS 481: Information technology - Fibre Channel Protocol for SCSI. The Fibre Channel SCSI Protocol.
FICON	This enumeration literal shall indicate the (ANSI FC-SB-3 Single-Byte Command Code Sets-3 Mapping Protocol for the Fibre Channel(FC) protocol. FICON (FIbre CONnection) is the IBM proprietary name for this protocol.
FTP	This value shall mean that this device conforms to the File Transfer protocol as defined by RFC 114.
HTTP	This value shall mean that this device conforms to the Hypertext Transfer protocol as defined by RFC 2068 or RFC 2616.
HTTPS	This value shall mean that this device conforms to the Hypertext Transfer protocol as defined by RFC 2068 or RFC 2616 utilizing Transport Layer Security as specified by RFC 5246 or RFC 6176.
I2C	This value shall mean that this device conforms to the NXP Semiconductors I2C-bus Specification.
iSCSI	This value shall mean that this device conforms to the IETF Internet Small Computer Systems Interface (iSCSI) Specification.
iWARP	This value shall mean that this device conforms to the iWARP protocol as defined by RFC 5042 utilizing Transport Layer mechanisms as specified by RFC 5043 or RFC 5044.
NFSv3	This value shall mean that this device conforms to the Network File System protocol as defined by RFC 1813.
NFSv4	This value shall mean that this device conforms to the Network File System protocol as defined by RFC 3010 or RFC 5661.
NVMe	This value shall mean that this device conforms to the Non-Volatile Memory Host Controller Interface Specification Specification.
NVMeOverFabrics	This value shall mean that this device conforms to the NVM Express over Fabrics Specification.
OEM	This value shall mean that this device conforms to an OEM specific architecture and additional information may be included in the OEM section.
PCIe	This value shall mean that this device conforms to the PCI-SIG PCI Express Base Specification.
RoCE	This value shall mean that this device conforms to the RDMA over Converged Ethernet protocol as defined by the Infiniband Architecture Specification.
RoCEv2	This value shall mean that this device conforms to the RDMA over Converged Ethernet version 2 protocol as defined by the Infiniband Architecture Specification.
SAS	This value shall mean that this device conforms to the T10 SAS Protocol Layer Specification.
SATA	This value shall mean that this device conforms to the Serial ATA International Organization Serial ATA Specification.
SFTP	This value shall mean that this device conforms to the File Transfer protocol as defined by RFC 114 utilizing Transport Layer Security as specified by RFC 5246 or RFC 6176.
SMB	This value shall mean that this device conforms to the Microsoft Server Message Block Protocol.
UHCI	This value shall mean that this device conforms to the Intel Universal Host Controller Interface Specification, Enhanced Host Controller Interface Specification, or the Extensible Host Controller Interface specification.
USB	This value shall mean that this device conforms to the USB Implementers Forum Universal Serial Bus Specification.

Example Response

```
{
    "@odata.type": "#Fabric.v1_0_4.Fabric",
    "Id": "SAS",
    "Name": "SAS Fabric",
    "FabricType": "SAS",
    "Description": "A SAS Fabric with redundant switches connected to two initiators",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Zones": {
        "@odata.id": "/redfish/v1/Fabrics/SAS/Zones"
    },
    "Endpoints": {
        "@odata.id": "/redfish/v1/Fabrics/SAS/Endpoints"
    },
    "Switches": {
        "@odata.id": "/redfish/v1/Fabrics/SAS/Switches"
    },
    "Links": {
        "Oem": {}
    },
    "Actions": {
        "Oem": {}
    },
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#Fabric.Fabric",
    "@odata.id": "/redfish/v1/Fabrics/SAS"
}
```

HostInterface 1.2.1

v1.2	*v1.1*	*v1.0*
2018.2	2017.1	2016.3

This resource shall be used to represent Host Interface resources as part of the Redfish specification.

URIs:

/redfish/v1/Managers/*{ManagerId}*/HostInterfaces/*{HostInterfaceId}*

AuthenticationModes [ ]	array (string (enum))	read-write	The value of this property shall be an array consisting of the authentication modes allowed on this interface. *See AuthenticationModes in Property Details, below, for the possible values of this property.*
AuthNoneRoleId *(v1.2+)*	string	read-write	The value of this property shall be the ID of the Role resource that is used when no authentication on this interface is performed. This property shall be absent if AuthNone is not supported by the service for the AuthenticationModes property.
ExternallyAccessible	boolean	read-only (null)	The value of this property shall be a boolean indicating whether this interface is accessible by external (non-host) entities. For example, if the host and manager are connected via a switch, and the switch also exposes an external port on the system, then the interface could also be used by external clients, and this property will have the value set to true.
FirmwareAuthEnabled	boolean	read-write (null)	The value of this property shall be a boolean indicating whether firmware authentication for this interface is enabled.
FirmwareAuthRoleId	string	read-write	The value of this property shall be the ID of the Role resource that is configured for firmware authentication on this interface.
HostEthernetInterfaces {	object		The value of this property shall be a link to a collection of type EthernetInterfaceCollection that Computer Systems use as the Host Interface to this Manager. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of EthernetInterface. See the EthernetInterface schema for details.*
HostInterfaceType	string (enum)	read-only (null)	The value of this property shall be an enumeration describing type of the interface. *See HostInterfaceType in Property Details, below, for the possible values of this property.*
InterfaceEnabled	boolean	read-write (null)	The value of this property shall be a boolean indicating whether this interface is enabled.
KernelAuthEnabled	boolean	read-write	The value of this property shall be a boolean indicating whether kernel

		(null)	authentication for this interface is enabled.
KernelAuthRoleId	string	read-write	The value of this property shall be the ID of the Role resource that is configured for kernel authentication on this interface.
Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
AuthNoneRole *(v1.2+)* {	object		The value of this property shall be a link to a Role object instance, and should reference the object identified by property AuthNoneRoleId. This property shall be absent if AuthNone is not supported by the service for the AuthenticationModes property. *See the Role schema for details on this property.*
@odata.id }	string	read-only	*Link to a Role resource. See the Links section and the Role schema for details.*
ComputerSystems [{	array		The value of this property shall be an array of references to resources of type ComputerSystem that are connected to this HostInterface.
@odata.id }]	string	read-only	*Link to a ComputerSystem resource. See the Links section and the ComputerSystem schema for details.*
FirmwareAuthRole {	object		The value of this property shall be a link to a Role object instance, and should reference the object identified by property FirmwareAuthRoleId. *See the Role schema for details on this property.*
@odata.id }	string	read-only	*Link to a Role resource. See the Links section and the Role schema for details.*
KernelAuthRole {	object		The value of this property shall be a link to a Role object instance, and should reference the object identified by property KernelAuthRoleId. *See the Role schema for details on this property.*
@odata.id }	string	read-only	*Link to a Role resource. See the Links section and the Role schema for details.*
Oem { } }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
ManagerEthernetInterface {	object		The value of this property shall be a link to a resource of type EthernetInterface which represents the network interface used by this Manager as the HostInterface. *See the EthernetInterface schema for details on this property.*
@odata.id }	string	read-only	*Link to a EthernetInterface resource. See the Links section and the EthernetInterface schema for details.*
NetworkProtocol {	object		The value of this property shall contain a reference to a resource of type ManagerNetworkProtocol which represents the network services for this Manager. *See the ManagerNetworkProtocol schema for details on this property.*
@odata.id }	string	read-only	*Link to a ManagerNetworkProtocol resource. See the Links section and the ManagerNetworkProtocol schema for details.*
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*

Property Details

AuthenticationModes:

The value of this property shall be an array consisting of the authentication modes allowed on this interface.

string	Description
AuthNone	Requests without any sort of authentication are allowed.
BasicAuth	Requests using HTTP Basic Authentication are allowed.
OemAuth	Requests using OEM authentication mechanisms are allowed.
RedfishSessionAuth	Requests using Redfish Session Authentication are allowed.

HostInterfaceType:

The value of this property shall be an enumeration describing type of the interface.

string	Description
NetworkHostInterface	This interface is a Network Host Interface.

Example Response

```
{
    "@odata.context": "/redfish/v1/$metadata#HostInterface.HostInterface",
    "@odata.id": "/redfish/v1/Managers/BMC/HostInterfaces/1",
    "@odata.type": "#HostInterface.v1_0_0.HostInterface",
    "Id": "1",
    "Name": "Host Interface",
    "Description": "Management Host Interface",
    "HostInterfaceType": "NetworkHostInterface",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "InterfaceEnabled": true,
    "ExternallyAccessible": false,
    "AuthenticationModes": [
        "AuthNone",
        "BasicAuth",
        "RedfishSessionAuth",
        "OemAuth"
    ],
    "KernelAuthRoleId": "Administrator",
    "KernelAuthEnabled": true,
    "FirmwareAuthRoleId": "Administrator",
    "FirmwareAuthEnabled": true,
    "HostEthernetInterfaces": {
        "@odata.id": "/redfish/v1/Managers/BMC/HostInterfaces/1/HostEthernetInterfaces"
    },
    "ManagerEthernetInterface": {
        "@odata.id": "/redfish/v1/Managers/BMC/EthernetInterfaces/ToHost"
    },
    "NetworkProtocol": {
        "@odata.id": "/redfish/v1/Managers/BMC/NetworkProtocol"
    },
    "Links": {
        "ComputerSystems": [
            {
                "@odata.id": "/redfish/v1/Systems/ORD144"
            }
        ],
        "KernelAuthRole": {
            "@odata.id": "/redfish/v1/AccountService/Roles/Administrator"
        },
        "FirmwareAuthRole": {
            "@odata.id": "/redfish/v1/AccountService/Roles/Administrator"
        }
    },
    "Oem": {}
}
```

Job 1.0.2

v1.0
2018.2

This resource shall be used to represent a Job in a Redfish implementation.

URIs:

/redfish/v1/JobService/Jobs/*{JobId}*

/redfish/v1/JobService/Jobs/*{JobId}*/Steps/*{JobId2}*

CreatedBy	string	read-only	The value of this property shall be the user name, software program name, or other identifier indicating the creator of this job.
EndTime	string	read-only (null)	The value of this property shall indicate the time the job was completed. This property shall not appear if the job is running or has otherwise not been completed. This property shall appear only if the JobState is Completed, Cancelled, or Exception.
HidePayload	boolean	read-only	This property shall be set to True if the Payload object shall not be returned on GET operations, and set to False if the contents can be returned normally. If this property is not specified when the Job is created, the default value shall be False.
JobState	string (enum)	read-write	The value of this property shall indicate the state of the job. *See JobState in Property Details, below, for the possible values of this property.*

JobStatus	string (enum)	read-only	The value of this property shall indicate the health status of the job. *See JobStatus in Property Details, below, for the possible values of this property.*
MaxExecutionTime	string	read-write (null)	The value shall be an ISO 8601 conformant duration describing the maximum duration the job is allowed to execute before being stopped by the service.
Messages [{ }]	array (object)		The value of this property shall be an array of messages associated with the job. This type shall define a Message as described in the Redfish specification. *See the Message object for details on this property.*
Payload {	object		This object shall contain information detailing the HTTP and JSON payload information for executing this job. This object shall not be included in the response if the HidePayload property is set to True.
HttpHeaders [ ]	array (string)	read-only	The value of this property shall be an array of HTTP headers used in the execution of this job.
HttpOperation	string	read-only	This property shall contain the HTTP operation to execute for this job.
JsonBody	string	read-only	The value of this property shall be JSON formatted payload used for this job.
TargetUri }	string	read-only	This property shall contain a URI referencing a location to be used as the target for an HTTP operation.
PercentComplete	integer (%)	read-only (null)	The value of this property shall indicate the completion progress of the job, reported in percent of completion. If the job has not been started, the value shall be zero.
Schedule { }	object		This object shall contain information detailing the scheduling for this job and the re-occurrence frequency for future instances of this job. *See the Schedule object for details on this property.*
StartTime	string	read-only	The value of this property shall indicate the time the job was last started or will start as scheduled.
StepOrder [ ]	array (string)	read-only	The value of this property shall be an array of Ids for the Job Steps in the order that they shall be executed. Each step shall be completed prior to the execution of the next step in array order. An incomplete list of steps shall be considered an invalid configuration. If this property is not present or contains an empty array it shall indicate that the step execution order is not specified and may occur in parallel or in series as determined by the service.
Steps {	object		This property shall contain the link to a collection of type Job. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Job. See the Job schema for details.*

Property Details

JobState:

The value of this property shall indicate the state of the job.

string	Description
Cancelled	This value shall represent that the operation is complete because the job was cancelled by an operator.
Completed	This value shall represent that the operation is complete and completed successfully or with warnings.
Continue	This value shall represent that the operation has been resumed from a paused condition and should return to a Running state.
Exception	This value shall represent that the operation is complete and completed with errors.
Interrupted	This value shall represent that the operation has been interrupted but is expected to restart and is therefore not complete.
New	This value shall represent that this job is newly created but the operation has not yet started.
Pending	This value shall represent that the operation is pending some condition and has not yet begun to execute.
Running	This value shall represent that the operation is executing.
Service	This value shall represent that the operation is now running as a service and expected to continue operation until stopped or killed.

Starting	This value shall represent that the operation is starting.
Stopping	This value shall represent that the operation is stopping but is not yet complete.
Suspended	This value shall represent that the operation has been suspended but is expected to restart and is therefore not complete.
UserIntervention	This value shall represent that the operation is waiting for a user to intervene and must be manually continued, stopped or cancelled.

JobStatus:

The value of this property shall indicate the health status of the job.

string	Description
Critical	A critical condition exists that requires immediate attention.
OK	Normal.
Warning	A condition exists that requires attention.

Example Response

```
{
    "@odata.type": "#Job.v1_0_0.Job",
    "Id": "RebootRack",
    "Name": "Scheduled Nightly Reboot of the rack",
    "JobStatus": "OK",
    "JobState": "Running",
    "StartTime": "2018-04-01T00:01+6:00",
    "PercentComplete": 24,
    "Schedule": {
        "Lifetime": "P4Y",
        "InitialStartTime": "2018-01-01T01:00:00+06:00",
        "RecurrenceInterval": "P1D",
        "EnabledDaysOfWeek": [
            "Monday",
            "Tuesday",
            "Wednesday",
            "Thursday",
            "Friday"
        ]
    },
    "Steps": {
        "@odata.id": "/redfish/v1/JobService/Jobs/RebootRack/Steps"
    },
    "StepOrder": [
        "Red",
        "Orange",
        "Yellow",
        "Green",
        "Blue",
        "Indigo",
        "Violet"
    ],
    "@odata.context": "/redfish/v1/$metadata#Job.Job",
    "@odata.id": "/redfish/v1/JobService/Jobs/RebootRack"
}
```

JobService 1.0.1

v1.0
2018.2

This resource shall be used to represent a Job Service for a Redfish implementation.

URIs:

/redfish/v1/JobService

DateTime	string	read-only (null)	The value of this property shall represent the current DateTime value for the JobService, with offset from UTC, in Redfish Timestamp format.
Jobs {	object		The value of this property shall be a link to a resource of type JobCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Job. See the Job schema for details.*
Log {	object		The value of this property shall contain a reference to a LogService for the use by this

			JobService. *See the LogService schema for details on this property.*
@odata.id }	string	read-only	*Link to a LogService resource. See the Links section and the LogService schema for details.*
ServiceCapabilities {	object		This type shall contain properties which describe the capabilities or supported features of this implementation of JobService.
MaxJobs	integer	read-only (null)	The value of this property shall be the maximum number of Job resources supported by the implementation.
MaxSteps	integer	read-only (null)	The value of this property shall be the maximum number of Step resources supported by a single Job instance.
Scheduling }	boolean	read-only (null)	The value of this property shall indicate the support of scheduling of Jobs using the Schedule object within the Job resource.
ServiceEnabled	boolean	read-write (null)	The value of this property shall be a boolean indicating whether this service is enabled.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*

Example Response

```
{
    "@odata.type": "#JobService.v1_0_0.JobService",
    "Id": "JobService",
    "Name": "Job Service",
    "DateTime": "2018-06-13T04:14+06:00",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "ServiceEnabled": true,
    "ServiceCapabilities": {
        "MaxJobs": 100,
        "MaxSteps": 50,
        "Scheduling": true
    },
    "Jobs": {
        "@odata.id": "/redfish/v1/JobService/Jobs"
    },
    "Log": {
        "@odata.id": "/redfish/v1/JobService/Log"
    },
    "Actions": {
        "Oem": {
            "#Contoso.EasyButton": {
                "target": "/redfish/v1/JobService/Contoso.EasyButton",
                "@Redfish.ActionInfo": "/redfish/v1/JobService/EasyButtonActionInfo"
            }
        }
    },
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata/JobService.JobService",
    "@odata.id": "/redfish/v1/JobService"
}
```

JsonSchemaFile 1.1.3

v1.1	*v1.0*
2017.1	1.0

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

URIs:

/redfish/v1/JsonSchemas/*{JsonSchemaFileId}*

Languages [ ]	array (string)	read-only required	The value of this property shall be a string consisting of an RFC 5646 language code.
Location [{	array	required	This property shall contain the location information for this schema file.
ArchiveFile	string	read-only	The value of this property shall be the file name of the individual schema file within the archive file specified by the ArchiveUri property. The file name shall conform to the format specified in the Redfish specification.
ArchiveUri	string	read-only	The value of this property shall be a URI co-located with the Redfish service that specifies the

			location of the schema file. This property shall only be used for archive files (zip or other formats). The value of ArchiveFile shall have the file name of the individual schema file within the archive file.
Language	string	read-only	The value of this property shall be a string consisting of an RFC5646 language code or the string 'default'.
PublicationUri	string	read-only	The value of this property shall be a URI not co-located with the Redfish service that specifies the canonical location of the schema file. This property shall only be used for individual schema files.
Uri }]	string	read-only	The value of this property shall be a URI co-located with the Redfish service that specifies the location of the schema file. This property shall only be used for individual schema files. The file name portion of the URI shall conform to the format specified in the Redfish specification.
Schema	string	read-only required	The value of this property shall be the value of the @odata.type property for that schema and shall conform to the syntax specified in the Redfish specification for the Type property.

Example Response

```
{
    "@odata.type": "#JsonSchemaFile.v1_1_1.JsonSchemaFile",
    "Id": "Chassis.v1_7_0",
    "Name": "Chassis Schema File",
    "Description": "Chassis Schema File Location",
    "Languages": [
        "en"
    ],
    "Schema": "#Chassis.v1_7_0.Chassis",
    "Oem": {},
    "Location": [
        {
            "Language": "en",
            "ArchiveUri": "/Schemas.gz",
            "PublicationUri": "http://redfish.dmtf.org/schemas/v1/Chassis.v1_7_0.json",
            "ArchiveFile": "Chassis.v1_7_0.json"
        },
        {
            "Language": "zh",
            "ArchiveUri": "/Schemas.zh.gz",
            "PublicationUri": "http://schemas.contoso.com/Chassis.v1_7_0.zh.json",
            "ArchiveFile": "Chassis.v1_7_0.zh.json"
        },
        {
            "Language": "xy",
            "Uri": "/redfish/v1/JsonSchemas/Chassis.v1_7_0.xy.json",
            "PublicationUri": "http://schemas.contoso.com/Chassis.v1_7_0.xy.json"
        }
    ],
    "@odata.context": "/redfish/v1/$metadata#JsonSchemaFile.JsonSchemaFile",
    "@odata.id": "/redfish/v1/JsonSchemas/Chassis.v1_7_0"
}
```

LogEntry 1.4.2

v1.4	*v1.3*	*v1.2*	*v1.1*	*v1.0*
2018.2	2017.3	2017.1	2016.2	1.0

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

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/LogServices/*{LogServiceId}*/Entries/*{LogEntryId}*

/redfish/v1/Managers/*{ManagerId}*/LogServices/*{LogServiceId}*/Entries/*{LogEntryId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/LogServices/*{LogServiceId}*/Entries/*{LogEntryId}*

/redfish/v1/Systems/*{ComputerSystemId}*/LogServices/*{LogServiceId}*/Entries/*{LogEntryId}*

Created	string	read-only	The value of this property shall be the time at which the log entry was created.
EntryCode	string (enum)	read-only (null)	This property shall be present if the EntryType value is SEL. These enumerations are the values from tables 42-1 and 42-2 of the IPMI specification. *See EntryCode in Property Details, below, for the possible values of this property.*
EntryType	string (enum)	read-only required	This property shall represent the type of LogEntry. If the resource represents an IPMI SEL log entry, the value shall be SEL. If the resource represents an

			Event log, the value shall be Event. If the resource represents an OEM log format, the value shall be Oem. *See EntryType in Property Details, below, for the possible values of this property.*
EventGroupId *(v1.4+)*	integer	read-only (null)	The value of this property shall indicate that events are related and shall have the same value in the case where multiple Event messages are produced by the same root cause. Implementations shall use separate values for events with separate root cause. There shall not be ordering of events implied by the value of this property.
EventId *(v1.1+)*	string	read-only	If present, this LogEntry records an Event and the value shall indicate a unique identifier for the event, the format of which is implementation dependent.
EventTimestamp *(v1.1+)*	string	read-only	If present, this LogEntry records an Event and the value shall be the time the event occurred.
EventType *(v1.1+, deprecated v1.4)*	string (enum)	read-only	If present, this LogEntry records an Event and the value shall indicate the type of event. *See EventType in Property Details, below, for the possible values of this property. Deprecated v1.4+. This property has been deprecated. Starting Redfish Spec 1.6 (Event 1.3), subscriptions are based on RegistryId and ResourceType and not EventType.*
Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
OriginOfCondition {	object		The value of this property shall be an href that references the resource for which the log is associated.
@odata.id } }	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Message	string	read-only (null)	The value of this property shall be the Message property of the event if the EntryType is Event, the Description if the EntryType is SEL, and OEM Specific if the EntryType is Oem.
MessageArgs [ ]	array (string)	read-only	This contains message arguments to be substituted into the message included or in the message looked up via a registry.
MessageId	string	read-only	The value of this property shall the MessageId property of the event if the EntryType is Event, the three IPMI Event Data bytes if the EntryType is SEL, and OEM Specific if the EntryType is Oem. The format of this property shall be as defined in the Redfish specification. If representing the three IPMI Event Data bytes, the format should follow the pattern '^0xX{3}$', where Event Data 1 is the first byte in the string, Event Data 2 is the second byte in the string, and Event Data 3 is the third byte in the string.
OemLogEntryCode *(v1.3+)*	string	read-only (null)	The value of this property shall represent the OEM specific Log Entry Code type of the Entry. This property shall only be present if the value of EntryType is SEL and the value of LogEntryCode is OEM.
OemRecordFormat	string	read-only (null)	The value of this property shall represent the OEM specific format of the Entry. This property shall be required if the value of EntryType is Oem.
OemSensorType *(v1.3+)*	string	read-only (null)	The value of this property shall represent the OEM specific sensor type of the Entry. This property shall only be used if the value of EntryType is SEL and the value of SensorType is OEM.
SensorNumber	integer	read-only (null)	The value of this property shall be the IPMI sensor number if the EntryType is SEL, the count of events if the EntryType is Event, and OEM Specific if EntryType is Oem.
SensorType	string (enum)	read-only (null)	This property shall be present if the EntryType value is SEL. These enumerations are the values from table 42-3 of the IPMI specification.

			See SensorType in Property Details, below, for the possible values of this property.
Severity	string (enum)	read-only (null)	The value of this property shall be the severity of the condition resulting in the log entry, as defined in the Status section of the Redfish specificaiton. *See Severity in Property Details, below, for the possible values of this property.*

Property Details

EntryCode:

This property shall be present if the EntryType value is SEL. These enumerations are the values from tables 42-1 and 42-2 of the IPMI specification.

string	Description
Assert	The condition has been asserted.
D0 Power State	The ACPI defined D0 Power State.
D1 Power State	The ACPI defined D1 Power State.
D2 Power State	The ACPI defined D2 Power State.
D3 Power State	The ACPI defined D3 Power State.
Deassert	The condition has been deasserted.
Device Disabled	A device has been disabled.
Device Enabled	A device has been enabled.
Device Inserted / Device Present	A device has been inserted or is now present.
Device Removed / Device Absent	A device has been removed or is now absent.
Fully Redundant	Indicates that full redundancy has been regained.
Informational	An Informational event.
Install Error	An Install Error has been detected.
Limit Exceeded	A limit has been exceeded.
Limit Not Exceeded	A limit has not been exceeded.
Lower Critical - going high	The reading crossed the Lower Critical threshold while going high.
Lower Critical - going low	The reading crossed the Lower Critical threshold while going low.
Lower Non-critical - going high	The reading crossed the Lower Non-critical threshold while going high.
Lower Non-critical - going low	The reading crossed the Lower Non-critical threshold while going low.
Lower Non-recoverable - going high	The reading crossed the Lower Non-recoverable threshold while going high.
Lower Non-recoverable - going low	The reading crossed the Lower Non-recoverable threshold while going low.
Monitor	A Monitor event.
Non-redundant:Insufficient Resources	Unit is non-redundant and has insufficient resource to maintain normal operation.
Non-redundant:Sufficient Resources from Insufficient Resources	Unit has regianed minimum resources needed for normal operation.
Non-redundant:Sufficient Resources from Redundant	Redundancy has been lost but unit is functioning with minimum resources needed for normal operation.
OEM *(v1.3+)*	An OEM defined event.
Performance Lags	Performance does not meet expectations.
Performance Met	Performance meets expectations.

Predictive Failure asserted	A Predictive Failure has been detected.
Predictive Failure deasserted	A Predictive Failure is no longer present.
Redundancy Degraded	Redundancy still exists, but at less than full level.
Redundancy Degraded from Fully Redundant	Unit has lost some redundant resource(s) but is still in a redundant state.
Redundancy Degraded from Non-redundant	Unit has regained some resource(s) and is redundant but not fully redundant.
Redundancy Lost	Entered any non-redundant state, including Non-redundant: Insufficient Resources.
State Asserted	The state has been asserted.
State Deasserted	The state has been deasserted.
Transition to Active	The state transitioned to active.
Transition to Busy	The state transitioned to busy.
Transition to Critical from less severe	A state has changed to Critical from less severe.
Transition to Critical from Non-recoverable	A state has changed to Critical from Non-recoverable.
Transition to Degraded	A state has transitioned to Degraded.
Transition to Idle	The state transitioned to idle.
Transition to In Test	A state has transitioned to In Test.
Transition to Non-Critical from more severe	A state has changed to Non-Critical from more severe.
Transition to Non-Critical from OK	A state has changed to Non-Critical from OK.
Transition to Non-recoverable	A state has changed to Non-recoverable.
Transition to Non-recoverable from less severe	A state has changed to Non-recoverable from less severe.
Transition to Off Duty	A state has transitioned to Off Duty.
Transition to Off Line	A state has transitioned to Off Line.
Transition to OK	A state has changed to OK.
Transition to On Line	A state has transitioned to On Line.
Transition to Power Off	A state has transitioned to Power Off.
Transition to Power Save	A state has transitioned to Power Save.
Transition to Running	A state has transitioned to Running.
Upper Critical - going high	The reading crossed the Upper Critical threshold while going high.
Upper Critical - going low	The reading crossed the Upper Critical threshold while going low.
Upper Non-critical - going high	The reading crossed the Upper Non-critical threshold while going high.
Upper Non-critical - going low	The reading crossed the Upper Non-critical threshold while going low.
Upper Non-recoverable - going high	The reading crossed the Upper Non-recoverable threshold while going high.
Upper Non-recoverable - going low	The reading crossed the Upper Non-recoverable threshold while going low.

EntryType:

This property shall represent the type of LogEntry. If the resource represents an IPMI SEL log entry, the value shall be SEL. If the resource represents an Event log, the value shall be Event. If the resource represents an OEM log format, the value shall be Oem.

string	Description
Event	Contains a Redfish-defined message (event).

Oem	Contains an entry in an OEM-defined format.
SEL	Contains a legacy IPMI System Event Log (SEL) entry.

EventType:

If present, this LogEntry records an Event and the value shall indicate the type of event.

string	Description
Alert	
MetricReport	Events of type MetricReport shall be sent to a client in accordance with the MetricReport schema definition.
Other	Events of type 'Other' shall be sent to a client in accordance with subscriptions to RegistryPrefixes or ResourceTypes.
ResourceAdded	
ResourceRemoved	
ResourceUpdated	
StatusChange	

SensorType:

This property shall be present if the EntryType value is SEL. These enumerations are the values from table 42-3 of the IPMI specification.

string	Description
Add-in Card	A sensor for an add-in card.
BaseOSBoot/InstallationStatus	A sensor for a base OS boot or installation status event.
Battery	A sensor for a battery.
Boot Error	A sensor for a boot error event.
Button/Switch	A sensor for a button or switch.
Cable/Interconnect	A sensor for a cable or interconnect type of device.
Chassis	A sensor for a chassis.
ChipSet	A sensor for a chipset.
CoolingDevice	A sensor for a cooling device.
Critical Interrupt	A sensor for a critical interrupt event.
Current	A current sensor.
Drive Slot/Bay	A sensor for a drive slot or bay.
Entity Presence	A sensor for an entity presence event.
Event Logging Disabled	A sensor for the event log.
Fan	A fan sensor.
FRUState	A sensor for a FRU state event.
LAN	A sensor for a LAN device.
Management Subsystem Health	A sensor for a management subsystem health event.
Memory	A sensor for a memory device.
Microcontroller/Coprocessor	A sensor for a microcontroller or coprocessor.
Module/Board	A sensor for a module or board.

Monitor ASIC/IC	A sensor for a monitor ASIC or IC.
OEM *(v1.3+)*	An OEM defined sensor.
OS Stop/Shutdown	A sensor for an OS stop or shutdown event
Other FRU	A sensor for an other type of FRU.
Other Units-based Sensor	A sensor for a miscellaneous analog sensor.
Physical Chassis Security	A physical security sensor.
Platform Alert	A sensor for a platform alert event.
Platform Security Violation Attempt	A platform security sensor.
POST Memory Resize	A sensor for a POST memory resize event.
Power Supply / Converter	A sensor for a power supply or DC-to-DC converter.
PowerUnit	A sensor for a power unit.
Processor	A sensor for a processor.
Session Audit	A sensor for a session audit event.
Slot/Connector	A sensor for a slot or connector.
System ACPI PowerState	A sensor for an ACPI power state event.
System Event	A sensor for a system event.
System Firmware Progress	A sensor for a system firmware progress event.
SystemBoot/Restart	A sensor for a system boot or restart event.
Temperature	A temperature sensor.
Terminator	A sensor for a terminator.
Version Change	A sensor for a version change event.
Voltage	A voltage sensor.
Watchdog	A sensor for a watchdog event.

Severity:

The value of this property shall be the severity of the condition resulting in the log entry, as defined in the Status section of the Redfish specificaiton.

string	Description
Critical	A critical condition requiring immediate attention.
OK	Informational or operating normally.
Warning	A condition requiring attention.

Example Response


```
{
    "@odata.type": "#LogEntry.v1_4_0.LogEntry",
    "Id": "1",
    "Name": "Log Entry 1",
    "EntryType": "Event",
    "Severity": "Critical",
    "Created": "2012-03-07T14:44:00Z",
    "SensorNumber": 1,
    "Message": "Temperature threshold exceeded",
    "MessageId": "Contoso.1.0.TempAssert",
    "MessageArgs": [
        "42"
    ],
    "Links": {
        "OriginOfCondition": {
            "@odata.id": "/redfish/v1/Chassis/1U/Thermal"
        },
        "Oem": {}
    },
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#LogEntry.LogEntry",
```

```
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/LogServices/Log1/Entries/1"
}
```

LogService 1.1.2

v1.1	*v1.0*
2017.3	1.0

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

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/LogServices/*{LogServiceId}*

/redfish/v1/Managers/*{ManagerId}*/LogServices/*{LogServiceId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/LogServices/*{LogServiceId}*

/redfish/v1/Systems/*{ComputerSystemId}*/LogServices/*{LogServiceId}*

DateTime	string	read-write (null)	The value of this property shall represent the current DateTime value that the log service is using, with offset from UTC, in Redfish Timestamp format.
DateTimeLocalOffset	string	read-write (null)	The value is property shall represent the offset from UTC time that the current value of DataTime property contains. Pattern: ([-+][0-1][0-9]:[0-5][0-9])
Entries {	object		The value of this property shall reference a collection of resources of type LogEntry. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of LogEntry. See the LogEntry schema for details.*
LogEntryType *(v1.1+)*	string (enum)	read-only (null)	The value of this property shall represent the EntryType of all LogEntry resources contained in the Entries collection. If a single EntryType for all LogEntry resources cannot be determined or guaranteed by the Service, the value of this property shall be 'Multiple'. *See LogEntryType in Property Details, below, for the possible values of this property.*
MaxNumberOfRecords	integer	read-only	The value of this property shall be the maximum numbers of LogEntry resources in the Entries collection for this service.
OverWritePolicy	string (enum)	read-only	The value of this property shall indicate the policy of the log service when the MaxNumberOfRecords has been reached. Unknown indicates the log overwrite policy is unknown. WrapsWhenFull indicates that the log overwrites its entries with new entries when the log has reached its maximum capacity. NeverOverwrites indicates that the log never overwrites its entries by the new entries and ceases logging when the limit has been reached. *See OverWritePolicy in Property Details, below, for the possible values of this property.*
ServiceEnabled	boolean	read-write (null)	The value of this property shall be a boolean indicating whether this service is enabled.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*

Actions

ClearLog

This action shall delete all entries found in the Entries collection for this Log Service.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/LogServices/*{LogServiceId}*/Actions/LogService.ClearLog

/redfish/v1/Managers/*{ManagerId}*/LogServices/*{LogServiceId}*/Actions/LogService.ClearLog

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/LogServices/*{LogServiceId}*/Actions/LogService.ClearLog

/redfish/v1/Systems/*{ComputerSystemId}*/LogServices/*{LogServiceId}*/Actions/LogService.ClearLog

(This action takes no parameters.)

Property Details

LogEntryType:

The value of this property shall represent the EntryType of all LogEntry resources contained in the Entries collection. If a single EntryType for all LogEntry resources cannot be determined or guaranteed by the Service, the value of this property shall be 'Multiple'.

string	Description
Event	The log contains Redfish-defined messages (events).
Multiple	The log contains multiple Log Entry types or a single entry type cannot be guaranteed by the Log Service.
OEM	The log contains entries in an OEM-defined format.
SEL	The log contains legacy IPMI System Event Log (SEL) entries.

OverWritePolicy:

The value of this property shall indicate the policy of the log service when the MaxNumberOfRecords has been reached. Unknown indicates the log overwrite policy is unknown. WrapsWhenFull indicates that the log overwrites its entries with new entries when the log has reached its maximum capacity. NeverOverwrites indicates that the log never overwrites its entries by the new entries and ceases logging when the limit has been reached.

string	Description
NeverOverWrites	When full, new entries to the Log will be discarded.
Unknown	The overwrite policy is not known or is undefined.
WrapsWhenFull	When full, new entries to the Log will overwrite previous entries.

Example Response


```
{
    "@odata.type": "#LogService.v1_1_1.LogService",
    "Id": "Log1",
    "Name": "System Log Service",
    "Description": "This log contains entries related to the operation of the host Computer System.",
    "MaxNumberOfRecords": 1000,
    "OverWritePolicy": "WrapsWhenFull",
    "DateTime": "2015-03-13T04:14:33+06:00",
    "DateTimeLocalOffset": "+06:00",
    "ServiceEnabled": true,
    "LogEntryType": "Event",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Oem": {},
    "Actions": {
        "#LogService.ClearLog": {
            "target": "/redfish/v1/Managers/1/LogServices/Log1/Actions/LogService.ClearLog"
        },
        "Oem": {}
    },
    "Entries": {
        "@odata.id": "/redfish/v1/Managers/1/LogServices/Log1/Entries"
    },
    "@odata.context": "/redfish/v1/$metadata#LogService.LogService",
    "@odata.id": "/redfish/v1/Managers/1/LogServices/Log1"
}
```


Manager 1.5.2

v1.5	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
2018.2	2018.1	2016.3	2016.2	2016.1	1.0

This resource shall be used to represent a management subsystem for a Redfish implementation.

URIs:

/redfish/v1/Managers/*{ManagerId}*

AutoDSTEnabled *(v1.4+)*	boolean	read-write	The value of this property shall contain the enabled status of the automatic Daylight Saving Time (DST) adjustment of the manager's DateTime. It shall be true if Automatic DST adjustment is enabled and false if disabled.
CommandShell {	object		The value of this property shall contain information about the Command

			Shell service of this manager.
ConnectTypesSupported [ ]	array (string (enum))	read-only	The value of ConnectTypesSupported shall be an array of the enumerations provided here. SSH shall be included if the Secure Shell (SSH) protocol is supported. Telnet shall be included if the Telnet protocol is supported. IPMI shall be included if the IPMI (Serial-over-LAN) protocol is supported. *See ConnectTypesSupported in Property Details, below, for the possible values of this property.*
MaxConcurrentSessions	integer	read-only	The value of this property shall contain the maximum number of concurrent service sessions supported by the implementation.
ServiceEnabled }	boolean	read-write	The value of this property shall contain the enabled status of the protocol used for the service. The value shall be true if enabled and false if disabled.
DateTime	string	read-write (null)	The value of this property shall represent the current DateTime value for the manager, with offset from UTC, in Redfish Timestamp format.
DateTimeLocalOffset	string	read-write (null)	The value is property shall represent the offset from UTC time that the current value of DataTime property contains. Pattern: ([-+][0-1][0-9]:[0-5][0-9])
EthernetInterfaces {	object		The value of this property shall be a link to a collection of type EthernetInterfaceCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of EthernetInterface. See the EthernetInterface schema for details.*
FirmwareVersion	string	read-only (null)	This property shall contain the firwmare version as defined by the manufacturer for the associated manager.
GraphicalConsole {	object		The value of this property shall contain the information about the Graphical Console (KVM-IP) service of this manager.
ConnectTypesSupported [ ]	array (string (enum))	read-only	The value of ConnectTypesSupported shall be an array of the enumerations provided here. RDP shall be included if the Remote Desktop (RDP) protocol is supported. KVMIP shall be included if a vendor-define KVM-IP protocol is supported. *See ConnectTypesSupported in Property Details, below, for the possible values of this property.*
MaxConcurrentSessions	integer	read-only	The value of this property shall contain the maximum number of concurrent service sessions supported by the implementation.
ServiceEnabled }	boolean	read-write	The value of this property shall contain the enabled status of the protocol used for the service. The value shall be true if enabled and false if disabled.
HostInterfaces *(v1.3+)* {	object		The value of this property shall be a link to a collection of type HostInterfaceCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of HostInterface. See the HostInterface schema for details.*
Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
ManagerForChassis [{	array		This property shall contain an array of references to Chassis resources of which this Manager instance has control.
@odata.id }]	string	read-only	*Link to a Chassis resource. See the Links section and the Chassis schema for details.*
ManagerForServers [{	array		This property shall contain an array of references to ComputerSystem resources of which this Manager instance has control.
@odata.id }]	string	read-only	*Link to a ComputerSystem resource. See the Links section and the ComputerSystem schema for details.*

ManagerForSwitches *(v1.4+)* [{	array		This property shall contain an array of references to Switch resources of which this Manager instance has control.
@odata.id }]	string	read-only	*Link to a Switch resource. See the Links section and the Switch schema for details.*
ManagerInChassis *(v1.1+)* {	object		This property shall contain a reference to the chassis that this manager is located in. *See the Chassis schema for details on this property.*
@odata.id }	string	read-only	*Link to a Chassis resource. See the Links section and the Chassis schema for details.*
Oem { } }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
LogServices {	object		The value of this property shall contain a reference to a collection of type LogServiceCollection which are for the use of this manager. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of LogService. See the LogService schema for details.*
ManagerType	string (enum)	read-only	The value of this property shall describe the function of this manager. The value EnclosureManager shall be used if this manager controls one or more services through aggregation. The value BMC shall be used if this manager represents a traditional server management controller. The value ManagementController shall be used if none of the other enumerations apply. *See ManagerType in Property Details, below, for the possible values of this property.*
Model	string	read-only (null)	The value of this property shall contain the information about how the manufacturer references this manager.
NetworkProtocol {	object		The value of this property shall contain a reference to a resource of type ManagerNetworkProtocol which represents the network services for this manager. *See the ManagerNetworkProtocol schema for details on this property.*
@odata.id }	string	read-only	*Link to a ManagerNetworkProtocol resource. See the Links section and the ManagerNetworkProtocol schema for details.*
PowerState	string (enum)	read-only (null)	The value of this property shall contain the power state of the Manager. *See PowerState in Property Details, below, for the possible values of this property.*
Redundancy [{	array		The values of the properties in this array shall be used to show how this manager is grouped with other managers for form redundancy sets.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
RemoteAccountService *(v1.5+)* {	object		This property shall contain a reference to the AccountService resource for the remote Manager represented by this resource. This property shall only be present when providing aggregation of Redfish services. *See the AccountService schema for details on this property.*
@odata.id }	string	read-only	*Link to a AccountService resource. See the Links section and the AccountService schema for details.*
RemoteRedfishServiceUri *(v1.5+)*	string	read-only (null)	This property shall contain the URI of the Redfish Service Root for the remote Manager represented by this resource. This property shall only be present when providing aggregation of Redfish services.
SerialConsole {	object		The value of this property shall contain information about the Serial Console service of this manager.
ConnectTypesSupported [ ]	array (string (enum))	read-only	The value of ConnectTypesSupported shall be an array of the enumerations provided here. SSH shall be included if the Secure Shell (SSH) protocol is supported. Telnet shall be included if the Telnet protocol

			is supported. IPMI shall be included if the IPMI (Serial-over-LAN) protocol is supported. *See ConnectTypesSupported in Property Details, below, for the possible values of this property.*
MaxConcurrentSessions	integer	read-only	The value of this property shall contain the maximum number of concurrent service sessions supported by the implementation.
ServiceEnabled }	boolean	read-write	The value of this property shall contain the enabled status of the protocol used for the service. The value shall be true if enabled and false if disabled.
SerialInterfaces {	object		The value of this property shall be a link to a collection of type SerialInterfaceCollection which are for the use of this manager. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of SerialInterface. See the SerialInterface schema for details.*
ServiceEntryPointUUID	string	read-only (null)	This property shall contain the UUID of the Redfish Service provided by this manager. Each Manager providing an Entry Point to the same Redfish Service shall report the same UUID value (even though the name of the property may imply otherwise). This property shall not be present if this manager does not provide a Redfish Service Entry Point. Pattern: ([0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12})
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
UUID	string	read-only (null)	The value of this property shall contain the universal unique identifier number for the manager. Pattern: ([0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12})
VirtualMedia {	object		The value of this property shall contain a reference to a collection of type VirtualMediaCollection which are for the use of this manager. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of VirtualMedia. See the VirtualMedia schema for details.*

Actions

ForceFailover

This action shall perform a forced failover of the manager's redundancy to the manager supplied as a parameter.

URIs:

/redfish/v1/Managers/*{ManagerId}*/Actions/Manager.ForceFailover

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
NewManager {	object		This parameter shall contain a resource reference of the Manager in which to fail over.
@odata.id } }	string	read-only	*Link to another Manager resource.*

ModifyRedundancySet

The ModifyRedundancySet operation shall be used to add or remove members to a redundant group of manager.

URIs:

/redfish/v1/Managers/*{ManagerId}*/Actions/Manager.ModifyRedundancySet

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
Add [{	array		This parameter shall contain an array of resource references of the Managers to add to the redundancy set.

@odata.id }]	string	read-only	*Link to another Manager resource.*
Remove [{	array		This parameter shall contain an array of resource references of the Managers to remove from the redundancy set.
@odata.id }] }	string	read-only	*Link to another Manager resource.*

Reset

This action shall perform a reset of the manager.

URIs:

/redfish/v1/Managers/*{ManagerId}*/Actions/Manager.Reset

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
ResetType }	string (enum)	read-write	This parameter shall define the type of reset to be performed. The service may accept a request without the parameter and perform an implementation specific default reset. *See ResetType in Property Details, below, for the possible values of this property.*

Property Details

ConnectTypesSupported:

The value of ConnectTypesSupported shall be an array of the enumerations provided here. SSH shall be included if the Secure Shell (SSH) protocol is supported. Telnet shall be included if the Telnet protocol is supported. IPMI shall be included if the IPMI (Serial-over-LAN) protocol is supported.

string	Description
IPMI	The controller supports a Serial Console connection using the IPMI Serial-over-LAN (SOL) protocol.
Oem	The controller supports a Serial Console connection using an OEM-specific protocol.
SSH	The controller supports a Serial Console connection using the SSH protocol.
Telnet	The controller supports a Serial Console connection using the Telnet protocol.

ManagerType:

The value of this property shall describe the function of this manager. The value EnclosureManager shall be used if this manager controls one or more services through aggregation. The value BMC shall be used if this manager represents a traditional server management controller. The value ManagementController shall be used if none of the other enumerations apply.

string	Description
AuxiliaryController	A controller which provides management functions for a particular subsystem or group of devices.
BMC	A controller which provides management functions for a single computer system.
EnclosureManager	A controller which provides management functions for a chassis or group of devices or systems.
ManagementController	A controller used primarily to monitor or manage the operation of a device or system.
RackManager	A controller which provides management functions for a whole or part of a rack.
Service *(v1.4+)*	A software-based service which provides management functions.

PowerState:

The value of this property shall contain the power state of the Manager.

string	Description
Off	The state is powered Off.
On	The state is powered On.

PoweringOff	A temporary state between On and Off.
PoweringOn	A temporary state between Off and On.

ResetType:

This parameter shall define the type of reset to be performed. The service may accept a request without the parameter and perform an implementation specific default reset.

string	Description
ForceOff	Turn the unit off immediately (non-graceful shutdown).
ForceOn	Turn the unit on immediately.
ForceRestart	Perform an immediate (non-graceful) shutdown, followed by a restart.
GracefulRestart	Perform a graceful shutdown followed by a restart of the system.
GracefulShutdown	Perform a graceful shutdown and power off.
Nmi	Generate a Diagnostic Interrupt (usually an NMI on x86 systems) to cease normal operations, perform diagnostic actions and typically halt the system.
On	Turn the unit on.
PowerCycle	Perform a power cycle of the unit.
PushPowerButton	Simulate the pressing of the physical power button on this unit.

Example Response


```
{
    "@odata.type": "#Manager.v1_5_0.Manager",
    "Id": "BMC",
    "Name": "Manager",
    "ManagerType": "BMC",
    "Description": "Contoso BMC",
    "ServiceEntryPointUUID": "92384634-2938-2342-8820-489239905423",
    "UUID": "58893887-8974-2487-2389-841168418919",
    "Model": "Joo Janta 200",
    "FirmwareVersion": "4.4.6521",
    "DateTime": "2015-03-13T04:14:33+06:00",
    "DateTimeLocalOffset": "+06:00",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "PowerState": "On",
    "GraphicalConsole": {
        "ServiceEnabled": true,
        "MaxConcurrentSessions": 2,
        "ConnectTypesSupported": [
            "KVMIP"
        ]
    },
    "SerialConsole": {
        "ServiceEnabled": true,
        "MaxConcurrentSessions": 1,
        "ConnectTypesSupported": [
            "Telnet",
            "SSH",
            "IPMI"
        ]
    },
    "CommandShell": {
        "ServiceEnabled": true,
        "MaxConcurrentSessions": 4,
        "ConnectTypesSupported": [
            "Telnet",
            "SSH"
        ]
    },
    "HostInterfaces": {
        "@odata.id": "/redfish/v1/Managers/9/HostInterfaces"
    },
    "NetworkProtocol": {
        "@odata.id": "/redfish/v1/Managers/BMC/NetworkProtocol"
    },
    "EthernetInterfaces": {
        "@odata.id": "/redfish/v1/Managers/BMC/NICs"
    },
    "SerialInterfaces": {
        "@odata.id": "/redfish/v1/Managers/BMC/SerialInterfaces"
    },
    "LogServices": {
        "@odata.id": "/redfish/v1/Managers/BMC/LogServices"
    },
    "VirtualMedia": {
        "@odata.id": "/redfish/v1/Managers/BMC/VirtualMedia"
    },
    "Links": {
        "ManagerForServers": [
            {
                "@odata.id": "/redfish/v1/Systems/437XR1138R2"
```

```
            }
        ],
        "ManagerForChassis": [
            {
                "@odata.id": "/redfish/v1/Chassis/1U"
            }
        ],
        "ManagerInChassis": {
            "@odata.id": "/redfish/v1/Chassis/1U"
        },
        "Oem": {}
    },
    "Actions": {
        "#Manager.Reset": {
            "target": "/redfish/v1/Managers/BMC/Actions/Manager.Reset",
            "ResetType@Redfish.AllowableValues": [
                "ForceRestart",
                "GracefulRestart"
            ]
        },
        "Oem": {}
    },
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#Manager.Manager",
    "@odata.id": "/redfish/v1/Managers/BMC"
}
```


ManagerAccount 1.3.0

v1.3	*v1.2*	*v1.1*	*v1.0*
2019.1	2018.3	2017.1	1.0

This resource shall be used to represent resources that represent the user accounts for the manager.

URIs:

/redfish/v1/AccountService/Accounts/*{ManagerAccountId}*

/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/Accounts/*{ManagerAccountId}*

Certificates *(v1.2+)* {	object		The value of this property shall be a link to a collection of type CertificateCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Certificate. See the Certificate schema for details.*
Enabled	boolean	read-write	This property shall enable (if set to true) or disable (if set to false) the account for future logins. The value of Enable over-rides the locked property.
Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
Role {	object		The value of this property shall be a link to a Role object instance, and should reference the object identified by property RoleId. *See the Role schema for details on this property.*
@odata.id } }	string	read-only	*Link to a Role resource. See the Links section and the Role schema for details.*
Locked	boolean	read-write	This property (when set to true) shall indicate that the account service has automatically locked the account due to the accountLockoutThreshold having been exceeded. If set to true, the account is locked. If set to false, the account is not locked. A user admin shall be able to write a false to the property to clear the lockout condition, prior to the lockout duration period.
Password	string	read-write required on create (null)	The value of this property shall be the password for this account. The value shall be null for GET requests.
PasswordChangeRequired *(v1.3+)*	boolean	read-write (null)	The value of this property shall be true if the password for this

			account must be changed before further access is allowed. Access to the service may be denied by the implementation if the password has not been changed. A ManagerAccount created with an initial PasswordChangeRequired value of true may be used to force a password change before first access using the account. When the 'Password' property for this account is updated, the service shall set the value to false.
RoleId	string	read-write required on create	The value of this property shall be the ID (the RoleId) of the Role resource that configured for this account. The service shall reject POST, PATCH, or PUT operations that provide a RoleId that does not exist by returning HTTP 400 (Bad Request).
UserName	string	read-write required on create	The value of this property shall be the user name for this account.

Example Response

```
{
    "@odata.type": "#ManagerAccount.v1_1_3.ManagerAccount",
    "Id": "1",
    "Name": "User Account",
    "Description": "User Account",
    "Enabled": true,
    "Password": null,
    "UserName": "Administrator",
    "RoleId": "Administrator",
    "Locked": false,
    "Links": {
        "Role": {
            "@odata.id": "/redfish/v1/AccountService/Roles/Administrator"
        }
    },
    "@odata.context": "/redfish/v1/$metadata#ManagerAccount.ManagerAccount",
    "@odata.id": "/redfish/v1/AccountService/Accounts/1"
}
```

ManagerNetworkProtocol 1.4.1

v1.4	*v1.3*	*v1.2*	*v1.1*	*v1.0*
2018.3	2018.2	2017.1	2016.3	1.0

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

URIs:

/redfish/v1/Managers/*{ManagerId}*/NetworkProtocol

DHCP {	object		This object shall contain information for the DHCPv4 protocol settings for the manager.
Port	integer	read-write (null)	The value of this property shall contain the port assigned for the protocol.
ProtocolEnabled }	boolean	read-write (null)	The value of this property shall contain the enabled status of the protocol. The value shall be true if enabled and false if disabled.
DHCPv6 {	object		This object shall contain information for the DHCPv6 protocol settings for the manager.
Port	integer	read-write (null)	The value of this property shall contain the port assigned for the protocol.
ProtocolEnabled }	boolean	read-write (null)	The value of this property shall contain the enabled status of the protocol. The value shall be true if enabled and false if disabled.
FQDN	string	read-only (null)	The value of this property shall contain the fully qualified domain name for the manager.
HostName	string	read-only (null)	The value of this property shall contain the host name without any domain information.
HTTP {	object		This object shall contain information for the HTTP protocol settings for the manager. The default value of the Port property should be 80 for compatibility with established client implementations.

Port	integer	read-write (null)	The value of this property shall contain the port assigned for the protocol.
ProtocolEnabled }	boolean	read-write (null)	The value of this property shall contain the enabled status of the protocol. The value shall be true if enabled and false if disabled.
HTTPS {	object		This object shall contain information for the HTTPS/SSL protocol settings for this manager. The default value of the Port property should be 443 for compatibility with established client implementations.
Certificates *(v1.4+)* {	object		The value of this property shall be a link to a collection of type CertificateCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Certificate. See the Certificate schema for details.*
Port *(v1.4+)*	integer	read-write (null)	The value of this property shall contain the port assigned for the protocol.
ProtocolEnabled *(v1.4+)* }	boolean	read-write (null)	The value of this property shall contain the enabled status of the protocol. The value shall be true if enabled and false if disabled.
IPMI {	object		This object shall contain information for the IPMI over LAN protocol settings for the manager. The default value of the Port property should be 623 for compatibility with established client implementations.
Port	integer	read-write (null)	The value of this property shall contain the port assigned for the protocol.
ProtocolEnabled }	boolean	read-write (null)	The value of this property shall contain the enabled status of the protocol. The value shall be true if enabled and false if disabled.
KVMIP {	object		This object shall contain information for the KVM-IP (Keyboard, Video, Mouse) protocol settings for the manager.
Port	integer	read-write (null)	The value of this property shall contain the port assigned for the protocol.
ProtocolEnabled }	boolean	read-write (null)	The value of this property shall contain the enabled status of the protocol. The value shall be true if enabled and false if disabled.
NTP *(v1.2+)* {	object		This object shall contain information for the NTP protocol settings for the manager.
NTPServers [ ]	array (string, null)	read-write	The value of this property shall contain all the NTP servers for which this manager is using to obtain time.
Port	integer	read-write (null)	The value of this property shall contain the port assigned for the protocol.
ProtocolEnabled }	boolean	read-write (null)	The value of this property shall contain the enabled status of the protocol. The value shall be true if enabled and false if disabled.
RDP {	object		This object shall contain information for the Remote Desktop Protocol settings for the manager.
Port	integer	read-write (null)	The value of this property shall contain the port assigned for the protocol.
ProtocolEnabled }	boolean	read-write (null)	The value of this property shall contain the enabled status of the protocol. The value shall be true if enabled and false if disabled.
RFB {	object		This object shall contain information for the Remote Frame Buffer protocol settings for the manager.
Port	integer	read-write (null)	The value of this property shall contain the port assigned for the protocol.
ProtocolEnabled }	boolean	read-write (null)	The value of this property shall contain the enabled status of the protocol. The value shall be true if enabled and false if disabled.

SNMP {	object		This object shall contain information for the SNMP protocol settings for this manager. The default value of the Port property should be 161 for compatibility with established client implementations.
Port	integer	read-write (null)	The value of this property shall contain the port assigned for the protocol.
ProtocolEnabled }	boolean	read-write (null)	The value of this property shall contain the enabled status of the protocol. The value shall be true if enabled and false if disabled.
SSDP {	object		This object shall contain information for the SSDP protocol settings for this manager. Simple Service Discovery Protocol (SSDP) is for network discovery of devices supporting the Redfish service. The default value of the Port property should be 1900 for compatibility with established client implementations.
NotifyIPv6Scope	string (enum)	read-write (null)	The value of this property shall contain the IPv6 scope used for multicast NOTIFY messages. The valid enumerations are a subset of the available IPv6 Scope types. *See NotifyIPv6Scope in Property Details, below, for the possible values of this property.*
NotifyMulticastIntervalSeconds	integer (seconds)	read-write (null)	The value of this property shall contain the time interval, in seconds, between transmissions of the multicast NOTIFY ALIVE message. A setting of 0 seconds shall disable this functionality. The recommended value is 600 seconds.
NotifyTTL	integer	read-write (null)	The value of this property shall contain the Time-To-Live hop count used for multicast NOTIFY messages. The recommended value is 2.
Port	integer	read-write (null)	The value of this property shall contain the port assigned for the protocol.
ProtocolEnabled }	boolean	read-write (null)	The value of this property shall contain the enabled status of the protocol. The value shall be true if enabled and false if disabled.
SSH {	object		This object shall contain information for the SSH protocol settings for the manager. The default value of the Port property should be 22 for compatibility with established client implementations.
Port	integer	read-write (null)	The value of this property shall contain the port assigned for the protocol.
ProtocolEnabled }	boolean	read-write (null)	The value of this property shall contain the enabled status of the protocol. The value shall be true if enabled and false if disabled.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
Telnet {	object		This object shall contain information for the Telnet protocol settings for this manager. The default value of the Port property should be 23 for compatibility with established client implementations.
Port	integer	read-write (null)	The value of this property shall contain the port assigned for the protocol.
ProtocolEnabled }	boolean	read-write (null)	The value of this property shall contain the enabled status of the protocol. The value shall be true if enabled and false if disabled.
VirtualMedia {	object		This object shall contain information for the Virtual Media protocol settings for this manager. The value of the Port property shall contain the TCP port assigned for Virtual Media usage.
Port	integer	read-write (null)	The value of this property shall contain the port assigned for the protocol.
ProtocolEnabled }	boolean	read-write (null)	The value of this property shall contain the enabled status of the protocol. The value shall be true if enabled and false if disabled.

Property Details

NotifyIPv6Scope:

The value of this property shall contain the IPv6 scope used for multicast NOTIFY messages. The valid enumerations are a subset of the available IPv6 Scope types.

string	Description
Link	SSDP Notify messages are sent to addresses in the IPv6 Local Link scope.
Organization	SSDP Notify messages are sent to addresses in the IPv6 Local Organization scope.
Site	SSDP Notify messages are sent to addresses in the IPv6 Local Site scope.

Example Response


```
{
    "@odata.type": "#ManagerNetworkProtocol.v1_3_0.ManagerNetworkProtocol",
    "Id": "NetworkProtocol",
    "Name": "Manager Network Protocol",
    "Description": "Manager Network Service",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "HostName": "web483-bmc",
    "FQDN": "web483-bmc.dmtf.org",
    "HTTP": {
        "ProtocolEnabled": true,
        "Port": 80
    },
    "HTTPS": {
        "ProtocolEnabled": true,
        "Port": 443
    },
    "IPMI": {
        "ProtocolEnabled": true,
        "Port": 623
    },
    "SSH": {
        "ProtocolEnabled": true,
        "Port": 22
    },
    "SNMP": {
        "ProtocolEnabled": true,
        "Port": 161
    },
    "VirtualMedia": {
        "ProtocolEnabled": true,
        "Port": 17988
    },
    "SSDP": {
        "ProtocolEnabled": true,
        "Port": 1900,
        "NotifyMulticastIntervalSeconds": 600,
        "NotifyTTL": 5,
        "NotifyIPv6Scope": "Site"
    },
    "Telnet": {
        "ProtocolEnabled": true,
        "Port": 23
    },
    "KVMIP": {
        "ProtocolEnabled": true,
        "Port": 5288
    },
    "@odata.context": "/redfish/v1/$metadata#ManagerNetworkProtocol.ManagerNetworkProtocol",
    "@odata.id": "/redfish/v1/Managers/BMC/NetworkProtocol"
}
```


Memory 1.7.1

v1.7	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
2018.3	2018.2	2018.1	2017.3	2017.2	2017.1	2016.3	2016.1

This resource shall be used to represent the Memory in a Redfish implementation.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*

/redfish/v1/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*

AllocationAlignmentMiB *(v1.2+)*	integer (mebibytes)	read-only (null)	The value of this property shall be thealignment boundary on which memory regions are allocated, measured in MiB.

AllocationIncrementMiB *(v1.2+)*	integer (mebibytes)	read-only (null)	The value of this property shall be the allocation increment for regions, measured in MiB.
AllowedSpeedsMHz [ ]	array (MHz) (integer)	read-only	The value of this property shall be the speed supported by this Memory.
Assembly *(v1.4+)* {	object		The value of this property shall be a link to a resource of type Assembly. *See the Assembly schema for details on this property.*
@odata.id }	string	read-only	*Link to a Assembly resource. See the Links section and the Assembly schema for details.*
BaseModuleType	string (enum)	read-only (null)	The value of this property shall be the base module type of Memory. *See BaseModuleType in Property Details, below, for the possible values of this property.*
BusWidthBits	integer	read-only (null)	The value of this property shall be the bus width in bits.
CacheSizeMiB *(v1.4+)*	integer (mebibytes)	read-only (null)	The value of this property shall be the total size of the cache portion memory in MiB.
CapacityMiB	integer (mebibytes)	read-only (null)	The value of this property shall be the Memory capacity in MiB.
ConfigurationLocked *(v1.7+)*	boolean	read-only (null)	The value of this property shall be the current configuration lock state of this memory. True shall indicate that the configuration is locked and cannot be altered. False shall indicate that the configuration is not locked and may be altered.
DataWidthBits	integer	read-only (null)	The value of this property shall be the data width in bits.
DeviceID *(deprecated v1.3)*	string	read-only (null)	The value of this property shall be the device ID of the Memory. *Deprecated v1.3+. This property has been Deprecated in favor of Memory.v1_3_0.ModuleProductID*
DeviceLocator	string	read-only (null)	The value of this property shall be location of the Memory in the platform, typically marked in the silk screen.
ErrorCorrection	string (enum)	read-only (null)	The value of this property shall be the error correction scheme supported for this memory. *See ErrorCorrection in Property Details, below, for the possible values of this property.*
FirmwareApiVersion	string	read-only (null)	The value of this property shall be the version of API supported by the firmware.
FirmwareRevision	string	read-only (null)	The value of this property shall be the revision of firmware on the Memory controller.
FunctionClasses *(deprecated v1.4)* [ ]	array (string)	read-only	The value of this property shall be the function classes by the Memory. *Deprecated v1.4+. This property has been Deprecated in favor of Memory.v1_0_0.Memory.OperatingMemoryModes or Memory.v1_0_0.Memory.RegionSet.MemoryClassification.*
IsRankSpareEnabled	boolean	read-only (null)	The value of this property shall be true if a rank spare is enabled for this Memory.
IsSpareDeviceEnabled	boolean	read-only (null)	The value of this property shall be true if a spare device is enabled for this Memory.
Links *(v1.2+)* {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Chassis {	object		The value of this property shall be a reference to a resource

			of type Chassis that represent the physical container associated with this Memory. *See the Chassis schema for details on this property.*
@odata.id }	string	read-only	*Link to a Chassis resource. See the Links section and the Chassis schema for details.*
Oem { } }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
Location *(v1.4+)* { }	object		This property shall contain location information of the associated memory. *See the Location object for details on this property.*
LogicalSizeMiB *(v1.4+)*	integer (mebibytes)	read-only (null)	The value of this property shall be the total size of the logical memory in MiB.
Manufacturer	string	read-only (null)	This property shall contain a string which identifies the manufacturer of the Memory.
MaxTDPMilliWatts [ ]	array (milliWatts) (integer)	read-only	The value of this property shall be the maximum power budgets supported by the Memory in milli Watts.
MemoryDeviceType	string (enum)	read-only (null)	The value of this property shall be the Memory Device Type as defined by SMBIOS. *See MemoryDeviceType in Property Details, below, for the possible values of this property.*
MemoryLocation {	object		This object shall contain properties which describe the Memory connection information to sockets and memory controllers.
Channel	integer	read-only (null)	Channel number in which Memory is connected.
MemoryController	integer	read-only (null)	Memory controller number in which Memory is connected.
Slot	integer	read-only (null)	Slot number in which Memory is connected.
Socket }	integer	read-only (null)	Socket number in which Memory is connected.
MemoryMedia [ ]	array (string (enum))	read-only	The value of this property shall be the media types of this Memory. *See MemoryMedia in Property Details, below, for the possible values of this property.*
MemorySubsystemControllerManufacturerID *(v1.3+)*	string	read-only (null)	The value of this property shall be the two byte manufacturer ID of the memory subsystem controller of this memory module as defined by JEDEC in JEP-106. Pattern: ^0xX{2}$
MemorySubsystemControllerProductID *(v1.3+)*	string	read-only (null)	The value of this property shall be the two byte product ID of the memory subsystem controller of this memory module as defined by the manufacturer. Pattern: ^0xX{2}$
MemoryType	string (enum)	read-only (null)	The value of this property shall be the type of Memory represented by this resource. *See MemoryType in Property Details, below, for the possible values of this property.*
Metrics {	object		A reference to the Metrics associated with this Memory. *See the MemoryMetrics schema for details on this property.*
@odata.id }	string	read-only	*Link to a MemoryMetrics resource. See the Links section and the MemoryMetrics schema for details.*
ModuleManufacturerID *(v1.3+)*	string	read-only (null)	The value of this property shall be the two byte manufacturer ID of this memory module as defined by JEDEC in JEP-106. Pattern: ^0xX{2}$

ModuleProductID *(v1.3+)*	string	read-only (null)	The value of this property shall be the two byte product ID of this memory module as defined by the manufacturer. Pattern: ^0xX{2}$
NonVolatileSizeMiB *(v1.4+)*	integer (mebibytes)	read-only (null)	The value of this property shall be the total size of the non-volatile portion memory in MiB.
OperatingMemoryModes [ ]	array (string (enum))	read-only	The value of this property shall be the memory modes supported by the Memory. *See OperatingMemoryModes in Property Details, below, for the possible values of this property.*
OperatingSpeedMhz	integer (MHz)	read-only (null)	The value of this property shall be the operating speed of Memory in MHz or MT/s (mega-transfers per second) as reported by the memory device. Memory devices which operate at their bus speed shall report the operating speed in MHz (bus speed), while memory device which transfer data faster than their bus speed (e.g. DDR memory) shall report the operating speed in MT/s (mega-transfers/second). In any case, the reported value shall match the conventionally reported values for the technology utilized by the memory device.
PartNumber	string	read-only (null)	This property shall indicate the part number as provided by the manufacturer of this Memory.
PersistentRegionNumberLimit *(v1.2+)*	integer	read-only (null)	The value of this property shall be the total number of persistent regions this Memory can support.
PersistentRegionSizeLimitMiB	integer (mebibytes)	read-only (null)	The value of this property shall be the total size of persistent regions in MiB.
PersistentRegionSizeMaxMiB *(v1.2+)*	integer (mebibytes)	read-only (null)	The value of this property shall be the maximum size of a single persistent regions in MiB.
PowerManagementPolicy {	object		This object shall contain properties which describe the power management policy for the current resource.
AveragePowerBudgetMilliWatts	integer (milliWatts)	read-only (null)	Average power budget in milli watts.
MaxTDPMilliWatts	integer (milliWatts)	read-only (null)	Maximum TDP in milli watts.
PeakPowerBudgetMilliWatts	integer (milliWatts)	read-only (null)	Peak power budget in milli watts.
PolicyEnabled }	boolean	read-only (null)	Power management policy enabled status.
RankCount	integer	read-only (null)	The value of this property shall be number of ranks available in the Memory. The ranks could be used for spare or interleave.
Regions [{	array		The value of this property shall be the memory region information within the Memory.
MemoryClassification	string (enum)	read-only (null)	Classification of memory occupied by the given memory region. *See MemoryClassification in Property Details, below, for the possible values of this property.*
OffsetMiB	integer (mebibytes)	read-only (null)	Offset with in the Memory that corresponds to the starting of this memory region in MiB.
PassphraseEnabled *(v1.5+)*	boolean	read-only (null)	The value of this property shall be a boolean indicating if the passphrase is enabled for this region.
PassphraseState *(deprecated v1.5)*	boolean	read-only (null)	State of the passphrase for this region. *Deprecated v1.5+. This property has been Deprecated in favor of Memory.v1_5_0.Memory.RegionSet.PassphraseEnabled.*

RegionId	string	read-only (null)	Unique region ID representing a specific region within the Memory.
SizeMiB }]	integer (mebibytes)	read-only (null)	Size of this memory region in MiB.
SecurityCapabilities {	object		This object shall contain properties which describe the security capabilities of the Memory.
ConfigurationLockCapable *(v1.7+)*	boolean	read-only (null)	The value of this property shall indicate whether this memory supports the locking (freezing) of the configuration.
DataLockCapable *(v1.7+)*	boolean	read-only (null)	The value of this property shall indicate whether this memory supports the locking of data access.
MaxPassphraseCount	integer	read-only (null)	Maximum number of passphrases supported for this Memory.
PassphraseCapable	boolean	read-only (null)	Memory passphrase set capability.
PassphraseLockLimit *(v1.7+)*	integer	read-only (null)	The value of this property shall be the maximum number of incorrect passphase access attempts allowed before access to data is locked. A value of zero shall indicate that there is no limit to the number of attempts.
SecurityStates [ ] }	array (string (enum))	read-only	Security states supported by the Memory. *See SecurityStates in Property Details, below, for the possible values of this property.*
SecurityState	string (enum)	read-write (null)	The value of this property shall be the current security state of this memory. *See SecurityState in Property Details, below, for the possible values of this property.*
SerialNumber	string	read-only (null)	This property shall indicate the serial number as provided by the manufacturer of this Memory.
SpareDeviceCount	integer	read-only (null)	The value of this property shall be the number of unused spare devices available in the Memory. If memory devices fails, the spare device could be used.
Status *(v1.1+)* { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
SubsystemDeviceID *(deprecated v1.3)*	string	read-only (null)	The value of this property shall be the subsystem Device ID of the Memory. *Deprecated v1.3+. This property has been Deprecated in favor of Memory.v1_3_0.MemorySubsystemControllerProductID*
SubsystemVendorID *(deprecated v1.3)*	string	read-only (null)	The value of this property shall be the subsystem Vendor ID of the Memory. *Deprecated v1.3+. This property has been Deprecated in favor of Memory.v1_3_0.MemorySubsystemControllerManufacturerID*
VendorID *(deprecated v1.3)*	string	read-only (null)	The value of this property shall be the vendor ID of the Memory. *Deprecated v1.3+. This property has been Deprecated in favor of Memory.v1_3_0.ModuleManufacturerID*
VolatileRegionNumberLimit *(v1.2+)*	integer	read-only (null)	The value of this property shall be the total number of volatile regions this Memory can support.
VolatileRegionSizeLimitMiB	integer (mebibytes)	read-only (null)	The value of this property shall be the total size of volatile regions in MiB.
VolatileRegionSizeMaxMiB *(v1.2+)*	integer (mebibytes)	read-only (null)	The value of this property shall be the maximum size of a single volatile regions in MiB.
VolatileSizeMiB *(v1.4+)*	integer (mebibytes)	read-only (null)	The value of this property shall be the total size of the volatile portion memory in MiB.

Actions

DisablePassphrase

This action shall disaple the need for passphrases on the supplied region provided the supplied passphrase matches that of the region.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*/Actions/Memory.DisablePassphrase

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Actions/Memory.DisablePassphrase

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*/Actions/Memory.DisablePassphrase

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Actions/Memory.DisablePassphrase

/redfish/v1/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Actions/Memory.DisablePassphrase

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
Passphrase	string	read-write required	The value of this property shall be the passphrase used in this action.
RegionId	string	read-write required	The value of this property shall be the Memory region ID for which this action to be applied.
}			

OverwriteUnit

This action shall securely erase the supplied region provided the supplied passphrase matches that of the given region using the NIST SP800-88 Purge: Overwrite. Use the SecureEraseUnit method to perform NIST SP800-88 Purge: Cryptographic Erase.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*/Actions/Memory.OverwriteUnit

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Actions/Memory.OverwriteUnit

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*/Actions/Memory.OverwriteUnit

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Actions/Memory.OverwriteUnit

/redfish/v1/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Actions/Memory.OverwriteUnit

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
Passphrase	string	read-write required	The value of this property shall be the passphrase used in this action.
RegionId	string	read-write required	The value of this property shall be the Memory region ID for which this action to be applied.
}			

SecureEraseUnit

This action shall securely erase the supplied region provided the supplied passphrase matches that of the given region using the NIST SP800-88 Purge: Cryptographic Erase. Use the OverwriteUnit method to perform NIST SP800-88 Purge: Overwrite.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*/Actions/Memory.SecureEraseUnit

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Actions/Memory.SecureEraseUnit

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*/Actions/Memory.SecureEraseUnit

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Actions/Memory.SecureEraseUnit

/redfish/v1/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Actions/Memory.SecureEraseUnit

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			

Passphrase	string	read-write required	The value of this property shall be the passphrase used in this action.
RegionId }	string	read-write required	The value of this property shall be the Memory region ID for which this action to be applied.

SetPassphrase

This action shall apply the supplied passphrase to the supplied region.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*/Actions/Memory.SetPassphrase

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Actions/Memory.SetPassphrase

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*/Actions/Memory.SetPassphrase

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Actions/Memory.SetPassphrase

/redfish/v1/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Actions/Memory.SetPassphrase

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
Passphrase	string	read-write required	The value of this property shall be the passphrase used in this action.
RegionId }	string	read-write required	The value of this property shall be the Memory region ID for which this action to be applied.

UnlockUnit

This action shall apply the supplied passphrase to the supplied region for the purpose of unlocking the given regions.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*/Actions/Memory.UnlockUnit

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Actions/Memory.UnlockUnit

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*/Actions/Memory.UnlockUnit

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Actions/Memory.UnlockUnit

/redfish/v1/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/Actions/Memory.UnlockUnit

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
Passphrase	string	read-write required	The value of this property shall be the passphrase used in this actionn.
RegionId }	string	read-write required	The value of this property shall be the Memory region ID for which this action to be applied.

Property Details

BaseModuleType:

The value of this property shall be the base module type of Memory.

string	Description
Die *(v1.7+)*	A die within a package.
LRDIMM	Load Reduced.
Mini_RDIMM	Mini_RDIMM.
Mini_UDIMM	Mini_UDIMM.
RDIMM	Registered DIMM.

SO_DIMM	SO_DIMM.
SO_DIMM_16b	SO_DIMM_16b.
SO_DIMM_32b	SO_DIMM_32b.
SO_RDIMM_72b	SO_RDIMM_72b.
SO_UDIMM_72b	SO_UDIMM_72b.
UDIMM	UDIMM.

ErrorCorrection:

The value of this property shall be the error correction scheme supported for this memory.

string	Description
AddressParity	Address Parity errors can be corrected.
MultiBitECC	Multi-bit Data errors can be corrected by ECC.
NoECC	No ECC available.
SingleBitECC	Single bit Data error can be corrected by ECC.

MemoryClassification:

Classification of memory occupied by the given memory region.

string	Description
Block	Block accesible memory.
ByteAccessiblePersistent	Byte accessible persistent memory.
Volatile	Volatile memory.

MemoryDeviceType:

The value of this property shall be the Memory Device Type as defined by SMBIOS.

string	Description
DDR	DDR.
DDR2	DDR2.
DDR2_SDRAM	DDR2 SDRAM.
DDR2_SDRAM_FB_DIMM	DDR2 SDRAM FB_DIMM.
DDR2_SDRAM_FB_DIMM_PROBE	DDR2 SDRAM FB_DIMM PROBE.
DDR3	DDR3.
DDR3_SDRAM	DDR3 SDRAM.
DDR4	DDR4.
DDR4_SDRAM	DDR4 SDRAM.
DDR4E_SDRAM	DDR4E SDRAM.
DDR_SDRAM	DDR SDRAM.
DDR_SGRAM	DDR SGRAM.
EDO	EDO.
FastPageMode	Fast Page Mode.
HBM *(v1.7+)*	High Bandwidth Memory.
HBM2 *(v1.7+)*	High Bandwidth Memory 2.

Logical *(v1.4+)*	Logical Non-volatile device.
LPDDR3_SDRAM	LPDDR3 SDRAM.
LPDDR4_SDRAM	LPDDR4 SDRAM.
PipelinedNibble	Pipelined Nibble.
ROM	ROM.
SDRAM	SDRAM.

MemoryMedia:

The value of this property shall be the media types of this Memory.

string	Description
DRAM	DRAM media.
Intel3DXPoint *(v1.7+)*	Intel 3D XPoint media.
NAND	NAND media.
Proprietary	Proprietary media.

MemoryType:

The value of this property shall be the type of Memory represented by this resource.

string	Description
DRAM	This memory type shall represent volatile DRAM.
IntelOptane *(v1.6+)*	This memory type shall represent Intel Optane DC Persistent Memory.
NVDIMM_F	This memory type shall represent NVDIMM_F as defined by JEDEC.
NVDIMM_N	This memory type shall represent NVDIMM_N as defined by JEDEC.
NVDIMM_P	This memory type shall represent NVDIMM_P as defined by JEDEC.

OperatingMemoryModes:

The value of this property shall be the memory modes supported by the Memory.

string	Description
Block	Block accessible system memory.
PMEM	Persistent memory, byte accesible through system address space.
Volatile	Volatile memory.

SecurityState:

The value of this property shall be the current security state of this memory.

string	Description
Disabled	Secure mode is disabled.
Enabled	Secure mode is enabled and access to the data is allowed.
Frozen *(deprecated v1.7)*	Secure state is frozen and can not be modified until reset. *Deprecated v1.7+. This value has been deprecated in favor of using the ConfigurationLocked to indicate that the configuration has been frozen.*
Locked	Secure mode is enabled and access to the data is locked.
Passphraselimit	Number of attempts to unlock the Memory exceeded limit.
Unlocked *(deprecated*	Secure mode is enabled and access to the data is unlocked. *Deprecated v1.7+. This value has been deprecated in favor of 'Enabled' to indicate normal security operation.*

v1.7)	

SecurityStates:

Security states supported by the Memory.

string	Description
Disabled	Secure mode is disabled.
Enabled	Secure mode is enabled and access to the data is allowed.
Frozen *(deprecated v1.7)*	Secure state is frozen and can not be modified until reset. *Deprecated v1.7+. This value has been deprecated in favor of using the ConfigurationLocked to indicate that the configuration has been frozen.*
Locked	Secure mode is enabled and access to the data is locked.
Passphraselimit	Number of attempts to unlock the Memory exceeded limit.
Unlocked *(deprecated v1.7)*	Secure mode is enabled and access to the data is unlocked. *Deprecated v1.7+. This value has been deprecated in favor of 'Enabled' to indicate normal security operation.*

Example Response


```
{
    "@odata.type": "#Memory.v1_6_0.Memory",
    "Id": "DIMM1",
    "Name": "DIMM Slot 1",
    "RankCount": 2,
    "MaxTDPMilliWatts": [
        12000
    ],
    "CapacityMiB": 32768,
    "DataWidthBits": 64,
    "BusWidthBits": 72,
    "ErrorCorrection": "MultiBitECC",
    "MemoryLocation": {
        "Socket": 1,
        "MemoryController": 1,
        "Channel": 1,
        "Slot": 1
    },
    "MemoryType": "DRAM",
    "MemoryDeviceType": "DDR4",
    "BaseModuleType": "RDIMM",
    "MemoryMedia": [
        "DRAM"
    ],
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "@odata.context": "/redfish/v1/$metadata#Memory.Memory",
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/Memory/DIMM1"
}
```


MemoryChunks 1.2.3

v1.2	*v1.1*	*v1.0*
2017.3	2017.1	2016.2

This resource shall be used to represent Memory Chunks and Interleave Sets in a Redfish implementation.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/MemoryDomains/*{MemoryDomainId}*/MemoryChunks/*{MemoryChunksId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/MemoryDomains/*{MemoryDomainId}*/MemoryChunks/*{MemoryChunksId}*

/redfish/v1/Systems/*{ComputerSystemId}*/MemoryDomains/*{MemoryDomainId}*/MemoryChunks/*{MemoryChunksId}*

AddressRangeType	string (enum)	read-only (null)	The value of this property shall be the type of memory chunk. *See AddressRangeType in Property Details, below, for the possible values of this property.*
InterleaveSets [{	array		These properties shall represent the interleave sets for the memory chunk.

Memory {	object		The value of this property shall be the memory device to which these settings apply.
@odata.id }	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
MemoryLevel	integer	read-only (null)	The value of this property shall be the level of this interleave set for multi-level tiered memory.
OffsetMiB	integer (mebibytes)	read-only (null)	The value of this property shall be the offset within the DIMM that corresponds to the start of this memory region, with units in MiB.
RegionId	string	read-only (null)	The value of this property shall be the DIMM region identifier.
SizeMiB }]	integer (mebibytes)	read-only (null)	The value of this property shall be the size of this memory region, with units in MiB.
IsMirrorEnabled	boolean	read-only (null)	The value of this property shall indicate if memory mirroring is enabled for this MemoryChunk.
IsSpare	boolean	read-only (null)	The value of this property shall indicate if sparing is enabled for this MemoryChunk.
MemoryChunkSizeMiB	integer (mebibytes)	read-only (null)	The value of this property shall be the size of the memory chunk in MiB.
Status *(v1.2+)* { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*

Property Details

AddressRangeType:

The value of this property shall be the type of memory chunk.

string	Description
Block	Block accesible memory.
PMEM	Byte accessible persistent memory.
Volatile	Volatile memory.

Example Response

```
{
    "@odata.type": "#MemoryChunks.v1_0_0.MemoryChunks",
    "Name": "Memory Chunk - Whole System",
    "Id": "1",
    "MemoryChunkSizeMiB": 32768,
    "AddressRangeType": "Volatile",
    "IsMirrorEnabled": false,
    "IsSpare": false,
    "InterleaveSets": [
        {
            "Memory": {
                "@odata.id": "/redfish/v1/Systems/2/Memory/1"
            }
        },
        {
            "Memory": {
                "@odata.id": "/redfish/v1/Systems/2/Memory/2"
            }
        },
        {
            "Memory": {
                "@odata.id": "/redfish/v1/Systems/2/Memory/3"
            }
        },
        {
            "Memory": {
                "@odata.id": "/redfish/v1/Systems/2/Memory/4"
            }
        }
    ],
    "@Redfish.Settings": {
        "@odata.type": "#Settings.v1_0_0.Settings",
        "SettingsObject": {
            "@odata.id": "/redfish/v1/Systems/2/MemoryDomains/1/MemoryChunks/1/SD"
        },
        "Time": "2012-03-07T14:44.30-05:00",
        "ETag": "someetag",
        "Messages": [
            {
                "MessageId": "Base.1.0.Success"
            }
        ]
    },
```

```
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#MemoryChunks.MemoryChunks",
    "@odata.id": "/redfish/v1/Systems/2/MemoryDomains/1/MemoryChunks/1"
}
```


MemoryDomain 1.2.2

v1.2	*v1.1*	*v1.0*
2017.1	2016.3	2016.2

This resource shall be used to represent Memory Domains in a Redfish implementation.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/MemoryDomains/*{MemoryDomainId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/MemoryDomains/*{MemoryDomainId}*

/redfish/v1/Systems/*{ComputerSystemId}*/MemoryDomains/*{MemoryDomainId}*

AllowsBlockProvisioning	boolean	read-only (null)	The value of this property shall indicate if this Memory Domain supports the creation of Blocks of memory.
AllowsMemoryChunkCreation	boolean	read-only (null)	The value of this property shall indicate if this Memory Domain supports the creation of Memory Chunks.
AllowsMirroring *(v1.1+)*	boolean	read-only (null)	The value of this property shall indicate if this Memory Domain supports the creation of Memory Chunks with mirroring enabled.
AllowsSparing *(v1.1+)*	boolean	read-only (null)	The value of this property shall indicate if this Memory Domain supports the creation of Memory Chunks with sparing enabled.
InterleavableMemorySets [{	array		These properties shall represent the interleave sets for the memory chunk.
MemorySet [{	array		The values in this collection shall be links to objects of type Memory.
@odata.id }] }]	string	read-only	*Link to a Memory resource. See the Links section and the Memory schema for details.*
MemoryChunks {	object		The value of this property shall be a link to a collection of type MemoryChunkCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of MemoryChunks. See the MemoryChunks schema for details.*

Example Response


```
{
    "@odata.type": "#MemoryDomain.v1_2_1.MemoryDomain",
    "Name": "Memory Domain - Whole System Mirroring Only",
    "Id": "1",
    "MemoryChunks": {
        "@odata.id": "/redfish/v1/Systems/4/MemoryDomains/1/MemoryChunks"
    },
    "AllowsMemoryChunkCreation": false,
    "AllowsBlockProvisioning": false,
    "InterleavableMemorySets": [
        {
            "MemorySet": [
                {
                    "@odata.id": "/redfish/v1/Systems/2/Memory/1"
                },
                {
                    "@odata.id": "/redfish/v1/Systems/2/Memory/2"
                },
                {
                    "@odata.id": "/redfish/v1/Systems/2/Memory/3"
                },
                {
                    "@odata.id": "/redfish/v1/Systems/2/Memory/4"
                }
            ]
        }
    ],
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#MemoryDomain.MemoryDomain",
    "@odata.id": "/redfish/v1/Systems/2/MemoryDomains/1"
}
```

MemoryMetrics 1.1.5

v1.1	*v1.0*
2016.2	2016.1

This resource shall be used to represent the Memory Metrics for a single Memory device in a Redfish implementation.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*/MemoryMetrics

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/MemoryMetrics

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*/MemoryMetrics

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/MemoryMetrics

/redfish/v1/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/MemoryMetrics

BlockSizeBytes	integer (bytes)	read-only (null)	The value of this property shall be the block size in bytes of all stucture elements.
CurrentPeriod {	object		This object shall contain properties which describe the CurrentPeriod metrics for the current resource.
BlocksRead	integer	read-only (null)	The value of this property shall be number of blocks read since reset.
BlocksWritten }	integer	read-only (null)	The value of this property shall be mumber of blocks written since reset.
HealthData {	object		This object shall contain properties which describe the HealthData metrics for the current resource.
AlarmTrips {	object		This object shall contain properties describe the types of alarms that have been raised by the memory.
AddressParityError	boolean	read-only (null)	The value of this property shall be true if an Address Parity Error was detected which could not be corrected by retry.
CorrectableECCError	boolean	read-only (null)	The value of this property shall be true if the correctable error threshold crossing alarm trip was detected.
SpareBlock	boolean	read-only (null)	The value of this property shall be true if the spare block capacity crossing alarm trip was detected.
Temperature	boolean	read-only (null)	The value of this property shall be true if a temperature threshold alarm trip was detected.
UncorrectableECCError }	boolean	read-only (null)	The value of this property shall be true if the uncorrectable error threshold alarm trip was detected.
DataLossDetected	boolean	read-only (null)	The value of this property shall be data loss detection status, with true indicating data loss detected.
LastShutdownSuccess	boolean	read-only (null)	The value of this property shall be the status ofthe last shutdown, with true indicating success.
PerformanceDegraded	boolean	read-only (null)	The value of this property shall be performance degraded mode status, with true indicating perfomance degraded.
PredictedMediaLifeLeftPercent *(v1.1+)*	number (%)	read-only (null)	This property shall contain an indicator of the percentage of life remaining in the media.
RemainingSpareBlockPercentage }	number (%)	read-only (null)	The value of this property shall be the remaining spare blocks in percentage.
LifeTime {	object		This object shall contain properties which describe the LifeTime metrics for the current resource.
BlocksRead	integer	read-only (null)	The value of this property shall be number of blocks read for the lifetime of the Memory.
BlocksWritten	integer	read-only	The value of this property shall be number of blocks written for the

}		(null)	lifetime of the Memory.

Actions

ClearCurrentPeriod

This action shall set the CurrentPeriod object property values to zero.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*/MemoryMetrics/Actions/MemoryMetrics.ClearCurrentPeriod

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/MemoryMetrics/Actions/MemoryMetrics.ClearCurrentPeriod

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Memory/*{MemoryId}*/MemoryMetrics/Actions/MemoryMetrics.ClearCurrentPeriod

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/MemoryMetrics/Actions/MemoryMetrics.ClearCurrentPeriod

/redfish/v1/Systems/*{ComputerSystemId}*/Memory/*{MemoryId}*/MemoryMetrics/Actions/MemoryMetrics.ClearCurrentPeriod

(This action takes no parameters.)

Example Response


```
{
    "@odata.type": "#MemoryMetrics.v1_1_4.MemoryMetrics",
    "Name": "Memory Metrics",
    "Id": "Metrics",
    "BlockSizeBytes": 4096,
    "CurrentPeriod": {
        "BlocksRead": 0,
        "BlocksWritten": 0
    },
    "LifeTime": {
        "BlocksRead": 0,
        "BlocksWritten": 0
    },
    "HealthData": {
        "RemainingSpareBlockPercentage": 50,
        "LastShutdownSuccess": true,
        "DataLossDetected": false,
        "PerformanceDegraded": false,
        "AlarmTrips": {
            "Temperature": true,
            "SpareBlock": false,
            "UncorrectableECCError": false,
            "CorrectableECCError": false
        }
    },
    "Actions": {
        "#MemoryMetrics.ClearCurrentPeriod": {
            "target": "/redfish/v1/Systems/1/Memory/1/Actions/MemoryMetrics.ClearCurrentPeriod"
        },
        "Oem": {}
    },
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#MemoryMetrics.MemoryMetrics",
    "@odata.id": "/redfish/v1/Systems/1/Memory/1/MemoryMetrics"
}
```


MessageRegistry 1.3.0

v1.3	*v1.2*	*v1.1*	*v1.0*
2019.1	2018.2	2017.1	1.0

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

Language	string	read-only required	The value of this property shall be a string consisting of an RFC 5646 language code.
Messages {	object	required	The pattern property shall represent the suffix to be used in the MessageId and shall be unique within this message registry.
(pattern) {	object		Property names follow regular expression pattern "[A-Za-z0-9]+"
ArgDescriptions *(v1.3+)* [ ]	array (string, null)	read-only	This property shall contain an ordered array of text describing each argument used as substitution in the Message.
ArgLongDescriptions *(v1.3+)* [ ]	array (string,	read-only	This property shall contain an ordered array of normative language for each argument used as substitution in the Message.

	null)		
ClearingLogic *(v1.2+)* {	object		This type shall contain the available actions for this resource.
ClearsAll	boolean	read-only (null)	This property shall indicate that all prior conditions and messages are cleared provided the ClearsIf condition is met.
ClearsIf	string (enum)	read-only (null)	This property shall contain any additional OEM actions for this resource. *See ClearsIf in Property Details, below, for the possible values of this property.*
ClearsMessage [ ] }	array (string, null)	read-only	This property shall contain an array of Message Ids that are cleared by this message, provided the other conditions are met. The Message Ids shall not include the Registry name or version and shall just be the Message Id portion. Message Ids shall not reference other Message Registries.
Description	string	read-only required	The value of this property shall indicate how and when this message is returned by the Redfish service.
LongDescription *(v1.3+)*	string	read-only (null)	This property shall contain the normative language describing the usage of this Message in a Redfish implementation.
Message	string	read-only required	The value of this property shall be the message to be displayed. If a %integer is included in part of the string, it shall be used to represent a string substitution for any MessageArgs accompanying the message, in order.
NumberOfArgs	integer	read-only required	The value of this property shall be the number of MessageArgs that are expected to be substituted in the Message in the locations within the Message marked by %<integer>.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
ParamTypes [ ]	array (string (enum))	read-only	The value of this property shall be an ordered array of argument data types which match the data types of the MessageArgs, in order. *See ParamTypes in Property Details, below, for the possible values of this property.*
Resolution	string	read-only required	This property shall contain an override of the Resolution of the message in message registry, if present.
Severity }	string	read-only required	The value of this property shall be the severity of the condition resulting in the message, as defined in the Status section of the Redfish specification.
(pattern) { } [ ] }	array, boolean, integer, number, object, string	(null)	Property names follow regular expression pattern "^([a-zA-Z_][a-zA-Z0-9_]*)?@(odata|Redfish|Message)\.[a-zA-Z_][a-zA-Z0-9_]*$"
OwningEntity	string	read-only required	The value of this property shall be a string that represents the publisher of this registry.
RegistryPrefix	string	read-only required	The value of this property shall be the prefix used in messageIDs which uniquely identifies all of the messages in this registry as belonging to this registry.
RegistryVersion	string	read-only required	The value of this property shall be the version of this message registry. The format of this string shall be of the format majorversion.minorversion.errata in compliance with Protocol Version section of the Redfish specification.

Property Details

ClearsIf:

This property shall contain any additional OEM actions for this resource.

string	Description
SameOriginOfCondition	Indicates the message is cleared by the other message(s) listed in the ClearingLogic object, provided the OriginOfCondition for both Events are the same.

ParamTypes:

The value of this property shall be an ordered array of argument data types which match the data types of the MessageArgs, in order.

string	Description
number	The argument is a number.
string	The argument is a string.

Example Response


```
{
    "@odata.type": "#MessageRegistry.v1_0_0.MessageRegistry",
    "Id": "Basic.1.2.0",
    "Name": "Simple Message Registry",
    "Language": "en",
    "Description": "Collection of Basic messages for numerous use cases",
    "RegistryPrefix": "Basic",
    "RegistryVersion": "1.2.0",
    "OwningEntity": "Contoso",
    "Messages": {
        "Success": {
            "Description": "Indicates that all conditions of a successful operation have been met.",
            "Message": "Successfully Completed Request",
            "Severity": "OK",
            "NumberOfArgs": 0,
            "Resolution": "None"
        },
        "GeneralError": {
            "Description": "Indicates that a general error has occurred.",
            "Message": "A general error has occurred. See ExtendedInfo for more information.",
            "Severity": "Critical",
            "NumberOfArgs": 0,
            "Resolution": "See ExtendedInfo for more information."
        },
        "ResourceAtUriUnauthorized": {
            "Description": "Indicates that the attempt to access the resource/file/image at the URI was unauthorized.",
            "Message": "While accessing the resource at %1, the service received an authorization error %2.",
            "Severity": "Critical",
            "NumberOfArgs": 2,
            "ParamTypes": [
                "string",
                "string"
            ],
            "Resolution": "Ensure that the appropriate access is provided for the service in order for it to access the
URI."
        }
    }
}
```


MessageRegistryFile 1.1.2

v1.1	*v1.0*
2017.1	2016.1

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

URIs:

/redfish/v1/Registries/*{MessageRegistryFileId}*

Languages [ ]	array (string)	read-only required	The value of this property shall be a string consisting of an RFC 5646 language code.
Location [{	array	required	This property shall contain the location information for this registry file.
ArchiveFile	string	read-only	The value of this property shall be the file name of the individual schema file within the archive file specified by the ArchiveUri property. The file name shall conform to the syntax specified in the Redfish specification.
ArchiveUri	string	read-only	The value of this property shall be a URI co-located with the Redfish service that specifies the location of the schema file. This property shall only be used for archive files (zip or other formats). The value of ArchiveFile shall have the file name of the individual schema file within the archive file.

Language	string	read-only	The value of this property shall be a string consisting of an RFC5646 language code or the string 'default'.
PublicationUri	string	read-only	The value of this property shall be a URI not co-located with the Redfish service that specifies the canonical location of the schema file. This property shall only be used for individual schema files.
Uri }]	string	read-only	The value of this property shall be a URI co-located with the Redfish service that specifies the location of the schema file. This property shall only be used for individual schema files. The file name portion of the URI shall conform to the syntax specified in the Redfish specification.
Registry	string	read-only required	The value of this property shall be the value of the Registry Name, Major, and Minor version. This Registry may reference any type of Registry, such as a Message Registry, Privilege Registry, or Attribute Registry.

Example Response

```
{
    "@odata.id": "/redfish/v1/Registries/Base.v1_0_0",
    "@odata.type": "#MessageRegistryFile.v1_0_0.MessageRegistryFile",
    "Id": "Base.v1_0_0",
    "Name": "Base Message Registry File",
    "Description": "Base Message Registry File locations",
    "Languages": [
        "en"
    ],
    "Registry": "Base.1.0",
    "Location": [
        {
            "Language": "en",
            "ArchiveUri": "/FileRepo/Registries.gz",
            "PublicationUri": "http://redfish.dmtf.org/registries/Base.v1_0_0.json",
            "ArchiveFile": "Base.v1_0_0.json"
        },
        {
            "Language": "zh",
            "ArchiveUri": "/FileRepo/Registries.zh.gz",
            "PublicationUri": "http://redfish.dmtf.org/registries/Base.v1_0_0.zh.json",
            "ArchiveFile": "Base.v1_0_0.zh.json"
        }
    ],
    "Oem": {}
}
```

MetricDefinition 1.0.2

v1.0
2018.2

Shall define the metadata information about a metric.

URIs:

/redfish/v1/TelemetryService/MetricDefinitions/*{MetricDefinitionId}*

Accuracy	number	read-only (null)	The value of the property shall be the percent error +/- of the measured vs. actual values. The property is not meaningful, when the MetricType property has the value 'Discrete'.
Calculable	string (enum)	read-write (null)	The value shall specify whether the metric can be used in a calculation. *See Calculable in Property Details, below, for the possible values of this property.*
CalculationAlgorithm	string (enum)	read-only (null)	The value of this property shall specify the calculation performed to obtain the metric. *See CalculationAlgorithm in Property Details, below, for the possible values of this property.*
CalculationParameters [{	array		Shall list the metric properties which are part of the synthesis calculation. When MetricType=Synthesis, this property may be present.
ResultMetric	string	read-only (null)	This property shall contain a reference to a metric property wsed to place the result of the calcuation.
SourceMetric }]	string	read-only (null)	This property shall contain a reference to a metric property used in a calcuation.
CalculationTimeInterval	string	read-write (null)	The value shall specify the time interval over the metric calculation is performed. The format of the value shall conform to the Duration format. Pattern: -?P(\d+D)?

			(T(\d+H)?(\d+M)?(\d+(.\d+)?S)?)?
Calibration	number	read-only (null)	The value shall be the calibration offset added to the metric reading. The value shall have the units specified in the property Units. The property is not meaningful, when the MetricType property has the value 'Discrete'.
DiscreteValues [ ]	array (string, null)	read-write	The values of the property shall specify the possible values of the discrete metic. This property shall have values when the MetricType property has the value 'Discrete'.
Implementation	string (enum)	read-only (null)	The value shall specify the implementation of the metric. *See Implementation in Property Details, below, for the possible values of this property.*
IsLinear	boolean	read-write (null)	The value shall specify that the corresponding metric values shall be linear or non-linear. Linear metrics may be compared using a greater than relation. An example of linear metrics include performance metrics. Examples of non-linear metrics include error codes.
MaxReadingRange	number	read-only (null)	The value shall indicate the highest possible value for a related MetricValue. The value shall have the units specified in the property Units. The property is not meaningful, when the MetricType property has the value 'Discrete'.
MetricDataType	string (enum)	read-write (null)	The value shall specify the data-type of the metric. *See MetricDataType in Property Details, below, for the possible values of this property.*
MetricProperties [ ]	array (string, null)	read-write	This array property shall contain a list of URIs with wildcards and property identifiers for which this metric definition is defined. Each wildcard in the URI shall be delimited by a set of curly braces. Each wildcard shall be substituted as specified by the corresponding entry in the Wildcard array property. Once an URI with wildcards has had its wildcards fully substituted, it shall reference a resource property for which the metric definition applies. The property identifiers portion of the URI shall follow JSON fragment notation rules defined by RFC6901.
MetricType	string (enum)	read-write (null)	The value shall specify the type of metric. *See MetricType in Property Details, below, for the possible values of this property.*
MinReadingRange	number	read-only (null)	The value shall be the lowest possible value for the metric reading. The value shall have the units specified in the property Units. The property is not meaningful, when the MetricType property has the value 'Discrete'.
PhysicalContext	string (enum)	read-only (null)	The value of this property shall specify the physical context of the metric. *See PhysicalContext in Property Details, below, for the possible values of this property.*
Precision	integer	read-only (null)	The value of the property shall specify the number of significant digits in the metric reading. The property is not meaningful, when the MetricType property has the value 'Discrete'.
SensingInterval	string	read-write (null)	The value shall specify the time interval between when a metric is updated. The format of the value shall conform to the Duration format. Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(.\d+)?S)?)?
TimestampAccuracy	string	read-only (null)	The value shall specify the expected + or - variability of the timestamp. The format of the value shall conform to the Duration format. Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(.\d+)?S)?)?
Units	string	read-write (null)	The value shall specify the units of the metric. shall be consistent with the case sensitive Unified Code for Units of Measure as defined at http://unitsofmeasure.org/ucum.html. Note: the units of measure is not covered in UCUM.
Wildcards [{	array		The property shall contain a list of wildcards and their replacement strings, which are applied to the MetricProperties array property. Each wildcard shall have a corresponding entry in this array property.
Name	string	read-only (null)	This property shall contain the string used as a wildcard.
Values [ ] }]	array (string,	read-only	This property shall contain the list of values to substitute for the wildcard.

	null)		

Property Details

Calculable:

The value shall specify whether the metric can be used in a calculation.

string	Description
NonCalculatable	No calculations should be performed on the metric reading.
NonSummable	The sum of the metric reading across multiple instances is not meaningful.
Summable	The sum of the metric reading across multiple instances is meaningful.

CalculationAlgorithm:

The value of this property shall specify the calculation performed to obtain the metric.

string	Description
Average	The metric shall be calculated as the average of a metric reading over a sliding time interval. The time interval shall be the value of the CalculationTimeInterval property.
Maximum	The metric shall be calculated as the maximum of a metric reading over a sliding time interval. The time interval shall be the value of the CalculationTimeInterval property.
Minimum	The metric shall be calculated as the minimum of a metric reading over a sliding time interval. The time interval shall be the value of the CalculationTimeInterval property.

Implementation:

The value shall specify the implementation of the metric.

string	Description
Calculated	The metric is implemented by applying a calculation on another metric property. The calculation is specified in the CalculationAlgorithm property.
DigitalMeter	The metric is implemented as digital meter.
PhysicalSensor	The metric is implemented as a physical sensor.
Synthesized	The metric is implemented by applying a calculation on one or more metric properties. (The calculation is not specified. For expressing generalized formula, see MathSON).

MetricDataType:

The value shall specify the data-type of the metric.

string	Description
Boolean	The data type follows the JSON Boolean definition.
DateTime	The data type follows the JSON String definition with the Date-Time format applied.
Decimal	The data type follows the JSON Decimal definition.
Enumeration	The data type follows the JSON String definition with a set of enumerations defined.
Integer	The data type follows the JSON Integer definition.
String	The data type follows the JSON String definition.

MetricType:

The value shall specify the type of metric.

string	Description
Countdown	
Counter	

Discrete	The metric values shall indicate discrete states.
Gauge	
Numeric	

PhysicalContext:

The value of this property shall specify the physical context of the metric.

string	Description
Accelerator	An Accelerator.
ACInput	An AC Input.
ACMaintenanceBypassInput	An AC Maintenance Bypass Input.
ACOutput	An AC Output.
ACStaticBypassInput	An AC Static Bypass Input.
ACUtilityInput	An AC Utility Input.
ASIC	An ASIC device, such as networking chip or a chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Chassis	The entire chassis.
ComputeBay	Within a compute bay.
CoolingSubsystem	The entire cooling (air and liquid) subsystem.
CPU	A Processor (CPU).
CPUSubsystem	The entire Processor (CPU) subsystem.
DCBus	A DC Bus.
Exhaust	The air exhaust point(s) or region of the chassis.
ExpansionBay	Within an expansion bay.
Fan	A fan.
FPGA	A Field Programmable Gate Array (FPGA).
Front	The front of the chassis.
GPU	A Graphics Processor (GPU).
GPUSubsystem	The entire Graphics Processor (GPU) subsystem.
Intake	The air intake point(s) or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Memory	A memory device.
MemorySubsystem	The entire Memory subsystem.
Motor	A motor.
NetworkBay	Within a networking bay.
NetworkingDevice	A networking device.
PowerSubsystem	The entire power subsystem.

PowerSupply	A power supply.
PowerSupplyBay	Within a power supply bay.
Rectifier	A rectifier device.
Room	The room.
StorageBay	Within a storage bay.
StorageDevice	A storage device.
SystemBoard	The system board (PCB).
Transformer	A Transformer.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

Example Response


```
{
    "@odata.type": "#MetricDefinition.v1_0_0.MetricDefinition",
    "Id": "PowerConsumedWatts",
    "Name": "Power Consumed Watts Metric Definition",
    "MetricType": "Numeric",
    "Implementation": "PhysicalSensor",
    "PhysicalContext": "PowerSupply",
    "MetricDataType": "Decimal",
    "Units": "W",
    "Precision": 4,
    "Accuracy": 1,
    "Calibration": 2,
    "MinReadingRange": 0,
    "MaxReadingRange": 50,
    "SensingInterval": "PT1S",
    "TimestampAccuracy": "PT1S",
    "Wildcards": [
        {
            "Name": "ChassisID",
            "Values": [
                "1"
            ]
        }
    ],
    "MetricProperties": [
        "/redfish/v1/Chassis/{ChassisID}/Power#/PowerControl/0/PowerConsumedWatts"
    ],
    "@odata.context": "/redfish/v1/$metadata#MetricDefinition.MetricDefinition",
    "@odata.id": "/redfish/v1/TelemetryService/MetricDefinitions/PowerConsumedWatts"
}
```


MetricReport 1.1.1

v1.1	*v1.0*
2018.3	2018.2

The value shall be reference to the definition for this metric report.

URIs:

/redfish/v1/TelemetryService/MetricReports/*{MetricReportId}*

MetricReportDefinition {	object		The value shall be reference to the definition for this metric report. *See the MetricReportDefinition schema for details on this property.*
@odata.id }	string	read-only	*Link to a MetricReportDefinition resource. See the Links section and the MetricReportDefinition schema for details.*
MetricValues [{	array		The values shall be metric values for this MetricReport.
MetricDefinition {	object		The value shall be reference to the Metric Definition resource that describes what this Metric Report is capturing. *See the MetricDefinition schema for details on this property.*
@odata.id }	string	read-only	*Link to a MetricDefinition resource. See the Links section and the MetricDefinition schema for details.*
MetricId	string	read-only (null)	The value shall be the same as the Id property of the source metric within the associated MetricDefinition.

MetricProperty	string	read-only (null)	The value shall be URI to the a property following the JSON fragment notation, as defined by RFC6901, to identify an individual property in a Redfish resource.
MetricValue	string	read-only (null)	The value of the metric represented as a string.
Timestamp }]	string	read-only (null)	The value shall time when the metric value was obtained. Note that this may be different from the time when this instance is created.
ReportSequence	string	read-only required	The value shall be the current sequence identifier for this metric report.
Timestamp *(v1.1+)*	string	read-only (null)	The value shall be the time when the metric report was generated.

Example Response

```
{
    "@odata.type": "#MetricReport.v1_0_0.MetricReport",
    "Id": "AvgPlatformPowerUsage",
    "Name": "Average Platform Power Usage metric report",
    "ReportSequence": "127",
    "MetricReportDefinition": {
        "@odata.id": "/redfish/v1/TelemetryService/MetricReportDefinitions/AvgPlatformPowerUsage"
    },
    "MetricValues": [
        {
            "MetricId": "AverageConsumedWatts",
            "MetricValue": "100",
            "Timestamp": "2016-11-08T12:25:00-05:00",
            "MetricProperty": "/redfish/v1/Chassis/Tray_1/Power#/0/PowerConsumedWatts"
        },
        {
            "MetricId": "AverageConsumedWatts",
            "MetricValue": "94",
            "Timestamp": "2016-11-08T13:25:00-05:00",
            "MetricProperty": "/redfish/v1/Chassis/Tray_1/Power#/0/PowerConsumedWatts"
        },
        {
            "MetricId": "AverageConsumedWatts",
            "MetricValue": "100",
            "Timestamp": "2016-11-08T14:25:00-05:00",
            "MetricProperty": "/redfish/v1/Chassis/Tray_1/Power#/0/PowerConsumedWatts"
        }
    ],
    "@odata.context": "/redfish/v1/$metadata#MetricReport.MetricReport",
    "@odata.id": "/redfish/v1/TelemetryService/MetricReports/AvgPlatformPowerUsage"
}
```

MetricReportDefinition 1.2.0

v1.2	*v1.1*	*v1.0*
2019.1	2018.3	2018.2

This resource specifies a set of metrics that shall be collected into a metric report.

URIs:

/redfish/v1/TelemetryService/MetricReportDefinitions/*{MetricReportDefinitionId}*

AppendLimit	integer	read-only	This property shall be a number that indicates the maximum number of entries that can be appended to a metric report. When the metric report reaches its limit, its behavior shall be dictated by the ReportUpdates property. This property shall be required if ReportUpdates is either AppendWrapsWhenFull or AppendStopsWhenFull.
Links *(v1.2+)* {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
Triggers [{	array		The value shall be a set of references to triggers that will cause this metric report definition to generate a new metric report upon a trigger occurrence when the TriggerActions property contains the value RedfishMetricReport.

@odata.id }] }	string	read-only	*Link to a Triggers resource. See the Links section and the Triggers schema for details.*
MetricProperties [ ]	array (string, null)	read-write	This array property shall contain a list of URIs with wildcards and property identifiers to include in the metric report. Each wildcard in the URI shall be delimited by a set of curly braces. Each wildcard shall be substituted as specified by the corresponding entry in the Wildcard array property. Once an URI with wildcards has had its wildcards fully substituted, it shall reference a resource property to include in the metric report. The property identifiers portion of the URI shall follow JSON fragment notation rules defined by RFC6901.
MetricReport {	object		This property shall be a reference to the resource where the resultant metric report is placed. *See the MetricReport schema for details on this property.*
@odata.id }	string	read-only	*Link to a MetricReport resource. See the Links section and the MetricReport schema for details.*
MetricReportDefinitionEnabled *(v1.2+)*	boolean	read-write (null)	The value of this property shall be a boolean indicating whether this MetricReportDefinition is enabled for generating new MetricReports.
MetricReportDefinitionType	string (enum)	read-write (null)	The value shall specify when the metric report is generated. If the value of the property is 'Periodic', then the Schedule property shall be present. *See MetricReportDefinitionType in Property Details, below, for the possible values of this property.*
MetricReportHeartbeatInterval *(v1.2+)*	string	read-write (null)	The property value shall be a Redfish Duration describing the time internal between generation of the unsuppressed MetricReport. It shall always be a value greater than the RecurranceInterval of a MetricReport and should only be applicable when the SuppressRepeatedMetricValue property is Enabled. Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(.\d+)?S)?)?
Metrics [{	array		The property shall specify a list of metrics to include in the metric report. The metrics may include metric properties or calculations applied to a metric property.
CollectionDuration	string	read-write (null)	The value shall specify the duration over which the function is computed. The value shall conform to the Duration format. Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(.\d+)?S)?)?
CollectionFunction	string (enum)	read-write (null)	The property shall specify the function to perform on each of the metric properties listed in the MetricProperties property. *See CollectionFunction in Property Details, below, for the possible values of this property.*
CollectionTimeScope	string (enum)	read-write (null)	The value shall specify the scope of time over which the function is applied. *See CollectionTimeScope in Property Details, below, for the possible values of this property.*
MetricId	string	read-only (null)	This property shall specify a label for use in the metric report for the metric which is derived metrics by applying the CollectionFunction to the metric property. This property shall match the Id property of the corresponding metric definition resource.
MetricProperties [ ] }]	array (string, null)	read-write	Each value may contain one or more Wildcard names enclosed in curly braces. Wildcard value entries shall be substituted for each Wildcard name found. If two or more wild names are found, the same Wildcard index is used for each in one substitution pass. After substituting the WildCard values entries, each value shall be a URI for a property in a resource that matches a property declaration in the corresponding MetricDefinition.
ReportActions [ ]	array (string (enum))	read-only	The value of this property shall specify the actions to perform when the metric report is generated. The options are transmit an event or create a metric report resource. The value shall specify the actions to perform when a metric report is generated.

			See ReportActions in Property Details, below, for the possible values of this property.
ReportUpdates	string (enum)	read-only	The value of this property shall specify how subsequent metric reports are handled in relationship to an existing metric report created from the metric report definition. *See ReportUpdates in Property Details, below, for the possible values of this property.*
Schedule { }	object		If the schedule present, the metric report is generated at an interval specified by Schedule.RecurrenceInterval property. If Schedule.MaxOccurrences is specified, the metric report will no longer be generated after the specified number of occurances. *See the Schedule object for details on this property.*
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
SuppressRepeatedMetricValue *(v1.2+)*	boolean	read-write (null)	The value of this property shall indicate whether suppression of Metric information has been enabled or not. A value of true shall indicate that any Metric in the MetricReport currently be generated will be suppressed and not included in the MetricReport.MetricProperties array when the value of the Metric equals the value of the same Metric in the previously generated MetricReport or within the current MetricReport being generated is the same Metric would be instantiated multiple times. A value of false means that the suppression mechanism is not applied to the MetricReport being generated.
Wildcards [{	array		The property shall contain a list of wildcards and their replacement strings, which are applied to the MetricProperties array property. Each wildcard shall have a corresponding entry in this array property.
Keys *(deprecated v1.2)* [ ]	array (string, null)	read-only	This property shall contain the list of values to substitute for the wildcard. *Deprecated v1.2+. This property has been Deprecated in favor of using the property 'Values'.*
Name	string	read-only (null)	This property shall contain the string used as a wildcard.
Values *(v1.1+)* [ ] }]	array (string, null)	read-only	This property shall contain the list of values to substitute for the wildcard.

Property Details

CollectionFunction:

The property shall specify the function to perform on each of the metric properties listed in the MetricProperties property.

string	Description
Average	The metric shall be calculated as the average of a metric reading over a sliding time interval. The time interval shall be the value of the CalculationTimeInterval property.
Maximum	The metric shall be calculated as the maximum of a metric reading over a sliding time interval. The time interval shall be the value of the CalculationTimeInterval property.
Minimum	The metric shall be calculated as the minimum of a metric reading over a sliding time interval. The time interval shall be the value of the CalculationTimeInterval property.
Summation	The metric shall be calculated as the sum of the the specified metric reading over a sliding time interval. The time interval shall be the value of the CalculationTimeInterval property.

CollectionTimeScope:

The value shall specify the scope of time over which the function is applied.

string	Description
Interval	The corresponding metric values apply to a time interval. On the corresponding metric value instances, the value of Timestamp shall specify the end of the time interval and Duration shall specify its duration.

Point	The corresponding metric values apply to a point in time. On the corresponding metric value instances, the value of Timestamp shall specify the point in time.
StartupInterval	The corresponding metric values apply to a time interval that began at the startup of the measured resource (i.e. the Resources associated by Links.MetricDefinitionForResources). On the corresponding metric value instances, the value of Timestamp shall specify the end of the time interval. The value of Duration shall specifies the duration between startup of the resource and TimeStamp.

MetricReportDefinitionType:

The value shall specify when the metric report is generated. If the value of the property is 'Periodic', then the Schedule property shall be present.

string	Description
OnChange	The metric report is generated when any of the metric values change.
OnRequest	The metric report is generated when a HTTP GET is performed on the specified metric report.
Periodic	The metric report is generated at a periodic time interval, specified in the Schedule property.

ReportActions:

The value of this property shall specify the actions to perform when the metric report is generated. The options are transmit an event or create a metric report resource. The value shall specify the actions to perform when a metric report is generated.

string	Description
LogToMetricReportsCollection	When a metric report is scheduled to be generated, the service shall record the occurrence to the Metric Report Collection found under the Telemetry Service. The service shall update the Metric Report Collection based on the setting of the ReportUpdates property.
RedfishEvent	When a metric report is scheduled to be generated, the service shall produce a Redfish Event of type MetricReport to matching subscribers indicated in the EventSubscription collection found on the EventService.

ReportUpdates:

The value of this property shall specify how subsequent metric reports are handled in relationship to an existing metric report created from the metric report definition.

string	Description
AppendStopsWhenFull	When a metric report is updated, append to the specified metric report resource. This also indicates that the metric report stops adding entries when the metric report has reached its maximum capacity.
AppendWrapsWhenFull	When a metric report is updated, append to the specified metric report resource. This also indicates that the metric report overwrites its entries with new entries when the metric report has reached its maximum capacity.
NewReport	When a metric report is updated, create a new metric report resource, whose resource name is the metric report resource name concatenated with the timestamp.
Overwrite	When a metric report is updated, overwrite the specified metric report resource.

Example Response


```
{
    "@odata.type": "#MetricReportDefinition.v1_1_0.MetricReportDefinition",
    "Id": "PlatformPowerUsage",
    "Name": "Transmit and Log Platform Power Usage",
    "MetricReportDefinitionType": "Periodic",
    "Schedule": {
        "RecurrenceInterval": "T01:00:00"
    },
    "ReportActions": [
        "RedfishEvent",
        "LogToMetricReportsCollection"
    ],
    "ReportUpdates": "AppendWrapsWhenFull",
    "AppendLimit": 256,
    "MetricReport": {
        "@odata.id": "/redfish/v1/TelemetryService/MetricReports/PlatformPowerUsage"
    },
    "Status": {
        "State": "Enabled"
    },
    "Wildcards": [
        {
```

```
            "Name": "PWild",
            "Values": [
                "0"
            ]
        },
        {
            "Name": "TWild",
            "Values": [
                "Tray_1",
                "Tray_2"
            ]
        }
    ],
    "MetricProperties": [
        "/redfish/v1/Chassis/{TWild}/Power#/PowerControl/{PWild}/PowerConsumedWatts"
    ],
    "@odata.context": "/redfish/v1/$metadata#MetricReportDefinition.MetricReportDefinition",
    "@odata.id": "/redfish/v1/TelemetryService/MetricReportDefinitions/PlatformPowerUsage"
}
```


NetworkAdapter 1.2.1

v1.2	*v1.1*	*v1.0*
2018.2	2017.3	2016.3

A NetworkAdapter represents the physical network adapter capable of connecting to a computer network. Examples include but are not limited to Ethernet, Fibre Channel, and converged network adapters.

URIs:

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

Assembly *(v1.1+)* {	object		The value of this property shall be a link to a resource of type Assembly. *See the Assembly schema for details on this property.*
@odata.id }	string	read-only	*Link to a Assembly resource. See the Links section and the Assembly schema for details.*
Controllers [{	array		The value of this property shall contain the set of network controllers ASICs that make up this NetworkAdapter.
ControllerCapabilities {	object		The value of this property shall contain the capabilities of this controller.
DataCenterBridging {	object		This object shall contain capability, status, and configuration values related to Data Center Bridging (DCB) for this controller.
Capable }	boolean	read-only (null)	The value of this property shall be a boolean indicating whether this controller is capable of Data Center Bridging (DCB).
NetworkDeviceFunctionCount	integer	read-only (null)	The value of this property shall be the number of physical functions available on this controller.
NetworkPortCount	integer	read-only (null)	The value of this property shall be the number of physical ports on this controller.
NPAR *(v1.2+)* {	object		This object shall contain capability, status, and configuration values related to NIC partitioning for this controller.
NparCapable	boolean	read-only (null)	This property shall indicate the ability of a controller to support NIC function partitioning.
NparEnabled }	boolean	read-write (null)	This property shall indicate whether or not NIC function partitioning is active on this controller.
NPIV {	object		This object shall contain N_Port ID Virtualization (NPIV) capabilties for this controller.
MaxDeviceLogins	integer	read-only (null)	The value of this property shall be the maximum number of N_Port ID Virtualization (NPIV) logins allowed simultaneously from all ports on this controller.
MaxPortLogins }	integer	read-only (null)	The value of this property shall be the maximum number of N_Port ID Virtualization (NPIV) logins allowed per physical port on this controller.

VirtualizationOffload {	object		This object shall contain capability, status, and configuration values related to virtualization offload for this controller.
SRIOV {	object		This object shall contain Single-Root Input/Output Virtualization (SR-IOV) capabilities.
SRIOVVEPACapable }	boolean	read-only (null)	The value of this property shall be a boolean indicating whether this controller supports Single Root Input/Output Virtualization (SR-IOV) in Virtual Ethernet Port Aggregator (VEPA) mode.
VirtualFunction {	object		This property shall describe the capability, status, and configuration values related to the virtual function for this controller.
DeviceMaxCount	integer	read-only (null)	The value of this property shall be the maximum number of Virtual Functions (VFs) supported by this controller.
MinAssignmentGroupSize	integer	read-only (null)	The value of this property shall be the minimum number of Virtual Functions (VFs) that can be allocated or moved between physical functions for this controller.
NetworkPortMaxCount } }	integer	read-only (null)	The value of this property shall be the maximum number of Virtual Functions (VFs) supported per network port for this controller.
FirmwarePackageVersion	string	read-only (null)	The value of this property shall be the version number of the user-facing firmware package.
Links {	object		Links for this controller.
NetworkDeviceFunctions [{	array		The value of this property shall be an array of references of type NetworkDeviceFunction that represent the Network Device Functions associated with this Network Controller.
@odata.id }]	string	read-only	*Link to a NetworkDeviceFunction resource. See the Links section and the NetworkDeviceFunction schema for details.*
NetworkPorts [{	array		The value of this property shall be an array of references of type NetworkPort that represent the Network Ports associated with this Network Controller.
@odata.id }]	string	read-only	*Link to a NetworkPort resource. See the Links section and the NetworkPort schema for details.*
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
PCIeDevices [{	array		The value of this property shall be an array of references of type PCIeDevice that represent the PCI-e Devices associated with this Network Controller.
@odata.id }] }	string	read-only	*Link to a PCIeDevice resource. See the Links section and the PCIeDevice schema for details.*
Location *(v1.1+)* { }	object		This property shall contain location information of the associated network adapter controller. *See the Location object for details on this property.*
PCIeInterface *(v1.2+)* {	object		This object shall contain details on the PCIe interface used to connect this PCIe-based controller to its host. *See the PCIeDevice schema for details on this property.*
@odata.id } }]	string	read-only	*Link to a PCIeInterface resource. See the Links section and the PCIeDevice schema for details.*
Manufacturer	string	read-only (null)	The value of this property shall contain a value that represents the manufacturer of the network adapter.
Model	string	read-only (null)	The value of this property shall contain the information about how the manufacturer references this network adapter.

NetworkDeviceFunctions {	object		The value of this property shall be a link to a collection of type NetworkDeviceFunctionCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of NetworkDeviceFunction. See the NetworkDeviceFunction schema for details.*
NetworkPorts {	object		The value of this property shall be a link to a collection of type NetworkPortCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of NetworkPort. See the NetworkPort schema for details.*
PartNumber	string	read-only (null)	The value of this property shall contain the part number for the network adapter as defined by the manufacturer.
SerialNumber	string	read-only (null)	The value of this property shall contain the serial number for the network adapter.
SKU	string	read-only (null)	The value of this property shall contain the Stock Keeping Unit (SKU) for the network adapter.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*

Actions

ResetSettingsToDefault

This action shall perform a reset of all active and pending settings back to factory default settings upon reset of the network adapter.

URIs:

/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/Actions/NetworkAdapter.ResetSettingsToDefault

(This action takes no parameters.)

Example Response


```
{
    "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1",
    "@odata.type": "#NetworkAdapter.v1_2_0.NetworkAdapter",
    "Id": "9fa725a1",
    "Name": "Network Adapter View",
    "Manufacturer": "Contoso",
    "Model": "599TPS-T",
    "SKU": "Contoso TPS-Net 2-Port Base-T",
    "SerialNumber": "003BFLRT00023234",
    "PartNumber": "975421-B20",
    "NetworkPorts": {
        "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/NetworkPorts"
    },
    "NetworkDeviceFunctions": {
        "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/NetworkDeviceFunctions"
    },
    "Controllers": [
        {
            "FirmwarePackageVersion": "7.4.10",
            "Links": {
                "PCIeDevices": [
                    {
                        "@odata.id": "/redfish/v1/Systems/1/PCIeDevices/NIC"
                    }
                ],
                "NetworkPorts": [
                    {
                        "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/NetworkPorts/1"
                    }
                ],
                "NetworkDeviceFunctions": [
                    {
                        "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/NetworkDeviceFunctions/111111111100"
                    }
                ]
            },
            "ControllerCapabilities": {
                "NetworkPortCount": 2,
                "NetworkDeviceFunctionCount": 8,
                "DataCenterBridging": {
                    "Capable": true
                },
                "VirtualizationOffload": {
                    "VirtualFunction": {
                        "DeviceMaxCount": 256,
                        "NetworkPortMaxCount": 128,
                        "MinAssignmentGroupSize": 4
                    },
                    "SRIOV": {
```

```
                    "SRIOVVEPACapable": true
                }
            },
            "NPIV": {
                "MaxDeviceLogins": 4,
                "MaxPortLogins": 2
            },
            "NPAR": {
                "NparCapable": true,
                "NparEnabled": false
            }
        },
        "PCIeInterface": {
            "PCIeType": "Gen2",
            "MaxPCIeType": "Gen3",
            "LanesInUse": 1,
            "MaxLanes": 4
        },
        "Location": {
            "PartLocation": {
                "ServiceLabel": "Slot 1",
                "LocationType": "Slot",
                "LocationOrdinalValue": 0,
                "Reference": "Rear",
                "Orientation": "LeftToRight"
            }
        }
    }
],
"Actions": {
    "#NetworkAdapter.ResetSettingsToDefault": {
        "target": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/Actions/NetworkAdapter.ResetSettingsToDefault"
    },
    "Oem": {}
}
}
```


NetworkDeviceFunction 1.3.2

v1.3	*v1.2*	*v1.1*	*v1.0*
2018.2	2017.3	2017.1	2016.3

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

URIs:

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

AssignablePhysicalPorts [{	array		The value of this property shall be an array of physical port references that this network device function may be assigned to.
@odata.id }]	string	read-only	*Link to a NetworkPort resource. See the Links section and the NetworkPort schema for details.*
BootMode	string (enum)	read-write (null)	The value of this property shall be the boot mode configured for this network device function. If the value is not quot;Disabled", this network device function shall be configured for boot using the specified technology. *See BootMode in Property Details, below, for the possible values of this property.*
DeviceEnabled	boolean	read-write (null)	The value of this property shall be a boolean indicating whether the network device function is enabled. Disabled network device functions shall not be enumerated or seen by the operating system.
Ethernet {	object		This object shall contain Ethernet capabilities, status, and configuration values for this network device function.
MACAddress	string	read-write (null)	The value of this property shall be the effective current MAC Address of this network device function. If an assignable MAC address is not supported, this is a read only alias of the PermanentMACAddress.
MTUSize	integer	read-write (null)	The Maximum Transmission Unit (MTU) configured for this Network Device Function. This value serves as a default for the OS driver when booting. The value only takes-effect on boot.
PermanentMACAddress	string	read-only (null)	The value of this property shall be the Permanent MAC Address of this network device function (physical function). This value is typically programmed during the manufacturing time. This address is not assignable.

VLAN *(v1.3+)* {	object		The value of this property shall be the VLAN for this interface. If this interface supports more than one VLAN, the VLAN property shall not be present and the VLANS collection link shall be present instead. *See the VLanNetworkInterface schema for details on this property.*
@odata.id }	string	read-only	*Link to a VLAN resource. See the Links section and the VLanNetworkInterface schema for details.*
VLANs *(v1.3+)* {	object		The value of this property shall reference a collection of VLAN resources. If this property is used, the VLANEnabled and VLANId property shall not be used. *Contains a link to a resource.*
@odata.id } }	string	read-only	*Link to Collection of VLanNetworkInterface. See the VLanNetworkInterface schema for details.*
FibreChannel {	object		This object shall contain Fibre Channel capabilities, status, and configuration values for this network device function.
AllowFIPVLANDiscovery	boolean	read-write (null)	For FCoE connections, the value of this property shall be a boolean indicating whether the FIP VLAN Discovery Protocol is used to determine the FCoE VLAN ID selected by the network device function for the FCoE connection. If true, and the FIP VLAN Discovery succeeds, the FCoEActiveVLANId property shall reflect the FCoE VLAN ID to be used for all FCoE traffic. If false, or if the FIP VLAN Discovery protocol fails, the FCoELocalVLANId shall be used for all FCoE traffic and the FCoEActiveVLANId shall reflect the FCoELocalVLANId.
BootTargets [{	array		The value of this property shall be an array of Fibre Channel boot targets configured for this network device function.
BootPriority	integer	read-write (null)	The value of this property shall be the relative priority for this entry in the boot targets array. Lower numbers shall represent higher priority, with zero being the highest priority. The BootPriority shall be unique for all entries of the BootTargets array.
LUNID	string	read-write (null)	The value of this property shall be the Logical Unit Number (LUN) ID to boot from on the device referred to by the corresponding WWPN.
WWPN }]	string	read-write (null)	The value of this property shall be World-Wide Port Name (WWPN) to boot from.
FCoEActiveVLANId	integer	read-only (null)	For FCoE connections, the value of this property shall be null or a VLAN ID currently being used for FCoE traffic. When the FCoE link is down this value shall be null. When the FCoE link is up this value shall be either the FCoELocalVLANId property or a VLAN discovered via the FIP protocol.
FCoELocalVLANId	integer	read-write (null)	For FCoE connections, the value of this property shall be the VLAN ID configured locally by setting this property. This value shall be used for FCoE traffic to this network device function during boot unless AllowFIPVLANDiscovery is true and a valid FCoE VLAN ID is found via the FIP VLAN Discovery Protocol.
FibreChannelId *(v1.3+)*	string	read-only (null)	This property shall indicate the Fibre Channel Id assigned by the switch for this interface.
PermanentWWNN	string	read-only (null)	The value of this property shall be the permanent World-Wide Node Name (WWNN) of this network device function (physical function). This value is typically programmed during the manufacturing time. This address is not assignable.
PermanentWWPN	string	read-only (null)	The value of this property shall be the permanent World-Wide Port Name (WWPN) of this network device function (physical function). This value is typically programmed during the

			manufacturing time. This address is not assignable.
WWNN	string	read-write (null)	The value of this property shall be the effective current World-Wide Node Name (WWNN) of this network device function (physical function). If an assignable WWNN is not supported, this is a read only alias of the PermanentWWNN.
WWNSource	string (enum)	read-write (null)	The value of this property shall be the configuration source of the World-Wide Names (WWNs) for this connection (WWPN and WWNN). *See WWNSource in Property Details, below, for the possible values of this property.*
WWPN }	string	read-write (null)	The value of this property shall be the effective current World-Wide Port Name (WWPN) of this network device function (physical function). If an assignable WWPN is not supported, this is a read only alias of the PermanentWWPN.
iSCSIBoot {	object		This object shall contain iSCSI boot capabilities, status, and configuration values for this network device function.
AuthenticationMethod	string (enum)	read-write (null)	The value of this property shall be the iSCSI boot authentication method for this network device function. *See AuthenticationMethod in Property Details, below, for the possible values of this property.*
CHAPSecret	string	read-write (null)	The value of this property shall be the shared secret for CHAP authentication.
CHAPUsername	string	read-write (null)	The value of this property shall behe username for CHAP authentication.
InitiatorDefaultGateway	string	read-write (null)	The value of this property shall be the IPv6 or IPv4 iSCSI boot default gateway.
InitiatorIPAddress	string	read-write (null)	The value of this property shall be the IPv6 or IPv4 address of the iSCSI boot initiator.
InitiatorName	string	read-write (null)	The value of this property shall be the iSCSI boot initiator name. The value of this property should match formats defined in RFC3720 or RFC3721.
InitiatorNetmask	string	read-write (null)	The value of this property shall be the IPv6 or IPv4 netmask of the iSCSI boot initiator.
IPAddressType	string (enum)	read-write (null)	The value of this property shall behe type of IP address (IPv6 or IPv4) being populated in the iSCSIBoot IP address fields. Mixing of IPv6 and IPv4 addresses on the same network device function shall not be permissible. *See IPAddressType in Property Details, below, for the possible values of this property.*
IPMaskDNSViaDHCP	boolean	read-write (null)	The value of this property shall be a boolean indicating whether the iSCSI boot initiator uses DHCP to obtain the iniator name, IP address, and netmask.
MutualCHAPSecret	string	read-write (null)	The value of this property shall be the CHAP Secret for 2-way CHAP authentication.
MutualCHAPUsername	string	read-write (null)	The value of this property shall be the CHAP Username for 2-way CHAP authentication.
PrimaryDNS	string	read-write (null)	The value of this property shall be the IPv6 or IPv4 address of the primary DNS server for the iSCSI boot initiator.
PrimaryLUN	integer	read-write (null)	The value of this property shall be the logical unit number (LUN) for the primary iSCSI boot target.
PrimaryTargetIPAddress	string	read-write (null)	The value of this property shall be the IP address (IPv6 or IPv4) for the primary iSCSI boot target.
PrimaryTargetName	string	read-write (null)	The value of this property shall be the name of the primary iSCSI boot target. The value of this property should match formats

			defined in RFC3720 or RFC3721.
PrimaryTargetTCPPort	integer	read-write (null)	The value of this property shall be the TCP port for the primary iSCSI boot target.
PrimaryVLANEnable	boolean	read-write (null)	The value of this property shall be used to indicate if this VLAN is enabled for the primary iSCSI boot target.
PrimaryVLANId	integer	read-write (null)	The value of this property shall be the 802.1q VLAN ID to use for iSCSI boot from the primary target. This VLAN ID is only used if PrimaryVLANEnable is true.
RouterAdvertisementEnabled	boolean	read-write (null)	The value of this property shall be a boolean indicating whether IPv6 router advertisement is enabled for the iSCSI boot target. This setting shall only apply to IPv6 configurations.
SecondaryDNS	string	read-write (null)	The value of this property shall be the IPv6 or IPv4 address of the secondary DNS server for the iSCSI boot initiator.
SecondaryLUN	integer	read-write (null)	The value of this property shall be the logical unit number (LUN) for the secondary iSCSI boot target.
SecondaryTargetIPAddress	string	read-write (null)	The value of this property shall be the IP address (IPv6 or IPv4) for the secondary iSCSI boot target.
SecondaryTargetName	string	read-write (null)	The value of this property shall be the name of the secondary iSCSI boot target. The value of this property should match formats defined in RFC3720 or RFC3721.
SecondaryTargetTCPPort	integer	read-write (null)	The value of this property shall be the TCP port for the secondary iSCSI boot target.
SecondaryVLANEnable	boolean	read-write (null)	The value of this property shall be used to indicate if this VLAN is enabled for the secondary iSCSI boot target.
SecondaryVLANId	integer	read-write (null)	The value of this property shall be the 802.1q VLAN ID to use for iSCSI boot from the secondary target. This VLAN ID is only used if SecondaryVLANEnable is true.
TargetInfoViaDHCP }	boolean	read-write (null)	The value of this property shall be a boolean indicating whether the iSCSI boot target name, LUN, IP address, and netmask should be obtained from DHCP.
Links {	object		Links for this NetworkDeviceFunction.
Endpoints *(v1.2+)* [{	array		The type shall contain an array property who's members reference resources, of type Endpoint, which are associated with this network device function.
@odata.id }]	string	read-only	*Link to a Endpoint resource. See the Links section and the Endpoint schema for details.*
PCIeFunction {	object		The value of this property shall be a references of type PCIeFunction that represents the PCI-e Function associated with this Network Device Function. *See the PCIeFunction schema for details on this property.*
@odata.id }	string	read-only	*Link to a PCIeFunction resource. See the Links section and the PCIeFunction schema for details.*
PhysicalPortAssignment *(v1.3+)* {	object		The value of this property shall be the physical port that this network device function is currently assigned to. This value shall be one of the AssignablePhysicalPorts array members. *See the NetworkPort schema for details on this property.*
@odata.id } }	string	read-only	*Link to a NetworkPort resource. See the Links section and the NetworkPort schema for details.*
MaxVirtualFunctions	integer	read-only (null)	The value of this property shall be the number of virtual functions (VFs) that are available for this Network Device Function.
NetDevFuncCapabilities *(v1.2+)* [ ]	array	read-only	This object shall contain an array of capabilities of this network

	(string (enum))	(null)	device function. *See NetDevFuncCapabilities in Property Details, below, for the possible values of this property.*
NetDevFuncType *(v1.2+)*	string (enum)	read-write (null)	The value of this property shall be the configured capability of this network device function. *See NetDevFuncType in Property Details, below, for the possible values of this property.*
PhysicalPortAssignment *(deprecated v1.3)* {	object		The value of this property shall be the physical port that this network device function is currently assigned to. This value shall be one of the AssignablePhysicalPorts array members. *See the NetworkPort schema for details on this property.* *Deprecated v1.3+. This property has been deprecated and moved to the Links section to avoid loops on expand.*
@odata.id }	string	read-only	*Link to a NetworkPort resource. See the Links section and the NetworkPort schema for details.*
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
VirtualFunctionsEnabled	boolean	read-only (null)	The value of this property shall be a boolean indicating whether Single Root I/O Virtualization (SR-IOV) Virual Functions (VFs) are enabled for this Network Device Function.

Property Details

AuthenticationMethod:

The value of this property shall be the iSCSI boot authentication method for this network device function.

string	Description
CHAP	iSCSI Challenge Handshake Authentication Protocol (CHAP) authentication is used.
MutualCHAP	iSCSI Mutual Challenge Handshake Authentication Protocol (CHAP) authentication is used.
None	No iSCSI authentication is used.

BootMode:

The value of this property shall be the boot mode configured for this network device function. If the value is not quot;Disabled", this network device function shall be configured for boot using the specified technology.

string	Description
Disabled	Do not indicate to UEFI/BIOS that this device is bootable.
FibreChannel	Boot this device using the embedded Fibre Channel support and configuration. Only applicable if the NetworkDeviceFunctionType is set to FibreChannel.
FibreChannelOverEthernet	Boot this device using the embedded Fibre Channel over Ethernet (FCoE) boot support and configuration. Only applicable if the NetworkDeviceFunctionType is set to FibreChannelOverEthernet.
iSCSI	Boot this device using the embedded iSCSI boot support and configuration. Only applicable if the NetworkDeviceFunctionType is set to iSCSI.
PXE	Boot this device using the embedded PXE support. Only applicable if the NetworkDeviceFunctionType is set to Ethernet.

IPAddressType:

The value of this property shall behe type of IP address (IPv6 or IPv4) being populated in the iSCSIBoot IP address fields. Mixing of IPv6 and IPv4 addresses on the same network device function shall not be permissible.

string	Description
IPv4	IPv4 addressing is used for all IP-fields in this object.
IPv6	IPv6 addressing is used for all IP-fields in this object.

NetDevFuncCapabilities:

This object shall contain an array of capabilities of this network device function.

string	Description
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.
iSCSI	Appears to the operating system as an iSCSI device.

NetDevFuncType:

The value of this property shall be the configured capability of this network device function.

string	Description
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.
iSCSI	Appears to the operating system as an iSCSI device.

WWNSource:

The value of this property shall be the configuration source of the World-Wide Names (WWNs) for this connection (WWPN and WWNN).

string	Description
ConfiguredLocally	The set of FC/FCoE boot targets was applied locally through API or UI.
ProvidedByFabric	The set of FC/FCoE boot targets was applied by the Fibre Channel fabric.

Example Response


```
{
    "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/NetworkDeviceFunctions/111111111100",
    "@odata.type": "#NetworkDeviceFunction.v1_3_0.NetworkDeviceFunction",
    "Id": "111111111100",
    "Name": "Network Device Function View",
    "NetDevFuncType": "Ethernet",
    "DeviceEnabled": true,
    "NetDevFuncCapabilities": [
        "Ethernet",
        "FibreChannel"
    ],
    "Ethernet": {
        "PermanentMACAddress": "00:0C:29:9A:98:ED",
        "MACAddress": "00:0C:29:9A:98:ED",
        "MTUSize": 1500,
        "VLAN": {
            "VLANEnable": true,
            "VLANId": 101
        }
    },
    "iSCSIBoot": {
        "IPAddressType": "IPv4",
        "InitiatorIPAddress": "16.0.11.6",
        "InitiatorName": "iqn.2005-03.com.acme:database-server",
        "InitiatorDefaultGateway": "169.0.16.1",
        "InitiatorNetmask": "255.255.252.0",
        "TargetInfoViaDHCP": false,
        "PrimaryTargetName": "iqn.2005-03.com.acme:image-server",
        "PrimaryTargetIPAddress": "169.0.15.1",
        "PrimaryTargetTCPPort": 3260,
        "PrimaryLUN": 5,
        "PrimaryVLANEnable": true,
        "PrimaryVLANId": 1001,
        "PrimaryDNS": "16.0.10.21",
        "SecondaryTargetName": "iqn.2005-03.com.acme:image-server",
        "SecondaryTargetIPAddress": "16.0.11.5",
        "SecondaryTargetTCPPort": 3260,
        "SecondaryLUN": 5,
        "SecondaryVLANEnable": true,
        "SecondaryVLANId": 1002,
        "SecondaryDNS": "169.0.10.22",
        "IPMaskDNSViaDHCP": false,
        "RouterAdvertisementEnabled": false,
```

```
        "AuthenticationMethod": "CHAP",
        "CHAPUsername": "yosemite",
        "CHAPSecret": "usrpasswd",
        "MutualCHAPUsername": "yosemite",
        "MutualCHAPSecret": "usrpasswd"
    },
    "FibreChannel": {
        "PermanentWWPN": "10:00:B0:5A:DD:BB:74:E0",
        "PermanentWWNN": "10:00:B0:5A:DD:BB:A1:B3",
        "WWPN": "10:00:B0:5A:DD:BB:74:E0",
        "WWNN": "10:00:B0:5A:DD:C4:D3:BB",
        "WWNSource": "ConfiguredLocally",
        "FCoELocalVLANId": 1001,
        "AllowFIPVLANDiscovery": true,
        "FCoEActiveVLANId": 2001,
        "BootTargets": [
            {
                "WWPN": "10:00:B0:5A:DD:BB:74:FA",
                "LUNID": "3",
                "BootPriority": 0
            }
        ]
    },
    "AssignablePhysicalPorts": [
        {
            "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/NetworkPorts/1"
        }
    ],
    "BootMode": "Disabled",
    "VirtualFunctionsEnabled": true,
    "MaxVirtualFunctions": 16,
    "Links": {
        "PCIeFunction": {
            "@odata.id": "/redfish/v1/Systems/1/PCIeDevices/NIC/PCIeFunctions/1"
        },
        "PhysicalPortAssignment": {
            "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/NetworkPorts/1"
        }
    }
}
```


NetworkInterface 1.1.2

v1.1	*v1.0*
2017.1	2016.3

A NetworkInterface contains references linking NetworkAdapter, NetworkPort, and NetworkDeviceFunction resources and represents the functionality available to the containing system.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/NetworkInterfaces/*{NetworkInterfaceId}*

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/NetworkInterfaces/*{NetworkInterfaceId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*

/redfish/v1/Systems/*{ComputerSystemId}*/NetworkInterfaces/*{NetworkInterfaceId}*

Links {	object		Links for this controller.
NetworkAdapter {	object		The value of this property shall be a reference to a resource of type NetworkAdapter that represents the physical container associated with this NetworkInterface. *See the NetworkAdapter schema for details on this property.*
@odata.id }	string	read-only	*Link to a NetworkAdapter resource. See the Links section and the NetworkAdapter schema for details.*
Oem { } }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
NetworkDeviceFunctions {	object		The value of this property shall be a link to a collection of type NetworkDeviceFunctionCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of NetworkDeviceFunction. See the NetworkDeviceFunction schema for details.*
NetworkPorts {	object		The value of this property shall be a link to a collection of type NetworkPortCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of NetworkPort. See the NetworkPort schema for details.*

Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*

Example Response

```
{
    "@odata.id": "/redfish/v1/Systems/1/NetworkInterfaces/9fd725a1",
    "@odata.type": "#NetworkInterface.v1_0_0.NetworkInterface",
    "Id": "9fa725a1",
    "Name": "Network Device View",
    "NetworkPorts": {
        "@odata.id": "/redfish/v1/Systems/1/NetworkInterfaces/9fd725a1/NetworkPorts"
    },
    "NetworkDeviceFunctions": {
        "@odata.id": "/redfish/v1/Systems/1/NetworkInterfaces/9fd725a1/NetworkDeviceFunctions"
    },
    "Links": {
        "NetworkAdapter": {
            "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1"
        }
    }
}
```

NetworkPort 1.2.2

v1.2	*v1.1*	*v1.0*
2018.2	2017.1	2016.3

A Network Port represents a discrete physical port capable of connecting to a network.

URIs:

/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/NetworkPorts/*{NetworkPortId}*

ActiveLinkTechnology	string (enum)	read-write (null)	The value of this property shall be the configured link technology of this port. *See ActiveLinkTechnology in Property Details, below, for the possible values of this property.*
AssociatedNetworkAddresses [ ]	array (string, null)	read-only	The value of this property shall be an array of configured network 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.
CurrentLinkSpeedMbps *(v1.2+)*	integer (Mbit/s)	read-write (null)	The value of this property shall be the current configured link speed of this port.
EEEEnabled	boolean	read-write (null)	The value of this property shall be a boolean indicating whether IEEE 802.3az Energy Efficient Ethernet (EEE) is enabled for this network port.
FCFabricName *(v1.2+)*	string	read-only (null)	This property shall indicate the FC Fabric Name provided by the switch.
FCPortConnectionType *(v1.2+)*	string (enum)	read-only (null)	The value of this property shall be the connection type for this port. *See FCPortConnectionType in Property Details, below, for the possible values of this property.*
FlowControlConfiguration	string (enum)	read-write (null)	The value of this property shall be the locally configured 802.3x flow control setting for this network port. *See FlowControlConfiguration in Property Details, below, for the possible values of this property.*
FlowControlStatus	string (enum)	read-only (null)	The value of this property shall be the 802.3x flow control behavior negotiated with the link partner for this network port (Ethernet-only). *See FlowControlStatus in Property Details, below, for the possible values of this property.*
LinkStatus	string (enum)	read-only (null)	The value of this property shall be the link status between this port and its link partner. *See LinkStatus in Property Details, below, for the possible values of this property.*

MaxFrameSize *(v1.2+)*	integer (bytes)	read-only (null)	The value of this property shall be the maximum frame size supported by the port.
NetDevFuncMaxBWAlloc [{	array		The value of this property shall be an array of maximum bandwidth allocation percentages for the Network Device Functions associated with this port.
MaxBWAllocPercent	integer (%)	read-write (null)	The value of this property shall be the maximum bandwidth percentage allocation for the associated network device function.
NetworkDeviceFunction {	object		The value of this property shall be a reference of type NetworkDeviceFunction that represents the Network Device Function associated with this bandwidth setting of this Network Port. *See the NetworkDeviceFunction schema for details on this property.*
@odata.id } }]	string	read-only	*Link to a NetworkDeviceFunction resource. See the Links section and the NetworkDeviceFunction schema for details.*
NetDevFuncMinBWAlloc [{	array		The value of this property shall be an array of minimum bandwidth percentage allocations for each of the network device functions associated with this port.
MinBWAllocPercent	integer (%)	read-write (null)	The value of this property shall be the minimum bandwidth percentage allocation for the associated network device function. The sum total of all minimum percentages shall not exceed 100.
NetworkDeviceFunction {	object		The value of this property shall be a reference of type NetworkDeviceFunction that represents the Network Device Function associated with this bandwidth setting of this Network Port. *See the NetworkDeviceFunction schema for details on this property.*
@odata.id } }]	string	read-only	*Link to a NetworkDeviceFunction resource. See the Links section and the NetworkDeviceFunction schema for details.*
NumberDiscoveredRemotePorts *(v1.2+)*	integer	read-only (null)	The value of this property shall be the number of ports not on this adapter that this port has discovered.
PhysicalPortNumber	string	read-only (null)	The value of this property shall be the physical port number on the network adapter hardware that this Network Port corresponds to. This value should match a value visible on the hardware. When HostPortEnabled and ManagementPortEnabled are both "false", the port shall not establish physical link.
PortMaximumMTU	integer	read-only (null)	The value of this property shall be the largest maximum transmission unit (MTU) that can be configured for this network port.
SignalDetected	boolean	read-only (null)	The value of this property shall be a boolean indicating whether the port has detected enough signal on enough lanes to establish link.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
SupportedEthernetCapabilities [ ]	array (string (enum))	read-only (null)	The value of this property shall be an array of zero or more Ethernet capabilities supported by this port. *See SupportedEthernetCapabilities in Property Details, below, for the possible values of this property.*
SupportedLinkCapabilities [{	array		This object shall describe the static capabilities of the port, irrespective of transient conditions such as cabling, interface module presence, or remote link parter status or configuration.
AutoSpeedNegotiation *(v1.2+)*	boolean	read-only (null)	The value of this property shall be indicate whether the port is capable of auto-negotiating speed.
CapableLinkSpeedMbps *(v1.2+)* [ ]	array (integer, null)	read-only	The value of this property shall be all of the possible network link speed capabilities of this port.
LinkNetworkTechnology	string	read-only	The value of this property shall be a network technology capability of

	(enum)	(null)	this port. *See LinkNetworkTechnology in Property Details, below, for the possible values of this property.*
LinkSpeedMbps *(deprecated v1.2)* }]	integer (Mbit/s)	read-only (null)	The value of this property shall be the speed of the link in megabits per second (Mbps) for this port when this link network technology is active. *Deprecated v1.2+. This property has been Deprecated in favor of the CapableLinkSpeedMbps collection found in NetworkPort.v1_2_0.*
VendorId *(v1.2+)*	string	read-only (null)	This property shall indicate the Vendor Identification string information as provided by the manufacturer of this port.
WakeOnLANEnabled	boolean	read-write (null)	The value of this property shall be a boolean indicating whether Wake on LAN (WoL) is enabled for this network port.

Property Details

ActiveLinkTechnology:

The value of this property shall be the configured link technology of this port.

string	Description
Ethernet	The port is capable of connecting to an Ethernet network.
FibreChannel	The port is capable of connecting to a Fibre Channel network.
InfiniBand	The port is capable of connecting to an InfiniBand network.

FCPortConnectionType:

The value of this property shall be the connection type for this port.

string	Description
ExtenderFabric	This port connection type is an extender fabric port.
Generic	This port connection type is a generic fabric port.
NotConnected	This port is not connected.
NPort	This port connects via an N-Port to a switch.
PointToPoint	This port connects in a Point-to-point configuration.
PrivateLoop	This port connects in a private loop configuration.
PublicLoop	This port connects in a public configuration.

FlowControlConfiguration:

The value of this property shall be the locally configured 802.3x flow control setting for this network port.

string	Description
None	No IEEE 802.3x flow control is enabled on this port.
RX	IEEE 802.3x flow control may be initiated by the link partner.
TX	IEEE 802.3x flow control may be initiated by this station.
TX_RX	IEEE 802.3x flow control may be initiated by this station or the link partner.

FlowControlStatus:

The value of this property shall be the 802.3x flow control behavior negotiated with the link partner for this network port (Ethernet-only).

string	Description
None	No IEEE 802.3x flow control is enabled on this port.
RX	IEEE 802.3x flow control may be initiated by the link partner.

TX	IEEE 802.3x flow control may be initiated by this station.
TX_RX	IEEE 802.3x flow control may be initiated by this station or the link partner.

LinkNetworkTechnology:

The value of this property shall be a network technology capability of this port.

string	Description
Ethernet	The port is capable of connecting to an Ethernet network.
FibreChannel	The port is capable of connecting to a Fibre Channel network.
InfiniBand	The port is capable of connecting to an InfiniBand network.

LinkStatus:

The value of this property shall be the link status between this port and its link partner.

string	Description
Down	The port is enabled but link is down.
Up	The port is enabled and link is good (up).

SupportedEthernetCapabilities:

The value of this property shall be an array of zero or more Ethernet capabilities supported by this port.

string	Description
EEE	IEEE 802.3az Energy Efficient Ethernet (EEE) is supported on this port.
WakeOnLAN	Wake on LAN (WoL) is supported on this port.

PCIeDevice 1.3.1

v1.3	*v1.2*	*v1.1*	*v1.0*
2018.2	2017.3	2017.1	2016.2

This resource shall be used to represent a PCIeDevice attached to a System.

URIs:

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

/redfish/v1/Systems/*{ComputerSystemId}*/PCIeDevices/*{PCIeDeviceId}*

Assembly *(v1.2+)* {	object		The value of this property shall be a link to a resource of type Assembly. *See the Assembly schema for details on this property.*
@odata.id }	string	read-only	*Link to a Assembly resource. See the Links section and the Assembly schema for details.*
AssetTag	string	read-write (null)	The value of this property shall be an identifying string used to track the PCIe device for inventory purposes.
DeviceType	string (enum)	read-only	The value of this property shall be the device type of the PCIe device such as SingleFunction or MultiFunction. *See DeviceType in Property Details, below, for the possible values of this property.*
FirmwareVersion	string	read-only (null)	The value of this property shall be the firmware version of the PCIe device.
Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Chassis [{	array		The value of this property shall reference a resource of type Chassis that represents the physical container associated with this resource.

@odata.id }]	string	read-only	*Link to a Chassis resource. See the Links section and the Chassis schema for details.*
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
PCIeFunctions [{	array		The value of this property shall be a reference to the resources that this device exposes and shall reference a resource of type PCIeFunction.
@odata.id }] }	string	read-only	*Link to a PCIeFunction resource. See the Links section and the PCIeFunction schema for details.*
Manufacturer	string	read-only (null)	The value of this property shall be the name of the organization responsible for producing the PCIe device. This organization might be the entity from whom the PCIe device is purchased, but this is not necessarily true.
Model	string	read-only (null)	The value of this property shall be the name by which the manufacturer generally refers to the PCIe device.
PartNumber	string	read-only (null)	The value of this property shall be a part number assigned by the organization that is responsible for producing or manufacturing the PCIe device.
PCIeInterface *(v1.3+)* {	object		This object shall contain details on the PCIe interface used to connect this PCIe Device to its host or upstream switch.
LanesInUse	integer	read-only (null)	The value of this property shall be the number of PCIe lanes in use by this device, which shall be equal or less than the value of MaxLanes.
MaxLanes	integer	read-only (null)	The value of this property shall be the maximum number of PCIe lanes supported by this device.
MaxPCIeType	string (enum)	read-only (null)	The value of this property shall be the maximum PCIe specification that this device supports. *See MaxPCIeType in Property Details, below, for the possible values of this property.*
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
PCIeType }	string (enum)	read-only (null)	The value of this property shall be the negotiated PCIe interface version in use by this device. *See PCIeType in Property Details, below, for the possible values of this property.*
SerialNumber	string	read-only (null)	The value of this property shall be a manufacturer-allocated number used to identify the PCIe device.
SKU	string	read-only (null)	The value of this property shall be the stock-keeping unit number for this PCIe device.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*

Property Details

DeviceType:

The value of this property shall be the device type of the PCIe device such as SingleFunction or MultiFunction.

string	Description
MultiFunction	A multi-function PCIe device.
Simulated	A PCIe device which is not currently physically present, but is being simulated by the PCIe infrastructure.
SingleFunction	A single-function PCIe device.

MaxPCIeType:

The value of this property shall be the maximum PCIe specification that this device supports.

string	Description
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.

PCIeType:

The value of this property shall be the negotiated PCIe interface version in use by this device.

string	Description
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.

Example Response

```
{
    "@odata.id": "/redfish/v1/Systems/1/PCIeDevices/NIC",
    "@odata.type": "#PCIeDevice.v1_3_0.PCIeDevice",
    "Id": "NIC",
    "Name": "Simple Two-Port NIC",
    "Description": "Simple Two-Port NIC PCIe Device",
    "AssetTag": "ORD-4302015-18432RS",
    "Manufacturer": "Contoso",
    "Model": "SuperNIC 2000",
    "SKU": "89587433",
    "SerialNumber": "2M220100SL",
    "PartNumber": "232-4598D7",
    "DeviceType": "MultiFunction",
    "FirmwareVersion": "12.342-343",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollup": "OK"
    },
    "PCIeInterface": {
        "PCIeType": "Gen2",
        "MaxPCIeType": "Gen3",
        "LanesInUse": 4,
        "MaxLanes": 4
    },
    "Links": {
        "Chassis": [
            {
                "@odata.id": "/redfish/v1/Chassis/1"
            }
        ],
        "PCIeFunctions": [
            {
                "@odata.id": "/redfish/v1/Systems/1/PCIeDevices/NIC/PCIeFunctions/1"
            },
            {
                "@odata.id": "/redfish/v1/Systems/1/PCIeDevices/NIC/PCIeFunctions/2"
            }
        ],
        "Oem": {}
    },
    "Oem": {}
}
```

PCIeFunction 1.2.2

v1.2	*v1.1*	*v1.0*
2018.1	2017.1	2016.2

This resource shall be used to represent a PCIeFunction attached to a System.

URIs:

/redfish/v1/Chassis/*{ChassisId}*/PCIeDevices/*{PCIeDeviceId}*/PCIeFunctions/*{PCIeFunctionId}*

/redfish/v1/Systems/*{ComputerSystemId}*/PCIeDevices/*{PCIeDeviceId}*/PCIeFunctions/*{PCIeFunctionId}*

ClassCode	string	read-only (null)	The value of this property shall be the PCI Class Code of the PCIe device function. Pattern: ^0xX{3}$

DeviceClass	string (enum)	read-only	The value of this property shall be the device class of the PCIe device function such as Storage, Network, Memory etc. *See DeviceClass in Property Details, below, for the possible values of this property.*
DeviceId	string	read-only (null)	The value of this property shall be the PCI Device ID of the PCIe device function. Pattern: ^0xX{2}$
FunctionId	integer	read-only (null)	The value of this property shall the PCIe device function number within a given PCIe device.
FunctionType	string (enum)	read-only	The value of this property shall be the function type of the PCIe device function such as Physical or Virtual. *See FunctionType in Property Details, below, for the possible values of this property.*
Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Drives [{	array		The value of this property shall reference a resource of type Drive that represents the storage drives associated with this resource.
@odata.id }]	string	read-only	*Link to a Drive resource. See the Links section and the Drive schema for details.*
EthernetInterfaces [{	array		The value of this property shall reference a resource of type EthernetInterface that represents the network interfaces associated with this resource.
@odata.id }]	string	read-only	*Link to a EthernetInterface resource. See the Links section and the EthernetInterface schema for details.*
NetworkDeviceFunctions *(v1.2+)* [{	array		The value of this property shall be an array of references to resources of type NetworkDeviceFunction that represents the network device functions associated with this resource.
@odata.id }]	string	read-only	*Link to a NetworkDeviceFunction resource. See the Links section and the NetworkDeviceFunction schema for details.*
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
PCIeDevice {	object		The value of this property shall be a reference to the resource that this function is a part of and shall reference a resource of type PCIeDevice. *See the PCIeDevice schema for details on this property.*
@odata.id }	string	read-only	*Link to a PCIeDevice resource. See the Links section and the PCIeDevice schema for details.*
StorageControllers [{	array		The value of this property shall reference a resource of type StorageController that represents the storage controllers associated with this resource.
@odata.id }] }	string	read-only	*Link to a StorageController resource. See the Links section and the Storage schema for details.*
RevisionId	string	read-only (null)	The value of this property shall be the PCI Revision ID of the PCIe device function. Pattern: ^0xX{1}$
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
SubsystemId	string	read-only (null)	The value of this property shall be the PCI Subsystem ID of the PCIe device function. Pattern: ^0xX{2}$
SubsystemVendorId	string	read-only (null)	The value of this property shall be the PCI Subsystem Vendor ID of the PCIe device function. Pattern: ^0xX{2}$
VendorId	string	read-only	The value of this property shall be the PCI Vendor ID of the PCIe device

		(null)	function. Pattern: ^0xX{2}$

Property Details

DeviceClass:

The value of this property shall be the device class of the PCIe device function such as Storage, Network, Memory etc.

string	Description
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.
MultimediaController	A multimedia controller.
NetworkController	A network controller.
NonEssentialInstrumentation	A non-essential instrumentation.
Other	A other class. The function Device Class Id 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 value of this property shall be the function type of the PCIe device function such as Physical or Virtual.

string	Description
Physical	A physical PCie function.
Virtual	A virtual PCIe function.

Example Response

```
{
    "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/FC/Functions/2",
    "@odata.type": "#PCIeFunction.v1_0_0.PCIeFunction",
    "Id": "2",
    "Name": "FC Port 2",
    "Description": "FC Port 2",
    "FunctionId": 2,
    "FunctionType": "Physical",
    "DeviceClass": "NetworkController",
    "DeviceId": "0xABCD",
    "VendorId": "0xABCD",
```

```
    "ClassCode": "0x010802",
    "RevisionId": "0x00",
    "SubsystemId": "0xABCD",
    "SubsystemVendorId": "0xABCD",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollup": "OK"
    },
    "Links": {
        "PCIeDevice": {
            "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/FC"
        }
    },
    "Oem": {}
}
```


PCIeSlots 1.1.0

v1.1	*v1.0*
2019.1	2018.2

This resource shall be used to represent an set of PCIe slot information for a Redfish implementation.

URIs:

/redfish/v1/Chassis/*{ChassisId}*/PCIeSlots

HotPluggable *(v1.1+)*	boolean	read-only (null)	The value of this property shall be a boolean indicating whether this PCIe slot supports hotplug.
Slots [{	array		This array shall contain an entry for each PCIe slot, including empty slots (with no device or card installed).
Lanes	integer	read-only (null)	The value of this property shall be the maximum number of PCIe lanes supported by the slot.
Links {	object		This type, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
PCIeDevice [{	array		The value of this property shall be an array of references to the resources that this physical slot is associated with and shall reference resources of type PCIeDevice. If the Status.State of this slot has a value of Absent, this property shall not appear in the resource.
@odata.id }] }	string	read-only	*Link to a PCIeDevice resource. See the Links section and the PCIeDevice schema for details.*
Location { }	object		This property shall contain part location information, including a ServiceLable of the associated PCIe Slot. *See the Location object for details on this property.*
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
PCIeType	string (enum)	read-only (null)	The value of this property shall be the maximum PCIe specification that this slot supports. *See PCIeType in Property Details, below, for the possible values of this property.*
SlotType	string (enum)	read-only (null)	The value of this property shall be the slot type as specified by the PCIe specification. *See SlotType in Property Details, below, for the possible values of this property.*
Status { } }]	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*

Property Details

PCIeType:

The value of this property shall be the maximum PCIe specification that this slot supports.

string	Description

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.

SlotType:

The value of this property shall be the slot type as specified by the PCIe specification.

string	Description
FullLength	Full-Length PCIe slot.
HalfLength	Half-Length PCIe slot.
LowProfile	Low-Profile or Slim PCIe slot.
M2	PCIe M.2 slot.
Mini	Mini PCIe slot.
OEM	And OEM-specific slot.

Example Response


```
{
    "@odata.type": "#PCIeSlots.v1_0_0.PCIeSlots",
    "Id": "1",
    "Name": "PCIe Slot Information",
    "Slots": [
        {
            "PCIeType": "Gen3",
            "Lanes": 16,
            "SlotType": "FullLength",
            "Status": {
                "State": "Enabled"
            },
            "Location": {
                "PartLocation": {
                    "ServiceLabel": "Slot 1",
                    "LocationOrdinalValue": 1,
                    "LocationType": "Slot",
                    "Orientation": "LeftToRight",
                    "Reference": "Rear"
                }
            },
            "Links": {
                "PCIeDevice": [
                    {
                        "@odata.id": "/redfish/v1/Systems/1/PCIeDevices/NIC"
                    }
                ]
            }
        },
        {
            "PCIeType": "Gen4",
            "Lanes": 4,
            "SlotType": "FullLength",
            "Status": {
                "State": "Absent"
            },
            "Location": {
                "PartLocation": {
                    "ServiceLabel": "Slot 2",
                    "LocationOrdinalValue": 2,
                    "LocationType": "Slot",
                    "Orientation": "LeftToRight",
                    "Reference": "Rear"
                }
            }
        },
        {
            "PCIeType": "Gen3",
            "Lanes": 1,
            "SlotType": "HalfLength",
            "Status": {
                "State": "Absent"
            },
            "Location": {
                "PartLocation": {
                    "ServiceLabel": "Slot 3",
                    "LocationOrdinalValue": 3,
                    "LocationType": "Slot",
                    "Orientation": "LeftToRight",
                    "Reference": "Rear"
                }
            }
        }
    ],
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#PCIeSlots.PCIeSlots",
```

```
    "@odata.id": "/redfish/v1/Chassis/1/PCIeSlots"
}
```

Port 1.1.2

v1.1	*v1.0*
2017.3	2016.2

This resource shall be used to represent a simple port for a Redfish implementation.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports/*{PortId}*

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports/*{PortId}*

/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports/*{PortId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports/*{PortId}*

/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports/*{PortId}*

CurrentSpeedGbps	number (Gbit/s)	read-only (null)	The value of this property shall be the speed of this port currently negotiated and running.
Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
AssociatedEndpoints [{	array		The value of this property shall be a reference to the resources that this port is associated with and shall reference a resource of type Endpoint.
@odata.id }]	string	read-only	*Link to a Endpoint resource. See the Links section and the Endpoint schema for details.*
ConnectedSwitches [{	array		The value of this property shall be a reference to the resources that this port is associated with and shall reference a resource of type Switch.
@odata.id }]	string	read-only	*Link to a Switch resource. See the Links section and the Switch schema for details.*
ConnectedSwitchPorts [{	array		The value of this property shall be a reference to the resources that this port is associated with and shall reference a resource of type Port.
@odata.id }]	string	read-only	*Link to another Port resource.*
Oem { } }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
Location *(v1.1+)* { }	object		This property shall contain location information of the associated port. *See the Location object for details on this property.*
MaxSpeedGbps	number (Gbit/s)	read-only (null)	The value of this property shall be the maximum speed of which this port is capable of being configured. If capable of auto-negotiation, the system shall attempt to negotiate at the maximum speed set.
PortId	string	read-only (null)	The value of this property shall be the name of the port as indicated on the device containing the port.
PortProtocol	string (enum)	read-only (null)	The value of this property shall contain the protocol being sent over this port. *See PortProtocol in Property Details, below, for the possible values of this property.*
PortType	string (enum)	read-only (null)	The value of this property shall be the port type for this port. *See PortType in Property Details, below, for the possible values of this property.*

Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
Width	integer	read-only (null)	The value of this property shall be the number of physical transport links that this port contains.

Actions

Reset

This action shall perform a reset of this port.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports/*{PortId}*/Actions/Port.Reset

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports/*{PortId}*/Actions/Port.Reset

/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Ports/*{PortId}*/Actions/Port.Reset

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports/*{PortId}*/Actions/Port.Reset

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports/*{PortId}*/Actions/Port.Reset

/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/StorageControllers/*{StorageControllerId}*/Ports/*{PortId}*/Actions/Port.Reset

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
ResetType }	string (enum)	read-write	This parameter shall define the type of reset to be performed. The service may accept a request without the parameter and perform an implementation specific default reset. *See ResetType in Property Details, below, for the possible values of this property.*

Property Details

PortProtocol:

The value of this property shall contain the protocol being sent over this port.

string	Description
AHCI	This value shall mean that this device conforms to the Intel Advanced Host Controller Interface Specification.
FC	This value shall mean that this device conforms to the T11 Fibre Channel Physical and Signaling Interface Specification.
FCoE	This value shall mean that this device conforms to the T11 FC-BB-5 Specification.
FCP	This enumeration literal shall indicate the INCITS 481: Information technology - Fibre Channel Protocol for SCSI. The Fibre Channel SCSI Protocol.
FICON	This enumeration literal shall indicate the (ANSI FC-SB-3 Single-Byte Command Code Sets-3 Mapping Protocol for the Fibre Channel(FC) protocol. FICON (FIbre CONnection) is the IBM proprietary name for this protocol.
FTP	This value shall mean that this device conforms to the File Transfer protocol as defined by RFC 114.
HTTP	This value shall mean that this device conforms to the Hypertext Transfer protocol as defined by RFC 2068 or RFC 2616.
HTTPS	This value shall mean that this device conforms to the Hypertext Transfer protocol as defined by RFC 2068 or RFC 2616 utilizing Transport Layer Security as specified by RFC 5246 or RFC 6176.
I2C	This value shall mean that this device conforms to the NXP Semiconductors I2C-bus Specification.
iSCSI	This value shall mean that this device conforms to the IETF Internet Small Computer Systems Interface (iSCSI) Specification.
iWARP	This value shall mean that this device conforms to the iWARP protocol as defined by RFC 5042 utilizing Transport Layer mechanisms as specified by RFC 5043 or RFC 5044.

NFSv3	This value shall mean that this device conforms to the Network File System protocol as defined by RFC 1813.
NFSv4	This value shall mean that this device conforms to the Network File System protocol as defined by RFC 3010 or RFC 5661.
NVMe	This value shall mean that this device conforms to the Non-Volatile Memory Host Controller Interface Specification Specification.
NVMeOverFabrics	This value shall mean that this device conforms to the NVM Express over Fabrics Specification.
OEM	This value shall mean that this device conforms to an OEM specific architecture and additional information may be included in the OEM section.
PCIe	This value shall mean that this device conforms to the PCI-SIG PCI Express Base Specification.
RoCE	This value shall mean that this device conforms to the RDMA over Converged Ethernet protocol as defined by the Infiniband Architecture Specification.
RoCEv2	This value shall mean that this device conforms to the RDMA over Converged Ethernet version 2 protocol as defined by the Infiniband Architecture Specification.
SAS	This value shall mean that this device conforms to the T10 SAS Protocol Layer Specification.
SATA	This value shall mean that this device conforms to the Serial ATA International Organization Serial ATA Specification.
SFTP	This value shall mean that this device conforms to the File Transfer protocol as defined by RFC 114 utilizing Transport Layer Security as specified by RFC 5246 or RFC 6176.
SMB	This value shall mean that this device conforms to the Microsoft Server Message Block Protocol.
UHCI	This value shall mean that this device conforms to the Intel Universal Host Controller Interface Specification, Enhanced Host Controller Interface Specification, or the Extensible Host Controller Interface specification.
USB	This value shall mean that this device conforms to the USB Implementers Forum Universal Serial Bus Specification.

PortType:

The value of this property shall be the port type for this port.

string	Description
BidirectionalPort	This port connects to any type of device.
DownstreamPort	This port connects to a target device.
InterswitchPort	This port connects to another switch.
ManagementPort	This port connects to a switch manager.
UnconfiguredPort	This port has not yet been configured.
UpstreamPort	This port connects to a host device.

ResetType:

This parameter shall define the type of reset to be performed. The service may accept a request without the parameter and perform an implementation specific default reset.

string	Description
ForceOff	Turn the unit off immediately (non-graceful shutdown).
ForceOn	Turn the unit on immediately.
ForceRestart	Perform an immediate (non-graceful) shutdown, followed by a restart.
GracefulRestart	Perform a graceful shutdown followed by a restart of the system.
GracefulShutdown	Perform a graceful shutdown and power off.

Nmi	Generate a Diagnostic Interrupt (usually an NMI on x86 systems) to cease normal operations, perform diagnostic actions and typically halt the system.
On	Turn the unit on.
PowerCycle	Perform a power cycle of the unit.
PushPowerButton	Simulate the pressing of the physical power button on this unit.

Example Response


```
{
    "@odata.type": "#Port.v1_1_1.Port",
    "Id": "1",
    "Name": "SAS Port 1",
    "Description": "SAS Port 1",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "PortId": "1",
    "PortProtocol": "SAS",
    "PortType": "BidirectionalPort",
    "CurrentSpeedGbps": 48,
    "Width": 4,
    "MaxSpeedGbps": 48,
    "Actions": {
        "Oem": {}
    },
    "Links": {
        "AssociatedEndpoints": [
            {
                "@odata.id": "/redfish/v1/Fabrics/SAS/Endpoints/Initiator1"
            }
        ]
    },
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#Port.Port",
    "@odata.id": "/redfish/v1/Fabrics/SAS/Switches/Switch1/Ports/1"
}
```


Power 1.5.3

v1.5	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
2017.3	2017.2	2017.1	2016.2	2016.1	1.0

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

URIs:

/redfish/v1/Chassis/*{ChassisId}*/Power

PowerControl [{	array		These properties shall be the definition for power control (power reading and limiting) for a Redfish implementation.
@odata.id	string	read-only required	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Actions *(v1.3+)* { }	object		The Actions property shall contain the available actions for this resource.
MemberId	string	read-only required	The value of this string shall uniquely identify the member within the collection. For services supporting Redfish v1.6 or higher, this value shall be the zero-based array index.
Name	string	read-only (null)	The value of this property shall be the name of the Voltage sensor.
Oem { }	object		The value of this string shall be of the format for the reserved word *Oem*.
PhysicalContext *(v1.4+)*	string (enum)	read-only	The value of this property shall be a description of the affected device(s) or region within the chassis to which this power control applies. *See PhysicalContext in Property Details, below, for the possible values of this property.*
PowerAllocatedWatts	number (Watts)	read-only (null)	The value of this property shall represent the total power currently allocated to chassis resources.
PowerAvailableWatts	number (Watts)	read-only (null)	The value of this property shall represent the amount of power capacity (in Watts) not already allocated and shall equal PowerCapacityWatts - PowerAllocatedWatts.

PowerCapacityWatts	number (Watts)	read-only (null)	The value of this property shall represent the total power capacity that is available for allocation to the chassis resources.
PowerConsumedWatts	number (Watts)	read-only (null)	The value of this property shall represent the actual power being consumed (in Watts) by the chassis.
PowerLimit {	object		This object shall contain power limit status and configuration information for this chassis.
CorrectionInMs	integer (ms)	read-write (null)	The value of this property shall represent the time interval in ms required for the limiting process to react and reduce the power consumption below the limit.
LimitException	string (enum)	read-write (null)	The value of this property shall represent the action to be taken if the resource power consumption can not be limited below the specified limit after several correction time periods. *See LimitException in Property Details, below, for the possible values of this property.*
LimitInWatts }	number (Watts)	read-write (null)	The value of this property shall represent the power cap limit in watts for the resource. If set to null, power capping shall be disabled.
PowerMetrics {	object		This object shall contain power metrics for power readings (interval, minimum/maximum/average power consumption) for the chassis.
AverageConsumedWatts	number (Watts)	read-only (null)	The value of this property shall represent the average power level that occured averaged over the last IntervalInMin minutes.
IntervalInMin	integer (min)	read-only (null)	The value of this property shall represent the time interval (or window), in minutes, in which the PowerMetrics properties are measured over.
MaxConsumedWatts	number (Watts)	read-only (null)	The value of this property shall represent the maximum power level in watts that occured within the last IntervalInMin minutes.
MinConsumedWatts }	number (Watts)	read-only (null)	The value of this property shall represent the minimum power level in watts that occured within the last IntervalInMin minutes.
PowerRequestedWatts	number (Watts)	read-only (null)	The value of this property shall represent the amount of power (in Watts) that the chassis resource is currently requesting be budgeted to it for future use.
RelatedItem [{	array		The value of this property shall be an array of IDs containing pointers consistent with JSON pointer syntax to the resource that is being limited.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Status { } }]	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
PowerSupplies [{	array		This object shall contain details of the power supplies associated with this system or device.
@odata.id	string	read-only required	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Actions *(v1.3+)* { }	object		The Actions property shall contain the available actions for this resource.
Assembly *(v1.5+)* {	object		The value of this property shall be a link to a resource of type Assembly. *See the Assembly schema for details on this property.*
@odata.id }	string	read-only	*Link to a Assembly resource. See the Links section and the Assembly schema for details.*
EfficiencyPercent *(v1.5+)*	number (%)	read-only (null)	This property shall contain the value of the measured power efficiency, as a percentage, of the associated power supply.
FirmwareVersion	string	read-only (null)	This property shall contain the firwmare version as defined by the manufacturer for the associated power supply.
HotPluggable *(v1.5+)*	boolean	read-only (null)	The value of this property shall indicate whether the device can be inserted or removed while the underlying equipment otherwise remains in its current operational state. Devices indicated as hot-pluggable shall allow the device to

			become operable without altering the operational state of the underlying equipment. Devices that cannot be inserted or removed from equipment in operation, or devices that cannot become operable without affecting the operational state of that equipment, shall be indicated as not hot-pluggable.
IndicatorLED *(v1.2+)*	string (enum)	read-write (null)	The value of this property shall contain the indicator light state for the indicator light associated with this power supply. *See IndicatorLED in Property Details, below, for the possible values of this property.*
InputRanges *(v1.1+)* [{	array		The value of this property shall be a collection of ranges usable by the power supply unit.
InputType	string (enum)	read-only (null)	This property shall contain the input type (AC or DC) of the associated range. *See InputType in Property Details, below, for the possible values of this property.*
MaximumFrequencyHz	number (Hz)	read-only (null)	This property shall contain the value in Hertz of the maximum line input frequency which the power supply is capable of consuming for this range.
MaximumVoltage	number (Volts)	read-only (null)	This property shall contain the value in Volts of the maximum line input voltage which the power supply is capable of consuming for this range.
MinimumFrequencyHz	number (Hz)	read-only (null)	This property shall contain the value in Hertz of the minimum line input frequency which the power supply is capable of consuming for this range.
MinimumVoltage	number (Volts)	read-only (null)	This property shall contain the value in Volts of the minimum line input voltage which the power supply is capable of consuming for this range.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
OutputWattage }]	number (Watts)	read-only (null)	This property shall contiain the maximum amount of power, in Watts, that the associated power supply is rated to deliver while operating in this input range.
LastPowerOutputWatts	number (Watts)	read-only (null)	This property shall contain the average power output, measured in Watts, of the associated power supply.
LineInputVoltage	number (Volts)	read-only (null)	This property shall contain the value in Volts of the line input voltage (measured or configured for) that the power supply has been configured to operate with or is currently receiving.
LineInputVoltageType	string (enum)	read-only (null)	This property shall contain the type of input line voltage supported by the associated power supply. *See LineInputVoltageType in Property Details, below, for the possible values of this property.*
Location *(v1.5+)* { }	object		This property shall contain location information of the associated power supply. *See the Location object for details on this property.*
Manufacturer *(v1.1+)*	string	read-only (null)	The value of this property shall be the name of the organization responsible for producing the power supply. This organization might be the entity from whom the power supply is purchased, but this is not necessarily true.
MemberId	string	read-only required	The value of this string shall uniquely identify the member within the collection. For services supporting Redfish v1.6 or higher, this value shall be the zero-based array index.
Model	string	read-only (null)	This property shall contain the model information as defined by the manufacturer for the associated power supply.
Name	string	read-only (null)	This property shall contain a descriptive name for the associated power supply.
Oem { }	object		The value of this string shall be of the format for the reserved word *Oem*.
PartNumber	string	read-only (null)	This property shall contain the part number as defined by the manufacturer for the associated power supply.
PowerCapacityWatts	number (Watts)	read-only (null)	This property shall contiain the maximum amount of power, in Watts, that the associated power supply is rated to deliver.

PowerInputWatts *(v1.5+)*	number (Watts)	read-only (null)	This property shall contain the value of the measured input power, in Watts, of the associated power supply.
PowerOutputWatts *(v1.5+)*	number (Watts)	read-only (null)	This property shall contain the value of the measured output power, in Watts, of the associated power supply.
PowerSupplyType	string (enum)	read-only (null)	This property shall contain the input power type (AC or DC) of the associated power supply. *See PowerSupplyType in Property Details, below, for the possible values of this property.*
Redundancy [{	array		The values of the properties in this array shall be used to show redundancy for power supplies and other elements in this resource. The use of IDs within these arrays shall reference the members of the redundancy groups.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
RelatedItem [{	array		The value of this property shall be an array of IDs containing pointers consistent with JSON pointer syntax to the resource that is being limited.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
SerialNumber	string	read-only (null)	This property shall contain the serial number as defined by the manufacturer for the associated power supply.
SparePartNumber	string	read-only (null)	This property shall contain the spare or replacement part number as defined by the manufacturer for the associated power supply.
Status { } }]	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
Redundancy [{	array		This property shall contain redundancy information for the power subsystem of this system or device.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Voltages [{	array		These properties shall be the definition for voltage sensors for a Redfish implementation.
@odata.id	string	read-only required	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Actions *(v1.3+)* { }	object		The Actions property shall contain the available actions for this resource.
LowerThresholdCritical	number (Volts)	read-only (null)	The value of this property shall indicate the present reading is below the normal range but is not yet fatal. Units shall use the same units as the related ReadingVolts propoerty.
LowerThresholdFatal	number (Volts)	read-only (null)	The value of this property shall indicate the present reading is below the normal range and is fatal. Units shall use the same units as the related ReadingVolts propoerty.
LowerThresholdNonCritical	number (Volts)	read-only (null)	The value of this property shall indicate the present reading is below the normal range but is not critical. Units shall use the same units as the related ReadingVolts propoerty.
MaxReadingRange	number (Volts)	read-only (null)	The value of this property shall indicate the highest possible value for ReadingVolts. Units shall use the same units as the related ReadingVolts propoerty.
MemberId	string	read-only required	The value of this string shall uniquely identify the member within the collection. For services supporting Redfish v1.6 or higher, this value shall be the zero-based array index.
MinReadingRange	number (Volts)	read-only (null)	The value of this property shall indicate the lowest possible value for ReadingVolts. Units shall use the same units as the related ReadingVolts propoerty.
Name	string	read-only	The value of this property shall be the name of the Voltage sensor.

		(null)	
Oem { }	object		The value of this string shall be of the format for the reserved word *Oem*.
PhysicalContext	string (enum)	read-only	The value of this property shall be a description of the affected device or region within the chassis to which this voltage measurement applies. *See PhysicalContext in Property Details, below, for the possible values of this property.*
ReadingVolts	number (Volts)	read-only (null)	The value of this property shall be the present reading of the voltage sensor's reading.
RelatedItem [{	array		The value of this property shall be an array of IDs containing pointers consistent with JSON pointer syntax to the areas or devices to which this voltage measurement applies.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
SensorNumber	integer	read-only (null)	The value of this property shall be a numerical identifier for this voltage sensor that is unique within this resource.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
UpperThresholdCritical	number (Volts)	read-only (null)	The value of this property shall indicate the present reading is above the normal range but is not yet fatal. Units shall use the same units as the related ReadingVolts propoerty.
UpperThresholdFatal	number (Volts)	read-only (null)	The value of this property shall indicate the present reading is above the normal range and is fatal. Units shall use the same units as the related ReadingVolts propoerty.
UpperThresholdNonCritical }]	number (Volts)	read-only (null)	The value of this property shall indicate the present reading is above the normal range but is not critical. Units shall use the same units as the related ReadingVolts propoerty.

Property Details

IndicatorLED:

The value of this property shall contain the indicator light state for the indicator light associated with this power supply.

string	Description
Blinking	This value shall represent the Indicator LED is in a blinking state where the LED is being turned on and off in repetition. If this value is not supported by the service, the service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request).
Lit	This value shall represent the Indicator LED is in a solid on state. If this value is not supported by the service, the service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request).
Off	This value shall represent the Indicator LED is in a solid off state. If this value is not supported by the service, the service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request).

InputType:

This property shall contain the input type (AC or DC) of the associated range.

string	Description
AC	Alternating Current (AC) input range.
DC	Direct Current (DC) input range.

LimitException:

The value of this property shall represent the action to be taken if the resource power consumption can not be limited below the specified limit after several correction time periods.

string	Description
HardPowerOff	Turn the power off immediately when the limit is exceeded.

LogEventOnly	Log an event when the limit is exceeded, but take no further action.
NoAction	Take no action when the limit is exceeded.
Oem	Take an OEM-defined action.

LineInputVoltageType:

This property shall contain the type of input line voltage supported by the associated power supply.

string	Description
AC120V	AC 120V nominal input.
AC240V	AC 240V nominal input.
AC277V	AC 277V nominal input.
ACandDCWideRange	Wide range AC or DC input.
ACHighLine *(deprecated v1.3)*	277V AC input. *Deprecated v1.3+. This value has been Deprecated in favor of AC277V.*
ACLowLine *(deprecated v1.3)*	100-127V AC input. *Deprecated v1.3+. This value has been Deprecated in favor of AC120V.*
ACMidLine *(deprecated v1.3)*	200-240V AC input. *Deprecated v1.3+. This value has been Deprecated in favor of AC240V.*
ACWideRange	Wide range AC input.
DC240V	DC 240V nominal input.
DC380V	High Voltage DC input (380V).
DCNeg48V	-48V DC input.
Unknown	The power supply line input voltage type cannot be determined.

PhysicalContext:

The value of this property shall be a description of the affected device or region within the chassis to which this voltage measurement applies.

string	Description
Accelerator	An Accelerator.
ACInput	An AC Input.
ACMaintenanceBypassInput	An AC Maintenance Bypass Input.
ACOutput	An AC Output.
ACStaticBypassInput	An AC Static Bypass Input.
ACUtilityInput	An AC Utility Input.
ASIC	An ASIC device, such as networking chip or a chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Chassis	The entire chassis.
ComputeBay	Within a compute bay.
CoolingSubsystem	The entire cooling (air and liquid) subsystem.
CPU	A Processor (CPU).
CPUSubsystem	The entire Processor (CPU) subsystem.
DCBus	A DC Bus.
Exhaust	The air exhaust point(s) or region of the chassis.

ExpansionBay	Within an expansion bay.
Fan	A fan.
FPGA	A Field Programmable Gate Array (FPGA).
Front	The front of the chassis.
GPU	A Graphics Processor (GPU).
GPUSubsystem	The entire Graphics Processor (GPU) subsystem.
Intake	The air intake point(s) or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Memory	A memory device.
MemorySubsystem	The entire Memory subsystem.
Motor	A motor.
NetworkBay	Within a networking bay.
NetworkingDevice	A networking device.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	Within a power supply bay.
Rectifier	A rectifier device.
Room	The room.
StorageBay	Within a storage bay.
StorageDevice	A storage device.
SystemBoard	The system board (PCB).
Transformer	A Transformer.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

PowerSupplyType:

This property shall contain the input power type (AC or DC) of the associated power supply.

string	Description
AC	Alternating Current (AC) power supply.
ACorDC	Power Supply supports both DC or AC.
DC	Direct Current (DC) power supply.
Unknown	The power supply type cannot be determined.

Example Response

```
{
    "@odata.type": "#Power.v1_5_1.Power",
    "Id": "Power",
    "Name": "Power",
    "PowerControl": [
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Power#/PowerControl/0",
            "MemberId": "0",
            "Name": "Server Power Control",
            "PowerConsumedWatts": 344,
            "PowerRequestedWatts": 800,
```

```
            "PowerAvailableWatts": 0,
            "PowerCapacityWatts": 800,
            "PowerAllocatedWatts": 800,
            "PowerMetrics": {
                "IntervalInMin": 30,
                "MinConsumedWatts": 271,
                "MaxConsumedWatts": 489,
                "AverageConsumedWatts": 319
            },
            "PowerLimit": {
                "LimitInWatts": 500,
                "LimitException": "LogEventOnly",
                "CorrectionInMs": 50
            },
            "RelatedItem": [
                {
                    "@odata.id": "/redfish/v1/Systems/437XR1138R2"
                },
                {
                    "@odata.id": "/redfish/v1/Chassis/1U"
                }
            ],
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
            "Oem": {}
        }
    ],
    "Voltages": [
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Power#/Voltages/0",
            "MemberId": "0",
            "Name": "VRM1 Voltage",
            "SensorNumber": 11,
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
            "ReadingVolts": 12,
            "UpperThresholdNonCritical": 12.5,
            "UpperThresholdCritical": 13,
            "UpperThresholdFatal": 15,
            "LowerThresholdNonCritical": 11.5,
            "LowerThresholdCritical": 11,
            "LowerThresholdFatal": 10,
            "MinReadingRange": 0,
            "MaxReadingRange": 20,
            "PhysicalContext": "VoltageRegulator",
            "RelatedItem": [
                {
                    "@odata.id": "/redfish/v1/Systems/437XR1138R2"
                },
                {
                    "@odata.id": "/redfish/v1/Chassis/1U"
                }
            ]
        },
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Power#/Voltages/1",
            "MemberId": "1",
            "Name": "VRM2 Voltage",
            "SensorNumber": 12,
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
            "ReadingVolts": 5,
            "UpperThresholdNonCritical": 5.5,
            "UpperThresholdCritical": 7,
            "LowerThresholdNonCritical": 4.75,
            "LowerThresholdCritical": 4.5,
            "MinReadingRange": 0,
            "MaxReadingRange": 20,
            "PhysicalContext": "VoltageRegulator",
            "RelatedItem": [
                {
                    "@odata.id": "/redfish/v1/Systems/437XR1138R2"
                },
                {
                    "@odata.id": "/redfish/v1/Chassis/1U"
                }
            ]
        }
    ],
    "PowerSupplies": [
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Power#/PowerSupplies/0",
            "MemberId": "0",
            "Name": "Power Supply Bay",
            "Status": {
                "State": "Enabled",
                "Health": "Warning"
            },
            "Oem": {},
            "PowerSupplyType": "AC",
            "LineInputVoltageType": "ACWideRange",
            "LineInputVoltage": 120,
            "PowerCapacityWatts": 800,
            "LastPowerOutputWatts": 325,
            "Model": "499253-B21",
            "Manufacturer": "ManufacturerName",
            "FirmwareVersion": "1.00",
            "SerialNumber": "1Z0000001",
            "PartNumber": "0000001A3A",
            "SparePartNumber": "0000001A3A",
            "InputRanges": [
                {
                    "InputType": "AC",
                    "MinimumVoltage": 100,
                    "MaximumVoltage": 120,
```

```
                    "OutputWattage": 800
                },
                {
                    "InputType": "AC",
                    "MinimumVoltage": 200,
                    "MaximumVoltage": 240,
                    "OutputWattage": 1300
                }
            ],
            "RelatedItem": [
                {
                    "@odata.id": "/redfish/v1/Chassis/1U"
                }
            ]
        }
    ],
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#Power.Power",
    "@odata.id": "/redfish/v1/Chassis/1U/Power"
}
```


PrivilegeRegistry 1.1.3

v1.1	*v1.0*
2017.1	2016.3

This resource shall be used to represent operation to privilege mappings.

Mappings [{	array		This property shall describe the mappings between entities and the relevant privileges used to access them.
Entity	string	read-only	Indicates entity name. e.g., Manager.
OperationMap {	object		List mapping between HTTP method and privilege required for entity.
DELETE [{	array		Indicates privilege required for HTTP DELETE operation.
Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
GET [{	array		Indicates privilege required for HTTP GET operation.
Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
HEAD [{	array		Indicates privilege required for HTTP HEAD operation.
Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
PATCH [{	array		Indicates privilege required for HTTP PATCH operation.
Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
POST [{	array		Indicates privilege required for HTTP POST operation.
Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
PUT [{	array		Indicates privilege required for HTTP PUT operation.
Privilege [ ] }] }	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
PropertyOverrides [{	array		Indicates privilege overrides of property or element. e.g., password property.
OperationMap {	object		List mapping between HTTP operation and privilege needed to perform operation.
DELETE [{	array		Indicates privilege required for HTTP DELETE operation.
Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
GET [{	array		Indicates privilege required for HTTP GET operation.

Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
HEAD [{	array		Indicates privilege required for HTTP HEAD operation.
Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
PATCH [{	array		Indicates privilege required for HTTP PATCH operation.
Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
POST [{	array		Indicates privilege required for HTTP POST operation.
Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
PUT [{	array		Indicates privilege required for HTTP PUT operation.
Privilege [ ] }] }	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
Targets [ ] }]	array (string, null)	read-only	Indicates the set of URI(s) or Entity(s) or property(s). e.g./redfish/v1/Systems/1, Manager, Password. When targets property is not mentioned, then there is no override.
ResourceURIOverrides [{	array		Indicates privilege overrides of Resource URI. Target lists Resource URI.
OperationMap {	object		List mapping between HTTP operation and privilege needed to perform operation.
DELETE [{	array		Indicates privilege required for HTTP DELETE operation.
Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
GET [{	array		Indicates privilege required for HTTP GET operation.
Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
HEAD [{	array		Indicates privilege required for HTTP HEAD operation.
Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
PATCH [{	array		Indicates privilege required for HTTP PATCH operation.
Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
POST [{	array		Indicates privilege required for HTTP POST operation.
Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
PUT [{	array		Indicates privilege required for HTTP PUT operation.
Privilege [ ] }] }	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
Targets [ ] }]	array (string, null)	read-only	Indicates the set of URI(s) or Entity(s) or property(s). e.g./redfish/v1/Systems/1, Manager, Password. When targets property is not mentioned, then there is no override.
SubordinateOverrides [{	array		Indicates privilege overrides of subordinate resource. Target lists referenced by Entity.
OperationMap {	object		List mapping between HTTP operation and privilege needed to perform operation.
DELETE [{	array		Indicates privilege required for HTTP DELETE operation.

Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
GET [{	array		Indicates privilege required for HTTP GET operation.
Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
HEAD [{	array		Indicates privilege required for HTTP HEAD operation.
Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
PATCH [{	array		Indicates privilege required for HTTP PATCH operation.
Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
POST [{	array		Indicates privilege required for HTTP POST operation.
Privilege [ ] }]	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
PUT [{	array		Indicates privilege required for HTTP PUT operation.
Privilege [ ] }] }	array (string)	read-only	This array shall contain a set of strings that match 0 or more of the strings found in the PrivilegesUsed and OEMPrivilegesUsed properties.
Targets [ ] }] }]	array (string, null)	read-only	Indicates the set of URI(s) or Entity(s) or property(s). e.g./redfish/v1/Systems/1, Manager, Password. When targets property is not mentioned, then there is no override.
OEMPrivilegesUsed [ ]	array (string)	read-only	This property shall be an array that contains the set of OEM Priviliges used in building this mapping.
PrivilegesUsed [ ]	array (string (enum))	read-only	This property shall be an array that contains the set of Redfish standard priviliges used in building this mapping. *See PrivilegesUsed in Property Details, below, for the possible values of this property.*

Property Details

PrivilegesUsed:

This property shall be an array that contains the set of Redfish standard priviliges used in building this mapping.

string	Description
ConfigureComponents	Able to configure components managed by this service.
ConfigureManager	Able to configure Manager resources.
ConfigureSelf	Able to change the password for the current user Account.
ConfigureUsers	Able to configure Users and their Accounts.
Login	Able to log into the service and read resources.

Example Response

```
{
    "@odata.type": "#PrivilegeRegistry.v1_0_0.PrivilegeRegistry",
    "Id": "Contoso_1.0.1_PrivilegeRegistry",
    "Name": "Privilege Map",
    "PrivilegesUsed": [
        "Login",
        "ConfigureManager",
        "ConfigureUsers",
        "ConfigureComponents",
        "ConfigureSelf"
    ],
    "OEMPrivilegesUsed": [],
    "Mappings": [
        {
            "Entity": "Manager",
            "OperationMap": {
                "GET": [
                    {
                        "Privilege": [
```

```
                        "Login"
                    ]
                }
            ],
            "HEAD": [
                {
                    "Privilege": [
                        "Login"
                    ]
                }
            ],
            "PATCH": [
                {
                    "Privilege": [
                        "ConfigureManager"
                    ]
                }
            ],
            "POST": [
                {
                    "Privilege": [
                        "ConfigureManager"
                    ]
                }
            ],
            "PUT": [
                {
                    "Privilege": [
                        "ConfigureManager"
                    ]
                }
            ],
            "DELETE": [
                {
                    "Privilege": [
                        "ConfigureManager"
                    ]
                }
            ]
        }
    }
  ]
}
```


Processor 1.5.0

v1.5	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
2019.1	2018.3	2018.1	2017.3	2017.1	1.0

This resource shall be used to represent a single processor contained within a system.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*

/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*

/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*

AccelerationFunctions *(v1.4+)* {	object		The value of this property shall be a link to a collection of type AccelerationFunctionCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of AccelerationFunction. See the AccelerationFunction schema for details.*
Assembly *(v1.2+)* {	object		The value of this property shall be a link to a resource of type Assembly. *See the Assembly schema for details on this property.*
@odata.id }	string	read-only	*Link to a Assembly resource. See the Links section and the Assembly schema for details.*
FPGA *(v1.4+)* {	object		The value of this property shall be an object containing properties

			specific for Processors of type FPGA.
ExternalInterfaces [{	array		The value of this property shall be an array of objects that describe the external connectivity of the FPGA.
Ethernet {	object		The value of this property shall be an object the describes the Ethernet related information about this FPGA interface.
MaxLanes	integer	read-only (null)	The value of this property shall be the maximum number of lanes supported by this interface.
MaxSpeedMbps	integer (Mbit/s)	read-only (null)	The value of this property shall be the maximum speed supported by this interface.
Oem { } }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
InterfaceType	string (enum)	read-only (null)	The value of this property shall be an enum that describes the type of interface to the FPGA. *See InterfaceType in Property Details, below, for the possible values of this property.*
PCIe {	object		The value of this property shall be an object the describes the PCI-e related information about this FPGA interface. *See the PCIeDevice schema for details on this property.*
@odata.id } }]	string	read-only	*Link to a PCIeInterface resource. See the Links section and the PCIeDevice schema for details.*
FirmwareId	string	read-only	The value of this property shall contain a string decsribing the FPGA firmware identifier.
FirmwareManufacturer	string	read-only	The value of this property shall contain a string decsribing the FPGA firmware manufacturer.
FirmwareVersion	string	read-only	The value of this property shall contain a string decsribing the FPGA firmware version.
FpgaType	string (enum)	read-only	The value of this property shall be a type of the FPGA device. *See FpgaType in Property Details, below, for the possible values of this property.*
HostInterface {	object		The value of this property shall be an object that describes the connectivity to the host for system software to use.
Ethernet {	object		The value of this property shall be an object the describes the Ethernet related information about this FPGA interface.
MaxLanes	integer	read-only (null)	The value of this property shall be the maximum number of lanes supported by this interface.
MaxSpeedMbps	integer (Mbit/s)	read-only (null)	The value of this property shall be the maximum speed supported by this interface.
Oem { } }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
InterfaceType	string (enum)	read-only (null)	The value of this property shall be an enum that describes the type of interface to the FPGA. *See InterfaceType in Property Details, below, for the possible values of this property.*
PCIe {	object		The value of this property shall be an object the describes the PCI-e related information about this FPGA interface. *See the PCIeDevice schema for details on this property.*
@odata.id } }	string	read-only	*Link to a PCIeInterface resource. See the Links section and the PCIeDevice schema for details.*

Model	string	read-only	The value of this property shall be a model of the FPGA device.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
PCIeVirtualFunctions	integer	read-write	The value of this property shall be an integer that describes the number of PCIe Virtual Functions configured within the FPGA.
ProgrammableFromHost	boolean	read-write (null)	The value of this property shall indicate whether the FPGA firmware can be reprogrammed from the host using system software. If set to false, system software shall not be able to program the FPGA firmware from the host interface. In either state, a management controller may be able to program the FPGA firmware using the sideband interface.
ReconfigurationSlots [{	array		The value of this property shall be an array of the structures describing the FPGA reconfiguration slots that can be programmed with the acceleration functions.
AccelerationFunction {	object		The value of this property shall be a reference to the acceleration function resources provided by the code programmed into a reconfiguration slot and shall reference a resource of type AccelerationFunction. *See the AccelerationFunction schema for details on this property.*
@odata.id }	string	read-only	*Link to a AccelerationFunction resource. See the Links section and the AccelerationFunction schema for details.*
ProgrammableFromHost	boolean	read-write (null)	The value of this property shall indicate whether the reconfiguration slot can be reprogrammed from the host using system software. If set to false, system software shall not be able to program the reconfiguration slot from the host interface. In either state, a management controller may be able to program the reconfiguration slot using the sideband interface.
SlotId	string	read-only (null)	The value of this property shall be the FPGA reconfiguration slot identifier.
UUID }] }	string	read-only (null)	The value of this property shall be used to contain a universal unique identifier number for the reconfiguration slot. Pattern: ([0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}) *See Property Details, below, for more information about this property.*
InstructionSet	string (enum)	read-only (null)	This property shall contain the string which identifies the instruction set of the processor contained in this socket. *See InstructionSet in Property Details, below, for the possible values of this property.*
Links *(v1.1+)* {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Chassis {	object		The value of this property shall be a reference to a resource of type Chassis that represent the physical container associated with this Processor. *See the Chassis schema for details on this property.*
@odata.id }	string	read-only	*Link to a Chassis resource. See the Links section and the Chassis schema for details.*
ConnectedProcessors *(v1.4+)* [{	array		The value of this property shall be an array of references of type Processor that are directly connected to this Processor.
@odata.id }]	string	read-only	*Link to another Processor resource.*
Endpoints *(v1.4+)* [{	array		The value of this property shall be an array of references of type Endpoint that represent Endpoints accociated with this Processor.
@odata.id }]	string	read-only	*Link to a Endpoint resource. See the Links section and the Endpoint schema for details.*

Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
PCIeDevice *(v1.4+)* {	object		The value of this property shall be a reference of type PCIeDevice that represents the PCI-e Device associated with this Processor. *See the PCIeDevice schema for details on this property.*
@odata.id }	string	read-only	*Link to a PCIeDevice resource. See the Links section and the PCIeDevice schema for details.*
PCIeFunctions *(v1.4+)* [{	array		The value of this property shall be an array of references of type PCIeFunction that represent the PCI-e Functions associated with this Processor.
@odata.id }] }	string	read-only	*Link to a PCIeFunction resource. See the Links section and the PCIeFunction schema for details.*
Location *(v1.2+)* { }	object		This property shall contain location information of the associated processor. *See the Location object for details on this property.*
Manufacturer	string	read-only (null)	This property shall contain a string which identifies the manufacturer of the processor.
MaxSpeedMHz	integer (MHz)	read-only (null)	This property shall indicate the maximum rated clock speed of the processor in MHz.
MaxTDPWatts *(v1.4+)*	integer (Watts)	read-only (null)	The value of this property shall be the maximum Thermal Design Power (TDP) in watts.
Metrics *(v1.4+)* {	object		This property shall be a reference to the Metrics associated with this Processor. *See the ProcessorMetrics schema for details on this property.*
@odata.id }	string	read-only	*Link to a ProcessorMetrics resource. See the Links section and the ProcessorMetrics schema for details.*
Model	string	read-only (null)	This property shall indicate the model information as provided by the manufacturer of this processor.
ProcessorArchitecture	string (enum)	read-only (null)	This property shall contain the string which identifies the architecture of the processor contained in this Socket. *See ProcessorArchitecture in Property Details, below, for the possible values of this property.*
ProcessorId {	object		This object shall contain identification information for this processor. *See Property Details, below, for more information about this property.*
EffectiveFamily	string	read-only (null)	This property shall indicate the effective Family information as provided by the manufacturer of this processor. *See Property Details, below, for more information about this property.*
EffectiveModel	string	read-only (null)	This property shall indicate the effective Model information as provided by the manufacturer of this processor. *See Property Details, below, for more information about this property.*
IdentificationRegisters	string	read-only (null)	This property shall include the raw CPUID instruction output as provided by the manufacturer of this processor. *See Property Details, below, for more information about this property.*
MicrocodeInfo	string	read-only (null)	This property shall indicate the Microcode Information as provided by the manufacturer of this processor. *See Property Details, below, for more information about this property.*
Step	string	read-only (null)	This property shall indicate the Step or revision string information as provided by the manufacturer of this processor. *See Property Details, below, for more information about this property.*
VendorId }	string	read-only (null)	This property shall indicate the Vendor Identification string information as provided by the manufacturer of this processor.

			See Property Details, below, for more information about this property.
ProcessorMemory *(v1.4+)* [{	array		The value of this property shall be the memory directly attached or integrated witin this Processor.
CapacityMiB	integer (mebibytes)	read-only (null)	The value of this property shall be the memory capacity in MiB.
IntegratedMemory	boolean	read-only (null)	The value of this property shall be a boolean indicating whether this memory is integrated within the Porcessor. Otherwise it is discrete memory attached to the Processor.
MemoryType	string (enum)	read-only (null)	The value of this property shall be a type of the processor memory type. *See MemoryType in Property Details, below, for the possible values of this property.*
SpeedMHz }]	integer	read-only (null)	The value of this property shall be the operating speed of the memory in MHz.
ProcessorType	string (enum)	read-only (null)	This property shall contain the string which identifies the type of processor contained in this Socket. *See ProcessorType in Property Details, below, for the possible values of this property.*
Socket	string	read-only (null)	This property shall contain the string which identifies the physical location or socket of the processor.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
SubProcessors *(v1.3+)* {	object		The value of this property shall be a link to a collection of type ProcessorCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Processor. See the Processor schema for details.*
TDPWatts *(v1.4+)*	integer (Watts)	read-only (null)	The value of this property shall be the nominal Thermal Design Power (TDP) in watts.
TotalCores	integer	read-only (null)	This property shall indicate the total count of independent processor cores contained within this processor.
TotalEnabledCores *(v1.5+)*	integer	read-only (null)	This property shall indicate the total count of enabled independent processor cores contained within this processor.
TotalThreads	integer	read-only (null)	This property shall indicate the total count of independent execution threads supported by this processor.
UUID	string	read-only (null)	The value of this property shall be used to contain a universal unique identifier number for the processor. RFC4122 describes methods that can be used to create the value. The value should be considered to be opaque. Client software should only treat the overall value as a universally unique identifier and should not interpret any sub-fields within the UUID. Pattern: ([0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}) *See Property Details, below, for more information about this property.*

Property Details

EffectiveFamily:

This property shall indicate the effective Family information as provided by the manufacturer of this processor.

This property shall contain a value derived from register values resulting from the execution of the CPUID instruction. The value shall use the following forumula:

```
((cpuid.1.eax & 0x0ff00000) >> 20) + ((cpuid.1.eax & 0x00000f00) >> 8)
```

EffectiveModel:

This property shall indicate the effective Model information as provided by the manufacturer of this processor.

This property shall contain a value derived from register values resulting from the execution of the CPUID instruction. The value shall use the following forumula:

```
((cpuid.1.eax & 0x000f0000) >> 12) + ((cpuid.1.eax & 0x000000f0) >> 4)
```

FpgaType:

The value of this property shall be a type of the FPGA device.

string	Description
Discrete	The discrete FPGA device.
Integrated	The FPGA device integrasted with other porcessor in the single chip.

IdentificationRegisters:

This property shall include the raw CPUID instruction output as provided by the manufacturer of this processor.

This property shall contain the register contents resulting from the exeuction of the CPUID instruction.

InstructionSet:

This property shall contain the string which identifies the instruction set of the processor contained in this socket.

string	Description
ARM-A32	ARM 32-bit.
ARM-A64	ARM 64-bit.
IA-64	Intel IA-64.
MIPS32	MIPS 32-bit.
MIPS64	MIPS 64-bit.
OEM	OEM-defined.
PowerISA *(v1.4+)*	PowerISA-64 or PowerISA-32.
x86	x86 32-bit.
x86-64	x86 64-bit.

InterfaceType:

The value of this property shall be an enum that describes the type of interface to the FPGA.

string	Description
Ethernet	An Ethernet interface.
OEM	An OEM defined interface.
PCIe	A PCI Express interface.
QPI	The Intel QuickPath Interconnect.
UPI	The Intel UltraPath Interconnect.

MemoryType:

The value of this property shall be a type of the processor memory type.

string	Description
DDR	Double data rate synchronous dynamic random-access memory.
DDR2	Double data rate type two synchronous dynamic random-access memory.
DDR3	Double data rate type three synchronous dynamic random-access memory.
DDR4	Double data rate type four synchronous dynamic random-access memory.
DDR5	Double data rate type five synchronous dynamic random-access memory.
Flash	Flash memory.

GDDR	Synchronous graphics random-access memory.
GDDR2	Double data rate type two synchronous graphics random-access memory.
GDDR3	Double data rate type three synchronous graphics random-access memory.
GDDR4	Double data rate type four synchronous graphics random-access memory.
GDDR5	Double data rate type five synchronous graphics random-access memory.
GDDR5X	Double data rate type five synchronous graphics random-access memory.
GDDR6	Double data rate type five synchronous graphics random-access memory.
HBM1	High Bandwidth Memory.
HBM2	The second generation of High Bandwidth Memory.
HBM3	The third generation of High Bandwidth Memory.
L1Cache	L1 cache.
L2Cache	L2 cache.
L3Cache	L3 cache.
L4Cache	L4 cache.
L5Cache	L5 cache.
L6Cache	L6 cache.
L7Cache	L7 cache.
OEM	OEM-defined.
SDRAM	Synchronous dynamic random-access memory.
SGRAM	Synchronous graphics RAM.
SRAM	Static random-access memory.

MicrocodeInfo:

This property shall indicate the Microcode Information as provided by the manufacturer of this processor.

This property shall contain the 64-bit value contained in MSR 0x8B.

ProcessorArchitecture:

This property shall contain the string which identifies the architecture of the processor contained in this Socket.

string	Description
ARM	ARM.
IA-64	Intel Itanium.
MIPS	MIPS.
OEM	OEM-defined.
Power *(v1.4+)*	Power.
x86	x86 or x86-64.

ProcessorId:

This object shall contain identification information for this processor.

This object's properties shall contain values dependent on the value of the ProcessorArchitecture property, as listed in the sections below:

ProcessorType:

This property shall contain the string which identifies the type of processor contained in this Socket.

string	Description
Accelerator	An Accelerator.
Core *(v1.3+)*	A Core in a Processor.
CPU	A Central Processing Unit.
DSP	A Digital Signal Processor.
FPGA	A Field Programmable Gate Array.
GPU	A Graphics Processing Unit.
OEM	An OEM-defined Processing Unit.
Thread *(v1.3+)*	A Thread in a Processor.

Step:

This property shall indicate the Step or revision string information as provided by the manufacturer of this processor.

This property shall contain a value derived from register values resulting from the execution of the CPUID instruction. The value shall use the following forumula:

```
(cpuid->eax & 0xf)
```

UUID:

The value of this property shall be used to contain a universal unique identifier number for the processor. RFC4122 describes methods that can be used to create the value. The value should be considered to be opaque. Client software should only treat the overall value as a universally unique identifier and should not interpret any sub-fields within the UUID. Pattern: ([0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12})

The UUID property contains the value of the Universally Unique IDentifier (UUID) of a system, also known in some systems as GUIDs (Globally Unique IDentifier). A UUID is 128 bits long (16 bytes).

Redfish clients should consider the value of the property to be opaque and should not interpret any sub-fields within the UUID.

The UUID property is a string data type. The format of the string is the 35-character string format specified in RFC4122: "xxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx". Each x represents a hexadecimal digit (0-f).

If the computer system supports SMBIOS, then the UUID string should be formed from the raw binary 16-byte SMBIOS UUID structure. This allows out-of-band clients to correlate the UUID that in-band agents are reading from SMBIOS. The UUID is represented out-of-band through the Redfish API.

Case sensitivity

Regarding the case of the hex values, RFC4122 specifies that the hex values should be lowercase characters. Most modern scripting languages typically also represent hex values in lowercase characters following the RFC. However, dmidecode, WMI and some Redfish implementations currently use uppercase characters for UUID on output.

Comparisons between UUID values should always be case-insensitive.

For new Redfish implementations, the recommendation is to follow RFC4122 guidelines: output using lower-case hex values when converting from the SMBIOS raw binary data.

Redfish implementations and operating system APIs are permitted to output in uppercase. For that reason, Redfish clients MUST compare UUIDs using a case-insensitive comparison (as recommended by RFC4122).

Conversion of UUID format

The SMBIOS 2.6+ specification specifies the proper algorithm for converting the raw binary SMBIOS 16-byte structure into the canonical string format of form "xxxxxx-xxxx-xxxx-xxxx-xxxxxx"). Redfish services should follow the SMBIOS 2.6+ specification for implementing this conversion.

WMI and Linux dmidecode also follow the SMBIOS guidelines.

Specifically, RFC4122 defines that the canonical string value should follow network byte ordering. The SMBIOS represents the UUID as five fields:

```
{
 DWORD    time_low,
 WORD     time_mid,
 WORD     time_hi_and_version,
 BYTE     clock_seq_hi_and_reserved,
 BYTE     clock_seq_low,
 BYTE[6]  node
}
```

Little-endian systems (including x86 systems) require a little-endian to network-byte-order conversion for the first three fields in order to convert the SMBIOS binary UUID to network byte order.

As specified in the SMBIOS 2.6+ specification, if the canonical UUID string is:

```
"00112233-4455-6677-8899-aabbccddeeff"
```

then the corresponding raw representation in the SMBIOS UUID structure would be:

```
raw_smbios_uuid={ 0x33, 0x22, 0x11, 0x00, 0x55, 0x44, 0x77, 0x66, 0x88, 0x99, 0xAA, 0xBB, 0xCC, 0xDD, 0xEE, 0xFF
}
```

Notice in the above SMBIOS representation that each of the first three words boundaries are in little-endian order. For example, the hex digits "00112233" are represented by the first raw SMBIOS 4-byte DWORD "0x33, 0x22, 0x11, 0x00".

The following sample code (written in C) could be used to convert the raw SMBIOS UUID struct in a little-endian system to the 35-character canonical string:

```
/* routine to convert raw little-endian smbios structure to canonical string */
sprintf(redfishUUID,"%02x%02x%02x%02x-%02x%02x-%02x%02x-%02x%02x-%02x%02x%02x%02x%02x%02x")
    raw_smbios_uuid[3], raw_smbios_uuid[2], raw_smbios_uuid[1],raw_smbios_uuid[0],
    raw_smbios_uuid[5],raw_smbios_uuid[4],
    raw_smbios_uuid[7],raw_smbios_uuid[6],
    raw_smbios_uuid[8],raw_smbios_uuid[9],
    raw_smbios_uuid[10],raw_smbios_uuid[11],
    raw_smbios_uuid[12],raw_smbios_uuid[13],
raw_smbios_uuid[14],raw_smbios_uuid[15]
    );
```

The above sample code creates the same canonical-formated string as WMI and dmidecode for little-endian X86 systems.

If the computer architecture is not little-endian, then the conversion and canonical representation should be the same as the operating system's APIs, such as WMI and dmidecode.

Note that as specified in RFC4122, the fields in the string should be zero-filled hex values as shown in the conversion code above so that the overall string length and format is of the form xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxx.

VendorId:

This property shall indicate the Vendor Identification string information as provided by the manufacturer of this processor.

This property shall contain a 12 byte, little-endian ASCII string derived from register values resulting from the execution of the CPUID instruction. The value shall be constructed using the following algorithm:

```
k=0;
foreach reg (cpuid.0.ebx, cpuid.0.edx, cpuid.0.ecx){ ##NB: order must be ebx, edx, ecx
  for (i=0; i<=3; i++) { vendorID[ byte(k*4 + i) ] = reg[byte(i)]; }
  k++;
  }
```

Example Response


```
{
    "@odata.type": "#Processor.v1_3_1.Processor",
    "Id": "CPU1",
    "Name": "Processor",
    "Socket": "CPU 1",
    "ProcessorType": "CPU",
    "ProcessorArchitecture": "x86",
    "InstructionSet": "x86-64",
    "Manufacturer": "Intel(R) Corporation",
    "Model": "Multi-Core Intel(R) Xeon(R) processor 7xxx Series",
    "ProcessorId": {
        "VendorId": "GenuineIntel",
        "IdentificationRegisters": "0x34AC34DC8901274A",
        "EffectiveFamily": "0x42",
        "EffectiveModel": "0x61",
        "Step": "0x1",
        "MicrocodeInfo": "0x429943"
    },
    "MaxSpeedMHz": 3700,
    "TotalCores": 8,
    "TotalThreads": 16,
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "@odata.context": "/redfish/v1/$metadata#Processor.Processor",
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/Processors/CPU1"
}
```


ProcessorMetrics 1.0.1

v1.0
2018.3

This resource shall be used to represent the Processor Metrics for a single Processor in a Redfish implementation.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/ProcessorMetrics

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/ProcessorMetrics

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/ProcessorMetrics

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/ProcessorMetrics

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/ProcessorSummary/ProcessorMetrics

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/ProcessorMetrics

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/ProcessorMetrics

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/ProcessorMetrics

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/ProcessorMetrics

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/ProcessorSummary/ProcessorMetrics

/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/ProcessorMetrics

/redfish/v1/Systems/*{ComputerSystemId}*/Processors/*{ProcessorId}*/SubProcessors/*{ProcessorId2}*/ProcessorMetrics

/redfish/v1/Systems/*{ComputerSystemId}*/ProcessorSummary/ProcessorMetrics

AverageFrequencyMHz	number (MHz)	read-only (null)	The value of this property shall be average frequency across all enabled cores in the processor in MHz.
BandwidthPercent	number (%)	read-only (null)	The value of this property shall be CPU utilization of the processor as a percentage.
Cache [{	array		This property shall contain properties that describe this processor's cache.
CacheMiss	number	read-only (null)	The value of this property shall be the number of cache line misses of the processor or core in millions.
CacheMissesPerInstruction	number	read-only (null)	The value of this property shall be the number of cache misses per instruction of the processor or core.
HitRatio	number	read-only (null)	The value of this property shall be the cache hit ratio of the processor or core.
Level	string	read-only (null)	This property shall be the level of the cache in the processor or core.
OccupancyBytes	integer (bytes)	read-only (null)	The value of this property shall be the total cache occupancy of the processor or core in bytes.
OccupancyPercent }]	number (%)	read-only (null)	The value of this property shall be the total cache occupancy percentage of the processor or core.
ConsumedPowerWatt	number (Watts)	read-only (null)	The value of this property shall be the power consumed by the processor in Watts.
CoreMetrics [{	array		This property shall contain properties that describe the cores of this processor.
CoreCache [{	array		This property shall contain properties that describe the cache metrics of this core in the processor.
CacheMiss	number	read-only (null)	The value of this property shall be the number of cache line misses of the processor or core in millions.
CacheMissesPerInstruction	number	read-only (null)	The value of this property shall be the number of cache misses per instruction of the processor or core.
HitRatio	number	read-only (null)	The value of this property shall be the cache hit ratio of the processor or core.
Level	string	read-only (null)	This property shall be the level of the cache in the processor or core.
OccupancyBytes	integer (bytes)	read-only (null)	The value of this property shall be the total cache occupancy of the processor or core in bytes.
OccupancyPercent }]	number (%)	read-only (null)	The value of this property shall be the total cache occupancy percentage of the processor or core.
CoreId	string	read-only (null)	This property shall be the processor core identifier.
CStateResidency [{	array		This property shall contain properties that describe the C-state residency of this core in the processor.
Level	string	read-only	The value of this property shall be the level of C-state.

		(null)	
ResidencyPercent }]	number (%)	read-only (null)	The value of this property shall be the percentage of time that the processor or core has spent in this particular level of C-state.
InstructionsPerCycle	number	read-only (null)	The value of this property shall be the number of instructions per clock cycle of this core in the processor.
IOStallCount	number	read-only (null)	The value of this property shall be the number of stalled cycles due to I/O operations of this core in the processor.
MemoryStallCount	number	read-only (null)	The value of this property shall be the number of stalled cycles due to memory operations of this core in the processor.
UnhaltedCycles }]	number	read-only (null)	The value of this property shall be the number of unhalted cycles of this core in the processor.
FrequencyRatio	number	read-only (null)	The value of this property shall be the frequency relative to the nominal processor frequency ratio of this processor.
KernelPercent	number (%)	read-only (null)	The value of this property shall be total percentage of time the processor has spent in kernel mode.
LocalMemoryBandwidthBytes	integer (bytes)	read-only (null)	The value of this property shall be the local memory bandwidth usage of this processor in bytes.
RemoteMemoryBandwidthBytes	integer (bytes)	read-only (null)	The value of this property shall be the remote memory bandwidth usage of this processor in bytes.
TemperatureCelsius	number (Celsius)	read-only (null)	The value of this property shall be the temperature of the processor in Celsius.
ThrottlingCelsius	number (Celsius)	read-only (null)	The value of this property shall be the CPU margin to throttle based on an offset between the maximum temperature in which the processor can operate, and the processor's current temperature.
UserPercent	number (%)	read-only (null)	The value of this property shall be total percentage of time the processor has spent in user mode.

Example Response


```
{
    "@odata.type": "#ProcessorMetrics.v1_0_0.ProcessorMetrics",
    "Id": "Metrics",
    "Name": "Processor Metrics",
    "BandwidthPercent": 62,
    "AverageFrequencyMHz": 2400,
    "ThrottlingCelsius": 65,
    "TemperatureCelsius": 41,
    "ConsumedPowerWatt": 82,
    "FrequencyRatio": 0.00432,
    "Cache": [
        {
            "Level": "3",
            "CacheMiss": 0.12,
            "HitRatio": 0.719,
            "CacheMissesPerInstruction": 0.00088,
            "OccupancyBytes": 3030144,
            "OccupancyPercent": 90.1
        }
    ],
    "LocalMemoryBandwidthBytes": 18253611008,
    "RemoteMemoryBandwidthBytes": 81788928,
    "KernelPercent": 2.3,
    "UserPercent": 34.7,
    "CoreMetrics": [
        {
            "CoreId": "core0",
            "InstructionsPerCycle": 1.16,
            "UnhaltedCycles": 6254383746,
            "MemoryStallCount": 58372,
            "IOStallCount": 2634872,
            "CoreCache": [
                {
                    "Level": "2",
                    "CacheMiss": 0.472,
                    "HitRatio": 0.57,
                    "CacheMissesPerInstruction": 0.00346,
                    "OccupancyBytes": 198231,
                    "OccupancyPercent": 77.4
                }
            ],
            "CStateResidency": [
                {
                    "Level": "C0",
                    "Residency": 1.13
                },
                {
                    "Level": "C1",
                    "Residency": 26
```

```
                },
                {
                    "Level": "C3",
                    "Residency": 0.00878
                },
                {
                    "Level": "C6",
                    "Residency": 0.361
                },
                {
                    "Level": "C7",
                    "Residency": 72.5
                }
            ]
        }
    ],
    "Oem": {},
    "@odata.id": "/redfish/v1/Systems/1/Processors/FPGA1/ProcessorMetrics"
}
```


ResourceBlock 1.3.1

v1.3	*v1.2*	*v1.1*	*v1.0*
2018.3	2018.2	2018.1	2017.1

This resource shall be used to represent a Resource Block for a Redfish implementation.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*

CompositionStatus {	object	required	The value of this property shall contain composition status information about this Resource Block.
CompositionState	string (enum)	read-only required (null)	The value of this property shall be an enumerated value describing composition state of the Resource Block. *See CompositionState in Property Details, below, for the possible values of this property.*
MaxCompositions *(v1.1+)*	integer	read-only (null)	The value of this property shall be a number indicating the maximum number of compositions in which this Resource Block is capable of participating simultaneously. Services may have additional constraints that prevent this value from being achieved, such as due to system topology and current composed resource utilization. If SharingCapable is set to false, this value shall be set to 1. The service shall support this property if SharingCapable supported.
NumberOfCompositions *(v1.1+)*	integer	read-only (null)	The value of this property shall be the number of compositions in which this Resource Block is currently participating.
Reserved	boolean	read-write (null)	This property shall be a boolean that is set by client once the Resource Block is identified to be composed. It shall provide multiple clients a way to negotiate its ownership. This will help clients to know if a Resource Block is reserved by other client.
SharingCapable *(v1.1+)*	boolean	read-only (null)	The value of this property shall be a boolean indicating whether this Resource Block is capable of participating in multiple compositions simultaneously. If this property is not provided, it shall be assumed that this Resource Block is not capable of being shared.
SharingEnabled *(v1.1+)* }	boolean	read-write (null)	The value of this property shall be a boolean indicating whether this Resource Block is allowed to participate in multiple compositions simultaneously. The service shall reject modifications of this property with HTTP 400 Bad Request if this Resource Block already being used as part of a composed resource. If this property is set to false, the service shall not use the ComposedAndAvailable state for this Resource Block.
ComputerSystems [{	array		The value of this property shall be an array of references of type ComputerSystem that are in this Resource Block.
@odata.id }]	string	read-only	*Link to a ComputerSystem resource. See the Links section and the ComputerSystem schema for details.*
Drives *(v1.3+)* [{	array		The value of this property shall be an array of references of type Drive that

			are in this Resource Block.
@odata.id }]	string	read-only	*Link to a Drive resource. See the Links section and the Drive schema for details.*
EthernetInterfaces [{	array		The value of this property shall be an array of references of type EthernetInterface that are in this Resource Block.
@odata.id }]	string	read-only	*Link to a EthernetInterface resource. See the Links section and the EthernetInterface schema for details.*
Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Chassis [{	array		The value of this property shall be an array of references of type Chassis that represent the physical container associated with this Resource Block.
@odata.id }]	string	read-only	*Link to a Chassis resource. See the Links section and the Chassis schema for details.*
ComputerSystems [{	array		The value of this property shall be an array of references of type ComputerSystem that represent the Computer Systems composed from this Resource Block.
@odata.id }]	string	read-only	*Link to a ComputerSystem resource. See the Links section and the ComputerSystem schema for details.*
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
Zones [{	array		The value of this property shall be an array of references of type Zone that represent the binding constraints associated with this Resource Block.
@odata.id }] }	string	read-only	*Link to a Zone resource. See the Links section and the Zone schema for details.*
Memory [{	array		The value of this property shall be an array of references of type Memory that are in this Resource Block.
@odata.id }]	string	read-only	*Link to a Memory resource. See the Links section and the Memory schema for details.*
NetworkInterfaces [{	array		The value of this property shall be an array of references of type NetworkInterface that are in this Resource Block.
@odata.id }]	string	read-only	*Link to a NetworkInterface resource. See the Links section and the NetworkInterface schema for details.*
Processors [{	array		The value of this property shall be an array of references of type Processor that are in this Resource Block.
@odata.id }]	string	read-only	*Link to a Processor resource. See the Links section and the Processor schema for details.*
ResourceBlockType [ ]	array (string (enum))	read-only	The value of this property shall be an array of enumerated values describing type of resources available. *See ResourceBlockType in Property Details, below, for the possible values of this property.*
SimpleStorage [{	array		The value of this property shall be an array of references of type SimpleStorage that are in this Resource Block.
@odata.id }]	string	read-only	*Link to a SimpleStorage resource. See the Links section and the SimpleStorage schema for details.*
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
Storage [{	array		The value of this property shall be an array of references of type Storage that are in this Resource Block.

@odata.id }]	string	read-only	*Link to a Storage resource. See the Links section and the Storage schema for details.*

Property Details

CompositionState:

The value of this property shall be an enumerated value describing composition state of the Resource Block.

string	Description
Composed	Final successful state of a Resource Block which has participated in composition.
ComposedAndAvailable *(v1.1+)*	Indicates the Resource Block is currently participating in one or more compositions, and is available to be used in more compositions.
Composing	Intermediate state indicating composition is in progress.
Failed	The final composition resulted in failure and manual intervention may be required to fix it.
Unavailable *(v1.2+)*	Indicates the Resource Block has been made unavailable by the service, such as due to maintenance being performed on the Resource Block.
Unused	Indicates the Resource Block is free and can participate in composition.

ResourceBlockType:

The value of this property shall be an array of enumerated values describing type of resources available.

string	Description
Compute	This Resource Block contains both Processor and Memory resources in a manner that creates a compute complex.
ComputerSystem	This Resource Block contains ComputerSystem resources.
Expansion *(v1.2+)*	This Resource Block is capable of changing over time based on its configuration. Different types of devices within this Resource Block can be added and removed over time.
Memory	This Resource Block contains Memory resources.
Network	This Resource Block contains Network resources, such as Ethernet Interfaces.
Processor	This Resource Block contains Processor resources.
Storage	This Resource Block contains Storage resources, such as Storage and Simple Storage.

Example Response


```
{
    "@odata.type": "#ResourceBlock.v1_2_0.ResourceBlock",
    "Id": "ComputeBlock1",
    "Name": "Compute Block 1",
    "ResourceBlockType": [
        "Compute"
    ],
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "CompositionStatus": {
        "Reserved": false,
        "CompositionState": "Composed",
        "SharingCapable": false,
        "MaxCompositions": 1,
        "NumberOfCompositions": 1
    },
    "Processors": [
        {
            "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/Processors/Block1CPU0"
        },
        {
            "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/Processors/Block1CPU1"
        }
    ],
    "Memory": [
        {
            "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/Memory/Block1DIMM0"
        },
        {
            "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/Memory/Block1DIMM1"
        },
        {
            "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/Memory/Block1DIMM2"
        },
        {
```

```
            "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/Memory/Block1DIMM3"
        }
    ],
    "Storage": [],
    "SimpleStorage": [],
    "EthernetInterfaces": [
        {
            "@odata.id":
"/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/EthernetInterfaces/Block1OnboardNIC"
        }
    ],
    "ComputerSystems": [],
    "Links": {
        "ComputerSystems": [
            {
                "@odata.id": "/redfish/v1/Systems/ComposedSystem"
            }
        ],
        "Chassis": [
            {
                "@odata.id": "/redfish/v1/Chassis/ComposableModule1"
            }
        ],
        "Zones": [
            {
                "@odata.id": "/redfish/v1/CompositionService/ResourceZones/1"
            }
        ]
    },
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#ResourceBlock.ResourceBlock",
    "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1"
}
```


Role 1.2.3

v1.2	*v1.1*	*v1.0*
2017.2	2017.1	1.0

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

URIs:

/redfish/v1/AccountService/Roles/*{RoleId}*

/redfish/v1/Managers/*{ManagerId}*/RemoteAccountService/Roles/*{RoleId}*

AssignedPrivileges [ ]	array (string (enum))	read-write	The value of this property shall be the redfish privileges that the role includes. For pre-defined roles, this property shall be readOnly. For custom roles some implementations may not allow writing this property. *See AssignedPrivileges in Property Details, below, for the possible values of this property.*
IsPredefined	boolean	read-only	The value of this property shall indicate if the role is a predefined role. .
OemPrivileges [ ]	array (string)	read-write	The value of this property shall be the OEM privileges that this role includes. For pre-defined roles, this property shall be readOnly. For custom roles some implementations may not allow writing this property.
RoleId *(v1.2+)*	string	read-only required on create	This property shall contain the string name of the Role. This property shall contain the same value as the Id property.

Property Details

AssignedPrivileges:

The value of this property shall be the redfish privileges that the role includes. For pre-defined roles, this property shall be readOnly. For custom roles some implementations may not allow writing this property.

string	Description
ConfigureComponents	Able to configure components managed by this service.
ConfigureManager	Able to configure Manager resources.
ConfigureSelf	Able to change the password for the current user Account.
ConfigureUsers	Able to configure Users and their Accounts.
Login	Able to log into the service and read resources.

Example Response


```
{
    "@odata.type": "#Role.v1_2_2.Role",
    "Id": "Administrator",
    "Name": "User Role",
    "Description": "Admin User Role",
    "IsPredefined": true,
    "AssignedPrivileges": [
        "Login",
        "ConfigureManager",
        "ConfigureUsers",
        "ConfigureSelf",
        "ConfigureComponents"
    ],
    "OemPrivileges": [
        "OemClearLog",
        "OemPowerControl"
    ],
    "@odata.context": "/redfish/v1/$metadata#Role.Role",
    "@odata.id": "/redfish/v1/AccountService/Roles/Administrator"
}
```


SecureBoot 1.0.5

v1.0
2016.1

This resource shall be used to represent a UEFI Secure Boot resource for a Redfish implementation.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/SecureBoot

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/SecureBoot

/redfish/v1/Systems/*{ComputerSystemId}*/SecureBoot

SecureBootCurrentBoot	string (enum)	read-only (null)	The value of this property shall indicate the UEFI Secure Boot state during the current boot cycle. *See SecureBootCurrentBoot in Property Details, below, for the possible values of this property.*
SecureBootEnable	boolean	read-write (null)	Setting this property to true enables UEFI Secure Boot, and setting it to false disables it. This property can be enabled only in UEFI boot mode.
SecureBootMode	string (enum)	read-only (null)	This property shall contain the current Secure Boot mode, as defined in the UEFI Specification. *See SecureBootMode in Property Details, below, for the possible values of this property.*

Actions

ResetKeys

This action shall perform a reset of the Secure Boot key databases. The ResetAllKeysToDefault value shall reset the UEFI Secure Boot key databases to their default values. The DeleteAllKeys value shall delete the content of the UEFI Secure Boot key databases. The DeletePK value shall delete the content of the PK Secure boot key.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/SecureBoot/Actions/SecureBoot.ResetKeys

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/SecureBoot/Actions/SecureBoot.ResetKeys

/redfish/v1/Systems/*{ComputerSystemId}*/SecureBoot/Actions/SecureBoot.ResetKeys

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
ResetKeysType	string (enum)	read-write	This parameter shall specify the type of keys to reset or delete. *See ResetKeysType in Property Details, below, for the possible values of this property.*
}			

Property Details

ResetKeysType:

This parameter shall specify the type of keys to reset or delete.

string	Description
DeleteAllKeys	Delete the content of all UEFI Secure Boot key databases (PK, KEK, DB, DBX). This puts the system in Setup Mode.
DeletePK	Delete the content of the PK UEFI Secure Boot database. This puts the system in Setup Mode.
ResetAllKeysToDefault	Reset the content of all UEFI Secure Boot key databases (PK, KEK, DB, DBX) to their default values.

SecureBootCurrentBoot:

The value of this property shall indicate the UEFI Secure Boot state during the current boot cycle.

string	Description
Disabled	Secure Boot is currently disabled.
Enabled	Secure Boot is currently enabled.

SecureBootMode:

This property shall contain the current Secure Boot mode, as defined in the UEFI Specification.

string	Description
AuditMode	Secure Boot is currently in Audit Mode.
DeployedMode	Secure Boot is currently in Deployed Mode.
SetupMode	Secure Boot is currently in Setup Mode.
UserMode	Secure Boot is currently in User Mode.

Example Response


```
{
    "@odata.id": "/redfish/v1/Systems/1/SecureBoot",
    "@odata.type": "#SecureBoot.v1_0_0.SecureBoot",
    "Id": "SecureBoot",
    "Name": "UEFI Secure Boot",
    "Actions": {
        "#SecureBoot.ResetKeys": {
            "target": "/redfish/v1/Systems/1/SecureBoot/Actions/SecureBoot.ResetKeys",
            "ResetKeysType@Redfish.AllowableValues": [
                "ResetAllKeysToDefault",
                "DeleteAllKeys",
                "DeletePK"
            ]
        },
        "Oem": {}
    },
    "SecureBootEnable": false,
    "SecureBootCurrentBoot": "Disabled",
    "SecureBootMode": "UserMode",
    "Oem": {}
}
```


Sensor 1.0.1

v1.0
2018.3

This resource shall be used to represent resources that represent the sensor data.

URIs:

/redfish/v1/Chassis/*{ChassisId}*/Sensors/*{SensorId}*

Accuracy	number	read-only (null)	The value of this property shall be the percent error +/- of the measured vs. actual values.
AdjustedMaxAllowableOperatingValue	number	read-only (null)	The value of this property shall indicate the adjusted maximum allowable operating value for the equipment monitored by this sensor, as specified by a standards body, manufacturer, or a combination, and

			adjusted based on environmental conditions present. For example, liquid inlet temperature may be adjusted based on the available liquid pressure.
AdjustedMinAllowableOperatingValue	number	read-only (null)	The value of this property shall indicate the adjusted minimum allowable operating value for the equipment monitored by this sensor, as specified by a standards body, manufacturer, or a combination, and adjusted based on environmental conditions present. For example, liquid inlet temperature may be adjusted based on the available liquid pressure.
ApparentVA	number	read-only (null)	This property shall indicate the product of VoltageRMS multiplied by CurrentRMS for a circuit. PowerApparentVA is expressed in Volt-Amperes units using the ReadingUnits value of 'V'. This property may appear in sensors of ReadingType of Power, and shall not appear in sensors of other ReadingType values.
ElectricalContext	string (enum)	read-only (null)	This property shall represent the combination of current-carrying conductors that are utilized to distribute power. *See ElectricalContext in Property Details, below, for the possible values of this property.*
LoadPercent	number	read-only (null)	This property shall indicate the present value of this Sensor at the time the information request occurred. This property may appear in sensors of ReadingType of Power, and shall not appear in sensors of other ReadingType values.
Location { }	object		This property shall indicate the location information of this Sensor. *See the Location object for details on this property.*
MaxAllowableOperatingValue	number	read-only (null)	The value of this property shall indicate the maximum allowable operating value for the equipment monitored by this sensor, as specified by a standards body, manufacturer, or a combination.
MinAllowableOperatingValue	number	read-only (null)	The value of this property shall indicate the minimum allowable operating value for the equipment monitored by this sensor, as specified by a standards body, manufacturer, or a combination.
PeakReading	number	read-only (null)	The value of this property shall be the peak value of the Reading for this sensor during the last interval.
PeakReadingTime	string	read-only (null)	The value of this property shall the timestamp when the Peak Reading value was observed.
PhysicalContext	string (enum)	read-only (null)	The value of this property shall be a description of the affected component or region within the equipment to which this sensor measurement applies. *See PhysicalContext in Property Details, below, for the possible values of this property.*
PhysicalSubContext	string (enum)	read-only (null)	The value of this property shall be a description of the usage or sub-region within the equipment to which this sensor measurement applies. This property is generally used to differentiate multiple sensors within the same instance of a PhysicalContext. *See PhysicalSubContext in Property Details, below, for the possible values of this property.*
PowerFactor	number	read-only (null)	This property shall identify the quotient of PowerRealWatts and PowerApparentVA for a circuit. PowerFactor is expressed in unit-less 1/100ths. This property may appear in sensors of ReadingType of Power, and shall not appear in sensors of other ReadingType values.
Precision	number	read-only (null)	The value of this property shall specify the number of significant digits in the Reading.
ReactiveVAR	number	read-only (null)	This property shall indicate the arithmetic mean of product terms of instantaneous voltage and quadrature current measurements calculated over an integer number of line cycles for a circuit. PowerReactiveVAR is expressed in VAR units using the ReadingUnits value of 'V'. This property may appear in sensors of ReadingType of Power, and shall not appear in sensors of other ReadingType values.

Reading	number	read-only (null)	This property shall indicate the present value of this Sensor at the time the information request occurred.
ReadingRangeMax	number	read-only (null)	This property shall indicate the Max Reading Range information of this Sensor. This is the range of valid readings for this sensor. Values outside this range are discarded as reading errors.
ReadingRangeMin	number	read-only (null)	This property shall indicate the Min Reading Range information of this Sensor. This is the range of valid readings for this sensor. Values outside this range are discarded as reading errors.
ReadingType	string (enum)	read-only (null)	This property shall indicate the type of the sensor being represented. *See ReadingType in Property Details, below, for the possible values of this property.*
ReadingUnits	string	read-only (null)	The value of this property shall be the units in which the sensor's reading and thresholds are measured.
SensingFrequency	number	read-only (null)	The value of this property shall the time interval between reading the physical sensor.
SensorResetTime	string	read-only (null)	The value of this property shall be the timestamp when the time-based property values were last reset by the user or the service.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
Thresholds {	object		This property shall contain the set of thresholds that are used to derive a sensor's health and operational range.
LowerCaution {	object		The value of this property shall indicate the Reading is below the normal range. The units shall be the same units as the Reading.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the Reading value for this Sensor that triggers the threshold. *See Activation in Property Details, below, for the possible values of this property.*
DwellTime	string	read-write (null)	This property shall indicate the time interval over which the sensor reading must have passed through this Threshold value before the threshold is considered to be violated. Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(.\d+)?S)?)?
Reading }	number	read-write (null)	This property shall indicate the Reading value of this Sensor that triggers the threshold. The units of this property shall follow the Reading and ReadingUnits of this sensor.
LowerCritical {	object		The value of this property shall indicate the Reading is below the normal range and but is not yet fatal. The units shall be the same units as the Reading.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the Reading value for this Sensor that triggers the threshold. *See Activation in Property Details, below, for the possible values of this property.*
DwellTime	string	read-write (null)	This property shall indicate the time interval over which the sensor reading must have passed through this Threshold value before the threshold is considered to be violated. Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(.\d+)?S)?)?
Reading }	number	read-write (null)	This property shall indicate the Reading value of this Sensor that triggers the threshold. The units of this property shall follow the Reading and ReadingUnits of this sensor.
LowerFatal {	object		The value of this property shall indicate the Reading is below the normal range and is fatal. The units shall be the same units as the Reading.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the Reading value for this Sensor that triggers the threshold.

			See Activation in Property Details, below, for the possible values of this property.
DwellTime	string	read-write (null)	This property shall indicate the time interval over which the sensor reading must have passed through this Threshold value before the threshold is considered to be violated. Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(.\d+)?S)?)?
Reading }	number	read-write (null)	This property shall indicate the Reading value of this Sensor that triggers the threshold. The units of this property shall follow the Reading and ReadingUnits of this sensor.
UpperCaution {	object		The value of this property shall indicate the Reading is above the normal range. The units shall be the same units as the Reading.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the Reading value for this Sensor that triggers the threshold. *See Activation in Property Details, below, for the possible values of this property.*
DwellTime	string	read-write (null)	This property shall indicate the time interval over which the sensor reading must have passed through this Threshold value before the threshold is considered to be violated. Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(.\d+)?S)?)?
Reading }	number	read-write (null)	This property shall indicate the Reading value of this Sensor that triggers the threshold. The units of this property shall follow the Reading and ReadingUnits of this sensor.
UpperCritical {	object		The value of this property shall indicate the Reading is above the normal range and but is not yet fatal. The units shall be the same units as the Reading.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the Reading value for this Sensor that triggers the threshold. *See Activation in Property Details, below, for the possible values of this property.*
DwellTime	string	read-write (null)	This property shall indicate the time interval over which the sensor reading must have passed through this Threshold value before the threshold is considered to be violated. Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(.\d+)?S)?)?
Reading }	number	read-write (null)	This property shall indicate the Reading value of this Sensor that triggers the threshold. The units of this property shall follow the Reading and ReadingUnits of this sensor.
UpperFatal {	object		The value of this property shall indicate the Reading is above the normal range and is fatal. The units shall be the same units as the Reading.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the Reading value for this Sensor that triggers the threshold. *See Activation in Property Details, below, for the possible values of this property.*
DwellTime	string	read-write (null)	This property shall indicate the time interval over which the sensor reading must have passed through this Threshold value before the threshold is considered to be violated. Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(.\d+)?S)?)?
Reading } }	number	read-write (null)	This property shall indicate the Reading value of this Sensor that triggers the threshold. The units of this property shall follow the Reading and ReadingUnits of this sensor.
VoltageType	string (enum)	read-only (null)	This property shall represent the type of input voltage the sensor monitors. Please use AC for alternating current and DC for direct current. *See VoltageType in Property Details, below, for the possible values of this property.*

Actions

ResetStatistics

This action shall perform a reset of any time intervals or counted values for this sensor.

URIs:

/redfish/v1/Chassis/*{ChassisId}*/Sensors/*{SensorId}*/Actions/Sensor.ResetStatistics

(This action takes no parameters.)

Property Details

Activation:

This property shall indicate the direction of crossing of the Reading value for this Sensor that triggers the threshold.

string	Description
Decreasing	This threshold is activated when the value of Reading changes from a value higher than the threshold to a value lower than the threshold.
Either	This threshold is activated when either the Increasing or Decreasing conditions are met.
Increasing	This threshold is activated when the value of Reading changes from a value lower than the threshold to a value higher than the threshold.

ElectricalContext:

This property shall represent the combination of current-carrying conductors that are utilized to distribute power.

string	Description
Line1	This property shall contain the circuits sharing L1 current-carrying conductor when PhaseWiringType.TwoPhase3Wire, TwoPhase4Wire, ThreePhase4Wire, or ThreePhase5Wire.
Line1ToLine2	This property shall contain the circuit formed by L1 and L2 current-carrying conductors when PhaseWiringType.TwoPhase3Wire, TwoPhase4Wire, ThreePhase4Wire, or ThreePhase5Wire.
Line1ToNeutral	This property shall contain the circuit formed by L1 and Neutral current-carrying conductors when PhaseWiringType.OnePhase3Wire, TwoPhase4Wire, ThreePhase4Wire, or ThreePhase5Wire.
Line1ToNeutralAndL1L2	This property shall contain the circuits formed by L1, L2, and Neutral current-carrying conductors when PhaseWiringType.TwoPhase4Wire or ThreePhase5Wire.
Line2	This property shall contain the circuits sharing L2 current-carrying conductor when PhaseWiringType.ThreePhase4Wire. TwoPhase4Wire, or ThreePhase5Wire.
Line2ToLine3	This property shall contain the circuit formed by L2 and L3 current-carrying conductors when PhaseWiringType.ThreePhase4Wire or ThreePhase5Wire.
Line2ToNeutral	This property shall contain the circuit formed by L2 and Neutral current-carrying conductors when PhaseWiringType.TwoPhase4Wire or ThreePhase5Wire.
Line2ToNeutralAndL1L2	This property shall contain the circuits formed by L1, L2, and Neutral current-carrying conductors when PhaseWiringType.TwoPhase4Wire or ThreePhase5Wire.
Line2ToNeutralAndL2L3	This property shall contain the circuits formed by L2, L3, and Neutral current-carrying conductors when PhaseWiringType.ThreePhase5Wire.
Line3	This property shall contain the circuits sharing L3 current-carrying conductor when PhaseWiringType.ThreePhase4Wire or ThreePhase5Wire.
Line3ToLine1	This property shall contain the circuit formed by L3 and L1 current-carrying conductors when PhaseWiringType.ThreePhase4Wire or ThreePhase5Wire.
Line3ToNeutral	This property shall contain the circuit formed by L3 and Neutral current-carrying conductors when PhaseWiringType.ThreePhase5Wire.
Line3ToNeutralAndL3L1	This property shall contain the circuits formed by L3, L1, and Neutral current-carrying conductors when PhaseWiringType.ThreePhase5Wire.
LineToLine	This property shall contain the circuit formed by two current-carrying conductors when PhaseWiringType.TwoPhase3Wire, TwoPhase4Wire, ThreePhase4Wire, or ThreePhase5Wire.
LineToNeutral	This property shall contain the circuit formed by a line and Neutral current-carrying conductor when

	PhaseWiringType.OnePhase3Wire, TwoPhase4Wire, ThreePhase4Wire, or ThreePhase5Wire.
Neutral	This property shall contain the grounded current-carrying return circuit of current-carrying conductors when PhaseWiringType.OnePhase3Wire, TwoPhase4Wire, or ThreePhase5Wire.
Total	This property shall contain the circuits formed by all current-carrying conductors for any PhaseWiringType.

PhysicalContext:

The value of this property shall be a description of the affected component or region within the equipment to which this sensor measurement applies.

string	Description
Accelerator	An Accelerator.
ACInput	An AC Input.
ACMaintenanceBypassInput	An AC Maintenance Bypass Input.
ACOutput	An AC Output.
ACStaticBypassInput	An AC Static Bypass Input.
ACUtilityInput	An AC Utility Input.
ASIC	An ASIC device, such as networking chip or a chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Chassis	The entire chassis.
ComputeBay	Within a compute bay.
CoolingSubsystem	The entire cooling (air and liquid) subsystem.
CPU	A Processor (CPU).
CPUSubsystem	The entire Processor (CPU) subsystem.
DCBus	A DC Bus.
Exhaust	The air exhaust point(s) or region of the chassis.
ExpansionBay	Within an expansion bay.
Fan	A fan.
FPGA	A Field Programmable Gate Array (FPGA).
Front	The front of the chassis.
GPU	A Graphics Processor (GPU).
GPUSubsystem	The entire Graphics Processor (GPU) subsystem.
Intake	The air intake point(s) or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Memory	A memory device.
MemorySubsystem	The entire Memory subsystem.
Motor	A motor.
NetworkBay	Within a networking bay.
NetworkingDevice	A networking device.

PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	Within a power supply bay.
Rectifier	A rectifier device.
Room	The room.
StorageBay	Within a storage bay.
StorageDevice	A storage device.
SystemBoard	The system board (PCB).
Transformer	A Transformer.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

PhysicalSubContext:

The value of this property shall be a description of the usage or sub-region within the equipment to which this sensor measurement applies. This property is generally used to differentiate multiple sensors within the same instance of a PhysicalContext.

string	Description
Input	The input.
Output	The output.

ReadingType:

This property shall indicate the type of the sensor being represented.

string	Description
AirFlow	The value of the Reading property shall be a measurement of a volume of gas per unit of time that flows through a particular junction. The ReadingUnits shall be 'cft_i/min'.
Altitude	The value of the Reading property shall be a measurement of altitude in meter units and the ReadingUnits value shall be 'm'.
Barometric	the value of the Reading property shall be a measurement of barometric pressure in millimeters of a mercury column and the ReadingUnits value shall be 'mm[Hg]'.
Current	The value of the Reading property shall be a measurement of the root mean square (RMS) of instantaneous current calculated over an integer number of line cycles for a circuit. Current is expressed in Amperes units and the ReadingUnits value shall be 'A'.
EnergyJoules	The value of the Reading property shall indicate the energy (integral of Real Power over time) of the monitored item since the sensor statistics were last reset. The value of the Reading property shall be in Joule units and the ReadingUnits value shall be 'J'. This type is used for device-level energy consumption measurements, while EnergykWh is used for large-scale consumption measurements.
EnergykWh	The value of the Reading property shall indicate the energy (integral of Real Power over time) of the monitored item since the sensor statistics were last reset. The value of the Reading property shall be in kilowatt-hour units and the ReadingUnits value shall be 'kW.h'. This type is used for large-scale energy consumption measurements, while EnergyJoules is used for device-level consumption measurements.
Frequency	The value of the Reading property shall be a frequency measurement in Hertz units and the ReadingUnits value shall be 'Hz'.
Humidity	The value of the Reading property shall be a relative humidity measurement in percent units and the ReadingUnits value shall be '%'.
LiquidFlow	The value of the Reading property shall be a measurement of a volume of liquid per unit of time that flows through a particular junction. The ReadingUnits shall be 'L/s'.
LiquidLevel	The value of the Reading property shall be a measurement of fluid height relative to a specified vertical datum

	and the ReadingUnits value shall be 'cm'.
Power	The value of the Reading property shall be the arithmetic mean of product terms of instantaneous voltage and current values measured over integer number of line cycles for a circuit in Watt units and the ReadingUnits value shall be 'W'.
Pressure	The value of the Reading property shall be a measurement of force applied perpendicular to the surface of an object per unit area over which that force is distributed. The ReadingUnits shall be 'Pa'.
Rotational	The value of the Reading property shall be a measurement of rotational frequency in Revolutions per Minute unit and the ReadingUnits value shall be 'RPM'.
Temperature	The value of the Reading property shall be a temperature measurement in degrees Celsius units and the ReadingUnits value shall be 'Cel'.
Voltage	The value of the Reading property shall be a measurement of the root mean square (RMS) of instantaneous voltage calculated over an integer number of line cycles for a circuit. Voltage is expressed in Volts units and the ReadingUnits value shall be 'V'.

VoltageType:

This property shall represent the type of input voltage the sensor monitors. Please use AC for alternating current and DC for direct current.

string	Description
AC	Alternating Current.
DC	Direct Current.

Example Response

```
{
    "@odata.type": "#Sensor.v1_0_0.Sensor",
    "Id": "CabinetTemp",
    "Name": "Rack Temperature",
    "ReadingType": "Temperature",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Reading": 31,
    "ReadingUnits": "C",
    "ReadingRangeMin": 0,
    "ReadingRangeMax": 70,
    "Accuracy": 0.25,
    "Precision": 1,
    "SensingFrequency": 3,
    "PhysicalContext": "Chassis",
    "Thresholds": {
        "UpperCritical": {
            "Reading": 40,
            "Activation": "Increasing"
        },
        "UpperCaution": {
            "Reading": 35,
            "Activation": "Increasing"
        },
        "LowerCaution": {
            "Reading": 10,
            "Activation": "Increasing"
        }
    },
    "Oem": {},
    "@odata.id": "/redfish/v1/Chassis/1/Sensors/CabinetTemp"
}
```

SerialInterface 1.1.4

v1.1	*v1.0*
2017.1	1.0

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

URIs:

/redfish/v1/Managers/*{ManagerId}*/SerialInterfaces/*{SerialInterfaceId}*

BitRate	string (enum)	read-write	This property shall indicate the transmit and receive speed of the serial connection. *See BitRate in Property Details, below, for the possible values of this property.*

ConnectorType	string (enum)	read-only	This property shall indicate the type of phyiscal connector used for this serial connection. *See ConnectorType in Property Details, below, for the possible values of this property.*
DataBits	string (enum)	read-write	This property shall indicate number of data bits for the serial connection. *See DataBits in Property Details, below, for the possible values of this property.*
FlowControl	string (enum)	read-write	This property shall indicate the flow control mechanism for the serial connection. *See FlowControl in Property Details, below, for the possible values of this property.*
InterfaceEnabled	boolean	read-write (null)	The value of this property shall be a boolean indicating whether this interface is enabled.
Parity	string (enum)	read-write	This property shall indicate parity information for a serial connection. *See Parity in Property Details, below, for the possible values of this property.*
PinOut	string (enum)	read-only (null)	This property shall indicate the physical pin out for the serial connection. *See PinOut in Property Details, below, for the possible values of this property.*
SignalType	string (enum)	read-only	This property shall indicate the type of serial signalling that will be utilized for the serial connection. *See SignalType in Property Details, below, for the possible values of this property.*
StopBits	string (enum)	read-write	This property shall indicate the stop bits for the serial connection. *See StopBits in Property Details, below, for the possible values of this property.*

Property Details

BitRate:

This property shall indicate the transmit and receive speed of the serial connection.

string	Description
115200	A bit rate of 115200bps.
1200	A bit rate of 1200bps.
19200	A bit rate of 19200bps.
230400	A bit rate of 230400bps.
2400	A bit rate of 2400bps.
38400	A bit rate of 38400bps.
4800	A bit rate of 4800bps.
57600	A bit rate of 57600bps.
9600	A bit rate of 9600bps.

ConnectorType:

This property shall indicate the type of phyiscal connector used for this serial connection.

string	Description
DB25 Female	A DB25 Female connector.
DB25 Male	A DB25 Male connector.
DB9 Female	A DB9 Female connector.
DB9 Male	A DB9 Male connector.
mUSB	A mUSB connector.
RJ11	An RJ11 connector.
RJ45	An RJ45 connector.
USB	A USB connector.
uUSB	A uUSB connector.

DataBits:

This property shall indicate number of data bits for the serial connection.

string	Description
5	5 bits of data following the start bit.
6	6 bits of data following the start bit.
7	7 bits of data following the start bit.
8	8 bits of data following the start bit.

FlowControl:

This property shall indicate the flow control mechanism for the serial connection.

string	Description
Hardware	Out of band flow control imposed.
None	No flow control imposed.
Software	XON/XOFF in-band flow control imposed.

Parity:

This property shall indicate parity information for a serial connection.

string	Description
Even	An even parity bit.
Mark	A mark parity bit.
None	No parity bit.
Odd	An odd parity bit.
Space	A space parity bit.

PinOut:

This property shall indicate the physical pin out for the serial connection.

string	Description
Cisco	The Cisco pin configuration.
Cyclades	The Cyclades pin configuration.
Digi	The Digi pin configuration.

SignalType:

This property shall indicate the type of serial signalling that will be utilized for the serial connection.

string	Description
Rs232	The serial interface follows RS232.
Rs485	The serial interface follows RS485.

StopBits:

This property shall indicate the stop bits for the serial connection.

string	Description
1	1 stop bit following the data bits.
2	2 stop bits following the data bits.

Example Response


```
{
    "@odata.type": "#SerialInterface.v1_1_3.SerialInterface",
    "Id": "TTY0",
    "Name": "Manager Serial Interface 1",
    "Description": "Management for Serial Interface",
    "InterfaceEnabled": true,
    "SignalType": "Rs232",
    "BitRate": "115200",
    "Parity": "None",
    "DataBits": "8",
    "StopBits": "1",
    "FlowControl": "None",
    "ConnectorType": "RJ45",
    "PinOut": "Cyclades",
    "@odata.context": "/redfish/v1/$metadata#SerialInterface.SerialInterface",
    "@odata.id": "/redfish/v1/Managers/BMC/SerialInterfaces/TTY0"
}
```


ServiceRoot 1.5.1

v1.5	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
2018.3	2018.2	2017.3	2017.1	2016.2	1.0

This object represents the root Redfish service. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.

URIs:

/redfish/v1

/redfish/v1/

AccountService {	object		The classes structure shall only contain a reference to a resource that complies to the AccountService schema. *See the AccountService schema for details on this property.*
@odata.id }	string	read-only	*Link to a AccountService resource. See the Links section and the AccountService schema for details.*
CertificateService *(v1.5+)* {	object		The value shall be a link to the CertificateService. *See the CertificateService schema for details on this property.*
@odata.id }	string	read-only	*Link to a CertificateService resource. See the Links section and the CertificateService schema for details.*
Chassis {	object		This object shall only contain a reference to a collection of resources that comply to the Chassis schema. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Chassis. See the Chassis schema for details.*
CompositionService *(v1.2+)* {	object		The classes structure shall only contain a reference to a resource that complies to the CompositionService schema. *See the CompositionService schema for details on this property.*
@odata.id }	string	read-only	*Link to a CompositionService resource. See the Links section and the CompositionService schema for details.*
EventService {	object		The classes structure shall only contain a reference to a resource that complies to the EventService schema. *See the EventService schema for details on this property.*
@odata.id }	string	read-only	*Link to a EventService resource. See the Links section and the EventService schema for details.*
Fabrics *(v1.1+)* {	object		The referenced collection shall contain references to all Fabric instances. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Fabric. See the Fabric schema for details.*
JobService *(v1.4+)* {	object		The classes structure shall only contain a reference to a resource that conforms to the JobService schema.

			See the JobService schema for details on this property.
@odata.id }	string	read-only	*Link to a JobService resource. See the Links section and the JobService schema for details.*
JsonSchemas {	object		This object shall only contain a reference to a collection of resources that comply to the SchemaFile schema where the files are Json-Schema files. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of JsonSchemaFile. See the JsonSchemaFile schema for details.*
Links {	object	required	The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
Sessions {	object	required	This property shall contain the link to a collection of Sessions. *Contains a link to a resource.*
@odata.id } }	string	read-only	*Link to Collection of Session. See the Session schema for details.*
Managers {	object		This object shall only contain a reference to a collection of resources that comply to the Managers schema. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Manager. See the Manager schema for details.*
Product *(v1.3+)*	string	read-only (null)	The value of this string shall include the name of the product represented by this Redfish service.
ProtocolFeaturesSupported *(v1.3+)* {	object		This type contains information about protocol features supported by the service.
ExcerptQuery *(v1.4+)*	boolean	read-only	The value of this property shall be a boolean indicating whether this service supports the use of the 'excerpt' query parameter as described by the specification.
ExpandQuery {	object		This type, as described by the Redfish Specification, shall contain information about the support of the $expand query parameter by the service.
ExpandAll	boolean	read-only	The value of this property shall be a boolean indicating whether this service supports the use of asterisk (expand all entries) as a value for the $expand query parameter as described by the specification.
Levels	boolean	read-only	The value of this property shall be a boolean indicating whether this service supports the use of $levels as a value for the $expand query parameter as described by the specification.
Links	boolean	read-only	The value of this property shall be a boolean indicating whether this service supports the use of tilde (expand only entries in the Links section) as a value for the $expand query parameter as described by the specification.
MaxLevels	integer	read-only	The value of this property shall be the maximum value of the $levels qualifier supported by the service and shall only be included if the value of the Levels property is true.
NoLinks }	boolean	read-only	The value of this property shall be a boolean indicating whether this service supports the use of period (expand only entries not in the Links section) as a value for the $expand query parameter as described by the specification.
FilterQuery	boolean	read-only	The value of this property shall be a boolean indicating whether this service supports the use of the $filter query parameter as described by the specification.

OnlyMemberQuery *(v1.4+)*	boolean	read-only	The value of this property shall be a boolean indicating whether this service supports the use of the 'only' query parameter as described by the specification.
SelectQuery }	boolean	read-only	The value of this property shall be a boolean indicating whether this service supports the use of the $select query parameter as described by the specification.
RedfishVersion	string	read-only	The value of this string shall represent the version of the Redfish service. The format of this string shall be of the format majorversion.minorversion.errata in compliance with Protocol Version section of the Redfish specification. Pattern: ^\d+.\d+.\d+$
Registries {	object		This object shall contain a reference to Message Registry. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of MessageRegistryFile. See the MessageRegistryFile schema for details.*
ResourceBlocks *(v1.5+)* {	object		The referenced collection shall contain references to all Resource Block instances. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of ResourceBlock. See the ResourceBlock schema for details.*
SessionService {	object		The classes structure shall only contain a reference to a resource that complies to the SessionService schema. *See the SessionService schema for details on this property.*
@odata.id }	string	read-only	*Link to a SessionService resource. See the Links section and the SessionService schema for details.*
StorageServices {	object		The referenced collection shall contain references to all StorageService instances.
@odata.id }	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
StorageSystems {	object		The referenced collection shall contain computer systems that act as storage servers. The HostingRoles attribute of each such computer system shall have an entry for StorageServer.
@odata.id }	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Systems {	object		This object shall only contain a reference to a collection of resources that comply to the Systems schema. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of ComputerSystem. See the ComputerSystem schema for details.*
Tasks {	object		The classes structure shall only contain a reference to a resource that complies to the TaskService schema. *See the TaskService schema for details on this property.*
@odata.id }	string	read-only	*Link to a TaskService resource. See the Links section and the TaskService schema for details.*
TelemetryService *(v1.4+)* {	object		The value shall be a link to the TelemetryService. *See the TelemetryService schema for details on this property.*
@odata.id }	string	read-only	*Link to a TelemetryService resource. See the Links section and the TelemetryService schema for details.*
UpdateService *(v1.1+)* {	object		The classes structure shall only contain a reference to a resource that complies to the UpdateService schema. *See the UpdateService schema for details on this property.*
@odata.id }	string	read-only	*Link to a UpdateService resource. See the Links section and the UpdateService schema for details.*

UUID	string	read-only (null)	The value of this string shall represent the id of the Redfish service instance. The format of this string shall be a 32-byte value in the form 8-4-4-4-12. If SSDP is used, this value shall be an exact match of the UUID value returned in a 200OK from an SSDP M-SEARCH request during discovery. RFC4122 describes methods that can be used to create a UUID value. The value should be considered to be opaque. Client software should only treat the overall value as a universally unique identifier and should not interpret any sub-fields within the UUID. Pattern: ([0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12})
Vendor *(v1.5+)*	string	read-only (null)	The value of this string shall include the name of the manufacturer or vendor represented by this Redfish service. If this property is supported, the vendor name shall not be included in the value of the Product property.

Example Response


```
{
    "@odata.type": "#ServiceRoot.v1_4_0.ServiceRoot",
    "Id": "RootService",
    "Name": "Root Service",
    "RedfishVersion": "1.6.0",
    "UUID": "92384634-2938-2342-8820-489239905423",
    "Product": "UR99 1U Server",
    "ProtocolFeaturesSupported": {
        "ExpandQuery": {
            "ExpandAll": true,
            "Levels": true,
            "MaxLevels": 2,
            "Links": true,
            "NoLinks": true
        },
        "SelectQuery": false,
        "FilterQuery": false,
        "OnlyMemberQuery": true,
        "ExcerptQuery": true
    },
    "Systems": {
        "@odata.id": "/redfish/v1/Systems"
    },
    "Chassis": {
        "@odata.id": "/redfish/v1/Chassis"
    },
    "Managers": {
        "@odata.id": "/redfish/v1/Managers"
    },
    "UpdateService": {
        "@odata.id": "/redfish/v1/UpdateService"
    },
    "CompositionService": {
        "@odata.id": "/redfish/v1/CompositionService"
    },
    "Tasks": {
        "@odata.id": "/redfish/v1/TaskService"
    },
    "SessionService": {
        "@odata.id": "/redfish/v1/SessionService"
    },
    "AccountService": {
        "@odata.id": "/redfish/v1/AccountService"
    },
    "EventService": {
        "@odata.id": "/redfish/v1/EventService"
    },
    "Links": {
        "Sessions": {
            "@odata.id": "/redfish/v1/SessionService/Sessions"
        }
    },
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#ServiceRoot.ServiceRoot",
    "@odata.id": "/redfish/v1/"
}
```


Session 1.1.2

v1.1	*v1.0*
2017.1	1.0

This resource shall be used to represent a session for a Redfish implementation.

URIs:

/redfish/v1/SessionService/Sessions/*{SessionId}*

Password	string	read-only required on create	The value of this property shall be the password for this session. The value shall be null for GET requests.

		(null)	
UserName	string	read-only required on create (null)	The value of this property shall be the UserName that matches a registered account identified by a ManagerAccount resource registered with the Account Service.

Example Response

```
{
    "@odata.type": "#Session.v1_1_1.Session",
    "Id": "1234567890ABCDEF",
    "Name": "User Session",
    "Description": "Manager User Session",
    "UserName": "Administrator",
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#Session.Session",
    "@odata.id": "/redfish/v1/SessionService/Sessions/1234567890ABCDEF"
}
```

SessionService 1.1.5

v1.1	*v1.0*
2016.2	1.0

This resource shall be used to represent the Session Service Properties for a Redfish implementation.

URIs:

/redfish/v1/SessionService

ServiceEnabled	boolean	read-write (null)	The value of this property shall be a boolean indicating whether this service is enabled. If disabled, new sessions shall not be created, old sessions shall not be deleted, and established sessions may continue operating.
Sessions {	object		This property shall contain the link to a collection of Sessions. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Session. See the Session schema for details.*
SessionTimeout	integer (seconds)	read-write	This property shall reference the threshold of time in seconds between requests on a specific session at which point the session service shall close the session due to inactivity. The session service shall support any value between the Validation.Minimum and Validation.Maximum.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*

Example Response

```
{
    "@odata.type": "#SessionService.v1_1_4.SessionService",
    "Id": "SessionService",
    "Name": "Session Service",
    "Description": "Session Service",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "ServiceEnabled": true,
    "SessionTimeout": 30,
    "Sessions": {
        "@odata.id": "/redfish/v1/SessionService/Sessions"
    },
    "@odata.context": "/redfish/v1/$metadata#SessionService.SessionService",
    "@odata.id": "/redfish/v1/SessionService"
}
```

SimpleStorage 1.2.2

v1.2	*v1.1*	*v1.0*
2017.1	2016.1	1.0

This resource shall be used to represent a storage controller and its directly-attached devices.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/SimpleStorage/*{SimpleStorageId}*

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/SimpleStorage/*{SimpleStorageId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/SimpleStorage/*{SimpleStorageId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/SimpleStorage/*{SimpleStorageId}*

/redfish/v1/Systems/*{ComputerSystemId}*/SimpleStorage/*{SimpleStorageId}*

Devices [{	array		This property shall contain a list of storage devices associated with this resource.
CapacityBytes *(v1.1+)*	integer (bytes)	read-only (null)	The value of this property shall represent the size (in bytes) of the Storage Device.
Manufacturer	string	read-only (null)	This property shall indicate the name of the manufacturer of this storage device.
Model	string	read-only (null)	This property shall indicate the model information as provided by the manufacturer of this storage device.
Name	string	read-only required	This object represents the Name property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification. The value of this string shall be of the format for the reserved word *Name*.
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
Status { } }]	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
Links *(v1.2+)* {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Chassis {	object		The value of this property shall be a reference to a resource of type Chassis that represent the physical container associated with this Simple Storage. *See the Chassis schema for details on this property.*
@odata.id }	string	read-only	*Link to a Chassis resource. See the Links section and the Chassis schema for details.*
Oem { } }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
UefiDevicePath	string	read-only (null)	This property shall contain the UEFI device path used to identify and locate the specific storage controller.

Example Response


```
{
    "@odata.type": "#SimpleStorage.v1_2_1.SimpleStorage",
    "Id": "1",
    "Name": "Simple Storage Controller",
    "Description": "System SATA",
    "UefiDevicePath": "Acpi(PNP0A03,0)/Pci(1F|1)/Ata(Primary,Master)/HD(Part3, Sig00110011)",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollup": "Warning"
    },
    "Devices": [
        {
            "Name": "SATA Bay 1",
            "Manufacturer": "Contoso",
            "Model": "3000GT8",
            "CapacityBytes": 8000000000000,
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            }
        },
        {
            "Name": "SATA Bay 2",
            "Manufacturer": "Contoso",
            "Model": "3000GT7",
            "CapacityBytes": 4000000000000,
            "Status": {
                "State": "Enabled",
                "Health": "Warning"
            }
        },
        {
```

```
            "Name": "SATA Bay 3",
            "Status": {
                "State": "Absent"
            }
        },
        {
            "Name": "SATA Bay 4",
            "Status": {
                "State": "Absent"
            }
        }
    ],
    "@odata.context": "/redfish/v1/$metadata#SimpleStorage.SimpleStorage",
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/SimpleStorage/1"
}
```


SoftwareInventory 1.2.2

v1.2	*v1.1*	*v1.0*
2018.1	2016.3	2016.2

This resource shall be used to represent a single software component managed by this Redfish Service.

URIs:

/redfish/v1/UpdateService/FirmwareInventory/*{SoftwareInventoryId}*

/redfish/v1/UpdateService/SoftwareInventory/*{SoftwareInventoryId}*

LowestSupportedVersion *(v1.1+)*	string	read-only (null)	The value of this property shall be a string representing the lowest supported version of this software. This string is formatted using the same format used for the Version property.
Manufacturer *(v1.2+)*	string	read-only (null)	The value of this property shall be a string representing the name of the manufacturer/producer of this software.
RelatedItem *(v1.1+)* [{	array		The value of this property shall be an array of IDs containing pointers consistent with JSON pointer syntax to the resource that is associated with this software inventory item.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
ReleaseDate *(v1.2+)*	string	read-only (null)	The value of this property shall be the date of release or production for this software. The time of day portion of the property shall be '00:00:00Z' if the time of day is unknown.
SoftwareId *(v1.1+)*	string	read-only	The value of this property shall be a string representing an implementation-specific ID for identifying this software. This string is used for correlation to a component repository or database.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
UefiDevicePaths *(v1.1+)* [ ]	array (string, null)	read-only	The value of this property shall be a list of strings representing the UEFI Device Path(s) of the component(s) associated with this software inventory item. The UEFI Device Path string(s) shall be formatted as defined by the UEFI Specification.
Updateable	boolean	read-only (null)	The value of this property shall be a boolean indicating whether this software can be updated by the update service. If false, this software is for reporting purpose only.
Version	string	read-only (null)	The value of this property shall be a string representing the version of this software.

Example Response


```
{
    "@odata.type": "#SoftwareInventory.v1_2_1.SoftwareInventory",
    "Id": "BMC",
    "Name": "Contoso BMC Firmware",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Updateable": true,
    "Manufacturer": "Contoso",
    "ReleaseDate": "2017-08-22T12:00:00",
```

```
    "Version": "1.45.455b66-rev4",
    "SoftwareId": "1624A9DF-5E13-47FC-874A-DF3AFF143089",
    "LowestSupportedVersion": "1.30.367a12-rev1",
    "UefiDevicePaths": [
        "BMC(0x1,0x0ABCDEF)"
    ],
    "RelatedItem": [
        {
            "@odata.id": "/redfish/v1/Managers/1"
        }
    ],
    "Actions": {
        "Oem": {}
    },
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#SoftwareInventory.SoftwareInventory",
    "@odata.id": "/redfish/v1/UpdateService/FirmwareInventory/BMC"
}
```


Storage 1.7.0

v1.7	*v1.6*	*v1.5*	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
2019.1	2018.3	2018.2	2017.3	2017.2	2017.1	2016.2	2016.1

This resource shall be used to represent resources that represent a storage subsystem in the Redfish specification.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*

/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*

Drives [{	array		A collection that indicates all the drives attached to the storage controllers that this resource represents.
@odata.id }]	string	read-only	*Link to a Drive resource. See the Links section and the Drive schema for details.*
Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Enclosures [{	array		The value of this property shall reference a resource of type Chassis that represents the physical containers attached to this resource.
@odata.id }]	string	read-only	*Link to a Chassis resource. See the Links section and the Chassis schema for details.*
Oem { } }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
Redundancy [{	array		This property shall contain redundancy information for the storage subsystem.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
StorageControllers [{	array		A collection that indicates all the storage controllers that this resource represents.
@odata.id *(v1.5+)*	string	read-only required	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Actions *(v1.2+)* { }	object		The Actions property shall contain the available actions for this

			resource.
Assembly *(v1.4+)* {	object		The value of this property shall be a link to a resource of type Assembly. *See the Assembly schema for details on this property.*
@odata.id }	string	read-only	*Link to a Assembly resource. See the Links section and the Assembly schema for details.*
AssetTag *(v1.1+)*	string	read-write (null)	The value of this property shall be an identifying string used to track the storage controller for inventory purposes.
CacheSummary *(v1.5+)* {	object		This object shall contain properties which describe the cache memory for the current resource.
PersistentCacheSizeMiB	integer (mebibytes)	read-only (null)	This property shall contain the amount of cache memory that is persistent as measured in mebibytes. This size shall be less than or equal to the TotalCacheSizeMib.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
TotalCacheSizeMiB }	integer (mebibytes)	read-only required (null)	This property shall contain the amount of configured cache memory as measured in mebibytes.
ControllerRates *(v1.7+)* {	object		This object shall contain all the rate settings available on the controller.
ConsistencyCheckRatePercent	integer	read-write (null)	This property shall contain the percentage of controller resources used for checking data consistency on Volumes.
RebuildRatePercent	integer	read-write (null)	This property shall contain the percentage of controller resources used for rebuilding Volumes.
TransformationRatePercent }	integer	read-write (null)	This property shall contain the percentage of controller resources used for transforming Volumes.
FirmwareVersion *(v1.1+)*	string	read-only (null)	This property shall contain the firwmare version as defined by the manufacturer for the associated storage controller.
Identifiers [{ }]	array (object)		This property shall contain a list of all known durable names for the associated storage controller. This type shall contain any additional identifiers of a resource. *See the Identifier object for details on this property.*
Links *(v1.1+)* {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Endpoints [{	array		The value of this property shall be a reference to the resources that this controller is associated with and shall reference a resource of type Endpoint.
@odata.id }]	string	read-only	*Link to a Endpoint resource. See the Links section and the Endpoint schema for details.*
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
PCIeFunctions *(v1.7+)* [{	array		The value of this property shall reference a resource of type PCIeFunction that represents the PCIe functions associated with this resource.
@odata.id }]	string	read-only	*Link to a PCIeFunction resource. See the Links section and the PCIeFunction schema for details.*
StorageServices *(v1.4+)* [{	array		The value of this property shall be a reference to the resources that this controller is associated with and shall reference a resource of type StorageService.

@odata.id }] }	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Location *(v1.4+)* { }	object		This property shall contain location information of the associated storage controller. *See the Location object for details on this property.*
Manufacturer *(v1.1+)*	string	read-only (null)	The value of this property shall be the name of the organization responsible for producing the storage controller. This organization might be the entity from whom the storage controller is purchased, but this is not necessarily true.
MemberId *(v1.1+)*	string	read-only required	The value of this string shall uniquely identify the member within the collection. For services supporting Redfish v1.6 or higher, this value shall be the zero-based array index.
Model *(v1.1+)*	string	read-only (null)	The value of this property shall be the name by which the manufacturer generally refers to the storage controller.
Name *(v1.3+)*	string	read-only (null)	The value of this property shall be the name of the Storage Controller.
Oem *(v1.1+)* { }	object		The value of this string shall be of the format for the reserved word *Oem*.
PartNumber *(v1.1+)*	string	read-only (null)	The value of this property shall be a part number assigned by the organization that is responsible for producing or manufacturing the storage controller.
PCIeInterface *(v1.5+)* {	object		This object shall contain details on the PCIe interface used to connect this PCIe-based controller to its host. *See the PCIeDevice schema for details on this property.*
@odata.id }	string	read-only	*Link to a PCIeInterface resource. See the Links section and the PCIeDevice schema for details.*
Ports *(v1.7+)* {	object		This object shall contain all the Ports that exist on the current resource. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Port. See the Port schema for details.*
SerialNumber *(v1.1+)*	string	read-only (null)	The value of this property shall be a manufacturer-allocated number used to identify the storage controller.
SKU *(v1.1+)*	string	read-only (null)	The value of this property shall be the stock-keeping unit number for this storage storage controller.
SpeedGbps *(v1.1+)*	number (Gbit/s)	read-only (null)	The value of this property shall represent the maximum supported speed of the Storage bus interface (in Gigabits per second). The interface specified connects the controller to the storage devices, not the controller to a host (e.g. SAS bus, not PCIe host bus).
Status *(v1.1+)* { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
SupportedControllerProtocols [ ]	array (string (enum))	read-only	The value of this property shall be the set of protocols this storage controller can be communicated to. *See SupportedControllerProtocols in Property Details, below, for the possible values of this property.*
SupportedDeviceProtocols [ ]	array (string (enum))	read-only	The value of this property shall be the set of protocols this storage controller can use to communicate with attached devices. *See SupportedDeviceProtocols in Property Details, below, for the possible values of this property.*
SupportedRAIDTypes [ ] }]	array (string (enum))	read-only (null)	This object shall contain all the RAIDType values supported by the current resource. *See SupportedRAIDTypes in Property Details, below, for the*

			possible values of this property.
Volumes {	object		A collection that indicates all the volumes produced by the storage controllers that this resource represents.
@odata.id }	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.

Actions

SetEncryptionKey

This action shall set the encryption key for the storage subsystem.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Actions/Storage.SetEncryptionKey

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Actions/Storage.SetEncryptionKey

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Actions/Storage.SetEncryptionKey

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Actions/Storage.SetEncryptionKey

/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Actions/Storage.SetEncryptionKey

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
EncryptionKey }	string	read-write required	This parameter shall contain the encryption key to set on the storage subsystem.

Property Details

SupportedControllerProtocols:

The value of this property shall be the set of protocols this storage controller can be communicated to.

string	Description
AHCI	This value shall mean that this device conforms to the Intel Advanced Host Controller Interface Specification.
FC	This value shall mean that this device conforms to the T11 Fibre Channel Physical and Signaling Interface Specification.
FCoE	This value shall mean that this device conforms to the T11 FC-BB-5 Specification.
FCP	This enumeration literal shall indicate the INCITS 481: Information technology - Fibre Channel Protocol for SCSI. The Fibre Channel SCSI Protocol.
FICON	This enumeration literal shall indicate the (ANSI FC-SB-3 Single-Byte Command Code Sets-3 Mapping Protocol for the Fibre Channel(FC) protocol. FICON (FIbre CONnection) is the IBM proprietary name for this protocol.
FTP	This value shall mean that this device conforms to the File Transfer protocol as defined by RFC 114.
HTTP	This value shall mean that this device conforms to the Hypertext Transfer protocol as defined by RFC 2068 or RFC 2616.
HTTPS	This value shall mean that this device conforms to the Hypertext Transfer protocol as defined by RFC 2068 or RFC 2616 utilizing Transport Layer Security as specified by RFC 5246 or RFC 6176.
I2C	This value shall mean that this device conforms to the NXP Semiconductors I2C-bus Specification.
iSCSI	This value shall mean that this device conforms to the IETF Internet Small Computer Systems Interface (iSCSI) Specification.
iWARP	This value shall mean that this device conforms to the iWARP protocol as defined by RFC 5042 utilizing Transport Layer mechanisms as specified by RFC 5043 or RFC 5044.
NFSv3	This value shall mean that this device conforms to the Network File System protocol as defined by RFC

	1813.
NFSv4	This value shall mean that this device conforms to the Network File System protocol as defined by RFC 3010 or RFC 5661.
NVMe	This value shall mean that this device conforms to the Non-Volatile Memory Host Controller Interface Specification Specification.
NVMeOverFabrics	This value shall mean that this device conforms to the NVM Express over Fabrics Specification.
OEM	This value shall mean that this device conforms to an OEM specific architecture and additional information may be included in the OEM section.
PCIe	This value shall mean that this device conforms to the PCI-SIG PCI Express Base Specification.
RoCE	This value shall mean that this device conforms to the RDMA over Converged Ethernet protocol as defined by the Infiniband Architecture Specification.
RoCEv2	This value shall mean that this device conforms to the RDMA over Converged Ethernet version 2 protocol as defined by the Infiniband Architecture Specification.
SAS	This value shall mean that this device conforms to the T10 SAS Protocol Layer Specification.
SATA	This value shall mean that this device conforms to the Serial ATA International Organization Serial ATA Specification.
SFTP	This value shall mean that this device conforms to the File Transfer protocol as defined by RFC 114 utilizing Transport Layer Security as specified by RFC 5246 or RFC 6176.
SMB	This value shall mean that this device conforms to the Microsoft Server Message Block Protocol.
UHCI	This value shall mean that this device conforms to the Intel Universal Host Controller Interface Specification, Enhanced Host Controller Interface Specification, or the Extensible Host Controller Interface specification.
USB	This value shall mean that this device conforms to the USB Implementers Forum Universal Serial Bus Specification.

SupportedDeviceProtocols:

The value of this property shall be the set of protocols this storage controller can use to communicate with attached devices.

string	Description
AHCI	This value shall mean that this device conforms to the Intel Advanced Host Controller Interface Specification.
FC	This value shall mean that this device conforms to the T11 Fibre Channel Physical and Signaling Interface Specification.
FCoE	This value shall mean that this device conforms to the T11 FC-BB-5 Specification.
FCP	This enumeration literal shall indicate the INCITS 481: Information technology - Fibre Channel Protocol for SCSI. The Fibre Channel SCSI Protocol.
FICON	This enumeration literal shall indicate the (ANSI FC-SB-3 Single-Byte Command Code Sets-3 Mapping Protocol for the Fibre Channel(FC) protocol. FICON (FIbre CONnection) is the IBM proprietary name for this protocol.
FTP	This value shall mean that this device conforms to the File Transfer protocol as defined by RFC 114.
HTTP	This value shall mean that this device conforms to the Hypertext Transfer protocol as defined by RFC 2068 or RFC 2616.
HTTPS	This value shall mean that this device conforms to the Hypertext Transfer protocol as defined by RFC 2068 or RFC 2616 utilizing Transport Layer Security as specified by RFC 5246 or RFC 6176.
I2C	This value shall mean that this device conforms to the NXP Semiconductors I2C-bus Specification.
iSCSI	This value shall mean that this device conforms to the IETF Internet Small Computer Systems Interface (iSCSI) Specification.
iWARP	This value shall mean that this device conforms to the iWARP protocol as defined by RFC 5042 utilizing Transport Layer mechanisms as specified by RFC 5043 or RFC 5044.

NFSv3	This value shall mean that this device conforms to the Network File System protocol as defined by RFC 1813.
NFSv4	This value shall mean that this device conforms to the Network File System protocol as defined by RFC 3010 or RFC 5661.
NVMe	This value shall mean that this device conforms to the Non-Volatile Memory Host Controller Interface Specification Specification.
NVMeOverFabrics	This value shall mean that this device conforms to the NVM Express over Fabrics Specification.
OEM	This value shall mean that this device conforms to an OEM specific architecture and additional information may be included in the OEM section.
PCIe	This value shall mean that this device conforms to the PCI-SIG PCI Express Base Specification.
RoCE	This value shall mean that this device conforms to the RDMA over Converged Ethernet protocol as defined by the Infiniband Architecture Specification.
RoCEv2	This value shall mean that this device conforms to the RDMA over Converged Ethernet version 2 protocol as defined by the Infiniband Architecture Specification.
SAS	This value shall mean that this device conforms to the T10 SAS Protocol Layer Specification.
SATA	This value shall mean that this device conforms to the Serial ATA International Organization Serial ATA Specification.
SFTP	This value shall mean that this device conforms to the File Transfer protocol as defined by RFC 114 utilizing Transport Layer Security as specified by RFC 5246 or RFC 6176.
SMB	This value shall mean that this device conforms to the Microsoft Server Message Block Protocol.
UHCI	This value shall mean that this device conforms to the Intel Universal Host Controller Interface Specification, Enhanced Host Controller Interface Specification, or the Extensible Host Controller Interface specification.
USB	This value shall mean that this device conforms to the USB Implementers Forum Universal Serial Bus Specification.

SupportedRAIDTypes:

This object shall contain all the RAIDType values supported by the current resource.

string	Description
RAID0	A placement policy where consecutive logical blocks of data are uniformly distributed across a set of independent storage devices without offering any form of redundancy. This is commonly referred to as data striping. This form of RAID will encounter data loss with the failure of any storage device in the set.
RAID00	A placement policy that creates a RAID 0 stripe set over two or more RAID 0 sets. This is commonly referred to as RAID 0+0. This form of data layout is not fault tolerant; if any storage device fails there will be data loss.
RAID01	A data placement policy that creates a mirrored device (RAID 1) over a set of striped devices (RAID 0). This is commonly referred to as RAID 0+1 or RAID 0/1. Data stored using this form of RAID is able to survive a single RAID 0 data set failure without data loss.
RAID1	A placement policy where each logical block of data is stored on more than one independent storage device. This is commonly referred to as mirroring. Data stored using this form of RAID is able to survive a single storage device failure without data loss.
RAID10	A placement policy that creates a striped device (RAID 0) over a set of mirrored devices (RAID 1). This is commonly referred to as RAID 1/0. Data stored using this form of RAID is able to survive storage device failures in each RAID 1 set without data loss.
RAID10E	A placement policy that uses a RAID 0 stripe set over two or more RAID 10 sets. This is commonly referred to as Enhanced RAID 10. Data stored using this form of RAID is able to survive a single device failure within each nested RAID 1 set without data loss.
RAID10Triple	A placement policy that uses a striped device (RAID 0) over a set of triple mirrored devices (RAID 1Triple). This form of RAID can survive up to two failures in each triple mirror set without data loss.
RAID1E	A placement policy that uses a form of mirroring implemented over a set of independent storage devices where logical blocks are duplicated on a pair of independent storage devices so that data is uniformly

	distributed across the storage devices. This is commonly referred to as RAID 1 Enhanced. Data stored using this form of RAID is able to survive a single storage device failure without data loss.
RAID1Triple	A placement policy where each logical block of data is mirrored three times across a set of three independent storage devices. This is commonly referred to as three-way mirroring. This form of RAID can survive two device failures without data loss.
RAID3	A placement policy using parity-based protection where logical bytes of data are uniformly distributed across a set of independent storage devices and where the parity is stored on a dedicated independent storage device. Data stored using this form of RAID is able to survive a single storage device failure without data loss. If the storage devices use rotating media, they are assumed to be rotationally synchronized, and the data stripe size should be no larger than the exported block size.
RAID4	A placement policy using parity-based protection where logical blocks of data are uniformly distributed across a set of independent storage devices and where the parity is stored on a dedicated independent storage device. Data stored using this form of RAID is able to survive a single storage device failure without data loss.
RAID5	A placement policy using parity-based protection for storing stripes of 'n' logical blocks of data and one logical block of parity across a set of 'n+1' independent storage devices where the parity and data blocks are interleaved across the storage devices. Data stored using this form of RAID is able to survive a single storage device failure without data loss.
RAID50	A placement policy that uses a RAID 0 stripe set over two or more RAID 5 sets of independent storage devices. Data stored using this form of RAID is able to survive a single storage device failure within each RAID 5 set without data loss.
RAID6	A placement policy using parity-based protection for storing stripes of 'n' logical blocks of data and two logical blocks of independent parity across a set of 'n+2' independent storage devices where the parity and data blocks are interleaved across the storage devices. Data stored using this form of RAID is able to survive any two independent storage device failures without data loss.
RAID60	A placement policy that uses a RAID 0 stripe set over two or more RAID 6 sets of independent storage devices. Data stored using this form of RAID is able to survive two device failures within each RAID 6 set without data loss.
RAID6TP	

Example Response


```
{
    "@odata.type": "#Storage.v1_5_0.Storage",
    "Id": "1",
    "Name": "Local Storage Controller",
    "Description": "Integrated RAID Controller",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollup": "OK"
    },
    "StorageControllers": [
        {
            "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1#/StorageControllers/0",
            "MemberId": "0",
            "Name": "Contoso Integrated RAID",
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
            "Identifiers": [
                {
                    "DurableNameFormat": "NAA",
                    "DurableName": "345C59DBD970859C"
                }
            ],
            "Manufacturer": "Contoso",
            "Model": "12Gbs Integrated RAID",
            "SerialNumber": "2M220100SL",
            "PartNumber": "CT18754",
            "SpeedGbps": 12,
            "FirmwareVersion": "1.0.0.7",
            "SupportedControllerProtocols": [
                "PCIe"
            ],
            "SupportedDeviceProtocols": [
                "SAS",
                "SATA"
            ]
        }
    ],
    "Drives": [
        {
            "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1/Drives/35D38F11ACEF7BD3"
        },
        {
            "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1/Drives/3F5A8C54207B7233"
        },
        {
            "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1/Drives/32ADF365C6C1B7BD"
        },
        {
```

```
            "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1/Drives/3D58ECBC375FD9F2"
        }
    ],
    "Volumes": {
        "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1/Volumes"
    },
    "Links": {},
    "Actions": {
        "#Storage.SetEncryptionKey": {
            "target": "/redfish/v1/Systems/437XR1138R2/Storage/1/Actions/Storage.SetEncryptionKey"
        }
    },
    "@odata.context": "/redfish/v1/$metadata#Storage.Storage",
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1"
}
```


Switch 1.1.2

v1.1	*v1.0*
2017.3	2016.2

This resource shall be used to represent a simple switch for a Redfish implementation.

URIs:

/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*

AssetTag	string	read-write (null)	The value of this property shall be an identifying string used to track the drive for inventory purposes.
DomainID	integer	read-only (null)	The value of this property shall have a scope of uniqueness within the fabric of which the switch is a member.
IndicatorLED	string (enum)	read-write (null)	This value of this property shall contain the indicator light state for the indicator light associated with this switch. *See IndicatorLED in Property Details, below, for the possible values of this property.*
IsManaged	boolean	read-write (null)	The value of this property shall be a boolean indicating whether this switch is in a managed or unmanaged state.
Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Chassis {	object		The value of this property shall be a reference to the resources that this switch is associated with and shall reference a resource of type Chassis. *See the Chassis schema for details on this property.*
@odata.id }	string	read-only	*Link to a Chassis resource. See the Links section and the Chassis schema for details.*
ManagedBy [{	array		The value of this property shall be a reference to the resources that this switch is associated with and shall reference a resource of type Manager.
@odata.id }]	string	read-only	*Link to a Manager resource. See the Links section and the Manager schema for details.*
Oem { } }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
Location *(v1.1+)* { }	object		This property shall contain location information of the associated switch. *See the Location object for details on this property.*
LogServices {	object		The value of this property shall be a link to a collection of type LogServiceCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of LogService. See the LogService schema for details.*
Manufacturer	string	read-only (null)	The value of this property shall be the name of the organization responsible for producing the switch. This organization might be the entity from whom the switch is purchased, but this is not necessarily true.
Model	string	read-only (null)	This property shall indicate the model information as provided by the manufacturer of this switch.

PartNumber	string	read-only (null)	The value of this property shall be a part number assigned by the organization that is responsible for producing or manufacturing the switch.
Ports {	object		The value of this property shall be a reference to the resources that this switch contains and shall reference a resource of type Port. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Port. See the Port schema for details.*
PowerState	string (enum)	read-only (null)	The value of this property shall contain the power state of the switch. *See PowerState in Property Details, below, for the possible values of this property.*
Redundancy [{	array		The values of the properties in this array shall be used to show how this switch is grouped with other switches for form redundancy sets.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
SerialNumber	string	read-only (null)	The value of this property shall be a manufacturer-allocated number used to identify the switch.
SKU	string	read-only (null)	The value of this property shall be the stock-keeping unit number for this switch.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
SwitchType	string (enum)	read-only (null)	The value of this property shall contain the type of switch being represented by this simple switch. *See SwitchType in Property Details, below, for the possible values of this property.*
TotalSwitchWidth	integer	read-only (null)	The value of this property shall be the number of physical transport lanes, phys, or other physical transport links that this switch contains. For PCIe, this shall be lane count.

Actions

Reset

This action shall perform a reset of this switch.

URIs:

/redfish/v1/Fabrics/*{FabricId}*/Switches/*{SwitchId}*/Actions/Switch.Reset

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
ResetType }	string (enum)	read-write	This parameter shall define the type of reset to be performed. The service may accept a request without the parameter and perform an implementation specific default reset. *See ResetType in Property Details, below, for the possible values of this property.*

Property Details

IndicatorLED:

This value of this property shall contain the indicator light state for the indicator light associated with this switch.

string	Description
Blinking	This value shall represent the Indicator LED is in a blinking state where the LED is being turned on and off in repetition. If this value is not supported by the service, the service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request).
Lit	This value shall represent the Indicator LED is in a solid on state. If this value is not supported by the service, the service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request).
Off	This value shall represent the Indicator LED is in a solid off state. If this value is not supported by the service, the service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request).

PowerState:

The value of this property shall contain the power state of the switch.

string	Description
Off	The state is powered Off.
On	The state is powered On.
PoweringOff	A temporary state between On and Off.
PoweringOn	A temporary state between Off and On.

ResetType:

This parameter shall define the type of reset to be performed. The service may accept a request without the parameter and perform an implementation specific default reset.

string	Description
ForceOff	Turn the unit off immediately (non-graceful shutdown).
ForceOn	Turn the unit on immediately.
ForceRestart	Perform an immediate (non-graceful) shutdown, followed by a restart.
GracefulRestart	Perform a graceful shutdown followed by a restart of the system.
GracefulShutdown	Perform a graceful shutdown and power off.
Nmi	Generate a Diagnostic Interrupt (usually an NMI on x86 systems) to cease normal operations, perform diagnostic actions and typically halt the system.
On	Turn the unit on.
PowerCycle	Perform a power cycle of the unit.
PushPowerButton	Simulate the pressing of the physical power button on this unit.

SwitchType:

The value of this property shall contain the type of switch being represented by this simple switch.

string	Description
AHCI	This value shall mean that this device conforms to the Intel Advanced Host Controller Interface Specification.
FC	This value shall mean that this device conforms to the T11 Fibre Channel Physical and Signaling Interface Specification.
FCoE	This value shall mean that this device conforms to the T11 FC-BB-5 Specification.
FCP	This enumeration literal shall indicate the INCITS 481: Information technology - Fibre Channel Protocol for SCSI. The Fibre Channel SCSI Protocol.
FICON	This enumeration literal shall indicate the (ANSI FC-SB-3 Single-Byte Command Code Sets-3 Mapping Protocol for the Fibre Channel(FC) protocol. FICON (FIbre CONnection) is the IBM proprietary name for this protocol.
FTP	This value shall mean that this device conforms to the File Transfer protocol as defined by RFC 114.
HTTP	This value shall mean that this device conforms to the Hypertext Transfer protocol as defined by RFC 2068 or RFC 2616.
HTTPS	This value shall mean that this device conforms to the Hypertext Transfer protocol as defined by RFC 2068 or RFC 2616 utilizing Transport Layer Security as specified by RFC 5246 or RFC 6176.
I2C	This value shall mean that this device conforms to the NXP Semiconductors I2C-bus Specification.
iSCSI	This value shall mean that this device conforms to the IETF Internet Small Computer Systems Interface (iSCSI) Specification.
iWARP	This value shall mean that this device conforms to the iWARP protocol as defined by RFC 5042 utilizing Transport Layer mechanisms as specified by RFC 5043 or RFC 5044.
NFSv3	This value shall mean that this device conforms to the Network File System protocol as defined by RFC

	1813.
NFSv4	This value shall mean that this device conforms to the Network File System protocol as defined by RFC 3010 or RFC 5661.
NVMe	This value shall mean that this device conforms to the Non-Volatile Memory Host Controller Interface Specification Specification.
NVMeOverFabrics	This value shall mean that this device conforms to the NVM Express over Fabrics Specification.
OEM	This value shall mean that this device conforms to an OEM specific architecture and additional information may be included in the OEM section.
PCIe	This value shall mean that this device conforms to the PCI-SIG PCI Express Base Specification.
RoCE	This value shall mean that this device conforms to the RDMA over Converged Ethernet protocol as defined by the Infiniband Architecture Specification.
RoCEv2	This value shall mean that this device conforms to the RDMA over Converged Ethernet version 2 protocol as defined by the Infiniband Architecture Specification.
SAS	This value shall mean that this device conforms to the T10 SAS Protocol Layer Specification.
SATA	This value shall mean that this device conforms to the Serial ATA International Organization Serial ATA Specification.
SFTP	This value shall mean that this device conforms to the File Transfer protocol as defined by RFC 114 utilizing Transport Layer Security as specified by RFC 5246 or RFC 6176.
SMB	This value shall mean that this device conforms to the Microsoft Server Message Block Protocol.
UHCI	This value shall mean that this device conforms to the Intel Universal Host Controller Interface Specification, Enhanced Host Controller Interface Specification, or the Extensible Host Controller Interface specification.
USB	This value shall mean that this device conforms to the USB Implementers Forum Universal Serial Bus Specification.

Example Response


```
{
    "@odata.type": "#Switch.v1_1_1.Switch",
    "Id": "Switch1",
    "Name": "SAS Switch",
    "SwitchType": "SAS",
    "Manufacturer": "Contoso",
    "Model": "SAS1000",
    "SKU": "67B",
    "SerialNumber": "2M220100SL",
    "PartNumber": "76-88883",
    "Ports": {
        "@odata.id": "/redfish/v1/Fabrics/SAS/Switches/Switch1/Ports"
    },
    "Redundancy": [
        {
            "@odata.id": "/redfish/v1/Fabrics/SAS/Switches/Switch1#/Redundancy/0",
            "MemberId": "Redundancy",
            "Mode": "Sharing",
            "MaxNumSupported": 2,
            "MinNumNeeded": 1,
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
            "RedundancySet": [
                {
                    "@odata.id": "/redfish/v1/Fabrics/SAS/Switches/Switch1"
                },
                {
                    "@odata.id": "/redfish/v1/Fabrics/SAS/Switches/Switch2"
                }
            ]
        }
    ],
    "Links": {
        "Chassis": {
            "@odata.id": "/redfish/v1/Chassis/Switch1"
        },
        "ManagedBy": [
            {
                "@odata.id": "/redfish/v1/Managers/Switch1"
            },
            {
                "@odata.id": "/redfish/v1/Managers/Switch2"
            }
        ],
        "Oem": {}
    },
    "Actions": {
        "#Switch.Reset": {
```

```
            "target": "/redfish/v1/Fabrics/SAS/Switches/Switch1/Actions/Switch.Reset",
            "ResetType@Redfish.AllowableValues": [
                "ForceRestart",
                "GracefulRestart"
            ]
        },
        "Oem": {}
    },
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#Switch.Switch",
    "@odata.id": "/redfish/v1/Fabrics/SAS/Switches/Switch1"
}
```


Task 1.4.1

v1.4	*v1.3*	*v1.2*	*v1.1*	*v1.0*
2018.3	2018.2	2018.1	2017.1	1.0

This resource shall be used to represent a Task for a Redfish implementation.

URIs:

/redfish/v1/TaskService/Tasks/*{TaskId}*

EndTime	string	read-only	The value of this property shall indicate the time the task was completed.
HidePayload *(v1.3+)*	boolean	read-only	This property shall be set to True if the Payload object shall not be returned on GET operations, and set to False if the contents can be returned normally. If this property is not specified when the Task is created, the default value shall be False.
Messages [{ }]	array (object)		The value of this property shall be an array of messages associated with the task. This type shall define a Message as described in the Redfish specification. *See the Message object for details on this property.*
Payload *(v1.3+)* {	object		This object shall contain information detailing the HTTP and JSON payload information for executing this task. This object shall not be included in the response if the HidePayload property is set to True.
HttpHeaders [ ]	array (string)	read-only	The value of this property shall be an array of HTTP headers used in the execution of this Task.
HttpOperation	string	read-only	This property shall contain the HTTP operation to execute for this Task.
JsonBody	string	read-only	The value of this property shall be JSON formatted payload used for this Task.
TargetUri }	string	read-only	This property shall contain a URI referencing a location to be used as the target for an HTTP operation.
PercentComplete *(v1.4+)*	integer (%)	read-only (null)	The value of this property shall indicate the completion progress of the task, reported in percent of completion. If the task has not been started, the value shall be zero.
StartTime	string	read-only	The value of this property shall indicate the time the task was started.
TaskMonitor *(v1.2+)*	string	read-only	This property shall contain a URI to Task Monitor as defined in the Redfish Specification.
TaskState	string (enum)	read-only	The value of this property shall indicate the state of the task. New shall be used to indicate that the task is a new task which has just been instantiated and is in the initial state and indicates it has never been started. Starting shall be used to indicate that the task is moving from the New, Suspended, or Service states into the Running state. Running shall be used to indicate that the Task is running. Suspended shall be used to indicate that the Task is stopped (e.g., by a user), but can be restarted in a seamless manner. Interrupted shall be used to indicate that the Task was interrupted (e.g., by a server crash) in the middle of processing, and the user should either re-run/restart the Task. Pending shall be used to indicate that the Task has been queued and will be scheduled for processing as soon as resources are available to handle the request. Stopping shall be used to indicate that the Task is in the process of moving to a Completed, Killed, or Exception state. Completed shall be used to indicate that the task has completed normally. Killed shall be used to indicate that the task has been stopped by a Kill state change request (non-graceful shutdown). Exception shall be used to indicate that the Task is in an abnormal state that might be indicative of an error condition. Service shall be used to indicate that the Task is in a state that supports problem discovery, or resolution, or both. This state is used when a

			corrective action is possible. *See TaskState in Property Details, below, for the possible values of this property.*
TaskStatus	string (enum)	read-only	The value of this property shall be the completion status of the task, as defined in the Status section of the Redfish specification and shall not be set until the task has completed. *See TaskStatus in Property Details, below, for the possible values of this property.*

Property Details

TaskState:

The value of this property shall indicate the state of the task. New shall be used to indicate that the task is a new task which has just been instantiated and is in the initial state and indicates it has never been started. Starting shall be used to indicate that the task is moving from the New, Suspended, or Service states into the Running state. Running shall be used to indicate that the Task is running. Suspended shall be used to indicate that the Task is stopped (e.g., by a user), but can be restarted in a seamless manner. Interrupted shall be used to indicate that the Task was interrupted (e.g., by a server crash) in the middle of processing, and the user should either re-run/restart the Task. Pending shall be used to indicate that the Task has been queued and will be scheduled for processing as soon as resources are available to handle the request. Stopping shall be used to indicate that the Task is in the process of moving to a Completed, Killed, or Exception state. Completed shall be used to indicate that the task has completed normally. Killed shall be used to indicate that the task has been stopped by a Kill state change request (non-graceful shutdown). Exception shall be used to indicate that the Task is in an abnormal state that might be indicative of an error condition. Service shall be used to indicate that the Task is in a state that supports problem discovery, or resolution, or both. This state is used when a corrective action is possible.

string	Description
Cancelled *(v1.2+)*	This value shall represent that the operation was cancelled either through a Delete on a Task Monitor or Task Resource or by an internal process.
Cancelling *(v1.2+)*	This value shall represent that the operation is in the process of being cancelled.
Completed	This value shall represent that the operation is complete and completed sucessfully or with warnings.
Exception	This value shall represent that the operation is complete and completed with errors.
Interrupted	This value shall represent that the operation has been interrupted but is expected to restart and is therefore not complete.
Killed *(deprecated v1.2)*	This value shall represent that the operation is complete because the task was killed by an operator. *Deprecated v1.2+. This value has been deprecated and is being replaced by the value Cancelled which has more determinate semantics.*
New	This value shall represent that this task is newly created but the operation has not yet started.
Pending	This value shall represent that the operation is pending some condition and has not yet begun to execute.
Running	This value shall represent that the operation is executing.
Service	This value shall represent that the operation is now running as a service and expected to continue operation until stopped or killed.
Starting	This value shall represent that the operation is starting.
Stopping	This value shall represent that the operation is stopping but is not yet complete.
Suspended	This value shall represent that the operation has been suspended but is expected to restart and is therefore not complete.

TaskStatus:

The value of this property shall be the completion status of the task, as defined in the Status section of the Redfish specification and shall not be set until the task has completed.

string	Description
Critical	A critical condition exists that requires immediate attention.
OK	Normal.
Warning	A condition exists that requires attention.

Example Response


```
{
    "@odata.type": "#Task.v1_3_0.Task",
    "Id": "545",
    "Name": "Task 545",
    "TaskMonitor": "/taskmon/545",
    "TaskState": "Completed",
    "StartTime": "2012-03-07T14:44+06:00",
    "EndTime": "2012-03-07T14:45+06:00",
    "TaskStatus": "OK",
    "Messages": [
        {
            "MessageId": "Base.1.0.PropertyNotWriteable",
            "RelatedProperties": [
                "SKU"
            ],
            "Message": "The property SKU is a read only property and cannot be assigned a value",
            "MessageArgs": [
                "SKU"
            ],
            "Severity": "Warning"
        }
    ],
    "@odata.context": "/redfish/v1/$metadata#Task.Task",
    "@odata.id": "/redfish/v1/TaskService/Tasks/545"
}
```


TaskService 1.1.3

v1.1	*v1.0*
2017.1	1.0

This resource shall be used to represent a Task Service for a Redfish implementation.

URIs:

/redfish/v1/TaskService

CompletedTaskOverWritePolicy	string (enum)	read-only	The value of this property shall indicate how completed tasks are handled should the task service need to track more tasks. *See CompletedTaskOverWritePolicy in Property Details, below, for the possible values of this property.*
DateTime	string	read-only (null)	The value of this property shall represent the current DateTime value for the TaskService, with offset from UTC, in Redfish Timestamp format.
LifeCycleEventOnTaskStateChange	boolean	read-only	The value of this property, if set to true, shall indicate that the service shall send a Life cycle event to Event Destinations Subscriptions registered for such events upon change of task state. Life cycle events are defined in the Eventing section of the Redfish Specification.
ServiceEnabled	boolean	read-write (null)	The value of this property shall be a boolean indicating whether this service is enabled.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
Tasks {	object		The value of this property shall be a link to a resource of type TaskCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of Task. See the Task schema for details.*

Property Details

CompletedTaskOverWritePolicy:

The value of this property shall indicate how completed tasks are handled should the task service need to track more tasks.

string	Description
Manual	Completed tasks are not automatically overwritten.
Oldest	Oldest completed tasks are overwritten.

Example Response

```
{
    "@odata.type": "#TaskService.v1_1_2.TaskService",
    "Id": "TaskService",
    "Name": "Tasks Service",
    "DateTime": "2015-03-13T04:14:33+06:00",
    "CompletedTaskOverWritePolicy": "Manual",
    "LifeCycleEventOnTaskStateChange": true,
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "ServiceEnabled": true,
    "Tasks": {
        "@odata.id": "/redfish/v1/TaskService/Tasks"
    },
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#TaskService.TaskService",
    "@odata.id": "/redfish/v1/TaskService"
}
```


TelemetryService 1.1.1

v1.1	*v1.0*
2018.3	2018.2

This resource shall be used to represent an Metrics Service for a Redfish implementation. It represents the properties that affect the service itself.

URIs:

/redfish/v1/TelemetryService

LogService {	object		The value of this property shall contain a reference to a LogService for the use by this Telemetry Service. *See the LogService schema for details on this property.*
@odata.id }	string	read-only	*Link to a LogService resource. See the Links section and the LogService schema for details.*
MaxReports	integer	read-only (null)	The value shall be the maximum number of metric reports supported by this service.
MetricDefinitions {	object		The entries of shall be resources of type MetricDefinitionCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of MetricDefinition. See the MetricDefinition schema for details.*
MetricReportDefinitions {	object		The value shall be a link to a resource of type MetricReportDefinitionCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of MetricReportDefinition. See the MetricReportDefinition schema for details.*
MetricReports {	object		The value shall be a link to a resource of type MetricReportCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of MetricReport. See the MetricReport schema for details.*
MinCollectionInterval	string	read-only (null)	The value shall be the minimum time interval between collections supported by this service. The value shall conform to the Duration format. Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(.\d+)?S)?)?
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
SupportedCollectionFunctions [ ]	array (string (enum))	read-write (null)	The value shall define the function to apply over the collection duration. If present, the metric value shall be computed according to this function. *See SupportedCollectionFunctions in Property Details, below, for the possible values of this property.*
Triggers {	object		The value shall be a link to a resource of type TriggersCollection. *Contains a link to a resource.*

@odata.id }	string	read-only	*Link to Collection of Triggers. See the Triggers schema for details.*

Actions

SubmitTestMetricReport

This action shall cause the event service to immediately generate the metric report, as an Alert Event. This message should then be sent to any appropriate ListenerDestination targets.

URIs:

/redfish/v1/TelemetryService/Actions/TelemetryService.SubmitTestMetricReport

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
GeneratedMetricReportValues [{	array	required	This parameter shall contain the contents of the MetricReportValues array property in the generated metric report.
MetricDefinition *(v1.1+)* {	object		The value shall be reference to the Metric Definition resource that describes what this Metric Report is capturing. *See the MetricDefinition schema for details on this property.*
@odata.id }	string	read-only	*Link to a MetricDefinition resource. See the Links section and the MetricDefinition schema for details.*
MetricId *(v1.1+)*	string	read-only (null)	The value shall be the same as the Id property of the source metric within the associated MetricDefinition.
MetricProperty *(v1.1+)*	string	read-only (null)	The value shall be URI to the a property following the JSON fragment notation, as defined by RFC6901, to identify an individual property in a Redfish resource.
MetricValue *(v1.1+)*	string	read-only (null)	The value of the metric represented as a string.
Timestamp *(v1.1+)* }]	string	read-only (null)	The value shall time when the metric value was obtained. Note that this may be different from the time when this instance is created.
MetricReportName	string	read-write required	This parameter shall be the value of the Name property in the generated metric report.
MetricReportValues }	string	read-write	This parameter shall contain the contents of the MetricReportValues array property in the generated metric report.

Property Details

SupportedCollectionFunctions:

The value shall define the function to apply over the collection duration. If present, the metric value shall be computed according to this function.

string	Description
Average	An averaging function.
Maximum	A maximum function.
Minimum	A minimum function.
Summation	A summation function.

Example Response

```
{
    "@odata.type": "#TelemetryService.v1_0_0.TelemetryService",
    "Id": "TelemetryService",
    "Name": "Telemetry Service",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
```

```
    },
    "SupportedCollectionFunctions": [
        "Average",
        "Minimum",
        "Maximum"
    ],
    "MetricDefinitions": {
        "@odata.id": "/redfish/v1/TelemetryService/MetricDefinitions"
    },
    "MetricReportDefinitions": {
        "@odata.id": "/redfish/v1/TelemetryService/MetricReportDefinitions"
    },
    "MetricReports": {
        "@odata.id": "/redfish/v1/TelemetryService/MetricReports"
    },
    "Triggers": {
        "@odata.id": "/redfish/v1/TelemetryService/Triggers"
    },
    "LogService": {
        "@odata.id": "/redfish/v1/Managers/1/LogServices/Log1"
    },
    "@odata.context": "/redfish/v1/$metadata#TelemetryService",
    "@odata.id": "/redfish/v1/TelemetryService"
}
```


Thermal 1.5.2

v1.5	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
2018.2	2017.3	2017.1	2016.3	2016.1	1.0

This resource shall be used to represent a thermal metrics resource for a Redfish implementation.

URIs:

/redfish/v1/Chassis/*{ChassisId}*/Thermal

Fans [{	array		These properties shall be the definition for fans for a Redfish implementation.
@odata.id *(v1.5+)*	string	read-only required	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Actions *(v1.3+)* { }	object		The Actions property shall contain the available actions for this resource.
Assembly *(v1.4+)* {	object		The value of this property shall be a link to a resource of type Assembly. *See the Assembly schema for details on this property.*
@odata.id }	string	read-only	*Link to a Assembly resource. See the Links section and the Assembly schema for details.*
FanName *(deprecated v1.2)*	string	read-only (null)	The value of this property shall be the name of the fan. *Deprecated v1.2+. This property has been Deprecated in favor of Thermal.v1_1_0.Thermal.Fan.Name*
HotPluggable *(v1.4+)*	boolean	read-only (null)	The value of this property shall indicate whether the device can be inserted or removed while the underlying equipment otherwise remains in its current operational state. Devices indicated as hot-pluggable shall allow the device to become operable without altering the operational state of the underlying equipment. Devices that cannot be inserted or removed from equipment in operation, or devices that cannot become operable without affecting the operational state of that equipment, shall be indicated as not hot-pluggable.
IndicatorLED *(v1.2+)*	string (enum)	read-write (null)	The value of this property shall contain the indicator light state for the indicator light associated with this fan. *See IndicatorLED in Property Details, below, for the possible values of this property.*
Location *(v1.4+)* { }	object		This property shall contain location information of the associated fan. *See the Location object for details on this property.*

LowerThresholdCritical	integer	read-only (null)	The value of this property shall indicate the Reading is below the normal range but is not yet fatal. The units shall be the same units as the related Reading property.
LowerThresholdFatal	integer	read-only (null)	The value of this property shall indicate the Reading is below the normal range and is fatal. The units shall be the same units as the related Reading property.
LowerThresholdNonCritical	integer	read-only (null)	The value of this property shall indicate the Reading is below the normal range but is not critical. The units shall be the same units as the related Reading property.
Manufacturer *(v1.2+)*	string	read-only (null)	The value of this property shall be the name of the organization responsible for producing the fan. This organization might be the entity from whom the fan is purchased, but this is not necessarily true.
MaxReadingRange	integer	read-only (null)	The value of this property shall indicate the highest possible value for Reading. The units shall be the same units as the related Reading property.
MemberId	string	read-only required	The value of this string shall uniquely identify the member within the collection. For services supporting Redfish v1.6 or higher, this value shall be the zero-based array index.
MinReadingRange	integer	read-only (null)	The value of this property shall indicate the lowest possible value for Reading. The units shall be the same units as the related Reading property.
Model *(v1.2+)*	string	read-only (null)	This property shall contain the model information as defined by the manufacturer for the associated fan.
Name *(v1.1+)*	string	read-only (null)	The value of this property shall be the name of the fan.
Oem { }	object		The value of this string shall be of the format for the reserved word *Oem*.
PartNumber *(v1.2+)*	string	read-only (null)	This property shall contain the part number as defined by the manufacturer for the associated fan.
PhysicalContext	string (enum)	read-only	The value of this property shall be a description of the affected device or region within the chassis to which this fan is associated. *See PhysicalContext in Property Details, below, for the possible values of this property.*
Reading	integer	read-only (null)	The value of this property shall be the current value of the fan sensor's reading.
ReadingUnits *(v1.1+)*	string (enum)	read-only (null)	The value of this property shall be the units in which the fan's reading and thresholds are measured. *See ReadingUnits in Property Details, below, for the possible values of this property.*
Redundancy [{	array		The values of the properties in this array shall be used to show redundancy for fans and other elements in this resource. The use of IDs within these arrays shall reference the members of the redundancy groups.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
RelatedItem [{	array		The value of this property shall be an array of IDs containing pointers consistent with JSON pointer syntax to the resource that are being serviced by this fan.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.

SensorNumber *(v1.5+)*	integer	read-only (null)	The value of this property shall be a numerical identifier for this fan speed sensor that is unique within this resource.
SerialNumber *(v1.2+)*	string	read-only (null)	This property shall contain the serial number as defined by the manufacturer for the associated fan.
SparePartNumber *(v1.2+)*	string	read-only (null)	This property shall contain the spare or replacement part number as defined by the manufacturer for the associated fan.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
UpperThresholdCritical	integer	read-only (null)	The value of this property shall indicate the Reading is above the normal range but is not yet fatal. The units shall be the same units as the related Reading property.
UpperThresholdFatal	integer	read-only (null)	The value of this property shall indicate the Reading is above the normal range and is fatal. The units shall be the same units as the related Reading property.
UpperThresholdNonCritical }]	integer	read-only (null)	The value of this property shall indicate the Reading is above the normal range but is not critical. The units shall be the same units as the related Reading property.
Redundancy [{	array		The values of the properties in this array shall be used to show redundancy for fans and other elements in this resource. The use of IDs within these arrays shall reference the members of the redundancy groups.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
Temperatures [{	array		These properties shall be the definition for temperature sensors for a Redfish implementation.
@odata.id *(v1.5+)*	string	read-only required	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
Actions *(v1.3+)* { }	object		The Actions property shall contain the available actions for this resource.
AdjustedMaxAllowableOperatingValue *(v1.4+)*	integer (Celsius)	read-only (null)	The value of this property shall indicate the adjusted maximum allowable operating temperature for the equipment monitored by this temperature sensor, as specified by a standards body, manufacturer, or a combination, and adjusted based on environmental conditions present. For example, liquid inlet temperature may be adjusted based on the available liquid pressure.
AdjustedMinAllowableOperatingValue *(v1.4+)*	integer (Celsius)	read-only (null)	The value of this property shall indicate the adjusted minimum allowable operating temperature for the equipment monitored by this temperature sensor, as specified by a standards body, manufacturer, or a combination, and adjusted based on environmental conditions present. For example, liquid inlet temperature may be adjusted based on the available liquid pressure.
DeltaPhysicalContext *(v1.4+)*	string (enum)	read-only	The value of this property shall be a description of the affected device or region within the chassis to which the DeltaReadingCelsius temperature measurement applies, relative to PhysicalContext. *See DeltaPhysicalContext in Property Details, below, for the possible values of this property.*

DeltaReadingCelsius *(v1.4+)*	number (Celsius)	read-only (null)	The value of this property shall be the delta of the values of the temperature readings across this sensor and the sensor at DeltaPhysicalContext.
LowerThresholdCritical	number (Celsius)	read-only (null)	The value of this property shall indicate the ReadingCelsius is below the normal range but is not yet fatal. The units shall be the same units as the related ReadingCelsius property.
LowerThresholdFatal	number (Celsius)	read-only (null)	The value of this property shall indicate the ReadingCelsius is below the normal range and is fatal. The units shall be the same units as the related ReadingCelsius property.
LowerThresholdNonCritical	number (Celsius)	read-only (null)	The value of this property shall indicate the ReadingCelsius is below the normal range but is not critical. The units shall be the same units as the related ReadingCelsius property.
MaxAllowableOperatingValue *(v1.4+)*	integer (Celsius)	read-only (null)	The value of this property shall indicate the maximum allowable operating temperature for the equipment monitored by this temperature sensor, as specified by a standards body, manufacturer, or a combination.
MaxReadingRangeTemp	number (Celsius)	read-only (null)	The value of this property shall indicate the highest possible value for ReadingCelsius. The units shall be the same units as the related ReadingCelsius property.
MemberId	string	read-only required	The value of this string shall uniquely identify the member within the collection. For services supporting Redfish v1.6 or higher, this value shall be the zero-based array index.
MinAllowableOperatingValue *(v1.4+)*	integer (Celsius)	read-only (null)	The value of this property shall indicate the minimum allowable operating temperature for the equipment monitored by this temperature sensor, as specified by a standards body, manufacturer, or a combination.
MinReadingRangeTemp	number (Celsius)	read-only (null)	The value of this property shall indicate the lowest possible value for ReadingCelsius. The units shall be the same units as the related ReadingCelsius property.
Name	string	read-only (null)	The value of this property shall be the name of the temperature sensor.
Oem { }	object		The value of this string shall be of the format for the reserved word *Oem*.
PhysicalContext	string (enum)	read-only	The value of this property shall be a description of the affected device or region within the chassis to which this temperature measurement applies. *See PhysicalContext in Property Details, below, for the possible values of this property.*
ReadingCelsius	number (Celsius)	read-only (null)	The value of this property shall be the current value of the temperature sensor's reading.
RelatedItem [{	array		The value of this property shall the array of IDs of areas or devices to which this temperature measurement applies.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the form defined in the Redfish specification.
SensorNumber	integer	read-only (null)	The value of this property shall be a numerical identifier for this temperature sensor that is unique within this resource.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
UpperThresholdCritical	number (Celsius)	read-only (null)	The value of this property shall indicate the ReadingCelsius is above the normal range but is not yet

			fatal. The units shall be the same units as the related ReadingCelsius property.
UpperThresholdFatal	number (Celsius)	read-only (null)	The value of this property shall indicate the ReadingCelsius is above the normal range and is fatal. The units shall be the same units as the related ReadingCelsius property.
UpperThresholdNonCritical }]	number (Celsius)	read-only (null)	The value of this property shall indicate the ReadingCelsius is above the normal range but is not critical. The units shall be the same units as the related ReadingCelsius property.

Property Details

DeltaPhysicalContext:

The value of this property shall be a description of the affected device or region within the chassis to which the DeltaReadingCelsius temperature measurement applies, relative to PhysicalContext.

string	Description
Accelerator	An Accelerator.
ACInput	An AC Input.
ACMaintenanceBypassInput	An AC Maintenance Bypass Input.
ACOutput	An AC Output.
ACStaticBypassInput	An AC Static Bypass Input.
ACUtilityInput	An AC Utility Input.
ASIC	An ASIC device, such as networking chip or a chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Chassis	The entire chassis.
ComputeBay	Within a compute bay.
CoolingSubsystem	The entire cooling (air and liquid) subsystem.
CPU	A Processor (CPU).
CPUSubsystem	The entire Processor (CPU) subsystem.
DCBus	A DC Bus.
Exhaust	The air exhaust point(s) or region of the chassis.
ExpansionBay	Within an expansion bay.
Fan	A fan.
FPGA	A Field Programmable Gate Array (FPGA).
Front	The front of the chassis.
GPU	A Graphics Processor (GPU).
GPUSubsystem	The entire Graphics Processor (GPU) subsystem.
Intake	The air intake point(s) or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Memory	A memory device.

MemorySubsystem	The entire Memory subsystem.
Motor	A motor.
NetworkBay	Within a networking bay.
NetworkingDevice	A networking device.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	Within a power supply bay.
Rectifier	A rectifier device.
Room	The room.
StorageBay	Within a storage bay.
StorageDevice	A storage device.
SystemBoard	The system board (PCB).
Transformer	A Transformer.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

IndicatorLED:

The value of this property shall contain the indicator light state for the indicator light associated with this fan.

string	Description
Blinking	This value shall represent the Indicator LED is in a blinking state where the LED is being turned on and off in repetition. If this value is not supported by the service, the service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request).
Lit	This value shall represent the Indicator LED is in a solid on state. If this value is not supported by the service, the service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request).
Off	This value shall represent the Indicator LED is in a solid off state. If this value is not supported by the service, the service shall reject PATCH or PUT requests containing this value by returning HTTP 400 (Bad Request).

PhysicalContext:

The value of this property shall be a description of the affected device or region within the chassis to which this temperature measurement applies.

string	Description
Accelerator	An Accelerator.
ACInput	An AC Input.
ACMaintenanceBypassInput	An AC Maintenance Bypass Input.
ACOutput	An AC Output.
ACStaticBypassInput	An AC Static Bypass Input.
ACUtilityInput	An AC Utility Input.
ASIC	An ASIC device, such as networking chip or a chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.
Chassis	The entire chassis.
ComputeBay	Within a compute bay.

CoolingSubsystem	The entire cooling (air and liquid) subsystem.
CPU	A Processor (CPU).
CPUSubsystem	The entire Processor (CPU) subsystem.
DCBus	A DC Bus.
Exhaust	The air exhaust point(s) or region of the chassis.
ExpansionBay	Within an expansion bay.
Fan	A fan.
FPGA	A Field Programmable Gate Array (FPGA).
Front	The front of the chassis.
GPU	A Graphics Processor (GPU).
GPUSubsystem	The entire Graphics Processor (GPU) subsystem.
Intake	The air intake point(s) or region of the chassis.
LiquidInlet	The liquid inlet point of the chassis.
LiquidOutlet	The liquid outlet point of the chassis.
Lower	The lower portion of the chassis.
Memory	A memory device.
MemorySubsystem	The entire Memory subsystem.
Motor	A motor.
NetworkBay	Within a networking bay.
NetworkingDevice	A networking device.
PowerSubsystem	The entire power subsystem.
PowerSupply	A power supply.
PowerSupplyBay	Within a power supply bay.
Rectifier	A rectifier device.
Room	The room.
StorageBay	Within a storage bay.
StorageDevice	A storage device.
SystemBoard	The system board (PCB).
Transformer	A Transformer.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

ReadingUnits:

The value of this property shall be the units in which the fan's reading and thresholds are measured.

string	Description
Percent	Indicates that the fan reading and thresholds are measured in percentage.
RPM	Indicates that the fan reading and thresholds are measured in rotations per minute.

Example Response

```
{
    "@odata.type": "#Thermal.v1_5_0.Thermal",
```

```
    "Id": "Thermal",
    "Name": "Thermal",
    "Temperatures": [
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Temperatures/0",
            "MemberId": "0",
            "Name": "CPU1 Temp",
            "SensorNumber": 5,
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
            "ReadingCelsius": 41,
            "UpperThresholdNonCritical": 42,
            "UpperThresholdCritical": 45,
            "UpperThresholdFatal": 48,
            "MinReadingRangeTemp": 0,
            "MaxReadingRangeTemp": 60,
            "PhysicalContext": "CPU",
            "RelatedItem": [
                {
                    "@odata.id": "/redfish/v1/Systems/437XR1138R2/Processors/CPU1"
                }
            ]
        },
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Temperatures/1",
            "MemberId": "1",
            "Name": "CPU2 Temp",
            "SensorNumber": 6,
            "Status": {
                "State": "Disabled"
            },
            "UpperThresholdNonCritical": 42,
            "UpperThresholdCritical": 45,
            "UpperThresholdFatal": 48,
            "MinReadingRangeTemp": 0,
            "MaxReadingRangeTemp": 60,
            "PhysicalContext": "CPU",
            "RelatedItem": [
                {
                    "@odata.id": "/redfish/v1/Systems/437XR1138R2/Processors/CPU2"
                }
            ]
        },
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Temperatures/2",
            "MemberId": "2",
            "Name": "Chassis Intake Temp",
            "SensorNumber": 9,
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
            "ReadingCelsius": 25,
            "UpperThresholdNonCritical": 30,
            "UpperThresholdCritical": 40,
            "UpperThresholdFatal": 50,
            "LowerThresholdNonCritical": 10,
            "LowerThresholdCritical": 5,
            "LowerThresholdFatal": 0,
            "MinReadingRangeTemp": 0,
            "MaxReadingRangeTemp": 60,
            "PhysicalContext": "Intake",
            "RelatedItem": [
                {
                    "@odata.id": "/redfish/v1/Chassis/1U"
                },
                {
                    "@odata.id": "/redfish/v1/Systems/437XR1138R2"
                }
            ]
        }
    ],
    "Fans": [
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Fans/0",
            "MemberId": "0",
            "Name": "BaseBoard System Fan",
            "PhysicalContext": "Backplane",
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
            "Reading": 2100,
            "ReadingUnits": "RPM",
            "LowerThresholdFatal": 0,
            "MinReadingRange": 0,
            "MaxReadingRange": 5000,
            "Redundancy": [
                {
                    "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Redundancy/0"
                }
            ],
            "RelatedItem": [
                {
                    "@odata.id": "/redfish/v1/Systems/437XR1138R2"
                },
                {
                    "@odata.id": "/redfish/v1/Chassis/1U"
                }
            ]
        },
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Fans/1",
            "MemberId": "1",
            "Name": "BaseBoard System Fan Backup",
            "PhysicalContext": "Backplane",
            "Status": {
                "State": "Enabled",
                "Health": "OK"
```

```
            },
            "Reading": 2050,
            "ReadingUnits": "RPM",
            "LowerThresholdFatal": 0,
            "MinReadingRange": 0,
            "MaxReadingRange": 5000,
            "Redundancy": [
                {
                    "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Redundancy/0"
                }
            ],
            "RelatedItem": [
                {
                    "@odata.id": "/redfish/v1/Systems/437XR1138R2"
                },
                {
                    "@odata.id": "/redfish/v1/Chassis/1U"
                }
            ]
        }
    ],
    "Redundancy": [
        {
            "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Redundancy/0",
            "MemberId": "0",
            "Name": "BaseBoard System Fans",
            "RedundancySet": [
                {
                    "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Fans/0"
                },
                {
                    "@odata.id": "/redfish/v1/Chassis/1U/Thermal#/Fans/1"
                }
            ],
            "Mode": "N+m",
            "Status": {
                "State": "Enabled",
                "Health": "OK"
            },
            "MinNumNeeded": 1,
            "MaxNumSupported": 2
        }
    ],
    "@odata.context": "/redfish/v1/$metadata#Thermal.Thermal",
    "@odata.id": "/redfish/v1/Chassis/1U/Thermal"
}
```


Triggers 1.1.0

v1.1	*v1.0*
2019.1	2018.2

This resource shall specify triggers, which apply to a list of metrics.

URIs:

/redfish/v1/TelemetryService/Triggers/*{TriggersId}*

DiscreteTriggerCondition	string (enum)	read-only (null)	The value of this property shall specify the conditions when a discrete metric triggers. *See DiscreteTriggerCondition in Property Details, below, for the possible values of this property.*
DiscreteTriggers [{	array		This property shall contains a list of value to which a metric reading will be compared. This property shall be present when the DiscreteTriggerCondition property has a value of 'Specified'.
DwellTime	string	read-write (null)	This property shall contain the time that a trigger occurance persists before the MetricAction is performed. Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(.\d+)?S)?)?
Name	string	read-only (null)	This property shall contain a name for the trigger.
Severity	string (enum)	read-write (null)	The value of this property shall be used for the Severity property in the Event message. *See Severity in Property Details, below, for the possible values of this property.*
Value }]	string	read-write (null)	This property shall contain the value discrete metric that constitutes a trigger event. The DwellTimeMilliSeconds shall be measured from this point in time.
EventTriggers *(v1.1+)* [ ]	array (string, null)	read-write	The value of this property shall be an array of MessageIds that specify when a trigger occurs based on an event. When an event is generated by the service, if it contains a MessageId within this list, a trigger condition shall be met. Pattern: ^[A-Za-z0-9]+.\d+.\d+.[A-Za-z0-9.]+$

Links *(v1.1+)* {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
MetricReportDefinitions [{	array		The value shall be a set of references to metric report definitions that will generate new metric reports when a trigger occurs when the TriggerActions property contains the value RedfishMetricReport.
@odata.id }]	string	read-only	*Link to a MetricReportDefinition resource. See the Links section and the MetricReportDefinition schema for details.*
Oem { } }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
MetricProperties [ ]	array (string, null)	read-write	This array property shall contain a list of URIs with wildcards and property identifiers for which this trigger is defined. Each wildcard in the URI shall be delimited by a set of curly braces. Each wildcard shall be substituted as specified by the corresponding entry in the Wildcard array property. Once an URI with wildcards has had its wildcards fully substituted, it shall reference a resource property for which the metric definition applies. The property identifiers portion of the URI shall follow JSON fragment notation rules defined by RFC6901.
MetricType	string (enum)	read-only (null)	The value of this property shall specific the type of trigger. *See MetricType in Property Details, below, for the possible values of this property.*
NumericThresholds {	object		This property shall contain list of thresholds to which a numeric metric value shall be compared.
LowerCritical {	object		The value of this property shall indicate the Reading is below the normal range and may require attention. The units shall be the same units as the Reading.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the Reading value for this Sensor that triggers the threshold. *See Activation in Property Details, below, for the possible values of this property.*
DwellTime	string	read-write (null)	This property shall indicate the time interval over which the sensor reading must have passed through this Threshold value before the threshold is considered to be violated. Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(.\d+)?S)?)?
Reading }	number	read-write (null)	This property shall indicate the Reading value of this Sensor that triggers the threshold. The units of this property shall follow the same units as the property described by MetricProperties.
LowerWarning {	object		The value of this property shall indicate the Reading is below the normal range. The units shall be the same units as the Reading.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the Reading value for this Sensor that triggers the threshold. *See Activation in Property Details, below, for the possible values of this property.*
DwellTime	string	read-write (null)	This property shall indicate the time interval over which the sensor reading must have passed through this Threshold value before the threshold is considered to be violated. Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(.\d+)?S)?)?
Reading }	number	read-write (null)	This property shall indicate the Reading value of this Sensor that triggers the threshold. The units of this property shall follow the same units as the property described by MetricProperties.
UpperCritical {	object		The value of this property shall indicate the Reading is above the normal range and may require attention. The units shall be the same units as the Reading.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the Reading value for this Sensor that triggers the threshold. *See Activation in Property Details, below, for the possible values of this property.*
DwellTime	string	read-write	This property shall indicate the time interval over which the sensor reading must

		(null)	have passed through this Threshold value before the threshold is considered to be violated. Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(.\d+)?S)?)?
Reading }	number	read-write (null)	This property shall indicate the Reading value of this Sensor that triggers the threshold. The units of this property shall follow the same units as the property described by MetricProperties.
UpperWarning {	object		The value of this property shall indicate the Reading is above the normal range. The units shall be the same units as the Reading.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the Reading value for this Sensor that triggers the threshold. *See Activation in Property Details, below, for the possible values of this property.*
DwellTime	string	read-write (null)	This property shall indicate the time interval over which the sensor reading must have passed through this Threshold value before the threshold is considered to be violated. Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(.\d+)?S)?)?
Reading } }	number	read-write (null)	This property shall indicate the Reading value of this Sensor that triggers the threshold. The units of this property shall follow the same units as the property described by MetricProperties.
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*
TriggerActions [ ]	array (string (enum))	read-only	The value of this property shall specify the actions to perform when the trigger occurs. The value shall specify the actions to perform when a trigger occurs. *See TriggerActions in Property Details, below, for the possible values of this property.*
Wildcards [{	array		The property shall contain a list of wildcards and their replacement strings, which are applied to the MetricProperties array property. Each wildcard shall have a corresponding entry in this array property.
Name	string	read-only (null)	This property shall contain the string used as a wildcard.
Values [ ] }]	array (string, null)	read-only	This property shall contain the list of values to susubstitute for the wildcard.

Property Details

Activation:

This property shall indicate the direction of crossing of the Reading value for this Sensor that triggers the threshold.

string	Description
Decreasing	This threshold is activated when the value of Reading changes from a value higher than the threshold to a value lower than the threshold.
Either	This threshold is activated when either the Increasing or Decreasing conditions are met.
Increasing	This threshold is activated when the value of Reading changes from a value lower than the threshold to a value higher than the threshold.

DiscreteTriggerCondition:

The value of this property shall specify the conditions when a discrete metric triggers.

string	Description
Changed	A discrete trigger occures whenever the value of the metric changes.
Specified	A discrete trigger occurs when the value of the metric becomes one of the values listed in the DiscreteTriggers property.

MetricType:

The value of this property shall specific the type of trigger.

string	Description
Discrete	The trigger is for a discrete sensor.
Numeric	The trigger is for numeric sensor.

Severity:

The value of this property shall be used for the Severity property in the Event message.

string	Description
Critical	A critical condition exists that requires immediate attention.
OK	Normal.
Warning	A condition exists that requires attention.

TriggerActions:

The value of this property shall specify the actions to perform when the trigger occurs. The value shall specify the actions to perform when a trigger occurs.

string	Description
LogToLogService	When a trigger condition is met, the service shall log the occurrence of the condition to the log indicated by the LogService property in the TelemetryService resource.
RedfishEvent	When a trigger condition is met, the service shall produce a Redfish Event of type Event to matching subscribers indicated in the EventSubscription collection found on the EventService.
RedfishMetricReport *(v1.1+)*	When a trigger condition is met, the service shall force the Metric Reports managed by the MetricReportDefinitions specified by the MetricReportDefinitions property to be updated, regardless of the MetricReportDefinitionType property. The actions specified in the ReportActions property of each MetricReportDefinition shall be performed.

Example Response


```
{
    "@odata.type": "#Triggers.v1_0_0.Triggers",
    "Id": "PlatformPowerCapTriggers",
    "Name": "Triggers for platform power consumed",
    "MetricType": "Numeric",
    "TriggerActions": [
        "RedfishEvent"
    ],
    "NumericThresholds": {
        "UpperCritical": {
            "Reading": 50,
            "Activation": "Increasing",
            "DwellTime": "PT0.001S"
        },
        "UpperWarning": {
            "Reading": 48.1,
            "Activation": "Increasing",
            "DwellTime": "PT0.004S"
        }
    },
    "MetricProperties": [
        "/redfish/v1/Chassis/1/Power#/PowerControl/0/PowerConsumedWatts"
    ],
    "@odata.context": "/redfish/v1/$metadata#Triggers.Triggers",
    "@odata.id": "/redfish/v1/TelemetryService/Triggers/PlatformPowerCapTriggers"
}
```


UpdateService 1.5.0

v1.5	*v1.4*	*v1.3*	*v1.2*	*v1.1*	*v1.0*
2019.1	2018.3	2018.2	2017.1	2016.3	2016.2

This resource shall be used to represent an Update Service for a Redfish implementation. It represents the properties that affect the service itself.

URIs:

/redfish/v1/UpdateService

FirmwareInventory {	object		The value of this property shall be a link to a resource of type SoftwareInventoryCollection.

			Contains a link to a resource.
@odata.id }	string	read-only	*Link to Collection of SoftwareInventory. See the SoftwareInventory schema for details.*
HttpPushUri *(v1.1+)*	string	read-only	This property shall contain a URI at which the UpdateService supports an HTTP or HTTPS POST of a software image for the purpose of installing software contained within the image. Access to this URI shall require the same privilege as access to the Update Service. If the service requires Content-Length header for POST requests to this URI, the service should return HTTP 411 if the client does not include this header in the POST request.
HttpPushUriOptions *(v1.4+)* {	object		The value of this property shall contain options and requirements of the service for software update via HttpPushUri.
HttpPushUriApplyTime {	object		The value of this property shall contain settings for when firmware is to be applied when provided via HttpPushUri.
ApplyTime	string (enum)	read-write	The value of this property shall indicate the preference on to when to apply the software provided via HttpPushUri. *See ApplyTime in Property Details, below, for the possible values of this property.*
MaintenanceWindowDurationInSeconds	integer (seconds)	read-write	The value of this property shall indicate the end of the maintenance window as the number of seconds after the time specified by the HttpPushUriMaintenanceWindowStartTime property. This property shall be required if the HttpPushUriApplyTime property is specified as AtMaintenanceWindowStart or InMaintenanceWindowOnReset.
MaintenanceWindowStartTime } }	string	read-write	The value of this property shall indicate the date and time as to when the service is allowed to start applying the software provided via HttpPushUri as part of a maintenance window. This property shall be required if the HttpPushUriApplyTime property is specified as AtMaintenanceWindowStart or InMaintenanceWindowOnReset.
HttpPushUriOptionsBusy *(v1.4+)*	boolean	read-write (null)	This property shall be a boolean that determines when the properties within the HttpPushUriOptions object are being used by a client for software updates. A client should set this property to True when it is using any properties in HttpPushUriOptions for software update, and should set it to False when it is no longer using HttpPushUriOptions properties for updates. The property can provide multiple clients a way to negotiate ownership of HttpPushUriOptions. This will help clients to know if a firmware update using HttpPushUriOptions is used by another client. This property has no functional requirements for the Service.
HttpPushUriTargets *(v1.2+)* [ ]	array (string, null)	read-write	This property shall contain zero or more URIs indicating the targets for applying the update image when using HttpPushUri to push a software image. These targets should correspond to SoftwareInventory instances or their RelatedItems. If this property is not present or contains zero targets, the Service shall apply the software image to all applicable targets (as determined by the Service).
HttpPushUriTargetsBusy *(v1.2+)*	boolean	read-write (null)	This property shall be a boolean that determines when the HttpPushUriTargets property is being used by a client for firmware updates. A client should set this property to True when it is using HttpPushUriTargets for firmware update, and should set it to False when it is no longer using HttpPushUriTargets for updates. The property can provide multiple clients a way to negotiate ownership of HttpPushUriTargets. This will help clients to know if a

			firmware update using HttpPushUriTargets is used by another client. This property has no functional requirements for the Service.
MaxImageSizeBytes *(v1.5+)*	integer (bytes)	read-only (null)	The value of this property shall indicate the maximum size of the software update image that clients can send to this update service.
ServiceEnabled	boolean	read-write (null)	The value of this property shall be a boolean indicating whether this service is enabled.
SoftwareInventory {	object		The value of this property shall be a link to a resource of type SoftwareInventoryCollection. *Contains a link to a resource.*
@odata.id }	string	read-only	*Link to Collection of SoftwareInventory. See the SoftwareInventory schema for details.*
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*

Actions

SimpleUpdate

This action shall perform an update of installed software component(s) as contained within a software image file located at a URI referenced by the ImageURI parameter.

URIs:

/redfish/v1/UpdateService/Actions/UpdateService.SimpleUpdate

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
ImageURI	string	read-write required	This parameter shall contain a URI referencing a software image to be retreived by the UpdateService for the purpose of installing software contained within the image.
Password	string	read-write	This parameter shall contain a string representing the password to be used when accessing the URI specified by the ImageURI parameter.
Targets [ ]	array (string)	read-write	This array property shall contain zero or more URIs indicating where the update image is to be applied. These targets should correspond to SoftwareInventory instances or their RelatedItems. If this property is not present or contains zero targets, the Service shall apply the software image to all applicable targets (as determined by the Service).
TransferProtocol	string (enum)	read-write	This parameter shall contain the network protocol that the Update Service shall use to retreive the software image located at the ImageURI. If this parameter is not provided (or supported), and a transfer protocol is not specified by a scheme contained within ImageURI, the Update Service shall use HTTP to retrieve the image. *See TransferProtocol in Property Details, below, for the possible values of this property.*
Username }	string	read-write	This parameter shall contain a string representing the username to be used when accessing the URI specified by the ImageURI parameter.

Property Details

ApplyTime:

The value of this property shall indicate the preference on to when to apply the software provided via HttpPushUri.

string	Description
AtMaintenanceWindowStart	This ApplyTime value shall be used to indicate the software provided via HttpPushUri is applied during the maintenance window specified by the MaintenanceWindowStartTime and MaintenanceWindowDurationInSeconds properties. A service may perform resets during this maintenance window.

Immediate	This ApplyTime value shall be used to indicate the software provided via HttpPushUri is applied immediately.
InMaintenanceWindowOnReset	This ApplyTime value shall be used to indicate the software provided via HttpPushUri is applied during the maintenance window specified by the MaintenanceWindowStartTime and MaintenanceWindowDurationInSeconds properties, and if a reset occurs within the maintenance window.
OnReset	This ApplyTime value shall be used to indicate the software provided via HttpPushUri is applied when the system or service is reset.

TransferProtocol:

This parameter shall contain the network protocol that the Update Service shall use to retreive the software image located at the ImageURI. If this parameter is not provided (or supported), and a transfer protocol is not specified by a scheme contained within ImageURI, the Update Service shall use HTTP to retrieve the image.

string	Description
CIFS	Common Internet File System protocol.
FTP	File Transfer Protocol.
HTTP	Hypertext Transfer Protocol.
HTTPS	HTTP Secure protocol.
NFS *(v1.3+)*	Network File System protocol.
NSF *(deprecated v1.3)*	Network File System protocol. *Deprecated v1.3+. This value has been Deprecated in favor of NFS.*
OEM	A protocol defined by the manufacturer.
SCP	Secure File Copy protocol.
SFTP *(v1.1+)*	Secure File Transfer Protocol.
TFTP	Trivial File Transfer Protocol.

Example Response


```
{
    "@odata.type": "#UpdateService.v1_3_0.UpdateService",
    "Id": "UpdateService",
    "Name": "Update service",
    "Status": {
        "State": "Enabled",
        "Health": "OK",
        "HealthRollup": "OK"
    },
    "ServiceEnabled": true,
    "HttpPushUri": "/FWUpdate",
    "FirmwareInventory": {
        "@odata.id": "/redfish/v1/UpdateService/FirmwareInventory"
    },
    "SoftwareInventory": {
        "@odata.id": "/redfish/v1/UpdateService/SoftwareInventory"
    },
    "Actions": {
        "#UpdateService.SimpleUpdate": {
            "target": "/redfish/v1/UpdateService/Actions/SimpleUpdate",
            "@Redfish.ActionInfo": "/redfish/v1/UpdateService/SimpleUpdateActionInfo"
        },
        "Oem": {}
    },
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#UpdateService.UpdateService",
    "@odata.id": "/redfish/v1/UpdateService"
}
```


VirtualMedia 1.3.1

v1.3	*v1.2*	*v1.1*	*v1.0*
2018.3	2017.3	2017.1	1.0

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

URIs:

/redfish/v1/Managers/*{ManagerId}*/VirtualMedia/*{VirtualMediaId}*

ConnectedVia	string (enum)	read-only (null)	The value of this property shall indicate the current connection method from a client to the virtual media represented by this resource. A value of NotConnected shall indicate no connection is present. A value of URI shall indicate that a remote connection via a URI reference type is being used. *See ConnectedVia in Property Details, below, for the possible values of this property.*
Image	string	read-write (null)	The value of this string shall be an URI. A null value indicated no image connection.
ImageName	string	read-only (null)	The value of this property shall be the name of the image.
Inserted	boolean	read-write (null)	The value of this property shall be used to indicate if media is present in the virtual media device. This is usually only applicable to remoting of devices and not for image virtual media usage.
MediaTypes [ ]	array (string (enum))	read-only	The values of this array shall be the supported media types for this connection. *See MediaTypes in Property Details, below, for the possible values of this property.*
Password *(v1.3+)*	string	read-write (null)	This parameter shall contain a string representing the password to be used when accessing the URI specified by the Image parameter. The value shall be null for GET requests.
TransferMethod *(v1.3+)*	string (enum)	read-write (null)	This parameter shall contain a value describing how the image transfer is done. *See TransferMethod in Property Details, below, for the possible values of this property.*
TransferProtocolType *(v1.3+)*	string (enum)	read-write (null)	This parameter shall contain a value representing the network protocol to use with the specified image URI. *See TransferProtocolType in Property Details, below, for the possible values of this property.*
UserName *(v1.3+)*	string	read-write (null)	This parameter shall contain a string representing the username to be used when accessing the URI specified by the Image parameter.
WriteProtected	boolean	read-write (null)	The value of this property shall be used to indicate if the remote device media prevents writing to that media.

Actions

EjectMedia

This action shall detach the remote media from the virtual media. At the completion of the operation, inserted shall be set to false and the image name shall be cleared.

URIs:

/redfish/v1/Managers/*{ManagerId}*/VirtualMedia/*{VirtualMediaId}*/Actions/VirtualMedia.EjectMedia

(This action takes no parameters.)

InsertMedia

This action shall attach remote media to virtual media.

URIs:

/redfish/v1/Managers/*{ManagerId}*/VirtualMedia/*{VirtualMediaId}*/Actions/VirtualMedia.InsertMedia

The following table shows the parameters for the action which are included in the POST body to the URI shown in the "target" property of the Action.

{			
Image	string	read-write required	This value shall specify the URI of the remote media to be attached to the virtual media.
Inserted	boolean	read-write	This value shall specify if the image is to be treated as inserted upon completion of the action. If this parameter is not provided by the client, the service shall default this value to be true.
Password	string	read-write	This parameter shall contain a string representing the password to be used when accessing the URI specified by the Image

			parameter.
TransferMethod *(v1.3+)*	string (enum)	read-write	This parameter shall contain a value describing how the image transfer is done. *See TransferMethod in Property Details, below, for the possible values of this property.*
TransferProtocolType *(v1.3+)*	string (enum)	read-write	This parameter shall contain a value representing the network protocol to use with the specified image URI. *See TransferProtocolType in Property Details, below, for the possible values of this property.*
UserName	string	read-write	This parameter shall contain a string representing the username to be used when accessing the URI specified by the Image parameter.
WriteProtected }	boolean	read-write	This value shall specify if the remote media is supposed to be treated as write protected. If this parameter is not provided by the client, the service shall default this value to be true.

Property Details

ConnectedVia:

The value of this property shall indicate the current connection method from a client to the virtual media represented by this resource. A value of NotConnected shall indicate no connection is present. A value of URI shall indicate that a remote connection via a URI reference type is being used.

string	Description
Applet	Connected to a client application.
NotConnected	No current connection.
Oem	Connected via an OEM-defined method.
URI	Connected to a URI location.

MediaTypes:

The values of this array shall be the supported media types for this connection.

string	Description
CD	A CD-ROM format (ISO) image.
DVD	A DVD-ROM format image.
Floppy	A floppy disk image.
USBStick	An emulation of a USB storage device.

TransferMethod:

This parameter shall contain a value describing how the image transfer is done.

string	Description
Stream	Stream image file data from the source URI.
Upload	Upload the entire image file from the source URI to the service.

TransferProtocolType:

This parameter shall contain a value representing the network protocol to use with the specified image URI.

string	Description
CIFS	Common Internet File System protocol.
FTP	File Transfer Protocol.
HTTP	Hypertext Transfer Protocol.

HTTPS	HTTP Secure protocol.
NFS	Network File System protocol.
OEM	A protocol defined by the manufacturer.
SCP	Secure File Copy protocol.
SFTP	Secure File Transfer Protocol.
TFTP	Trivial File Transfer Protocol.

Example Response

```
{
    "@odata.type": "#VirtualMedia.v1_2_1.VirtualMedia",
    "Id": "CD1",
    "Name": "Virtual CD",
    "MediaTypes": [
        "CD",
        "DVD"
    ],
    "Image": "redfish.dmtf.org/freeImages/freeOS.1.1.iso",
    "ImageName": "mymedia-read-only",
    "ConnectedVia": "Applet",
    "Inserted": true,
    "WriteProtected": false,
    "@odata.context": "/redfish/v1/$metadata#VirtualMedia.VirtualMedia",
    "@odata.id": "/redfish/v1/Managers/BMC/VirtualMedia/CD1"
}
```

VLanNetworkInterface 1.1.3

v1.1	*v1.0*
2017.1	1.0

This resource shall contain any attributes of a Virtual LAN.

URIs:

/redfish/v1/Chassis/*{ChassisId}*/NetworkAdapters/*{NetworkAdapterId}*/NetworkDeviceFunctions/*{NetworkDeviceFunctionId}*/Ethernet/VLANs/*{VLanNetworkInterfaceId}*

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/EthernetInterfaces/*{EthernetInterfaceId}*/VLANs/*{VLanNetworkInterfaceId}*

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/EthernetInterfaces/*{EthernetInterfaceId}*/VLANs/*{VLanNetworkInterfaceId}*

/redfish/v1/Managers/*{ManagerId}*/EthernetInterfaces/*{EthernetInterfaceId}*/VLANs/*{VLanNetworkInterfaceId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/EthernetInterfaces/*{EthernetInterfaceId}*/VLANs/*{VLanNetworkInterfaceId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/EthernetInterfaces/*{EthernetInterfaceId}*/VLANs/*{VLanNetworkInterfaceId}*

/redfish/v1/Systems/*{ComputerSystemId}*/EthernetInterfaces/*{EthernetInterfaceId}*/VLANs/*{VLanNetworkInterfaceId}*

VLANEnable	boolean	read-write required on create (null)	The value of this property shall be used to indicate if this VLAN is enabled for this interface.
VLANId	integer	read-write required on create (null)	The value of this property shall be used to indicate the VLAN identifier for this VLAN.

Example Response

```
{
    "@odata.type": "#VLanNetworkInterface.v1_1_2.VLanNetworkInterface",
    "Id": "1",
    "Name": "VLAN Network Interface",
    "Description": "System NIC 1 VLAN",
    "VLANEnable": true,
    "VLANId": 101,
    "@odata.context": "/redfish/v1/$metadata#VLanNetworkInterface.VLanNetworkInterface",
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/EthernetInterfaces/12446A3B0411/VLANs/1"
}
```

Volume 1.0.3

This resource shall be used to represent a volume, virtual disk, logical disk, LUN, or other logical storage for a Redfish implementation.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Volumes/*{VolumeId}*

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Volumes/*{VolumeId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Volumes/*{VolumeId}*

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Volumes/*{VolumeId}*

/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Volumes/*{VolumeId}*

BlockSizeBytes	number (bytes)	read-only (null)	This property shall contain size of the smallest addressible unit of the associated volume.
CapacityBytes	number (bytes)	read-only (null)	This property shall contain the size in bytes of the associated volume.
Encrypted	boolean	read-write (null)	This property shall contain a boolean indicator if the Volume is currently utilizing encryption or not.
EncryptionTypes [ ]	array (string (enum))	read-write	This property shall contain the types of encryption used by this Volume. *See EncryptionTypes in Property Details, below, for the possible values of this property.*
Identifiers [{ }]	array (object)		This property shall contain a list of all known durable names for the associated volume. *See the Identifier object (v1.1.0) for details on this property.*
Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Drives [{	array		The value of this property shall be a reference to the resources that this volume is associated with and shall reference resources of type Drive. This property shall only contain references to Drive entities which are currently members of the Volume, not hot spare Drives which are not currently a member of the volume.
@odata.id }]	string	read-only	*Link to a Drive resource. See the Links section and the Drive schema for details.*
Oem { } }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
Operations [{	array		This property shall contain a list of all currently running on the Volume.
AssociatedTask {	object		This resource shall be used to represent a Task for a Redfish implementation. *See the Task schema for details on this property.*
@odata.id }	string	read-only	*Link to a Task resource. See the Links section and the Task schema for details.*
OperationName	string	read-only (null)	The name of the operation.
PercentageComplete }]	number	read-only (null)	The percentage of the operation that has been completed.
OptimumIOSizeBytes	number (bytes)	read-only (null)	This property shall contain the optimum IO size to use when performing IO on this volume. For logical disks, this is the stripe size. For physical disks, this describes the physical sector size.
Status { }	object		This type shall contain any status or health properties of a resource. *See the Status object for details on this property.*
VolumeType	string (enum)	read-only (null)	This property shall contain the type of the associated Volume. *See VolumeType in Property Details, below, for the possible values of this property.*

Actions

Initialize

This defines the name of the custom action supported on this resource.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Volumes/*{VolumeId}*/Actions/Volume.Initialize

/redfish/v1/CompositionService/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Volumes/*{VolumeId}*/Actions/Volume.Initialize

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Storage/*{StorageId}*/Volumes/*{VolumeId}*/Actions/Volume.Initialize

/redfish/v1/ResourceBlocks/*{ResourceBlockId}*/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Volumes/*{VolumeId}*/Actions/Volume.Initialize

/redfish/v1/Systems/*{ComputerSystemId}*/Storage/*{StorageId}*/Volumes/*{VolumeId}*/Actions/Volume.Initialize

(This action takes no parameters.)

Property Details

EncryptionTypes:

This property shall contain the types of encryption used by this Volume.

string	Description
ControllerAssisted	The volume is being encrypted by the storage controller entity.
NativeDriveEncryption	The volume is utilizing the native drive encryption capabilities of the drive hardware.
SoftwareAssisted	The volume is being encrypted by software running on the system or the operating system.

VolumeType:

This property shall contain the type of the associated Volume.

string	Description
Mirrored	The volume is a mirrored device.
NonRedundant	The volume is a non-redundant storage device.
RawDevice	The volume is a raw physical device without any RAID or other virtualization applied.
SpannedMirrors	The volume is a spanned set of mirrored devices.
SpannedStripesWithParity	The volume is a spanned set of devices which uses parity to retain redundant information.
StripedWithParity	The volume is a device which uses parity to retain redundant information.

Example Response


```
{
    "@odata.type": "#Volume.v1_3_1.Volume",
    "Id": "2",
    "Name": "Virtual Disk 2",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Encrypted": false,
    "RAIDType": "RAID0",
    "CapacityBytes": 107374182400,
    "Identifiers": [
        {
            "DurableNameFormat": "UUID",
            "DurableName": "0324c96c-8031-4f5e-886c-50cd90aca854"
        }
    ],
    "Links": {
        "Drives": [
            {
                "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1/Drives/3D58ECBC375FD9F2"
            }
        ]
    },
    "Actions": {
        "#Volume.Initialize": {
            "target": "/redfish/v1/Systems/3/Storage/RAIDIntegrated/Volumes/1/Actions/Volume.Initialize",
            "InitializeType@Redfish.AllowableValues": [
                "Fast",
                "Slow"
            ]
        }
    },
    "@odata.context": "/redfish/v1/$metadata#Volume.Volume",
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1/Volumes/2"
}
```


Zone 1.3.0

v1.3	*v1.2*	*v1.1*	*v1.0*
2019.1	2017.3	2017.1	2016.2

This resource shall be used to represent a simple zone for a Redfish implementation.

URIs:

/redfish/v1/CompositionService/ResourceZones/*{ZoneId}*

/redfish/v1/Fabrics/*{FabricId}*/Zones/*{ZoneId}*

ExternalAccessibility *(v1.3+)*	string (enum)	read-write (null)	This value shall indicate how the zone is accessible to endpoints not explicity named in this zone. *See ExternalAccessibility in Property Details, below, for the possible values of this property.*
Identifiers [{ }]	array (object)		Identifiers for this zone shall be unique in the context of other zones. This type shall contain any additional identifiers of a resource. *See the Identifier object for details on this property.*
Links {	object		The Links property, as described by the Redfish Specification, shall contain references to resources that are related to, but not contained by (subordinate to), this resource.
Endpoints [{	array		The value of this property shall be a reference to the resources that this zone is associated with and shall reference a resource of type Endpoint.
@odata.id }]	string	read-only	*Link to a Endpoint resource. See the Links section and the Endpoint schema for details.*
InvolvedSwitches [{	array		The value of this property shall be a reference to the resources that this zone is associated with and shall reference a resource of type Switch.
@odata.id }]	string	read-only	*Link to a Switch resource. See the Links section and the Switch schema for details.*
Oem { }	object		This object represents the Oem property. All values for resources described by this schema shall comply to the requirements as described in the Redfish specification.
ResourceBlocks *(v1.1+)* [{	array		The value of this property shall be an array of references of type ResourceBlock that are associated with this Zone.
@odata.id }] }	string	read-only	*Link to a ResourceBlock resource. See the Links section and the ResourceBlock schema for details.*
Status { }	object		This property shall contain any status or health properties of the resource. *See the Status object for details on this property.*

Property Details

ExternalAccessibility:

This value shall indicate how the zone is accessible to endpoints not explicity named in this zone.

string	Description
GloballyAccessible	This indicates that all endpoints explicitly listed in this zone are visible from other endpoints, regardless of zone.
NonZonedAccessible	This indicates that all endpoints explicitly listed in this zone are visible from other endpoints that are not currently in another zone.
ZoneOnly	This indicates that only endpoints explictly listed in this zone are visible to the other endpoints explictly listed in this zone.

Example Response

```
{
    "@odata.type": "#Zone.v1_2_1.Zone",
    "Id": "1",
    "Name": "SAS Zone 1",
```

```
    "Description": "SAS Zone 1",
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Links": {
        "Endpoints": [
            {
                "@odata.id": "/redfish/v1/Fabrics/SAS/Endpoints/Initiator1"
            },
            {
                "@odata.id": "/redfish/v1/Fabrics/SAS/Endpoints/Initiator2"
            },
            {
                "@odata.id": "/redfish/v1/Fabrics/SAS/Endpoints/Drive1"
            },
            {
                "@odata.id": "/redfish/v1/Fabrics/SAS/Endpoints/Drive3"
            }
        ]
    },
    "Oem": {},
    "@odata.context": "/redfish/v1/$metadata#Zone.Zone",
    "@odata.id": "/redfish/v1/Fabrics/SAS/Zones/1"
}
```

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 the DMTF's Github repository located at http://www.github.com/DMTF/Redfish-Tools.

ANNEX A

Change log

Version	Date	Description
2019.1a	2019-05-03	Workd in Progress release built from Redfish schemas released in DSP8010 version 2019.1