



Redfish

Document Identifier: DSP0268

Date: 2019-10-11

Version: 2019.3

Redfish Schema Supplement

Document Class: Normative

Document Status: Published

Document Language: en-US

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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 schema 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 more.
- **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 of this Resource. The Resource values shall comply with the Redfish Specification-described requirements.
Id	string	read-only	This property represents an identifier for the Resource. The Resource values shall comply with the Redfish Specification-described requirements.
Name	string	read-only required	This object represents the name of this Resource or array member. The Resource values shall comply with the Redfish Specification-described requirements. This string value shall be of the 'Name' reserved word format.
Oem { }	object		The manufacturer- or provider-specific extension moniker that divides the <code>Oem</code> 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		The Redfish actions available for this Resource.
Links { }	object		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. Find all directly referenced, or subordinate, Resource

			properties from the root of the Resource.
RelatedItem [{	array		An array of links. Each link points to a Resource or part of a Resource as defined by that Resource's schema. This representation is not intended to be a strong linking methodology like other references. Instead, it shows a relationship between elements or subelements in disparate parts of the service. For example, fans may be in one area of the system and processors in another. The relationship between the two might not be obvious. This property can show that one is related to the other. In this example, it might indicate that a specific fan cools 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.

<code>@Message.ExtendedInfo { }</code>	object		The additional information for a set of message structures for a property. These messages can be useful when a property is <code>null</code> due to an error condition and the service wants to convey why the property is <code>null</code> .
<code>@odata.count</code>	integer	read-only	The value of this property shall be an integer representing the number of items in a collection.
<code>@Redfish.AllowableValues []</code>	array (string)	read-only	The string values that a service accepts for a 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.

<code>@Redfish.ActionInfo</code>	string	read-only	The URI to an <code>ActionInfo</code> Resource, which describes the parameters that this <code>Action</code> instance supports.
<code>@Redfish.CollectionCapabilities { }</code>	object		This type shall describe any capabilities of a <code>Resource Collection</code> in terms of how a client can create <code>Resources</code> within the <code>Resource Collection</code> . <i>For property details, see CollectionCapabilities.</i>
<code>@Redfish.MaintenanceWindow { }</code>	object		This type shall indicate that a

			Resource has a maintenance window assignment for applying settings or operations. Other Resources may link to this object to convey a common control surface for the configuration of the maintenance window. <i>For property details, see MaintenanceWindow.</i>
@Redfish.OperationApplyTime	string (enum)	read-write	The client's requested apply time to complete a create, delete, or action operation. <i>For the possible property values, see @Redfish.OperationApplyTime in Property Details.</i>
@Redfish.OperationApplyTimeSupport { }	object		This type shall indicate that a client can request a specific apply time of a create, delete, or action operation of a Resource. <i>For property details, see OperationApplyTimeSupport.</i>
@Redfish.Settings { }	object		This type shall describe any settings of a Resource. <i>For property details, see Settings.</i>
@Redfish.SettingsApplyTime { }	object		This type shall be specified by client to indicate the preferred time to apply the configuration settings. <i>For property details, see PreferredApplyTime.</i>

Property Details

@Redfish.OperationApplyTime:

The client's requested apply time to complete a create, delete, or action operation.

string	Description
AtMaintenanceWindowStart	This value shall indicate the requested create, delete, or action operation is applied during the maintenance window that the MaintenanceWindowStartTime and MaintenanceWindowDurationInSeconds properties specify. A service may complete resets during this maintenance window.
Immediate	This value shall indicate the requested create, delete, or action operation is applied immediately.
InMaintenanceWindowOnReset	This value shall indicate the requested create, delete, or action operation is applied during the maintenance

string	Description
OnReset	This value shall indicate the requested create, delete, or action operation is applied when the system or service is reset.
OnStartUpdateRequest	This value shall indicate the requested create, delete, or action operation is applied when the StartUpdate action of the Update Service is invoked.

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"
  }
}
```

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		A single Redfish action.
@Redfish.ActionInfo	string	read-only	The URI for an ActionInfo Resource that describes this action.
target }	string	read-only	The target URI for the POST operation to invoke the action.

Capacity

This composition may be used to represent storage capacity. The sum of the values in Data, Metadata, and Snapshot shall be equal to the total capacity for the data store.

Data {	object		The value shall be capacity information relating to provisioned user data.
AllocatedBytes	integer (bytes)	read-write (null)	The value shall be the number of bytes currently allocated by the storage system in this data store for this data type.
ConsumedBytes	integer (bytes)	read-only (null)	The value shall be the number of logical bytes currently consumed in this data store for this data type.
GuaranteedBytes	integer (bytes)	read-write (null)	The value shall be the number of bytes the storage system guarantees can be allocated in this data store for this data type.
ProvisionedBytes }	integer (bytes)	read-write (null)	The value shall be the maximum number of bytes that can be allocated in this data store for this data type.
IsThinProvisioned	boolean	read-only (null)	If the value is false, the capacity shall be fully allocated. The default value shall be false.
Metadata {	object		The value shall be capacity information relating to provisioned system (non-user accessible) data.
AllocatedBytes	integer (bytes)	read-write (null)	The value shall be the number of bytes currently allocated by the storage system in this data store for this data type.

ConsumedBytes	integer (bytes)	read-only (null)	The value shall be the number of logical bytes currently consumed in this data store for this data type.
GuaranteedBytes	integer (bytes)	read-write (null)	The value shall be the number of bytes the storage system guarantees can be allocated in this data store for this data type.
ProvisionedBytes }	integer (bytes)	read-write (null)	The value shall be the maximum number of bytes that can be allocated in this data store for this data type.
Snapshot {	object		The value shall be capacity information relating to provisioned snapshot or backup data.
AllocatedBytes	integer (bytes)	read-write (null)	The value shall be the number of bytes currently allocated by the storage system in this data store for this data type.
ConsumedBytes	integer (bytes)	read-only (null)	The value shall be the number of logical bytes currently consumed in this data store for this data type.
GuaranteedBytes	integer (bytes)	read-write (null)	The value shall be the number of bytes the storage system guarantees can be allocated in this data store for this data type.
ProvisionedBytes }	integer (bytes)	read-write (null)	The value shall be the maximum number of bytes that can be allocated in this data store for this data type.

Identifier

This type shall contain any additional identifiers for 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 Identifier.DurableNameFormat property value format.
DurableNameFormat (v1.1+)	string (enum)	read-only (null)	This property shall represent the format of the DurableName property. <i>For the possible property values, see DurableNameFormat in Property Details.</i>

Property Details

DurableNameFormat:

This property shall represent the format of the DurableName property.

string	Description
EUI	This durable name shall contain the hexadecimal representation of the IEEE-defined 64-bit Extended Unique Identifier (EUI), as defined in the IEEE's Guidelines for 64-bit Global Identifier (EUI-64) Specification.

string	Description
FC_WWN	This durable name shall contain a hexadecimal representation of the World-Wide Name (WWN) format, as defined in the T11 Fibre Channel Physical and Signaling Interface Specification.
iQN	This durable name shall be in the iSCSI Qualified Name (iQN) format, as defined in RFC3720 and RFC3721.
NAA	This durable name shall contain 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 (v1.6+)	This durable name shall be in the NVMe Qualified Name (NQN) format, as defined in the NVN Express over Fabric Specification.
NSID (v1.6+)	This durable name shall be in the NVM Namespace Identifier (NSID) format, as defined in the NVN Express Specification.
UUID	This durable name shall contain the hexadecimal representation of the UUID, as defined in the International Telecom Union's OSI networking and system aspects - Naming, Addressing and Registration Specification.

IOStatistics

The properties of this type shall be used to represent the IO statistics of the requested object.

@odata.id	string	read-only	<i>Link to another IOStatistics resource.</i>
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IPv4Address

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

Address	string	read-write (null)	This property shall contain 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)	This property shall contain the IP address origin for this network interface. <i>For the possible property values, see AddressOrigin in Property Details.</i>
Gateway	string	read-write (null)	This property shall contain 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 property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.

SubnetMask	string	read-write (null)	This property shall contain the IPv4 subnet mask for this address. If DHCPv4 is enabled on the interface, this property becomes read-only. Pattern: <code>^(?:[0-9]{1,3}.){3}[0-9]{1,3}\$</code>
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Property Details

AddressOrigin:

This property shall contain the IP address origin for this network interface.

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

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)	This property shall contain the IPv6 address origin for this interface. <i>For the possible property values, see AddressOrigin in Property Details.</i>
AddressState	string (enum)	read-only (null)	This property shall contain the current RFC4862-defined state of this address. Preferred and Deprecated states follow the definitions in RFC4862, section 5.5.4. The Tentative state indicates that the address is undergoing Duplicate Address Detection (DAD), as defined in RFC4862, section 5.4. The Failed state indicates a static address that did not pass DAD. A static address in the Failed state is not in use on the network stack, and corrective action is required to remedy this condition. <i>For the possible property values, see AddressState in Property Details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PrefixLength	integer	read-only (null)	This property shall contain the IPv6 address prefix length for this interface.

Property Details

AddressOrigin:

This property shall contain the IPv6 address origin for this interface.

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

AddressState:

This property shall contain the current RFC4862-defined state of this address. Preferred and Deprecated states follow the definitions in RFC4862, section 5.5.4. The Tentative state indicates that the address is undergoing Duplicate Address Detection (DAD), as defined in RFC4862, section 5.4. The Failed state indicates a static address that did not pass DAD. A static address in the Failed state is not in use on the network stack, and corrective action is required to remedy this condition.

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

IPv6GatewayStaticAddress

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

Address (v1.1+)	string	read-write required (null)	This property provides access to a static IPv6 address that is currently assigned on a network interface.
Oem (v1.1+) { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PrefixLength (v1.1+)	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 property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PrefixLength	integer	read-write required (null)	This property shall contain 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)	This property shall contain the altitude of the Resource in meters.
Contacts (v1.7+) [{	array		This property shall contain an array of contact information for an individual or organization responsible for this Resource.
ContactName	string	read-write (null)	This property shall contain the name of a person or organization to contact for information about this Resource.
EmailAddress	string	read-write (null)	This property shall contain the email address for a person or organization to contact for information about this Resource.
PhoneNumber }]	string	read-write (null)	This property 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. <i>Deprecated in v1.5 and later. This property has been deprecated in favor of the PostalAddress, Placement, and PartLocation properties.</i>
InfoFormat (v1.1+, deprecated v1.5)	string	read-only (null)	This property shall represent the Info property format. <i>Deprecated in v1.5 and later. This property has been deprecated in favor of the PostalAddress, Placement, and PartLocation properties.</i>

Latitude (v1.6+)	number (deg)	read-write (null)	This property shall contain 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)	This property shall contain the longitude of the Resource specified in degrees using a decimal format and not minutes or seconds.
Oem (v1.1+) {	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
(pattern) { }	object		Property names follow regular expression pattern "[A-Za-z0-9_]+\$"
PartLocation (v1.5+) {	object		The location within a Resource. This representation shall indicate the location within the Placement.
LocationOrdinalValue	integer	read-only (null)	This property shall contain 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)	This property shall contain the type of location of the part, such as slot, bay, socket and slot. <i>For the possible property values, see LocationType in Property Details.</i>
Orientation	string (enum)	read-only (null)	This property shall contain the orientation for the ordering used by the LocationOrdinalValue property. <i>For the possible property values, see Orientation in Property Details.</i>
Reference	string (enum)	read-only (null)	This property shall contain the general location within the unit of the part. <i>For the possible property values, see Reference in Property Details.</i>
ServiceLabel }	string	read-only (null)	This property shall contain the label assigned for service at the part location.
Placement (v1.3+) {	object		This property shall contain a place within the addressed location.
AdditionalInfo (v1.7+)	string	read-write (null)	This property shall contain additional information, such as Tile, Column (Post), Wall, or other designation that describes a location that cannot be

			conveyed with other properties defined for the Placement object.
Rack	string	read-write (null)	This property shall contain the name of the rack within a row.
RackOffset	integer	read-write (null)	The 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)	This property shall contain a RackUnit enumeration literal that indicates the type of rack units in use. <i>For the possible property values, see RackOffsetUnits in Property Details.</i>
Row }	string	read-write (null)	This property shall contain the name of the row.
PostalAddress (v1.3+) {	object		This property shall contain a postal address of the Resource.
AdditionalCode	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the ADDCODE field.
AdditionalInfo (v1.7+)	string	read-write (null)	The value shall conform to the requirements of the LOC field as defined in RFC5139. Provides additional information.
Building	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the BLD field. Names the building.
City	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the A3 field. Names a city, township, or shi (JP).
Community	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the PCN field. A postal community name.
Country	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the Country field.
District	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the A2 field. Names a county, parish, gun (JP), or district (IN).
Division	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the A4 field. Names a city division, borough, dity district, ward, or chou

			(JP).
Floor	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the FLR field. Provides a floor designation.
GPSCoords (<i>deprecated v1.6</i>)	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the ADDCODE field. Shall contain the GPS coordinates of the location. If furnished, expressed in the '[-][nn]n.nnnnnn, [-][nn]n.nnnnn' format. For example, two comma-separated positive or negative numbers with six decimal places of precision. <i>Deprecated in v1.6 and later. This property has been deprecated in favor of the Longitude and Latitude properties.</i>
HouseNumber	integer	read-write (null)	The value shall conform to the RFC5139-defined requirements of the HNO field. The numeric portion of the house number.
HouseNumberSuffix	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the HNS field. Provides a suffix to a house number, (F, B, or 1/2).
Landmark	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the LMK field. Identifies a landmark or vanity address.
LeadingStreetDirection	string	read-write (null)	The value shall conform to the requirements of the PRD field as defined in RFC5139. Names a leading street direction, (N, W, or SE).
Location (<i>deprecated v1.7</i>)	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the LOC field. Provides additional information. <i>Deprecated in v1.7 and later. This property has been deprecated in favor of the AdditionalInfo property.</i>
Name	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the NAM field. Names the occupant.
Neighborhood	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the A5 field. Names a neighborhood or block.
PlaceType	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the

			PLC field. Examples include office and residence.
POBox	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the POBOX field. A post office box (PO box).
PostalCode	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the PC field. A postal code (or zip code).
Road	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the RD field. Designates a primary road or street.
RoadBranch	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the RDBR field. Shall contain a post office box (PO box) road branch.
RoadPostModifier	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the POM field. For example, Extended.
RoadPreModifier	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the PRM field. For example, Old or New.
RoadSection	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the RDSEC field. A road section.
RoadSubBranch	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the RDSUBBR field.
Room	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the ROOM field. A name or number of a room to locate the Resource within the unit.
Seat	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the SEAT field. A name or number of a seat, such as the desk, cubicle, or workstation.
Street	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the A6 field. Names a street.
StreetSuffix	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the STS field. Names a street suffix.

Territory	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the A1 field when it names a territory, state, region, province, or prefecture within a country.
TrailingStreetSuffix	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the POD field. Names a trailing street suffix.
Unit }	string	read-write (null)	The value shall conform to the RFC5139-defined requirements of the UNIT field. The name or number of a unit, such as the apartment or suite, to locate the Resource.

Property Details

LocationType:

This property shall contain the type of location of the part, such as slot, bay, socket and slot.

string	Description
Bay	Bay shall indicate the type of PartLocation is of the Bay type.
Connector	Connector shall indicate the type of PartLocation is of the Connector type.
Slot	Slot shall indicate the type of PartLocation is of the Slot type.
Socket	Socket shall indicate the type of PartLocation of the Socket type.

Orientation:

This property shall contain the orientation for the ordering used by the LocationOrdinalValue property.

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

RackOffsetUnits:

This property shall contain a RackUnit enumeration literal that indicates the type of rack units in use.

string	Description
EIA_310	Rack units shall conform to the EIA-310 standard.
OpenU	Rack units shall be specified in terms of the Open Compute Open Rack specification.

Reference:

This property shall contain the general location within the unit of the part.

string	Description
Bottom	This value shall be used to indicate the part is in the bottom of the unit.
Front	This value shall be used to indicate the part is in the front of the unit.
Left	This value shall be used to indicate the part is on the left side of of the unit.
Middle	This value shall be used to indicate the part is in the middle of the unit.
Rear	This value shall be used to indicate the part is in the rear of the unit.
Right	This value shall be used to indicate the part is on the right side of the unit.
Top	This value shall be used to indicate the part is in the top of the unit.

MaintenanceWindow

This type shall indicate that a Resource has a maintenance window assignment for applying settings or operations. Other Resources may link to this object to convey a common control surface for the configuration of the maintenance window.

MaintenanceWindowDurationInSeconds (v1.2+)	integer (seconds)	read-write required	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	This property shall indicate the date and time when the service can start to apply the requested settings or operation as part of a maintenance window.

Message

This type shall contain a message that the Redfish Service returns, 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 to which this MessageId refers and shall be included only if the MessageId is present. Any number and integer type arguments shall be converted to strings.
MessageId	string	read-only required	This property shall contain a key into Message Registry, as described in the Redfish Specification.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
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 the Message Registry, if present.
Severity	string	read-only (null)	This property shall contain the severity of the error, as defined in the Status section of the Redfish Specification.

OperationApplyTimeSupport

This type shall indicate that a client can request a specific apply time of a create, delete, or action operation of a Resource.

MaintenanceWindowDurationInSeconds (v1.2+)	integer (seconds)	read-only	This property shall contain 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		This property shall contain a link to a Resource that contains the @Redfish.MaintenanceWindow property that 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	This property shall contain 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 (v1.2+) []	array (string (enum))	read-only	This property shall indicate the types of apply times the client can request when performing a create, delete, or action operation. <i>For the possible property values, see SupportedValues in Property Details.</i>

Property Details

SupportedValues:

This property shall indicate the types of apply times the client can request when performing a create, delete, or action operation.

string	Description
AtMaintenanceWindowStart	This value shall indicate the requested create, delete, or action operation is applied during the maintenance window that the MaintenanceWindowStartTime and MaintenanceWindowDurationInSeconds properties specify. A service may complete resets during this maintenance window.
Immediate	This value shall indicate the requested create, delete, or action operation is applied immediately.
InMaintenanceWindowOnReset	This value shall indicate the requested create, delete, or action operation is applied during the maintenance window that the MaintenanceWindowStartTime and MaintenanceWindowDurationInSeconds properties specify, and if a reset occurs within the maintenance window.
OnReset	This value shall indicate the requested create, delete, or action operation is applied when the system or service is reset.
OnStartUpdateRequest	This value shall indicate the requested create, delete, or action operation is applied when the StartUpdate action

string	Description
	of the Update Service is invoked.

PreferredApplyTime

This type shall be specified by client to indicate the preferred time to apply the configuration settings.

ApplyTime (v1.1+)	string (enum)	read-write	This property shall indicate when to apply the values in this Settings Resource. <i>For the possible property values, see ApplyTime in Property Details.</i>
MaintenanceWindowDurationInSeconds (v1.1+)	integer (seconds)	read-write	This property shall indicate the end of the maintenance window as the number of seconds after the time specified by the <code>MaintenanceWindowStartTime</code> property. This property shall be required if the <code>ApplyTime</code> property is <code>AtMaintenanceWindowStart</code> or <code>InMaintenanceWindowOnReset</code> .
MaintenanceWindowStartTime (v1.1+)	string	read-write	This property shall indicate the date and time when the service can start to apply the future configuration as part of a maintenance window. This property shall be required if the <code>ApplyTime</code> property is <code>AtMaintenanceWindowStart</code> or <code>InMaintenanceWindowOnReset</code> .

Property Details

ApplyTime:

This property shall indicate when to apply the values in this Settings Resource.

string	Description
AtMaintenanceWindowStart	This value shall indicate the values within the Settings Resource are applied during the maintenance window specified by the <code>MaintenanceWindowStartTime</code> and <code>MaintenanceWindowDurationInSeconds</code> properties. A service may perform resets during this maintenance window.
Immediate	This value shall indicate the values within the Settings Resource are applied immediately.
InMaintenanceWindowOnReset	This value shall indicate the values within the Settings

string	Description 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 value shall indicate the values within Settings Resource are applied when the system or service is reset.

Redundancy

This object represents the redundancy element property.

@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 (v1.2+) { }	object		This property shall contain the available actions for this Resource.
MaxNumSupported	integer	read-only (null)	This property shall contain the maximum number of members allowed in the redundancy group.
MemberId	string	read-only required	This property shall uniquely identify the member within the collection. For services supporting Redfish v1.6 or higher, this value shall contain the zero-based array index.
MinNumNeeded	integer	read-only required (null)	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)	This property shall contain the information about the redundancy mode of this subsystem. <i>For the possible property values, see Mode in Property Details.</i>
Name	string	read-only required	This object represents the name of this Resource or array member. The Resource values shall comply with the Redfish Specification-described requirements. This string value shall be of the 'Name' reserved word format.
Oem { }	object		This property shall contain the OEM extensions. All values for properties that this object contains shall conform to the Redfish Specification-described requirements.
RedundancyEnabled (v1.1+)	boolean	read-write (null)	This property shall indicate whether the redundancy is enabled.

RedundancySet [{	array	required	This property shall contain the links to components that are part of this redundancy set.
@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	required	This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>

Property Details

Mode:

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

string	Description
Failover	Failure of one unit automatically causes a standby or offline unit in the redundancy set to take over its functions.
N+m	Multiple units are available and active such that normal operation will continue if one or more units fail.
NotRedundant (v1.3+)	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.

ReplicaInfo

The value shall define the characteristics of a replica of a source.

ConsistencyEnabled	boolean	read-only (null)	If true, consistency shall be enabled across the source and its associated target replica(s). The default value for this property is false.
ConsistencyState	string (enum)	read-only (null)	The ConsistencyState enumeration literal shall indicate the current state of consistency. <i>For the possible property values, see ConsistencyState in Property Details.</i>
ConsistencyStatus	string (enum)	read-only (null)	The ConsistencyStatus enumeration literal shall specify the current status of consistency. Consistency may have been disabled or is

			experiencing an error condition. <i>For the possible property values, see ConsistencyStatus in Property Details.</i>
ConsistencyType	string (enum)	read-only (null)	The ConsistencyType enumeration literal shall indicate the consistency type used by the source and its associated target group. <i>For the possible property values, see ConsistencyType in Property Details.</i>
DataProtectionLineOfService (v1.1+) {	object		The value shall be a pointer to the data protection line of service that describes this replica.
@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.
FailedCopyStopsHostIO	boolean	read-only (null)	If true, the storage array shall stop receiving data to the source element if copying to a remote element fails. The default value for this property is false.
PercentSynced	integer (%)	read-only (null)	Specifies the percent of the work completed to reach synchronization. Shall not be instantiated if implementation is not capable of providing this information. If related to a group, then PercentSynced shall be an average of the PercentSynced across all members of the group.
Replica {	object		Deprecated - Use Source Replica. The value shall reference the resource that is the source of this replica.
@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.
ReplicaPriority	string (enum)	read-only (null)	The enumeration literal shall specify the priority of background copy engine I/O to be managed relative to host I/O operations during a sequential background copy operation. <i>For the possible property values, see ReplicaPriority in Property Details.</i>
ReplicaProgressStatus	string (enum)	read-only (null)	The ReplicaProgressStatus enumeration literal shall specify the status of the session with respect to

			Replication activity. <i>For the possible property values, see ReplicaProgressStatus in Property Details.</i>
ReplicaReadOnlyAccess	string (enum)	read-only (null)	The enumeration literal shall specify whether the source, the target, or both elements are read only to the host. <i>For the possible property values, see ReplicaReadOnlyAccess in Property Details.</i>
ReplicaRecoveryMode	string (enum)	read-only (null)	The enumeration literal shall specify whether the copy operation continues after a broken link is restored. <i>For the possible property values, see ReplicaRecoveryMode in Property Details.</i>
ReplicaRole	string (enum)	read-only (null)	The ReplicaRole enumeration literal shall represent the source or target role of this replica as known to the containing resource. <i>For the possible property values, see ReplicaRole in Property Details.</i>
ReplicaSkewBytes	integer (bytes)	read-only (null)	Applies to Adaptive mode and it describes maximum number of bytes the SyncedElement (target) can be out of sync. If the number of out-of-sync bytes exceeds the skew value, ReplicaUpdateMode shall be switched to synchronous.
ReplicaState	string (enum)	read-only (null)	The ReplicaState enumeration literal shall specify the state of the relationship with respect to Replication activity. <i>For the possible property values, see ReplicaState in Property Details.</i>
ReplicaType	string (enum)	read-only (null)	The ReplicaType enumeration literal shall describe the intended outcome of the replication. <i>For the possible property values, see ReplicaType in Property Details.</i>
ReplicaUpdateMode	string (enum)	read-only (null)	The enumeration literal shall specify whether the target elements will be updated synchronously or asynchronously. <i>For the possible property values, see ReplicaUpdateMode in Property Details.</i>
RequestedReplicaState	string	read-only	The last requested or desired state

	(enum)	(null)	for the relationship. The actual state of the relationship shall be represented by ReplicaState. When RequestedState reaches the requested state, this property shall be null. <i>For the possible property values, see RequestedReplicaState in Property Details.</i>
SourceReplica (v1.2+) {	object		The value shall reference the resource that is the source of this replica.
@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.
SyncMaintained	boolean	read-only (null)	If true, Synchronization shall be maintained. The default value for this property is false.
UndiscoveredElement	string (enum)	read-only (null)	The enumeration literal shall specify whether the source, the target, or both elements involved in a copy operation are undiscovered. An element is considered undiscovered if its object model is not known to the service performing the copy operation. <i>For the possible property values, see UndiscoveredElement in Property Details.</i>
WhenActivated	string (%)	read-only (null)	The value shall be an ISO 8601 conformant time of day that specifies when the point-in-time copy was taken or when the replication relationship is activated, reactivated, resumed or re-established. This property shall be null if the implementation is not capable of providing this information.
WhenDeactivated	string (%)	read-only (null)	The value shall be an ISO 8601 conformant time of day that specifies when the replication relationship is deactivated. Do not instantiate this property if implementation is not capable of providing this information.
WhenEstablished	string (%)	read-only (null)	The value shall be an ISO 8601 conformant time of day that specifies when the replication relationship is established. Do not instantiate this property if implementation is not capable of providing this information.

WhenSuspended	string (%)	read-only (null)	The value shall be an ISO 8601 conformant time of day that specifies when the replication relationship is suspended. Do not instantiate this property if implementation is not capable of providing this information.
WhenSynced	string	read-only (null)	The value shall be an ISO 8601 conformant time of day that specifies when the elements were synchronized.
WhenSynchronized	string (%)	read-only (null)	The value shall be an ISO 8601 conformant time of day that specifies when the replication relationship is synchronized. Do not instantiate this property if implementation is not capable of providing this information.

Property Details

ConsistencyState:

The ConsistencyState enumeration literal shall indicate the current state of consistency.

string	Description
Consistent	This enumeration literal shall indicate that the source and target shall be consistent.
Inconsistent	This enumeration literal shall indicate that the source and target are not required to be consistent.

ConsistencyStatus:

The ConsistencyStatus enumeration literal shall specify the current status of consistency. Consistency may have been disabled or is experiencing an error condition.

string	Description
Consistent	This enumeration literal shall indicate that the source and target are consistent.
Disabled	This enumeration literal shall indicate that the source and target have consistency disabled.
InError	This enumeration literal shall indicate that the source and target are not consistent.
InProgress	This enumeration literal shall indicate that the source and target are becoming consistent.

ConsistencyType:

The ConsistencyType enumeration literal shall indicate the consistency type used by the source and its associated target group.

string	Description
SequentiallyConsistent	This enumeration literal shall indicate that the source and target shall be sequentially consistent.

ReplicaPriority:

The enumeration literal shall specify the priority of background copy engine I/O to be managed relative to host I/O operations during a sequential background copy operation.

string	Description
High	Copy engine I/O shall have a higher priority than host I/O.
Low	Copy engine I/O shall have a lower priority than host I/O.
Same	Copy engine I/O shall have the same priority as host I/O.
Urgent	Regardless of the host I/O requests, the Copy operation shall be performed as soon as possible.

ReplicaProgressStatus:

The ReplicaProgressStatus enumeration literal shall specify the status of the session with respect to Replication activity.

string	Description
Aborting	This enumeration literal shall indicate that replication has an abort in progress.
Completed	This enumeration literal shall indicate that the request is completed. Data flow is idle.
Detaching	This enumeration literal shall indicate that replication has a detach in progress.
Dormant	This enumeration literal shall indicate that the data flow is inactive, suspended or quiesced.
FailingBack	This enumeration literal shall indicate that replication is undoing the result of failover.
FailingOver	This enumeration literal shall indicate that replication is in the process of switching source and target.
Fracturing	This enumeration literal shall indicate that replication has a fracture in progress.
Initializing	This enumeration literal shall indicate that replication is in the process of establishing source/replica relationship and the data flow has not started.
Mixed	This enumeration literal shall indicate that replication status is mixed across element pairs in a replication group. Generally, the individual statuses need to be examined.
Pending	This enumeration literal shall indicate that the flow of data has stopped

string	Description
	momentarily due to limited bandwidth or a busy system.
Preparing	This enumeration literal shall indicate that replication has preparation in progress.
RequiresActivate	This enumeration literal shall indicate that the requested operation has completed, however, the synchronization relationship needs to be activated before further copy operations can be issued.
RequiresDetach	This enumeration literal shall indicate that the requested operation has completed, however, the synchronization relationship needs to be detached before further copy operations can be issued.
RequiresFracture	This enumeration literal shall indicate that the requested operation has completed, however, the synchronization relationship needs to be fractured before further copy operations can be issued.
RequiresResume	This enumeration literal shall indicate that the requested operation has completed, however, the synchronization relationship needs to be resumed before further copy operations can be issued.
RequiresResync	This enumeration literal shall indicate that the requested operation has completed, however, the synchronization relationship needs to be resynced before further copy operations can be issued.
RequiresSplit	This enumeration literal shall indicate that the requested operation has completed, however, the synchronization relationship needs to be split before further copy operations can be issued.
Restoring	This enumeration literal shall indicate that replication has a restore in progress.
Resyncing	This enumeration literal shall indicate that replication has resynchronization in progress.
Splitting	This enumeration literal shall indicate that replication has a split in progress.
Suspending	This enumeration literal shall indicate that replication has a copy operation in the process of being suspended.
Synchronizing	This enumeration literal shall indicate that replication has synchronization in progress.
Terminating	This enumeration literal shall indicate that the replication relationship is in the process of terminating.

ReplicaReadOnlyAccess:

The enumeration literal shall specify whether the source, the target, or both elements are read only to the host.

string	Description
Both	Both the source and the target elements shall be read only to the host.

string	Description
ReplicaElement	The replica element shall be read-only to the host.
SourceElement	The source element shall be read-only to the host.

ReplicaRecoveryMode:

The enumeration literal shall specify whether the copy operation continues after a broken link is restored.

string	Description
Automatic	The copy operation shall resume automatically.
Manual	The ReplicaState shall be set to Suspended after the link is restored. It is required to issue the Resume operation to continue.

ReplicaRole:

The ReplicaRole enumeration literal shall represent the source or target role of this replica as known to the containing resource.

string	Description
Source	This enumeration literal shall indicate a source element.
Target	This enumeration literal shall indicate target element.

ReplicaState:

The ReplicaState enumeration literal shall specify the state of the relationship with respect to Replication activity.

string	Description
Aborted	This enumeration literal shall indicate that the copy operation is aborted with the Abort operation. The Resync Replica operation can be used to restart the copy operation.
Broken	This enumeration literal shall indicate that the relationship is non-functional due to errors in the source, the target, the path between the two or space constraints.
Failedover	This enumeration literal shall indicate that the reads and writes are sent to the target element. The source element may not be reachable.
Fractured	This enumeration literal shall indicate that the Target is split from the source. The target may not be consistent.
Inactive	This enumeration literal shall indicate that data flow has stopped, writes to source element shall not be sent to target element.
Initialized	This enumeration literal shall indicate that the link to enable replication is established and source/replica elements are associated, but the data flow has not started.
Invalid	This enumeration literal shall indicate that the storage server is unable

string	Description
	to determine the state of the replication relationship, for example, after the connection is restored; however, either source or target elements have an unknown status.
Mixed	This enumeration literal shall indicate the ReplicaState of GroupSynchronized. The value indicates the StorageSynchronized relationships of the elements in the group have different ReplicaState values.
Partitioned	This enumeration literal shall indicate that the state of replication relationship can not be determined, for example, due to a connection problem.
Prepared	This enumeration literal shall indicate that initialization is completed, however, the data flow has not started.
Restored	This enumeration literal shall indicate that the source element was restored from the target element.
Skewed	This enumeration literal shall indicate that the target has been modified and is no longer synchronized with the source element or the point-in-time view.
Split	This enumeration literal shall indicate that the target element was gracefully (or systematically) split from its source element -- consistency shall be guaranteed.
Suspended	This enumeration literal shall indicate that the data flow between the source and target elements has stopped. Writes to source element shall be held until the relationship is Resumed.
Synchronized	This enumeration literal shall indicate that for Mirror, Snapshot, or Clone replication, the target represents a copy of the source.
Unsynchronized	This enumeration literal shall indicate that not all the source element data has been copied to the target element.

ReplicaType:

The ReplicaType enumeration literal shall describe the intended outcome of the replication.

string	Description
Clone	This enumeration literal shall indicate that replication shall create a point in time, full copy the source.
Mirror	This enumeration literal shall indicate that replication shall create and maintain a copy of the source.
Snapshot	This enumeration literal shall indicate that replication shall create a point in time, virtual copy of the source.
TokenizedClone	This enumeration literal shall indicate that replication shall create a token based clone.

ReplicaUpdateMode:

The enumeration literal shall specify whether the target elements will be updated synchronously or asynchronously.

string	Description
Active	This enumeration literal shall indicate Active-Active (i.e. bidirectional) synchronous updates.
Adaptive	This enumeration literal shall indicate that an implementation may switch between synchronous and asynchronous modes.
Asynchronous	This enumeration literal shall indicate Asynchronous updates.
Synchronous	This enumeration literal shall indicate Synchronous updates.

RequestedReplicaState:

The last requested or desired state for the relationship. The actual state of the relationship shall be represented by ReplicaState. When RequestedState reaches the requested state, this property shall be null.

string	Description
Aborted	This enumeration literal shall indicate that the copy operation is aborted with the Abort operation. The Resync Replica operation can be used to restart the copy operation.
Broken	This enumeration literal shall indicate that the relationship is non-functional due to errors in the source, the target, the path between the two or space constraints.
Failedover	This enumeration literal shall indicate that the reads and writes are sent to the target element. The source element may not be reachable.
Fractured	This enumeration literal shall indicate that the Target is split from the source. The target may not be consistent.
Inactive	This enumeration literal shall indicate that data flow has stopped, writes to source element shall not be sent to target element.
Initialized	This enumeration literal shall indicate that the link to enable replication is established and source/replica elements are associated, but the data flow has not started.
Invalid	This enumeration literal shall indicate that the storage server is unable to determine the state of the replication relationship, for example, after the connection is restored; however, either source or target elements have an unknown status.
Mixed	This enumeration literal shall indicate the ReplicaState of GroupSynchronized. The value indicates the StorageSynchronized relationships of the elements in the group have different ReplicaState values.
Partitioned	This enumeration literal shall indicate that the state of replication relationship can not be determined, for example, due to a connection problem.

string	Description
Prepared	This enumeration literal shall indicate that initialization is completed, however, the data flow has not started.
Restored	This enumeration literal shall indicate that the source element was restored from the target element.
Skewed	This enumeration literal shall indicate that the target has been modified and is no longer synchronized with the source element or the point-in-time view.
Split	This enumeration literal shall indicate that the target element was gracefully (or systematically) split from its source element -- consistency shall be guaranteed.
Suspended	This enumeration literal shall indicate that the data flow between the source and target elements has stopped. Writes to source element shall be held until the relationship is Resumed.
Synchronized	This enumeration literal shall indicate that for Mirror, Snapshot, or Clone replication, the target represents a copy of the source.
Unsynchronized	This enumeration literal shall indicate that not all the source element data has been copied to the target element.

UndiscoveredElement:

The enumeration literal shall specify whether the source, the target, or both elements involved in a copy operation are undiscovered. An element is considered undiscovered if its object model is not known to the service performing the copy operation.

string	Description
ReplicaElement	This enumeration literal shall indicate that the replica element is undiscovered.
SourceElement	This enumeration literal shall indicate that the source element is undiscovered.

Schedule

The properties of this type shall schedule a series of occurrences.

EnabledDaysOfMonth []	array (integer, null)	read-write	This property shall contain the days of the month when scheduled occurrences are enabled, for enabled days of week and months of year. If the array contains a single value of 0, 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. <i>For the possible property values, see</i>

			EnabledDaysOfWeek in <i>Property Details</i> .
EnabledIntervals (v1.1+) []	array (string, null)	read-write	Each value shall be an ISO 8601 conformant interval specifying when occurrences are enabled.
EnabledMonthsOfYear []	array (string (enum))	read-write (null)	This property shall contain the months of the 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. <i>For the possible property values, see EnabledMonthsOfYear in Property Details.</i>
InitialStartTime	string	read-write (null)	This property shall contain the date and time when the initial occurrence is scheduled to occur.
Lifetime	string	read-write (null)	This property shall contain a Redfish Duration that describes 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)	This property shall contain the maximum number of scheduled occurrences.
Name	string	read-write (null)	The name of the schedule, which is constructed as OrgID:ScheduleName. Examples include ACME:Daily, ACME:Weekly, and ACME:FirstTuesday.
RecurrenceInterval	string	read-write (null)	This property shall contain a Redfish Duration that describes 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	

string	Description
Thursday	
Tuesday	
Wednesday	

EnabledMonthsOfYear:

This property shall contain the months of the 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 settings of a Resource.

ETag	string	read-only (null)	This property shall contain the entity tag (ETag) of the Resource to which the settings were applied, after the application. The client can check this value against the ETag of this Resource to determine whether the Resource had other changes.
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MaintenanceWindowResource (v1.2+) {	object		This property shall contain a link to a Resource that contains the @Redfish.MaintenanceWindow property that 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)		This property shall contain an array of messages associated with the settings. This type shall contain a message that the Redfish Service returns, as described in the Redfish Specification. <i>For property details, see Message.</i>
SettingsObject {	object		This property shall contain the URI of the Resource that the client may PUT or PATCH to modify the 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 (v1.1+) []	array (string (enum))	read-only	A service shall advertise its applytime capabilities by using this property to set the time when the settings can be applied. <i>For the possible property values, see SupportedApplyTimes in Property Details.</i>
Time	string	read-only (null)	This property shall indicate the time when the settings were applied to the Resource.

Property Details

SupportedApplyTimes:

A service shall advertise its applytime capabilities by using this property to set the time when the settings can be applied.

string	Description
AtMaintenanceWindowStart	This value shall indicate the values within the Settings Resource are applied during the maintenance window

string	Description specified by the MaintenanceWindowStartTime and MaintenanceWindowDurationInSeconds properties. A service may perform resets during this maintenance window.
Immediate	This value shall indicate the values within the Settings Resource are applied immediately.
InMaintenanceWindowOnReset	This value shall 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 value shall indicate the values within 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 health state of the Resource without considering its dependent Resources. The values shall conform to those defined in the Redfish Specification. <i>For the possible property values, see Health in Property Details.</i>
HealthRollup	string (enum)	read-only (null)	This property shall represent the health state of the Resource and its dependent Resources. The values shall conform to those defined in the Redfish Specification. <i>For the possible property values, see HealthRollup in Property Details.</i>
Oem {	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
(pattern) { }	object		Property names follow regular expression pattern "[A-Za-z0-9_]+"
State	string (enum)	read-only (null)	This property shall indicate whether and why this component is available. 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 make it available. InTest indicates that the component is undergoing testing. Starting indicates that the Resource is becoming available. Absent indicates the Resource is physically unavailable. <i>For the possible property values, see State in Property Details.</i>

Property Details

Health:

This property shall represent the health state 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 requires immediate attention.
OK	Normal.
Warning	A condition requires attention.

HealthRollup:

This property shall represent the health state of the Resource and its dependent Resources. The values shall conform to those defined in the Redfish Specification.

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

State:

This property shall indicate whether and why this component is available. 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 make it available. InTest indicates that the component is undergoing testing. Starting indicates that the Resource is becoming available. Absent indicates the Resource is physically unavailable.

string	Description
Absent	This function or Resource is either not present or detected.
Deferring (v1.2+)	The element does not process any commands but queues new requests.
Disabled	This function or Resource is disabled.
Enabled	This function or Resource is enabled.
InTest	This function or Resource is undergoing testing.
Quiesced (v1.2+)	The element is enabled but only processes a restricted set of commands.
StandbyOffline	This function or Resource is enabled but awaits an external action to activate it.
StandbySpare	This function or Resource is part of a redundancy set and awaits a failover or other external action to activate it.

string	Description
Starting	This function or Resource is starting.
UnavailableOffline (v1.1+)	This function or Resource is present but cannot be used.
Updating (v1.2+)	The element is updating and 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. <i>For the possible property values, see Mode in Property Details.</i>
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 <i>Name</i> .
Oem {}	object		The value of this string shall be of the format for the reserved word <i>Oem</i> . <i>For property details, see Oem.</i>
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. <i>For property details, see Status.</i>

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 of this Resource. The Resource values shall comply with the Redfish Specification-described requirements.
Members [{	array	required	The members of this collection.
 @odata.id }]	string	read-only	The 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 of this Resource or array member. The Resource values shall comply with the Redfish Specification-described requirements. This string value shall be of the 'Name' reserved word format.
Oem { }	object		This string property shall be in the <i>Oem</i> reserved word format.

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.ComputerSystemCollect
>@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

Collection Type	URIs
	/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/JobService/Log/Entries /redfish/v1/Managers/{ ManagerId }/LogServices/{ LogServiceId }/Entries /redfish/v1/ResourceBlocks/{ ResourceBlockId }/Systems/{ ComputerSystemId }/LogServices/{ LogServiceId }/Entries /redfish/v1/Systems/{ ComputerSystemId }/LogServices/{ LogServiceId }/Entries /redfish/v1/TelemetryService/LogService/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/{ ResourceBlock

Collection Type	URIs
MemoryDomainCollection	/redfish/v1/Systems/{ComputerSystemId}/Memory /redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Memory /redfish/v1/Systems/{ComputerSystemId}/Memory
MemoryRegistryCollection	
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

Collection Type	URIs
	<p>orts /redfish/v1/Systems/{ComputerSystemId}/NetworkInterfaces/{NetworkInterfaceId}/NetworkPorts</p>
PCIeDeviceCollection	<p>/redfish/v1/Chassis/{ChassisId}/PCIeDevices /redfish/v1/Systems/{ComputerSystemId}/PCIeDevices</p>
PCIeFunctionCollection	<p>/redfish/v1/Chassis/{ChassisId}/PCIeDevices/{PCIeDeviceId}/PCIeFunctions /redfish/v1/Systems/{ComputerSystemId}/PCIeDevices/{PCIeDeviceId}/PCIeFunctions</p>
PortCollection	<p>/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/StorageControllers/{StorageControllerMemberId}/Ports /redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage/{StorageId}/StorageControllers/{StorageControllerMemberId}/Ports /redfish/v1/Fabrics/{FabricId}/Switches/{SwitchId}/Ports /redfish/v1/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/StorageControllers/{StorageControllerMemberId}/Ports /redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage/{StorageId}/StorageControllers/{StorageControllerMemberId}/Ports /redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StorageControllers/{StorageControllerMemberId}/Ports</p>
ProcessorCollection	<p>/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</p>
ResourceBlockCollection	<p>/redfish/v1/CompositionService/ResourceBlocks /redfish/v1/ResourceBlocks</p>
RoleCollection	<p>/redfish/v1/AccountService/Roles /redfish/v1/Managers/{ManagerId}/RemoteAccountService/Roles</p>
SensorCollection	<p>/redfish/v1/Chassis/{ChassisId}/Sensors</p>
SerialInterfaceCollection	<p>/redfish/v1/Managers/{ManagerId}/SerialInterfaces</p>
SessionCollection	<p>/redfish/v1/SessionService/Sessions</p>

Collection Type	URIs
SimpleStorageCollection	<p>/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/SimpleStorage</p> <p>/redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/SimpleStorage</p> <p>/redfish/v1/Systems/{ComputerSystemId}/SimpleStorage</p>
SoftwareInventoryCollection	<p>/redfish/v1/UpdateService/FirmwareInventory</p> <p>/redfish/v1/UpdateService/SoftwareInventory</p>
StorageCollection	<p>/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Storage</p> <p>/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage</p> <p>/redfish/v1/ResourceBlocks/{ResourceBlockId}/Storage</p> <p>/redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage</p> <p>/redfish/v1/Systems/{ComputerSystemId}/Storage</p>
SwitchCollection	<p>/redfish/v1/Fabrics/{FabricId}/Switches</p>
TaskCollection	<p>/redfish/v1/TaskService/Tasks</p>
TriggersCollection	<p>/redfish/v1/TelemetryService/Triggers</p>
VirtualMediaCollection	<p>/redfish/v1/Managers/{ManagerId}/VirtualMedia</p>
VLANetworkInterfaceCollection	<p>/redfish/v1/Chassis/{ChassisId}/NetworkAdapters/{NetworkAdapterId}/NetworkDeviceFunctions/{NetworkDeviceFunctionId}/Ethernet/VLANs</p> <p>/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/EthernetInterfaces/{EthernetInterfaceId}/VLANs</p> <p>/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/EthernetInterfaces/{EthernetInterfaceId}/VLANs</p> <p>/redfish/v1/Managers/{ManagerId}/EthernetInterfaces/{EthernetInterfaceId}/VLANs</p> <p>/redfish/v1/ResourceBlocks/{ResourceBlockId}/EthernetInterfaces/{EthernetInterfaceId}/VLANs</p> <p>/redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/EthernetInterfaces/{EthernetInterfaceId}/VLANs</p> <p>/redfish/v1/Systems/{ComputerSystemId}/EthernetInterfaces/{EthernetInterfaceId}/VLANs</p>
VolumeCollection	<p>/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/Volumes</p> <p>/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes</p> <p>/redfish/v1/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/Volumes</p> <p>/redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes</p> <p>/redfish/v1/StorageServices/{StorageServiceId}/ConsistencyGroups/{ConsistencyGroupId}/Volumes</p> <p>/redfish/v1/StorageServices/{StorageServiceId}/FileSystems/{FileSystemId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes</p>

Collection Type	URIs
ZoneCollection	/redfish/v1/CompositionService/ResourceZones /redfish/v1/Fabrics/ /{FabricId}/Zones
	mes /redfish/v1/StorageServices/ /{StorageServiceId}/StoragePools/{StoragePoolId}/AllocatedVolumes /redfish/v1/StorageServices/ /{StorageServiceId}/StoragePools/{StoragePoolId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes /redfish/v1/StorageServices/ /{StorageServiceId}/Volumes /redfish/v1/StorageServices/ /{StorageServiceId}/Volumes//{VolumeId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes /redfish/v1/Systems/ /{ComputerSystemId}/Storage//{StorageId}/ConsistencyGroups/{ConsistencyGroupId}/Volumes /redfish/v1/Systems/ /{ComputerSystemId}/Storage//{StorageId}/FileSystems/{FileSystemId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes /redfish/v1/Systems/ /{ComputerSystemId}/Storage//{StorageId}/StoragePools/{StoragePoolId}/AllocatedVolumes /redfish/v1/Systems/ /{ComputerSystemId}/Storage//{StorageId}/StoragePools/{StoragePoolId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes /redfish/v1/Systems/ /{ComputerSystemId}/Storage//{StorageId}/Volumes

Schema Reference Guide

This guide was produced using the contents of the schema files from DMTF Redfish Schema bundle DSP8010 and merged with supplemental text using the DMTF's [Redfish Documentation Generator](#).

AccelerationFunction 1.0.2

v1.0

2018.3

This Resource shall represent the acceleration function that a processor implements in a Redfish implementation. This can include functions such as audio processing, compression, encryption, packet inspection, packet switching, scheduling, or video processing.

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 that identifies the acceleration function type. <i>For the possible property values, see AccelerationFunctionType in Property Details.</i>
FpgaReconfigurationSlots []	array (string)	read-only	This property shall contain an array of the FPGA reconfiguration slot identifiers that this acceleration function occupies.
Links {	object		This property shall contain links to Resources that are related to but are not contained by, or subordinate to, this Resource.
Endpoints [{	array		This property shall contain an array of links to Resources of the Endpoint type that are associated with this acceleration function.
@odata.id }]	string	read-only	<i>Link to a Endpoint resource. See the Links section and the Endpoint schema for details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.

PCleFunctions [{	array		This property shall contain an array of links of the PCIeFunction type that represent the PCIe functions associated with this acceleration function.
@odata.id }] }	string	read-only	<i>Link to a PCIeFunction resource. See the Links section and the PCIeFunction schema for details.</i>
Manufacturer	string	read-only	This property shall contain a string that identifies the manufacturer of the acceleration function.
PowerWatts	integer (Watts)	read-only	This property shall contain the total acceleration function power consumption, in watts.
Status {}	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
UUID	string	read-only (null)	This property shall contain a UUID for the acceleration function. RFC4122 describes methods that can create the value. The value should be considered to be opaque. Client software should only treat the overall value as a UUID 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	This property shall describe the acceleration function version.

Property Details

AccelerationFunctionType:

This property shall contain the string that identifies the acceleration function type.

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_2.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 1.6.0

v1.6	v1.5	v1.4	v1.3	v1.2	v1.1	v1.0
2019.2	2019.1	2018.3	2018.1	2017.1	2016.3	1.0

This Resource shall represent an Account Service for a Redfish implementation. The properties are common to, and enable management of, all user accounts. The properties include the password requirements and control features, such as account lockout.

URIs:

/redfish/v1/AccountService

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

Property Name	Type	Access	Description
AccountLockoutCounterResetAfter	integer (seconds)	read-write	This property shall contain the period of time, in seconds, from the last failed login attempt when the AccountLockoutThreshold counter, which counts the number of failed login attempts, is reset to 0. Then, AccountLockoutThreshold failures are required before the account is locked. This value shall be less than or equal to the AccountLockoutDuration value. The threshold counter also resets to 0 after each successful login. If the AccountLockoutCounterResetEnabled value is false, this property shall be

			ignored.
AccountLockoutCounterResetEnabled (v1.5+)	boolean	read-write	This property shall indicate whether the threshold counter is reset after the AccountLockoutCounterResetAfter expires. If <code>true</code> , it is reset. If <code>false</code> , only a successful login resets the threshold counter and if the user reaches the AccountLockoutThreshold limit, the account shall be locked out indefinitely and only an administrator-issued reset clears the threshold counter. If this property is absent, the default is <code>true</code> .
AccountLockoutDuration	integer (seconds)	read-write (null)	This property shall contain the period of time, in seconds, that an account is locked after the number of failed login attempts reaches the AccountLockoutThreshold value, within the AccountLockoutCounterResetAfter window of time. The value shall be greater than or equal to the AccountLockoutResetAfter value. If this value is 0, no lockout shall occur. If AccountLockoutCounterResetEnabled value is <code>false</code> , this property shall be ignored.
AccountLockoutThreshold	integer	read-write (null)	This property shall contain the threshold of failed login attempts before a user account is locked. If 0, the account shall never be locked.
Accounts {	object		This property shall contain a link to a Resource Collection of type ManagerAccountCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of ManagerAccount. See the ManagerAccount schema for details.</i>
ActiveDirectory (v1.3+) {	object		This property shall contain the first Active Directory external account provider that this Account Service supports. If the Account Service supports one or more Active Directory services as an external account provider, this entity shall be populated by default. This entity shall not be present in the AdditionalExternalAccountProviders Resource Collection.

AccountProviderType (<i>deprecated v1.5</i>)	string (enum)	read-only (null)	This property shall contain the type of external account provider to which this Service connects. <i>For the possible property values, see AccountProviderType in Property Details. Deprecated in v1.5 and later. This property is deprecated because the account provider type is known when used in the LDAP and ActiveDirectory objects.</i>
Authentication {	object		This property shall contain the authentication information for the external account provider.
AuthenticationType	string (enum)	read-write (null)	This property shall contain the type of authentication used to connect to the external account provider. <i>For the possible property values, see AuthenticationType in Property Details.</i>
KerberosKeytab	string	read-write (null)	This property shall contain a Base64-encoded version of the Kerberos keytab for this Service. A PATCH or PUT operation writes the keytab. The value shall be <code>null</code> in responses.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
Password	string	read-write (null)	This property shall contain the password for this Service. A PATCH or PUT operation writes the password. The value shall be <code>null</code> in responses.
Token	string	read-write (null)	This property shall contain the token for this Service. A PATCH or PUT operation writes the token. The value shall be <code>null</code> in responses.
Username }	string	read-write	This property shall contain the user name for this Service.
Certificates (v1.4+) {	object		This property shall contain a link to a Resource Collection of certificates of the CertificateCollection type that the external account provider uses. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Certificate. See the Certificate schema for details.</i>

LDAPService {	object		This property shall contain any additional mapping information needed to parse a generic LDAP service. This property should only be present inside the LDAP property.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
SearchSettings {	object		This property shall contain the required settings to search an external LDAP service.
BaseDistinguishedNames []	array (string, null)	read-write	This property shall contain an array of base distinguished names to use to search an external LDAP service.
GroupNameAttribute	string	read-write (null)	This property shall contain the attribute name that contains the LDAP group name.
GroupsAttribute	string	read-write (null)	This property shall contain the attribute name that contains the groups for an LDAP user entry.
UsernameAttribute } }	string	read-write (null)	This property shall contain the attribute name that contains the LDAP user name.
RemoteRoleMapping [{	array		This property shall contain a set of the mapping rules that are used to convert the external account providers account information to the local Redfish Role.
LocalRole	string	read-write (null)	This property shall contain the RoleId property value within a Role Resource on this Redfish Service to which to map the remote user or group.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
RemoteGroup	string	read-write (null)	This property shall contain the name of the remote group, or the remote role in the case of a Redfish Service, that maps to the local Redfish Role to which this entity links.
RemoteUser }]	string	read-write (null)	This property shall contain the name of the remote user that maps to the local Redfish Role to which this entity

			links.
ServiceAddresses []	array (string, null)	read-write	This property shall contain the addresses of the account providers to which this external account provider links. The format of this field depends on the type of external account provider. 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)	This property shall indicate whether this service is enabled.
AdditionalExternalAccountProviders (v1.3+) {	object		This property shall contain the additional external account providers that this Account Service uses. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of ExternalAccountProvider. See the ExternalAccountProvider schema for details.</i>
AuthFailureLoggingThreshold	integer	read-write	This property shall contain the threshold for when an authorization failure is logged. This value represents a modulo function. The failure shall be logged every <i>n</i> th occurrence, where <i>n</i> represents this property.
LDAP (v1.3+) {	object		This property shall contain the first LDAP external account provider that this Account Service supports. If the Account Service supports one or more LDAP services as an external account provider, this entity shall be populated by default. This entity shall not be present in the AdditionalExternalAccountProviders Resource Collection.
AccountProviderType (deprecated v1.5)	string (enum)	read-only (null)	This property shall contain the type of external account provider to which this Service connects. <i>For the possible property values, see AccountProviderType in Property Details. Deprecated in v1.5 and later. This property is deprecated because the account provider type is known when used in the LDAP and ActiveDirectory objects.</i>
Authentication {	object		This property shall contain the authentication information for the external account provider.

AuthenticationType	string (enum)	read-write (null)	This property shall contain the type of authentication used to connect to the external account provider. <i>For the possible property values, see AuthenticationType in Property Details.</i>
KerberosKeytab	string	read-write (null)	This property shall contain a Base64-encoded version of the Kerberos keytab for this Service. A PATCH or PUT operation writes the keytab. The value shall be <code>null</code> in responses.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
Password	string	read-write (null)	This property shall contain the password for this Service. A PATCH or PUT operation writes the password. The value shall be <code>null</code> in responses.
Token	string	read-write (null)	This property shall contain the token for this Service. A PATCH or PUT operation writes the token. The value shall be <code>null</code> in responses.
Username }	string	read-write	This property shall contain the user name for this Service.
Certificates (v1.4+) {	object		This property shall contain a link to a Resource Collection of certificates of the CertificateCollection type that the external account provider uses. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Certificate. See the Certificate schema for details.</i>
LDAPService {	object		This property shall contain any additional mapping information needed to parse a generic LDAP service. This property should only be present inside the LDAP property.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
SearchSettings {	object		This property shall contain the required settings to search an external LDAP service.

BaseDistinguishedNames []	array (string, null)	read-write	This property shall contain an array of base distinguished names to use to search an external LDAP service.
GroupNameAttribute	string	read-write (null)	This property shall contain the attribute name that contains the LDAP group name.
GroupsAttribute	string	read-write (null)	This property shall contain the attribute name that contains the groups for an LDAP user entry.
UsernameAttribute } }	string	read-write (null)	This property shall contain the attribute name that contains the LDAP user name.
RemoteRoleMapping [{	array		This property shall contain a set of the mapping rules that are used to convert the external account providers account information to the local Redfish Role.
LocalRole	string	read-write (null)	This property shall contain the RoleId property value within a Role Resource on this Redfish Service to which to map the remote user or group.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
RemoteGroup	string	read-write (null)	This property shall contain the name of the remote group, or the remote role in the case of a Redfish Service, that maps to the local Redfish Role to which this entity links.
RemoteUser }]	string	read-write (null)	This property shall contain the name of the remote user that maps to the local Redfish Role to which this entity links.
ServiceAddresses []	array (string, null)	read-write	This property shall contain the addresses of the account providers to which this external account provider links. The format of this field depends on the type of external account provider. 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)	This property shall indicate whether this service is enabled.
LocalAccountAuth (v1.3+)	string	read-write	This property shall govern how the

	(enum)		Service uses the Accounts Resource Collection within this Account Service as part of authentication. The enumerated values describe the details for each mode. <i>For the possible property values, see LocalAccountAuth in Property Details.</i>
MaxPasswordLength	integer	read-only	This property shall contain the maximum password length that the implementation allows for this Account Service.
MinPasswordLength	integer	read-only	This property shall contain the minimum password length that the implementation allows for this Account Service.
PrivilegeMap (v1.1+) {	object		This property shall contain a link to a Resource of type PrivilegeMapping that contains the privileges that are required for a user context to complete a requested operation on a URI associated with this Service. <i>See the PrivilegeRegistry schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a PrivilegeRegistry resource. See the Links section and the PrivilegeRegistry schema for details.</i>
Roles {	object		This property shall contain a link to a Resource Collection of type RoleCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Role. See the Role schema for details.</i>
ServiceEnabled	boolean	read-write (null)	This property shall indicate whether the Account Service is enabled. If <code>true</code> , it is enabled. If <code>false</code> , it is disabled and users cannot be created, deleted, or modified, and new sessions cannot be started. However, established sessions may still continue to run. Any service, such as the Session Service, that attempts to access the disabled Account Service fails. However, this does not affect HTTP Basic Authentication connections.
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>

Property Details

AccountProviderType:

This property shall contain the type of external account provider to which this Service connects.

string	Description
ActiveDirectoryService	The external account provider shall be a Microsoft Active Directory Technical Specification-conformant service. The ServiceAddresses format shall contain a set of fully qualified domain names (FQDN) or NetBIOS names that links to the set of domain servers for the Active Directory Service.
LDAPService	The external account provider shall be an RFC4511-conformant service. The ServiceAddresses format shall contain a set of fully qualified domain names (FQDN) that links to the set of LDAP servers for the Service.
OEM	
RedfishService	The external account provider shall be a DMTF Redfish Specification-conformant service. The ServiceAddresses format shall contain a set of URIs that correspond to a Redfish Account Service.

AuthenticationType:

This property shall contain 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	A user name and password combination.

LocalAccountAuth:

This property shall govern how the Service uses the Accounts Resource Collection within this Account Service as part of authentication. The enumerated values describe the details for each mode.

string	Description
Disabled	The service shall never authenticate users based on the Account Service-defined Accounts Resource Collection.
Enabled	The service shall authenticate users based on the Account Service-defined Accounts Resource Collection.
Fallback	The service shall authenticate users based on the Account Service-defined Accounts Resource Collection only if any external account providers are

string	Description
	currently unreachable.
LocalFirst (v1.6+)	The service shall first authenticate users based on the Account Service-defined Accounts Resource Collection. If authentication fails, the Service shall authenticate by using external account providers.

Example Response

```
{
  "@odata.type": "#AccountService.v1_6_0.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,
  "AccountLockoutCounterResetEnabled": true,
  "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.id": "/redfish/v1/AccountService"
}

```

ActionInfo 1.1.2

v1.1	v1.0
2018.2	2016.2

This Resource shall represent the supported parameters and other information for a Redfish action on a target within a Redfish implementation. Supported parameters can differ among vendors and even among Resource instances. This data can ensure that action requests from applications contain supported parameters.

Parameters [{	array		This property shall list the parameters included in the specified Redfish action for 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 contain the JSON property type for this parameter. <i>For the possible property values, see DataType in Property Details.</i>
MaximumValue (v1.1+)	number	read-only (null)	This integer or number property shall contain the maximum value that this service supports. This property shall not be present for non-integer or number parameters.
MinimumValue (v1.1+)	number	read-only (null)	This integer or number property shall contain the minimum value that this service supports. 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 included in a Redfish action.
ObjectType	string	read-only (null)	This property shall describe the entity type definition in <code>@odata.type</code> format for the parameter. This property shall be required for parameters with a data type of <code>Object</code> or <code>ObjectArray</code> , and shall not be present for parameters with other data types.
Required }]	boolean	read-only	This property shall indicate whether the parameter is required to complete this action.

Property Details

DataType:

This property shall contain the JSON property type for this parameter.

string	Description
Boolean	A boolean.

string	Description
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_2.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.id": "/redfish/v1/Systems/1/ResetActionInfo"
}
```

Assembly 1.2.2

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

This Resource shall represent an assembly for a Redfish implementation. Assembly information contains details about a device, such as part number, serial number, manufacturer, and production date. It also provides access to the original data for the assembly.

URIs:

/redfish/v1/Chassis/{[ChassisId](#)}/Assembly

/redfish/v1/Chassis/{ChassisId}/Drives/{DriveId}/Assembly
/redfish/v1/Chassis/{ChassisId}/NetworkAdapters/{NetworkAdapterId}/Assembly
/redfish/v1/Chassis/{ChassisId}/PCleDevices/{PCleDeviceId}/Assembly
/redfish/v1/Chassis/{ChassisId}/Power/PowerSupplies/{PowerSupplyId}/Assembly
/redfish/v1/Chassis/{ChassisId}/Thermal/Fans/{FanId}/Assembly
/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}/PCleDevices/{PCleDeviceId}/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 define assembly records 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 { }	object		This property shall contain the available actions for this Resource.
BinaryDataURI	string	read-only (null)	This property shall contain the URI at which to access an image of the assembly information, using the Redfish protocol and authentication methods. The Service provides this URI 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 type <i>application/octet-stream</i> . If the service supports it, an HTTP PUT to this URI shall replace the binary image of the assembly.
Description	string	read-only (null)	This property shall contain the description of the assembly.
EngineeringChangeLevel	string	read-only (null)	This property shall contain the engineering change level or revision of the assembly.
MemberId	string	read-only required	This property shall uniquely identify the member within the collection. For services supporting Redfish v1.6 or higher, this value shall contain the zero-based array index.
Model	string	read-only (null)	This property shall contain the name by which the manufacturer generally refers to the assembly.
Name	string	read-only (null)	This property shall contain the name of the assembly.
Oem { }	object		This property shall contain the OEM extensions. All values for properties that this object contains shall conform to the Redfish Specification-described requirements.
PartNumber	string	read-only (null)	This property shall contain the part number of the assembly.
PhysicalContext (v1.2+)	string (enum)	read-only	This property shall contain a description of the physical context for the assembly data. <i>For the possible property values, see PhysicalContext in Property Details.</i>
Producer	string	read-only (null)	This property shall contain the name of the company that produced or manufactured the

			assembly. This value shall be equal to the 'Manufacturer' field value in a PLDM FRU structure, if applicable, for the assembly.
ProductionDate	string	read-only (null)	This property shall contain the date of production or manufacture for the 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)	This property shall contain a manufacturer-allocated number that identifies the assembly.
SKU	string	read-only (null)	This property shall contain the SKU of the assembly.
SparePartNumber	string	read-only (null)	This property shall contain the spare part number of the assembly.
Status (v1.1+) { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
Vendor	string	read-only (null)	This property shall contain the name of the company that provides the final product that includes this assembly. This value shall be equal to the 'Vendor' field value in a PLDM FRU structure, if applicable, for the assembly.
Version }]	string	read-only (null)	This property shall contain the version of the assembly as determined by the vendor or supplier.

Property Details

PhysicalContext:

This property shall contain a description of the physical context for the 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 a networking chip or chipset component.
Back	The back of the chassis.
Backplane	A backplane within the chassis.

string	Description
Chassis	The entire chassis.
ComputeBay	Within a compute bay.
CoolingSubsystem	The entire cooling, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	Within an expansion bay.
Fan	A fan.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points 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.

string	Description
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_2.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 1.3.2

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

This Resource shall represent an Attribute Registry for a Redfish implementation.

Language	string	read-only required	This property shall contain an RFC5646-conformant language code.
OwningEntity	string	read-only required	This property shall represent the publisher of this Attribute Registry.
RegistryEntries {	object		This property shall list attributes for this component, along with their possible values, dependencies, and other metadata.
Attributes [{	array		This property shall contain an array containing the attributes and their possible values and other metadata in the Attribute Registry.
AttributeName	string	read-only required	This property shall contain the name of this attribute that is unique in this Attribute Registry. Pattern: <code>^[A-Za-z][A-Za-z0-9_]+\$</code>
CurrentValue	string, boolean, number	read-only (null)	This property shall contain the placeholder of the current value for the attribute, to aid in evaluating dependencies. The evaluation results of the Dependencies array might affect the current attribute value.
DefaultValue	string, boolean, number	read-only (null)	This property shall contain the default value for the attribute.
DisplayName	string	read-only (null)	This property shall contain the user-readable display string for the attribute in the defined language.
DisplayOrder	integer	read-only (null)	This property shall contain the ascending order, as a number, in which this attribute appears relative to other attributes.
GrayOut	boolean	read-only (null)	This property shall indicate whether this attribute is grayed out. A grayed-out attribute is not active and is grayed out in user interfaces but the attribute value can be modified. The evaluation results

			of the Dependencies array might affect the grayed-out state of an attribute.
HelpText	string	read-only (null)	This property shall contain the help text for the attribute.
Hidden	boolean	read-only (null)	This property shall indicate whether this attribute is hidden in user interfaces. The evaluation results of the Dependencies array might affect the hidden state of an attribute.
Immutable	boolean	read-only (null)	This property shall indicate whether this attribute is immutable. Immutable attributes shall not be modified and typically reflect a hardware state.
IsSystemUniqueProperty	boolean	read-only (null)	This property shall indicate whether this attribute is unique.
LowerBound	integer	read-only (null)	This property shall contain a number indicating the lower limit for an integer attribute.
MaxLength	integer	read-only (null)	This numeric property shall contain the maximum character length of an attribute of the String type.
MenuPath	string	read-only (null)	This property shall contain 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: <code>^\.[^/]+(?:/[^\s/]+)*?\$</code>
MinLength	integer	read-only (null)	This property shall contain a number indicating the minimum character length of an attribute of the String type.
Oem (v1.3+) { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
ReadOnly	boolean	read-only (null)	This property shall indicate whether this attribute is read-only. A read-only attribute cannot be modified, and should be grayed out in user interfaces. The evaluation results of the Dependencies array might affect the read-only state of an attribute.
ResetRequired (v1.2+)	boolean	read-only (null)	This property shall indicate whether a system or device reset is required for this attribute value change to take effect.

ScalarIncrement	integer	read-only (null)	This property shall contain a number indicating the amount to increment or decrement an integer attribute each time a user requests a value change. The 0 value indicates a free-form numeric user-input attribute.
Type	string (enum)	read-only	This property shall contain an enumeration that describes the attribute type. <i>For the possible property values, see Type in Property Details.</i>
UefiDevicePath (v1.2+)	string	read-only (null)	This property shall contain the UEFI Specification-defined UEFI device path that qualifies and locates this device for this attribute.
UefiKeywordName (v1.2+)	string	read-only	This property shall contain the UEFI Specification-defined keyword for this attribute.
UefiNamespaceId (v1.2+)	string	read-only	This property shall contain the UEFI Specification-defined namespace ID for this attribute.
UpperBound	integer	read-only (null)	This property shall contain a number indicating the upper limit for an integer attribute.
Value [{	array		This property shall contain an array containing the possible values of an attribute of the Enumeration type.
ValueDisplayName	string	read-only (null)	This property shall contain a string representing the user-readable display string of the value for the attribute in the defined language.
ValueName }]	string	read-only required	This property shall contain a string representing the value name for the attribute. ValueName is a unique string within the list of possible values in the Value array for an attribute.
ValueExpression	string	read-only (null)	This property shall contain a valid regular expression, according to the Perl regular expression dialect, that validates the attribute value. Applies to only string and integer attributes.
WarningText	string	read-only (null)	This property shall contain the warning text for the attribute.
WriteOnly }]	boolean	read-only (null)	This property shall indicate whether this attribute is write-only. A write-only attribute reverts to its initial value after settings are applied.

Dependencies [{	array		This property shall contain an array containing a list of dependencies of attributes on this component.
Dependency {	object		This property shall contain the dependency expression for one or more attributes in this Attribute Registry.
MapFrom [{	array		This property shall contain an array containing the map-from conditions for a dependency of the Map type.
MapFromAttribute	string	read-only	This property shall contain the AttributeName for the attribute to use to evaluate this dependency expression term. Pattern: <code>^[A-Za-z][A-Za-z0-9_]+\$</code>
MapFromCondition	string (enum)	read-only	This property shall contain the condition to use to evaluate this dependency expression. For example, <code>EQU</code> or <code>NEQ</code> . <i>For the possible property values, see MapFromCondition in Property Details.</i>
MapFromProperty	string (enum)	read-only	This property shall contain the metadata property for the attribute that the MapFromAttribute property specifies to use to evaluate this dependency expression. For example, this value could be the MapFromAttribute <code>CurrentValue</code> , or <code>ReadOnly</code> state. <i>For the possible property values, see MapFromProperty in Property Details.</i>
MapFromValue	string, boolean, number	read-only (null)	The value that the property in MapFromProperty in the attribute in MapFromAttribute to use to evaluate this dependency expression.
MapTerms }]	string (enum)	read-only	This property shall contain the logical term that combines two or more MapFrom conditions in this dependency expression. For example, <code>AND</code> for logical AND, or <code>OR</code> for logical OR. <i>For the possible property values, see MapTerms in Property Details.</i>
MapToAttribute	string	read-only	This property shall contain the AttributeName of the attribute that is affected by this dependency expression. Pattern: <code>^[A-Za-z][A-Za-z0-9_]+\$</code>
MapToProperty	string (enum)	read-only	This property shall contain the metadata property for the attribute that the MapFromAttribute property specifies that evaluates this dependency expression. For example, this value could be the MapFromAttribute <code>CurrentValue</code> or <code>ReadOnly</code> state.

			<i>For the possible property values, see MapToProperty in Property Details.</i>
MapToValue }	string, boolean, number	read-only (null)	The value that the property in MapToProperty in the attribute specified in MapToAttribute changes to if the dependency expression evaluates to true.
DependencyFor	string	read-only	This property shall contain the AttributeName of the attribute whose change triggers the evaluation of this dependency expression. Pattern: <code>^[A-Za-z][A-Za-z0-9_]+\$</code>
Type }]	string (enum)	read-only	This property shall contain an enumeration that describes the type for the attribute dependency. <i>For the possible property values, see Type in Property Details.</i>
Menus [{	array		This property shall contain an array containing the attributes menus and their hierarchy in the Attribute Registry.
DisplayName	string	read-only (null)	This property shall contain the user-readable display string of the menu in the defined language.
DisplayOrder	integer	read-only (null)	This property shall contain the ascending order, as a number, in which this menu appears relative to other menus.
GrayOut	boolean	read-only (null)	This property shall indicate whether this menu is grayed out. A grayed-only menu is not accessible in user interfaces.
Hidden (v1.3+)	boolean	read-only (null)	This property shall indicate whether this menu is hidden in user interfaces. The evaluation results of the Dependencies array might affect the hidden state of a menu.
MenuName	string	read-only	This property shall contain the name of this menu that is unique in this Attribute Registry. Pattern: <code>^[^/]+\$</code>
MenuPath	string	read-only (null)	This property shall contain the menu hierarchy of this menu, in the form of a path to the menu names. It shall start with <code>./</code> to indicate the root menu, followed by the menu names with <code>/</code> characters to delineate the menu traversal. Pattern: <code>^.\.\/([^\/]+(\/[^\/]+)*)?\$</code>
Oem (v1.3+) { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to

			the Redfish Specification-described requirements.
ReadOnly }]	boolean	read-only (null)	This property shall indicate whether this menu is read-only. A read-only menu is not accessible in user interfaces, and all properties contained in that menu and its sub-menus are read-only.
RegistryVersion	string	read-only required	This property shall contain the version of this Attribute Registry. Pattern: <code>^\d+\.\d+\.\d+\$</code>
SupportedSystems [{	array		This property shall contain an array containing a list of systems that this Attribute Registry supports.
FirmwareVersion (v1.1+)	string	read-only (null)	The version of the component firmware image to which this Attribute Registry applies.
ProductName	string	read-only (null)	This property shall contain the product name of the computer system to which this Attribute Registry applies.
SystemId }]	string	read-only (null)	This property shall contain the system ID that identifies the systems to which this Attribute Registry applies. This may be identified by one or more properties in the ComputerSystem Resource, such as Model, SubModel, or SKU. Pattern: <code>^[A-Za-z0-9]+\$</code>

Property Details

MapFromCondition:

This property shall contain the condition to use 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:

This property shall contain the metadata property for the attribute that the MapFromAttribute property specifies to use to evaluate this dependency expression. For example, this value

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:

This property shall contain the logical term that combines two or more MapFrom conditions in this dependency expression. For example, `AND` for logical AND, or `OR` for logical OR.

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

MapToProperty:

This property shall contain the metadata property for the attribute that the MapFromAttribute property specifies that evaluates this dependency expression. For example, this value 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.

string	Description
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:

This property shall contain an enumeration that describes the type for the attribute dependency.

string	Description
Map	A simple mapping dependency. If the condition evaluates to `true`, the attribute or state changes to the mapped value.

Example Response

```
{
  "@odata.type": "#AttributeRegistry.v1_3_2.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)",
        "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 embedd
    },
    {
        "CurrentValue": null,
        "DisplayName": "Embedded SATA Configuration",
        "DisplayOrder": 74,
        "HelpText": "Important: Select this option to configure the embedded chipse
        "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 Mod
    }
],
"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 1.1.0

v1.1	v1.0
2019.2	2016.1

This Resource shall 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 link to the Attribute Registry that lists the metadata describing the BIOS attribute settings in this Resource.
Attributes {	object		This property shall contain the list of BIOS attributes specific to the manufacturer or provider. BIOS Attribute settings appear as additional properties in this object, and can be looked up in the Attribute Registry by their AttributeName.
(pattern) }	string, boolean, number	read-write (null)	Property names follow regular expression pattern "[A-Za-z][A-Za-z0-9_]+\$"
Links (v1.1+) {	object		This property shall contain links to Resources that are related to but are not contained by or subordinate to this Resource.

ActiveSoftwareImage {	object		This property shall contain a link to the SoftwareInventory Resource that represents the active BIOS firmware image. <i>See the SoftwareInventory schema for details on this property.</i>
@odata.id	string	read-only	<i>Link to a SoftwareInventory resource. See the Links section and the SoftwareInventory schema for details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
SoftwareImages [{	array		This property shall contain an array of links to the SoftwareInventory Resources that represent the firmware images that apply to this BIOS.
@odata.id	string	read-only	<i>Link to a SoftwareInventory resource. See the Links section and the SoftwareInventory schema for details.</i>
}]			
}			

Actions

ChangePassword

This action shall change 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 that are included in the POST body to the URI shown in the "target" property of the Action.

{			
NewPassword	string	required	This parameter shall contain the new BIOS password.
OldPassword	string	required	This parameter shall contain the existing BIOS password to change.
PasswordName	string	required	This parameter shall contain the name of the BIOS password to change. For instance, AdminPassword or UserPassword.
}			

ResetBios

This action shall reset the BIOS attributes to their default values. A system reset may be required to apply the default values. This action may impact other Resources.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{Computer

```
SystemId}/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_1_0.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_2_2.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.id": "/redfish/v1/Systems/437XR1138R2/Bios"
}
```

BootOption 1.0.3

v1.0

2017.3

This Resource shall represent a single boot option 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)	This property shall contain the string alias of this boot source that describes the type of boot. <i>For the possible property values, see Alias in Property Details.</i>
BootOptionEnabled	boolean	read-write (null)	This property shall indicate whether the boot option is enabled. If <code>true</code> , it is enabled. If <code>false</code> , the boot option that the boot order array on the computer system contains 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)	This property shall correspond to the boot option or device. For UEFI systems, this string shall match the UEFI boot option variable name, such as <code>Boot####</code> . The <code>BootOrder</code> array of a <code>ComputerSystem</code> contains this value.
DisplayName	string	read-only (null)	This property shall contain a user-readable boot option name, as it should appear in the boot order list in the user interface.
RelatedItem [{	array		This property shall contain an array of IDs for 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 Specification-defined UEFI device path that identifies and locates the device for this boot option.

Property Details

Alias:

This property shall contain the string alias of this boot source that describes the type of boot.

string	Description
BiosSetup	Boot to the BIOS setup utility.
Cd	Boot from the CD or DVD.
Diags	Boot to 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, such as an iSCSI target.
SDCard	Boot from an SD card.
UefiBootNext	Boot to the UEFI device that the BootNext property specifies.
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 system BIOS-specified USB device.
Utilities	Boot to the manufacturer's utilities program or programs.

Example Response

```
{
  "@odata.id": "/redfish/v1/Systems/1/BootOptions/1",
  "@odata.type": "#BootOption.v1_0_3.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,B02BF4",
  "Alias": "Hdd",
  "RelatedItem": [
    {
      "@odata.id": "/redfish/v1/Systems/1/SimpleStorage/1"
    }
  ],
  "Oem": {}
}
```

Certificate 1.1.1

v1.1	v1.0
2019.1	2018.3

This Resource contains 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/{CertificateId}](#)
[/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)	This property shall contain the certificate, and the format shall follow the requirements specified by the CertificateType property value. If the certificate contains any private keys, they shall be removed from the string in responses. If the service does not know the private key for the certificate 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. <i>For the possible property values, see CertificateType in Property Details.</i>
Issuer {	object		This property shall contain 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 key usage extension, which defines the purpose of the public keys in this certificate. This type shall describe the usages of a key within a certificate, as specified by the 'Key Usage' and 'Extended Key Usage' definitions in RFC5280. <i>For the possible property values, see KeyUsage in Property Details.</i>
Subject {	object		This property shall contain 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	This property shall contain the date when the certificate validity period ends.
ValidNotBefore	string	read-only	This property shall contain the date when the certificate validity period begins.

Actions

Rekey

This action shall use the certificate data to generate a new key-pair for a certificate. The response shall contain a signing request that a certificate authority (CA) must sign. The Service should retain the private key that generated this request for installation of the certificate. The private key should not be part of the response. 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 that are included in the POST body to the URI shown in the "target" property of the Action.

{			
ChallengePassword	string	optional	This property shall contain the challenge password to apply to the certificate for revocation requests as defined by the RFC2985 'challengePassword' attribute.

KeyBitLength	integer	optional	This parameter shall contain the length of the key, in bits, if needed based on the KeyPairAlgorithm parameter value.
KeyCurveId	string	optional	This parameter shall contain the curve ID to use with the key, if needed based on the KeyPairAlgorithm parameter value. 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	optional	This parameter shall contain 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 a certificate authority (CA) must sign. The Service should retain the private key that this request generates 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 that are included in the POST body to

the URI shown in the "target" property of the Action.

{			
ChallengePassword	string	optional	This property shall contain the challenge password to apply to the certificate for revocation requests as defined by the RFC2985 'challengePassword' attribute.
}			

Property Details

CertificateType:

This property shall contain the format type for the certificate.

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

KeyUsage:

This property shall contain the key usage extension, which defines the purpose of the public keys in this certificate. This type shall describe the usages of a key within a certificate, as specified by the 'Key Usage' and 'Extended Key Usage' definitions in RFC5280.

string	Description
ClientAuthentication	TLS WWW client authentication.
CodeSigning	Signs downloadable executable code.
CRLSigning	Verifies signatures on certificate revocation lists (CLRs).
DataEncipherment	Directly enciphers raw user data without an intermediate symmetric cipher.
DecipherOnly	Deciphers data while performing a key agreement.
DigitalSignature	Verifies digital signatures, other than signatures on certificates and CRLs.
EmailProtection	Email protection.
EncipherOnly	Enciphers data while performing a key agreement.
KeyAgreement	Key agreement.
KeyCertSign	Verifies signatures on public key certificates.
KeyEncipherment	Enciphers private or secret keys.
NonRepudiation	Verifies digital signatures, other than signatures on certificates and CRLs, and provides a non-repudiation service that protects against

string	Description
	the signing entity falsely denying some action.
OCSPSigning	Signs OCSP responses.
ServerAuthentication	TLS WWW server authentication.
Timestamping	Binds the hash of an object to a time.

Example Response

```
{
  "@odata.type": "#Certificate.v1_1_1.Certificate",
  "Id": "1",
  "Name": "HTTPS Certificate",
  "CertificateString": "-----BEGIN CERTIFICATE-----\nMIIFsTCC [**truncated example**] GXG",
  "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 1.0.2

v1.0
2018.3

This Resource shall represent the Certificate Location Properties for a Redfish implementation.

URIs:

/redfish/v1/CertificateService/CertificateLocations

Links {	object		This property shall contain links to Resources that are related to but are not contained by or subordinate to this Resource.
Certificates [{	array		This property shall contain an array of links to Certificate Resources that are installed on this service.
@odata.id]]	string	read-only	<i>Link to a Certificate resource. See the Links section and the Certificate schema for details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.

Example Response

```
{
  "@odata.type": "#CertificateLocations.v1_0_2.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 1.0.2

v1.0

2018.3

This Resource shall 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. <i>See the CertificateLocations schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a CertificateLocations resource. See the Links section and the CertificateLocations schema for details.</i>

Actions

GenerateCSR

This action shall make a certificate signing request. The response shall contain a signing request that a certificate authority (CA) must sign. The Service should retain the private key that was generated during this request for installation of the certificate. 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 that are included in the POST body to the URI shown in the "target" property of the Action.

{			
AlternativeNames []	array (string)	optional	This parameter shall contain an array of additional host names of the component to secure, as defined by the RFC5280 'subjectAltName' attribute.
CertificateCollection {	object	required	This parameter shall contain the URI of the Certificate Resource Collection where the certificate is installed after the certificate authority (CA) signs the certificate. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Certificate. See the Certificate schema for details.</i>
ChallengePassword	string	optional	This property shall contain the challenge password to apply to the certificate for revocation requests as defined by the RFC2985 'challengePassword' attribute.
City	string	required	This parameter shall contain the city or locality of the organization making the request, as defined by the RFC5280 'localityName' attribute.
CommonName	string	required	This parameter shall contain the fully qualified domain name of the component to secure, as defined by the RFC5280 'commonName' attribute.
ContactPerson	string	optional	This property shall contain the name of the user making the request, as defined by the RFC5280 'name' attribute.
Country	string	required	This parameter shall contain the two-letter ISO code for the country of the organization making the request, as defined by the RFC5280

			'countryName' attribute.
Email	string	optional	This parameter shall contain the email address of the contact within the organization making the request, as defined by the RFC2985 'emailAddress' attribute.
GivenName	string	optional	This parameter shall contain the given name of the user making the request, as defined by the RFC5280 'givenName' attribute.
Initials	string	optional	This parameter shall contain the initials of the user making the request, as defined by the RFC5280 'initials' attribute.
KeyBitLength	integer	optional	This parameter shall contain the length of the key, in bits, if needed based on the KeyPairAlgorithm parameter value.
KeyCurveId	string	optional	This parameter shall contain the curve ID to use with the key, if needed based on the KeyPairAlgorithm parameter value. 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	optional	This parameter shall contain 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 the client does not provide this value, the service may determine the appropriate key usage settings in the certificate signing request. This type shall describe the usages of a key within a certificate, as specified by the 'Key Usage' and 'Extended Key Usage' definitions in RFC5280. <i>For the possible property values, see KeyUsage in Property Details.</i>
Organization	string	required	This parameter shall contain the name of the organization making the

			request, as defined by the RFC5280 'organizationName' attribute.
OrganizationalUnit	string	required	This parameter shall contain the name of the unit or division of the organization making the request, as defined by the RFC5280 'organizationalUnitName' attribute.
State	string	required	This parameter shall contain the state, province, or region of the organization making the request, as defined by the RFC5280 'stateOrProvinceName' attribute.
Surname	string	optional	This parameter shall contain the surname of the user making the request, as defined by the RFC5280 'surname' attribute.
UnstructuredName }	string	optional	This property shall contain the unstructured name of the subject, as defined by the RFC2985 'unstructuredName' attribute.

ReplaceCertificate

This action shall replace a 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 that are included in the POST body to the URI shown in the "target" property of the Action.

{			
CertificateString	string	required	This parameter shall contain the string of the certificate, and the format shall follow the requirements specified by the CertificateType property value. If the certificate contains any private keys, they shall be removed from the string in responses. If the service does not know the private key for the certificate and it 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)	required	This parameter shall contain the format type for the certificate. <i>For the possible property values, see CertificateType in Property Details.</i>
CertificateUri {	object	required	This parameter shall contain the URI of the Certificate Resource that is being replaced. <i>See the Certificate schema for details on this property.</i>

<pre> } @odata.id } </pre>	string	read-only	Link to a Certificate resource. See the Links section and the Certificate schema for details.
--	--------	-----------	---

Property Details

CertificateType:

This parameter shall contain the format type for the certificate.

string	Description
PEM	The format of the certificate shall contain a Privacy Enhanced Mail (PEM)-encoded string, containing RFC5280-defined structures.
PKCS7	The format of the certificate shall contain a Privacy Enhanced Mail (PEM)-encoded string, containing RFC5280- and RFC2315-defined structures. 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 the client does not provide this value, the service may determine the appropriate key usage settings in the certificate signing request. This type shall describe the usages of a key within a certificate, as specified by the 'Key Usage' and 'Extended Key Usage' definitions in RFC5280.

string	Description
ClientAuthentication	TLS WWW client authentication.
CodeSigning	Signs downloadable executable code.
CRLSigning	Verifies signatures on certificate revocation lists (CLRs).
DataEncipherment	Directly enciphers raw user data without an intermediate symmetric cipher.
DecipherOnly	Deciphers data while performing a key agreement.
DigitalSignature	Verifies digital signatures, other than signatures on certificates and CRLs.
EmailProtection	Email protection.
EncipherOnly	Enciphers data while performing a key agreement.
KeyAgreement	Key agreement.
KeyCertSign	Verifies signatures on public key certificates.
KeyEncipherment	Enciphers private or secret keys.
NonRepudiation	Verifies digital signatures, other than signatures on certificates and CRLs, and provides a non-repudiation service that protects against the signing entity falsely denying some action.
OCSPSigning	Signs OCSP responses.

string	Description
ServerAuthentication	TLS WWW server authentication.
Timestamping	Binds the hash of an object to a time.

Example Response

```
{
  "@odata.type": "#CertificateService.v1_0_2.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 1.10.0

v1.10	v1.9	v1.8	v1.7	v1.6	v1.5	v1.4	v1.3	v1.2	v1.1	v1.0
2019.2	2018.3	2018.2	2018.1	2017.3	2017.1	2016.3	2016.2	2016.1	1.1	1.0

This Resource shall represent a chassis or other physical enclosure for a Redfish implementation.

URIs:

/redfish/v1/Chassis/{[ChassisId](#)}

Assembly (v1.6+) {	object		This property shall contain 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)	This property shall contain an identifying string that tracks

			the chassis for inventory purposes.
ChassisType	string (enum)	read-only required	ChassisType shall indicate the physical form factor for the type of chassis. <i>For the possible property values, see ChassisType in Property Details.</i>
DepthMm (v1.4+)	number (mm)	read-only (null)	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)	This property shall contain the ASHRAE Environmental Class for this chassis, as defined by ASHRAE Thermal Guidelines for Data Processing Environments. These classes define respective environmental limits that include temperature, relative humidity, dew point, and maximum allowable elevation. <i>For the possible property values, see EnvironmentalClass in Property Details.</i>
HeightMm (v1.4+)	number (mm)	read-only (null)	This property shall represent the height of the chassis (in millimeters) as specified by the manufacturer.
IndicatorLED	string (enum)	read-write (null)	This property shall contain the indicator light state for the indicator light associated with this system. <i>For the possible property values, see IndicatorLED in Property Details.</i>
Links {	object		This property shall contain links to Resources that are related to but are not contained by or subordinate to this Resource.
ComputerSystems [{	array		This property shall contain a link to the Resource of type ComputerSystem with which this physical container is associated. If a chassis also links to a computer system to which this Resource also links, this chassis shall not link to

			that computer system.
@odata.id }]	string	read-only	<i>Link to a ComputerSystem resource. See the Links section and the ComputerSystem schema for details.</i>
ContainedBy {	object		This property shall contain a link to the Resource that represents the chassis that contains this chassis and shall be of the Chassis type.
@odata.id }	string	read-only	<i>Link to another Chassis resource.</i>
Contains [{	array		This property shall contain a link to the Resource that represents the chassis that this chassis contains and shall be of the Chassis type.
@odata.id }]	string	read-only	<i>Link to another Chassis resource.</i>
CooledBy [{	array		This property shall contain an array of one or more IDs that contain 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		This property shall link to one or more Resources of the Drive type that are in this chassis.
@odata.id }]	string	read-only	<i>Link to a Drive resource. See the Links section and the Drive schema for details.</i>
ManagedBy [{	array		This property shall contain a link to the Resource of type Manager that manages this chassis.
@odata.id }]	string	read-only	<i>Link to a Manager resource. See the Links section and the Manager schema for details.</i>
ManagersInChassis (v1.2+) [{	array		This property shall link to one

			or more Resources of the Manager type that are in this chassis.
@odata.id }]	string	read-only	<i>Link to a Manager resource. See the Links section and the Manager schema for details.</i>
Oem {}	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PCleDevices (v1.4+, deprecated v1.10) [{	array		This property shall contain an array of links to one or more Resources of the PCleDevices type. <i>Deprecated in v1.10 and later. This property has been deprecated in favor of the PCleDevices Resource Collection in the root of this Resource.</i>
@odata.id }]	string	read-only	<i>Link to a PCleDevice resource. See the Links section and the PCleDevice schema for details.</i>
PoweredBy [{	array		This property shall contain an array of one or more IDs that contain 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		This property shall contain an array of links of the Processor type that this chassis contains.
@odata.id }]	string	read-only	<i>Link to a Processor resource. See the Links section and the Processor schema for details.</i>
ResourceBlocks (v1.5+) [{	array		This property shall contain an array of links of the ResourceBlock type that this chassis contains.
@odata.id }]	string	read-only	<i>Link to a ResourceBlock resource. See the Links</i>

			<i>section and the ResourceBlock schema for details.</i>
Storage (v1.2+) [{	array		This property shall link to one or more Resources of the Storage type that are connected to or contained in this chassis.
@odata.id }]	string	read-only	<i>Link to a Storage resource. See the Links section and the Storage schema for details.</i>
Switches (v1.7+) [{	array		This property shall contain an array of links of the Switch type that this chassis contains.
@odata.id }] }	string	read-only	<i>Link to a Switch resource. See the Links section and the Switch schema for details.</i>
Location (v1.2+) { }	object		This property shall contain location information of the associated chassis. <i>For property details, see Location.</i>
LogServices {	object		This property shall contain a link to a Resource Collection of type LogServiceCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of LogService. See the LogService schema for details.</i>
Manufacturer	string	read-only (null)	This property shall contain 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)	This property shall contain the name by which the manufacturer generally refers to the chassis.
NetworkAdapters (v1.4+) {	object		This property shall contain a link to a Resource Collection of type NetworkAdapterCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of NetworkAdapter. See the</i>

			<i>NetworkAdapter schema for details.</i>
PartNumber	string	read-only (null)	This property shall contain a part number assigned by the organization that is responsible for producing or manufacturing the chassis.
PCleDevices (v1.10+) {	object		This property shall contain a link to a Resource Collection of type PCleDeviceCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of PCleDevice. See the PCleDevice schema for details.</i>
PCleSlots (v1.8+) {	object		This property shall contain a link to the Resource that represents the PCIe slot information for this chassis and shall be of the PCleSlot type. <i>See the PCleSlots schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a PCleSlots resource. See the Links section and the PCleSlots schema for details.</i>
PhysicalSecurity (v1.1+) {	object		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. <i>For the possible property values, see IntrusionSensor in Property Details.</i>
IntrusionSensorNumber	integer	read-only (null)	This property shall contain 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 that restores this physical security sensor to the normal state. Manual indicates

			<p>manual re-arm is needed. Automatic indicates the state is restored automatically because no abnormal physical security conditions are detected.</p> <p><i>For the possible property values, see IntrusionSensorReArm in Property Details.</i></p>
Power {	object		<p>This property shall contain a link to the Resource that represents the power characteristics of this chassis and shall be of the Power type. See the Power schema for details on this property.</p>
@odata.id }	string	read-only	<p><i>Link to a Power resource. See the Links section and the Power schema for details.</i></p>
PowerState (v1.0.1+)	string (enum)	read-only (null)	<p>This property shall contain the power state of the chassis. For the possible property values, see PowerState in Property Details.</p>
Sensors (v1.9+) {	object		<p>This property shall contain a link to a Resource of type SensorCollection that contains the sensors located in the chassis and sub-components. Contains a link to a resource.</p>
@odata.id }	string	read-only	<p><i>Link to Collection of Sensor. See the Sensor schema for details.</i></p>
SerialNumber	string	read-only (null)	<p>This property shall contain a manufacturer-allocated number that identifies the chassis.</p>
SKU	string	read-only (null)	<p>This property shall contain the stock-keeping unit number for this chassis.</p>
Status { }	object		<p>This property shall contain any status or health properties of the Resource. For property details, see Status.</p>
Thermal {	object		<p>This property shall contain a link to the Resource that represents the thermal</p>

			characteristics of this chassis and shall be of the Thermal type. 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 (v1.7+)	string	read-only (null)	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)	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)	This property shall represent the width of the chassis (in millimeters) as specified by the manufacturer.

Actions

Reset

This action shall reset the chassis but shall not reset systems or other contained Resources, although side effects may occur that affect those Resources.

URIs:

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

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

{			
ResetType }	string (enum)	optional	This parameter shall contain the type of reset. The Service may accept a request without the parameter and complete an implementation-specific default reset. For the possible property values, see ResetType in Property Details.

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 that 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 that contains devices for a particular subsystem or function.
Drawer	An enclosed or semi-enclosed, typically horizontally-oriented, system chassis that 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 that 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 that 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 that 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 that 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 that 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 that encloses storage.

string	Description
Zone	A logical division or portion of a physical chassis that contains multiple devices or systems that cannot be physically separated.

EnvironmentalClass:

This property shall contain the ASHRAE Environmental Class for this chassis, as defined by ASHRAE Thermal Guidelines for Data Processing Environments. These classes define respective environmental limits that include temperature, relative humidity, dew point, and maximum allowable elevation.

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

IndicatorLED:

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 the service does not support this value, it shall reject PATCH or PUT requests containing this value by returning the HTTP 400 (Bad Request) status code.
Lit	This value shall represent the indicator LED is in a solid on state. If the service does not support this value, it shall return the HTTP 400 (Bad Request) status code to reject PATCH or PUT requests that contain this value.
Off	This value shall represent the indicator LED is in a solid off state. If the service does not support this value, it shall reject PATCH or PUT requests containing this value by returning the HTTP 400 (Bad Request) status code.
Unknown <i>(deprecated v1.2)</i>	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 the HTTP 400 (Bad Request) status code. <i>This value has been deprecated in favor of returning null if the state is unknown.</i>

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 to be in an insecure state.

string	Description
Normal	No abnormal physical security condition is detected at this time.
TamperingDetected	Physical tampering of the monitored entity is detected.

IntrusionSensorReArm:

This property shall represent the method that restores this physical security sensor to the normal state. Manual indicates manual re-arm is needed. Automatic indicates the state is restored automatically because no abnormal physical security conditions are detected.

string	Description
Automatic	Because no abnormal physical security condition is detected, this sensor is automatically restored to the normal state.
Manual	A manual re-arm of this sensor restores it to the normal state.

PowerState:

This property shall contain the power state of the chassis.

string	Description
Off	The components within the chassis have no power, except some components may continue to have AUX power, such as the management controller.
On	The components within the chassis have power.
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 contain the type of reset. The Service may accept a request without the parameter and complete an implementation-specific default reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the system.
GracefulRestart	Shut down gracefully and restart the system.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.

string	Description
On	Turn on the unit.
PowerCycle	Power cycle the unit.
PushPowerButton	Simulate the pressing of the physical power button on this unit.

Example Response

```
{
  "@odata.type": "#Chassis.v1_10_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.id": "/redfish/v1/Chassis/1U"
}

```

CompositionService 1.1.2

v1.1	v1.0
2018.2	2017.1

This Resource shall represent the Composition Service and its properties for a Redfish implementation.

URIs:

/redfish/v1/CompositionService

AllowOverprovisioning (v1.1+)	boolean	read-write (null)	This property shall indicate whether this service is allowed to overprovision a composition relative to the composition request.
AllowZoneAffinity (v1.1+)	boolean	read-only (null)	This property shall indicate whether a client can request that a specific Resource Zone fulfill a composition request.
ResourceBlocks {	object		This property shall contain the link to a Resource Collection of type ResourceBlockCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of ResourceBlock. See the ResourceBlock schema for details.</i>
ResourceZones {	object		This property shall contain the link to a Resource Collection of type ZoneCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Zone. See the Zone schema for details.</i>

ServiceEnabled	boolean	read-write (null)	This property shall indicate whether this service is enabled.
Status {}	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>

Example Response

```
{
  "@odata.type": "#CompositionService.v1_1_2.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.id": "/redfish/v1/CompositionService"
}
```

ComputerSystem 1.9.0

v1.9	v1.8	v1.7	v1.6	v1.5	v1.4	v1.3	v1.2	v1.1	v1.0
2019.3	2019.2	2019.1	2018.3	2017.3	2017.1	2016.3	2016.2	2016.1	1.0

This Resource shall 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)	This property shall contain the system asset tag value.
Bios (v1.1+) {	object		This property shall contain a link to a Resource of type Bios that lists the BIOS settings for this system. <i>See the Bios schema for</i>

			<i>details on this property.</i>
@odata.id }	string	read-only	<i>Link to a Bios resource. See the Links section and the Bios schema for details.</i>
BiosVersion	string	read-only (null)	This property shall contain the version string of the currently installed and running BIOS for x86 systems. For other systems, the property may contain a version string that represents the primary system firmware.
Boot {	object		This property shall contain the boot settings for this system.
AliasBootOrder (v1.6+) []	array (string (enum))	read-write (null)	This property shall contain an ordered array of boot source aliases of the BootSource type that represents the persistent boot order of this computer system. <i>For the possible property values, see AliasBootOrder in Property Details.</i>
BootNext (v1.5+)	string	read-write (null)	This property shall contain 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 set to <code>Continuous</code> is not supported for UEFI BootNext because this setting is defined in UEFI as a one-time boot only.
BootOptions (v1.5+) {	object		This property shall contain a link to a Resource Collection of type BootOptionCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of BootOption. See the BootOption schema for details.</i>
BootOrder (v1.5+) []	array (string, null)	read-write	This property shall contain an array of BootOptionReference strings that represent the persistent boot order for this computer system. For UEFI systems, this is the UEFI

			Specification-defined UEFI BootOrder.
BootOrderPropertySelection (v1.6+)	string (enum)	read-write (null)	This property shall indicate which boot order property the system uses for the persistent boot order. <i>For the possible property values, see BootOrderPropertySelection in Property Details.</i>
BootSourceOverrideEnabled	string (enum)	read-write (null)	This property shall contain <code>Once</code> for a one-time boot override, and <code>Continuous</code> for a remain-active-until-cancelled override. The <code>Continuous</code> value is not supported for this property for UEFI boot source override because UEFI supports one-time boot only. If set to <code>Once</code> , the value is reset to <code>Disabled</code> after the <code>BootSourceOverrideTarget</code> actions have completed successfully. Changes to this property do not alter the BIOS persistent boot order configuration. <i>For the possible property values, see BootSourceOverrideEnabled in Property Details.</i>
BootSourceOverrideMode (v1.1+)	string (enum)	read-write (null)	This property shall contain the BIOS boot mode to use when the system boots from the <code>BootSourceOverrideTarget</code> boot source. <i>For the possible property values, see BootSourceOverrideMode in Property Details.</i>
BootSourceOverrideTarget	string (enum)	read-write (null)	This property shall contain the source to boot the system from, overriding the normal boot order. The <code>Redfish.AllowableValues</code> annotation specifies the valid values for this property. <code>Pxe</code> indicates to PXE boot from the primary NIC; <code>Floppy</code> , <code>Cd</code> , <code>Usb</code> , and <code>Hdd</code> indicate to boot from their devices respectively. <code>BiosSetup</code> indicates to boot into the native BIOS screen

			<p>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.</p> <p><i>For the possible property values, see BootSourceOverrideTarget in Property Details.</i></p>
Certificates (v1.7+) {	object		This property shall contain a link to a Resource Collection of type CertificateCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Certificate. See the Certificate schema for details.</i>
HttpBootUri (v1.9+)	string	read-write (null)	This property shall contain the URI to perform an HTTP or HTTPS boot when BootSourceOverrideTarget is set to UefiHttp.
UefiTargetBootSourceOverride }	string	read-write (null)	This property shall contain the UEFI device path of the override boot target. The Redfish.AllowableValues annotation specifies the values for this property. The Continuous value is not supported for the BootSourceOverrideEnabled property for UEFI boot source override because UEFI supports one-time boot only. Changes to this property do not alter the BIOS persistent boot order configuration.
EthernetInterfaces {	object		This property shall contain a link to a Resource Collection of type EthernetInterfaceCollection. <i>Contains a link to a resource.</i>
@odata.id	string	read-only	<i>Link to Collection of</i>

}			EthernetInterface . See the EthernetInterface schema for details.
HostedServices (v1.2+) {	object		This property shall describe services that this computer system supports.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
StorageServices {	object		This property shall contain a link to a Resource 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	This property shall contain the hosting roles that this computer system supports. The enumerations of HostingRoles specify different features that the hosting ComputerSystem supports. <i>For the possible property values, see HostingRoles in Property Details.</i>
HostName	string	read-write (null)	This property shall contain the host name for this system, as reported by the operating system or hypervisor. A service running in the host operating system typically reports this value to the manager.
HostWatchdogTimer (v1.5+) {	object		This object shall contain properties that describe the host watchdog timer functionality for this ComputerSystem.
FunctionEnabled	boolean	read-write required (null)	This property shall indicate whether a user has enabled the host watchdog timer functionality. This property indicates only that a user has enabled the timer. To activate the timer, installation of additional host-based software

			is necessary; an update to this property does not initiate the timer.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
TimeoutAction	string (enum)	read-write required (null)	This property shall contain the action to perform when the watchdog timer reaches its timeout value. <i>For the possible property values, see TimeoutAction in Property Details.</i>
WarningAction }	string (enum)	read-write (null)	This property shall contain the action to perform before the watchdog timer expires. This action typically occurs from three to ten seconds before to the timeout value, but the exact timing is dependent on the implementation. <i>For the possible property values, see WarningAction in Property Details.</i>
IndicatorLED	string (enum)	read-write (null)	This property shall contain the state of the indicator light, which identifies this system. <i>For the possible property values, see IndicatorLED in Property Details.</i>
Links {	object		The Redfish Specification-described Links Property shall contain links to Resources related to but not subordinate to this Resource.
Chassis [{	array		This property shall link to a Resource of type Chassis that represents the physical container associated with this Resource.
@odata.id }]	string	read-only	<i>Link to a Chassis resource. See the Links section and the</i>

			Chassis schema for details.
ConsumingComputerSystems (v1.5+) [{	array		The value shall be an array of links to ComputerSystems that are realized, in whole or in part, from this ComputerSystem.
@odata.id }]	string	read-only	<i>Link to another ComputerSystem resource.</i>
CooledBy [{	array		This property shall contain an array of IDs that contain 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		This property shall contain a link to the Resources of the Endpoint type with which this system is associated.
@odata.id }]	string	read-only	<i>Link to a Endpoint resource. See the Links section and the Endpoint schema for details.</i>
ManagedBy [{	array		This property shall link to a Resource of type Manager that represents the Resource with management responsibility for this Resource.
@odata.id }]	string	read-only	<i>Link to a Manager resource. See the Links section and the Manager schema for details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PoweredBy [{	array		This property shall contain an array of IDs that contain 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		This property shall contain an array of links of the ResourceBlock type that show the Resource Blocks that are used in this computer system.
@odata.id }]	string	read-only	<i>Link to a ResourceBlock resource. See the Links section and the ResourceBlock schema for details.</i>
SupplyingComputerSystems (v1.5+) [{	array		The value shall be an array of links to ComputerSystems that contribute, in whole or in part, to the implementation of this ComputerSystem.
@odata.id }]	string	read-only	<i>Link to another ComputerSystem resource.</i>
LogServices {	object		This property shall contain a link to a Resource Collection of type LogServiceCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of LogService. See the LogService schema for details.</i>
Manufacturer	string	read-only (null)	This property shall contain a value that represents the manufacturer of the system.
Memory (v1.1+) {	object		This property shall contain a link to a Resource Collection of type MemoryCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Memory. See the Memory schema for details.</i>
MemoryDomains (v1.2+) {	object		This property shall contain a link to a Resource Collection of type MemoryDomainCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of MemoryDomain. See the MemoryDomain schema for details.</i>

MemorySummary {	object		This property shall describe the central memory for this Resource.
MemoryMirroring (v1.1+)	string (enum)	read-only (null)	This property shall contain the ability and type of memory mirroring that this computer system supports. <i>For the possible property values, see MemoryMirroring in Property Details.</i>
Metrics (v1.8+) {	object		This property shall contain a link to the metrics associated with all memory in this system. <i>See the MemoryMetrics schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a MemoryMetrics resource. See the Links section and the MemoryMetrics schema for details.</i>
Status {}	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
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)	This property shall describe how the manufacturer refers to this system. Typically, this value is the product name for this system without the manufacturer name.
NetworkInterfaces (v1.3+) {	object		This property shall contain a link to a Resource Collection of type <code>NetworkInterfaceCollection</code> . <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of NetworkInterface. See the NetworkInterface schema for</i>

			<i>details.</i>
PartNumber	string	read-only (null)	This property shall contain the manufacturer-defined part number for the system.
PCleDevices (v1.2+) [{	array		This property shall contain an array of links of the PCleDevice type.
@odata.id }]	string	read-only	<i>Link to a PCleDevice resource. See the Links section and the PCleDevice schema for details.</i>
PCleFunctions (v1.2+) [{	array		This property shall contain an array of links of the PCleFunction type.
@odata.id }]	string	read-only	<i>Link to a PCleFunction resource. See the Links section and the PCleFunction schema for details.</i>
PowerRestorePolicy (v1.6+)	string (enum)	read-write	This property shall indicate the desired PowerState of the system when power is applied to the system. The <code>LastState</code> value shall return the system to the PowerState it was in when power was lost. <i>For the possible property values, see PowerRestorePolicy in Property Details.</i>
PowerState	string (enum)	read-only (null)	This property shall contain the power state of the system. <i>For the possible property values, see PowerState in Property Details.</i>
Processors {	object		This property shall contain a link to a Resource Collection of type ProcessorCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Processor. See the Processor schema for details.</i>
ProcessorSummary {	object		This property shall describe the central processors for this 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 contain a link to the metrics associated with all processors in this system. <i>See the ProcessorMetrics schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a ProcessorMetrics resource. See the Links section and the ProcessorMetrics schema for details.</i>
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. <i>For property details, see Status.</i>
Redundancy (v1.5+) [{}]	array (object)		This property shall contain a set of redundancy entities. Each entity specifies a kind and level of redundancy and a collection, or redundancy set, of other computer systems that provide the specified redundancy to this computer system. This object represents the redundancy element property. <i>For property details, see Redundancy.</i>
SecureBoot (v1.1+) {	object		This property shall contain a link to a Resource of type SecureBoot. <i>See the SecureBoot schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a SecureBoot resource. See the Links section and the SecureBoot schema for details.</i>

SerialNumber	string	read-only (null)	This property shall contain the serial number for the system.
SimpleStorage {	object		This property shall contain a link to a Resource Collection of type SimpleStorageCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of SimpleStorage. See the SimpleStorage schema for details.</i>
SKU	string	read-only (null)	This property shall contain the SKU for the system.
Status {}	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
Storage (v1.1+) {	object		This property shall contain a link to a Resource Collection of type StorageCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Storage. See the Storage schema for details.</i>
SubModel (v1.5+)	string	read-only (null)	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. <i>For the possible property values, see SystemType in Property Details.</i>
TrustedModules (v1.1+) [{	array		This object shall contain an array of objects with properties that describe the trusted modules for this Resource.
FirmwareVersion	string	read-only (null)	This property shall contain the firmware 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. <i>For the possible property values, see InterfaceType in Property Details.</i>
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. <i>For the possible property values, see InterfaceTypeSelection in Property Details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
Status { } }]	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
UUID	string	read-only (null)	This property shall contain the UUID for the system. RFC4122 describes methods to create this value. The value should be considered to be opaque. Client software should only treat the overall value as a UUID and should not interpret any sub-fields within the UUID. If the system supports SMBIOS, the property value should follow the SMBIOS 2.6 and later 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})
 For more information about this property, see *Property Details*.

Actions

AddResourceBlock

This action shall 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 that are included in the POST body to the URI shown in the "target" property of the Action.

{			
ComputerSystemETag	string	optional	This parameter shall contain the current ETag of the system. If the client-provided ETag does not match the current ETag of the system, the service shall return the HTTP 428 (Precondition Required) status code to reject the request.
ResourceBlock {	object	required	This parameter shall contain 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	optional	This parameter shall contain the current ETag of the Resource Block to add to the system. If the client-provided ETag does not match the current ETag of the Resource Block that the ResourceBlock parameter specifies, the service shall return the HTTP 428 (Precondition Required) status code to reject the request.

RemoveResourceBlock

This action shall 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 that are included in the POST body to the URI shown in the "target" property of the Action.

{			
ComputerSystemETag	string	optional	This parameter shall contain the current ETag of the system. If the client-provided ETag does not match the current ETag of the system, the service shall return the HTTP 428 (Precondition Required) status code to reject the request.
ResourceBlock {	object	required	This parameter shall contain a link to the specified Resource Block to remove from the system. <i>See the ResourceBlock schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a ResourceBlock resource. See the Links section and the ResourceBlock schema for details.</i>
ResourceBlockETag }	string	optional	This parameter shall contain the current ETag of the Resource Block to remove from the system. If the client-provided ETag does not match the current ETag of the Resource Block that the ResourceBlock parameter specifies, the service shall return the HTTP 428 (Precondition Required) status code to reject the request.

Reset

This action shall reset the system represented by the Resource. For systems that 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 four-second hold of the Power Button. The ForceRestart value shall perform a ForceOff action, followed by an 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 that are included in the POST body to the URI shown in the "target" property of the Action.

{			
---	--	--	--

ResetType }	string (enum)	optional	This parameter shall contain the type of reset. The Service may accept a request without the parameter and perform an implementation-specific default reset. <i>For the possible property values, see ResetType in Property Details.</i>
-----------------------	------------------	----------	--

SetDefaultBootOrder

This action shall set the BootOrder array to the default settings.

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:

This property shall contain an ordered array of boot source aliases of the BootSource type that represents the persistent boot order of this computer system.

string	Description
BiosSetup	Boot to the BIOS setup utility.
Cd	Boot from the CD or DVD.
Diags	Boot to 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, such as an iSCSI target.
SDCard	Boot from an SD card.
UefiBootNext	Boot to the UEFI device that the BootNext property specifies.
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 system BIOS-specified USB device.
Utilities	Boot to the manufacturer's utilities program or programs.

BootOrderPropertySelection:

This property shall indicate which boot order property the system uses for the persistent boot order.

string	Description
AliasBootOrder	The system uses the AliasBootOrder property to specify the persistent boot order.
BootOrder	The system uses the BootOrder property to specify the persistent boot order.

BootSourceOverrideEnabled:

This property shall contain `Once` for a one-time boot override, and `Continuous` for a remain-active-until-cancelled override. The `Continuous` value is not supported for this property for UEFI boot source override because UEFI supports one-time boot only. If set to `Once`, the value is reset to `Disabled` after the BootSourceOverrideTarget actions have completed successfully. Changes to this property do not alter the BIOS persistent boot order configuration.

string	Description
Continuous	The system boots to the target specified in the BootSourceOverrideTarget property until this property is `Disabled`.
Disabled	The system boots normally.
Once	On its next boot cycle, the system boots one time to the boot source override target. Then, the BootSourceOverrideEnabled value is reset to `Disabled`.

BootSourceOverrideMode:

This property shall contain the BIOS boot mode to use when the system boots from the BootSourceOverrideTarget boot source.

string	Description
Legacy	The system boots in non-UEFI boot mode to the boot source override target.
UEFI	The system boots in UEFI boot mode to the boot source override target.

BootSourceOverrideTarget:

This property shall contain the source to boot the system from, overriding the normal boot order. The Redfish.AllowableValues annotation specifies the valid values for this property. `Pxe` indicates to PXE boot from the primary NIC; `Floppy`, `Cd`, `Usb`, and `Hdd` indicate 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.

string	Description
Cd	Boot from the CD or DVD.
Diags	Boot to 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, such as an iSCSI target.
SDCard (v1.1+)	Boot from an SD card.
UefiBootNext (v1.5+)	Boot to the UEFI device that the BootNext property specifies.
UefiHttp (v1.1+)	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 system BIOS-specified USB device.
Utilities	Boot to the manufacturer's utilities program or programs.

HostingRoles:

This property shall contain the hosting roles that this computer system supports. 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:

This property shall contain the state of the indicator light, which identifies this system.

string	Description
Blinking	This value shall represent that the indicator LED is in a blinking state where the LED is being turned on and off in repetition. If the service does not support this value, it shall reject PATCH or PUT requests containing this

string	Description
	value by returning the HTTP 400 (Bad Request) status code.
Lit	This value shall represent that the indicator LED is in a solid on state. If the service does not support this value, it shall reject PATCH or PUT requests containing this value by returning the HTTP 400 (Bad Request) status code.
Off	This value shall represent that the indicator LED is in a solid off state. If the service does not support this value, it shall reject PATCH or PUT requests containing this value by returning the HTTP 400 (Bad Request) status code.
Unknown (<i>deprecated v1.1</i>)	This value shall represent that the indicator LED is in an unknown state. The Service shall reject PATCH or PUT requests containing this value by returning the HTTP 400 (Bad Request) status code. <i>This value has been deprecated in favor of returning null if the state is unknown.</i>

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 through platform software, such as a BIOS configuration attribute.
FirmwareUpdate	The TrustedModule supports switching InterfaceType through a firmware update.
None	The TrustedModule does not support switching the InterfaceType.
OemMethod	The TrustedModule supports switching InterfaceType through an OEM proprietary mechanism.

MemoryMirroring:

This property shall contain the ability and type of memory mirroring that this computer system supports.

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.

string	Description
	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. The `LastState` value shall return the system to the PowerState it was in when power was lost.

string	Description
AlwaysOff	The system always remains powered off when power is applied.
AlwaysOn	The system always powers on when power is applied.
LastState	The system returns to its last on or off power state when power is applied.

PowerState:

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 contain the type of reset. The Service may accept a request without the parameter and perform an implementation-specific default reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the system.
GracefulRestart	Shut down gracefully and restart the system.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86

string	Description
	systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
PowerCycle	Power cycle 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 typically represents a single system constructed from disaggregated Resources through the Redfish Composition Service.
OS	A SystemType of OS typically represents an OS or hypervisor view of the system.
Physical	A SystemType of Physical typically represents the hardware aspects of a system, such as a management controller.
PhysicallyPartitioned	A SystemType of PhysicallyPartition typically represents a single system constructed from one or more physical systems through a firmware or hardware-based service.
Virtual	A SystemType of Virtual typically represents a system that is actually a virtual machine instance.
VirtuallyPartitioned	A SystemType of VirtuallyPartition typically represents a single system constructed from one or more virtual systems through a software-based service.

TimeoutAction:

This property shall contain the action to perform when the watchdog timer reaches its timeout value.

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:

This property shall contain the UUID for the system. RFC4122 describes methods to create

this value. The value should be considered to be opaque. Client software should only treat the overall value as a UUID and should not interpret any sub-fields within the UUID. If the system supports SMBIOS, the property value should follow the SMBIOS 2.6 and later 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 RFC4122-specified 35-character string format is `xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx`, where each `x` represents a hexadecimal value from 0 to f.

If the computer system supports SMBIOS, 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 "xxxxxxxx-xxxx-xxxx-xxxx-xxxx"). 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:


```
"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.id": "/redfish/v1/Systems/437XR1138R2"
}

```

Drive 1.8.0

v1.8	v1.7	v1.6	v1.5	v1.4	v1.3	v1.2	v1.1	v1.0
2019.3	2019.2	2019.1	2018.2	2018.1	2017.3	2017.1	2016.2	2016.1

This Resource shall represent a 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		This property shall contain 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)	This property shall track the drive for inventory purposes.
BlockSizeBytes	integer (bytes)	read-only (null)	This property shall contain size of the smallest addressable unit of the associated drive.
CapableSpeedGbs	number	read-only	This property shall contain fastest

	(Gbit/s)	(null)	capable bus speed, in gigabit per second (Gbit/s), 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. <i>For the possible property values, see EncryptionAbility in Property Details.</i>
EncryptionStatus	string (enum)	read-only (null)	This property shall contain the encryption status for the associated drive. <i>For the possible property values, see EncryptionStatus in Property Details.</i>
FailurePredicted	boolean	read-only (null)	This property shall indicate whether this drive currently predicts a manufacturer-defined failure.
HotspareReplacementMode (v1.5+)	string (enum)	read-write (null)	This property shall indicate whether a commissioned hot spare continues to serve as a hot spare after the failed drive is replaced. <i>For the possible property values, see HotspareReplacementMode in Property Details.</i>
HotspareType	string (enum)	read-only (null)	This property shall contain the hot spare type for the associated drive. If the drive currently serves as a hot spare, its Status.State field shall be 'StandbySpare' and 'Enabled' when it is part of a volume. <i>For the possible property values, see HotspareType in Property Details.</i>
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 for a Resource. <i>For property details, see Identifier.</i>
IndicatorLED	string (enum)	read-write (null)	This property shall contain the state for the indicator light associated with this drive. <i>For the possible property values, see IndicatorLED in Property Details.</i>
Links {	object		This property shall contain links to Resources that are related to but are not contained by or subordinate to this Resource.

Chassis (v1.2+) {	object		This property shall contain a link to a Resource of type Chassis that represents the physical container associated with this drive. <i>See the Chassis schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a Chassis resource. See the Links section and the Chassis schema for details.</i>
Endpoints (v1.1+) [{	array		This property shall contain a link to the Resources of the Endpoint type with which this drive is associated.
@odata.id }]	string	read-only	<i>Link to a Endpoint resource. See the Links section and the Endpoint schema for details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PCleFunctions (v1.6+) [{	array		This property shall link to a Resource of type PCIeFunction that represents the PCIe functions associated with this Resource.
@odata.id }]	string	read-only	<i>Link to a PCIeFunction resource. See the Links section and the PCleFunction schema for details.</i>
StoragePools (v1.8+) [{	array		This property shall contain an array of links of type StoragePool to which this drive belongs.
@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.
Volumes [{	array		This property shall contain a link to the Resources of the Volume type with which this drive is associated. This property shall include all Volume Resources of which this drive is a member and all volumes for which this drive acts as a spare if the hot spare type is <i>Dedicated</i> .
@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 (deprecated v1.4) [{}]	array		This property shall contain location

	(object)		information of the associated drive. This type shall describe the location of a Resource. <i>For property details, see Location. Deprecated in v1.4 and later. This property has been deprecated in favor of the singular property PhysicalLocation found in Drive.v1_4_0.</i>
Manufacturer	string	read-only (null)	This property shall contain 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. <i>For the possible property values, see MediaType in Property Details.</i>
Model	string	read-only (null)	This property shall contain 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, in gigabit per second (Gbit/s), of the associated drive.
Operations (v1.1+) [{	array		This property shall contain a list of all operations currently running on the Drive.
 AssociatedTask {	object		This property shall contain a link to a Resource of type Task that represents the task associated with the operation. <i>See the Task schema for details on this property.</i>
 @odata.id	string	read-only	<i>Link to a Task resource. See the Links section and the Task schema for details.</i>
 OperationName	string	read-only (null)	This property shall contain a string of the name of the operation.
 PercentageComplete	integer (%)	read-only (null)	This property shall contain an interger of the percentage of the operation that has been completed.
 }]			
PartNumber	string	read-only (null)	This property shall contain the 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. <i>For property details, see Location.</i>
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 that the associated drive currently uses to communicate to the storage controller for this system. <i>For the possible property values, see Protocol in Property Details.</i>
Revision	string	read-only (null)	This property shall contain the manufacturer-defined revision for the associated drive.
RotationSpeedRPM	number (RPM)	read-only (null)	This property shall contain the rotation speed, in revolutions per minute (RPM), of the associated drive.
SerialNumber	string	read-only (null)	This property shall contain the manufacturer-allocated number that identifies the drive.
SKU	string	read-only (null)	This property shall contain the stock-keeping unit (SKU) number for this drive.
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
StatusIndicator	string (enum)	read-write (null)	This property shall contain the status indicator state for the status indicator associated with this drive. The Redfish.AllowableValues annotation specifies the valid values for this property. <i>For the possible property values, see StatusIndicator in Property Details.</i>
WriteCacheEnabled (v1.7+)	boolean	read-write (null)	This property shall indicate whether the drive write cache is enabled.

Actions

Reset

This action shall reset this drive.

URIs:

`/redfish/v1/Chassis/{ChassisId}/Drives/{DriveId}/Actions/Drive.Reset`

`/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Drives/{DriveId}/Actions/Drive.Reset`

`/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/`

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

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

{			
ResetType	string (enum)	optional	This parameter shall contain the type of reset. The Service may accept a request without the parameter and perform an implementation specific default reset. For the possible property values, see ResetType in Property Details.
}			

SecureErase

This action shall securely erase 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.

string	Description
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 encryption 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 can unlock the drive automatically.
Unencrypted (<i>deprecated v1.1</i>)	The drive is not currently encrypted. <i>This value has been deprecated in favor of Unencrypted.</i>
Unencrypted (v1.1+)	The drive is not currently encrypted.
Unlocked	The drive is currently encrypted but the data is accessible to the user in unencrypted form.

HotspareReplacementMode:

This property shall indicate whether a commissioned hot spare continues to serve as a hot spare after the failed drive is replaced.

string	Description
NonRevertible	The hot spare drive that is commissioned due to a drive failure remains as a data drive and does not revert to a hot spare if the failed drive is replaced.
Revertible	The hot spare drive that is commissioned due to a drive failure reverts to a hot spare after the failed drive is replaced and rebuilt.

HotspareType:

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

string	Description
Chassis	The drive is currently serving as a hot spare for all other drives in the chassis.
Dedicated	The drive is currently serving as a hot spare for a user-defined set of drives.
Global	The drive is currently serving as a hot spare for all other drives in the storage system.

string	Description
None	The drive is not currently a hot spare.

IndicatorLED:

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

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

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 that the associated drive currently uses to communicate to the storage controller for this system.

string	Description
AHCI	This value shall indicate conformance to the Intel Advanced Host Controller Interface (AHCI) Specification.
FC	This value shall indicate conformance to the T11 Fibre Channel Physical and Signaling Interface Specification.
FCoE	This value shall indicate conformance to the T11 FC-BB-5 Specification.
FCP	This value shall indicate conformance to the INCITS 481: Information Technology - Fibre Channel Protocol for SCSI.
FICON	This value shall indicate conformance to the ANSI FC-SB-3 Single-Byte Command Code Sets-3 Mapping Protocol for the Fibre Channel (FC) protocol. Fibre Connection (FICON) is the IBM-proprietary name for this protocol.

string	Description
FTP	This value shall indicate conformance to the RFC114-defined File Transfer Protocol (FTP).
HTTP	This value shall indicate conformance to the Hypertext Transport Protocol (HTTP) as defined by RFC3010 or RFC5661.
HTTPS	This value shall indicate conformance to the Hypertext Transfer Protocol Secure (HTTPS) as defined by RFC2068 or RFC2616, which uses Transport Layer Security (TLS) as defined by RFC5246 or RFC6176.
I2C	This value shall indicate conformance to the NXP Semiconductors I2C-bus Specification.
iSCSI	This value shall indicate conformance to the IETF Internet Small Computer Systems Interface (iSCSI) Specification.
iWARP	This value shall indicate conformance to the RFC5042-defined Internet Wide Area RDMA Protocol (iWARP) that uses the transport layer mechanisms as defined by RFC5043 or RFC5044.
NFSv3	This value shall indicate conformance to the RFC1813-defined Network File System (NFS) protocol.
NFSv4	
NVMe	This value shall indicate conformance to the Non-Volatile Memory Host Controller Interface Specification.
NVMeOverFabrics	This value shall indicate conformance to the NVM Express over Fabrics Specification.
OEM	This value shall indicate conformance to an OEM-specific architecture and additional information may be included in the OEM section.
PCIe	This value shall indicate conformance to the PCI-SIG PCI Express Base Specification.
RoCE	This value shall indicate conformance to the Infiniband Architecture Specification-defined RDMA over Converged Ethernet Protocol.
RoCEv2	This value shall indicate conformance to the Infiniband Architecture Specification-defined RDMA over Converged Ethernet Protocol version 2.
SAS	This value shall indicate conformance to the T10 SAS Protocol Layer Specification.
SATA	This value shall indicate conformance to the Serial ATA International Organization Serial ATA Specification.
SFTP	This value shall indicate conformance to the RFC114-defined SSH File Transfer Protocol (SFTP) that uses Transport Layer Security (TLS) as defined by RFC5246 or RFC6176.
SMB	This value shall indicate conformance to the Server Message Block (SMB), or Common Internet File System (CIFS), protocol.

string	Description
TCP	This value shall indicate conformance to the IETF-defined Transmission Control Protocol (TCP). For example, RFC7414 defines the roadmap of the TCP specification.
TFTP	This value shall indicate conformance to the IETF-defined Trivial File Transfer Protocol (TFTP). For example, RFC1350 defines the core TFTP version 2 specification.
UDP	This value shall indicate conformance to the IETF-defined User Datagram Protocol (UDP). For example, RFC768 defines the core UDP specification.
UHCI	This value shall indicate conformance to the Intel Universal Host Controller Interface (UHCI) Specification, Enhanced Host Controller Interface Specification, or the Extensible Host Controller Interface Specification.
USB	This value shall indicate conformance to the USB Implementers Forum Universal Serial Bus Specification.

ResetType:

This parameter shall contain the type of reset. The Service may accept a request without the parameter and perform an implementation specific default reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the system.
GracefulRestart	Shut down gracefully and restart the system.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
PowerCycle	Power cycle the unit.
PushPowerButton	Simulate the pressing of the physical power button on this unit.

StatusIndicator:

This property shall contain the status indicator state for the status indicator associated with this drive. The Redfish.AllowableValues annotation specifies the valid values for this property.

string	Description
Fail	The drive has failed.

string	Description
Hotspare	The drive has been marked to automatically rebuild and replace a failed drive.
InACriticalArray	The array to which this drive belongs has been degraded.
InAFailedArray	The array to which this drive belongs has failed.
OK	The drive is OK.
PredictiveFailureAnalysis	The drive still works but is predicted to fail soon.
Rebuild	The drive is being rebuilt.

Example Response

```
{
  "@odata.type": "#Drive.v1_7_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/SecureErase"
      }
    },
    "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1/Drives/3D58ECBC375FD9F2"
  }
}

```

Endpoint 1.3.2

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

This Resource contains a fabric endpoint for a Redfish implementation.

URIs:

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

Property Name	Type	Read-Only	Description
ConnectedEntities [{	array		This property shall contain all entities to which this endpoint allows access.
EntityLink		read-only	This property shall contain a link to an entity of the type specified by the description of the EntityType property value.
EntityPciid {	object		This property shall contain the PCI ID of the connected PCIe entity.
ClassCode (v1.2+)	string	read-only (null)	This property shall contain the PCI Class Code, Subclass, and Programming Interface of the PCIe device function. Pattern: ^0xX{3}\$
DeviceId	string	read-only (null)	This property shall contain the PCI Device ID of the PCIe device function. Pattern: ^0xX{2}\$
FunctionNumber (v1.2+)	integer	read-only (null)	This property shall contain the PCI Function Number of the connected PCIe entity.
SubsystemId	string	read-only (null)	This property shall contain the PCI Subsystem Vendor ID of the PCIe device function. Pattern: ^0xX{2}\$
SubsystemVendorId	string	read-only (null)	This property shall contain the PCI Subsystem Vendor ID of the PCIe device function. Pattern: ^0xX{2}\$

VendorId }	string	read-only (null)	This property shall contain the PCI Vendor ID of the PCIe device function. Pattern: <code>^0xX{2}\$</code>
EntityRole	string (enum)	read-only (null)	This property shall indicate if the specified entity is an initiator, target, or both. <i>For the possible property values, see EntityRole in Property Details.</i>
EntityType	string (enum)	read-only (null)	This property shall indicate if type of connected entity. <i>For the possible property values, see EntityType in Property Details.</i>
Identifiers [{}]	array (object)		Identifiers for the remote entity shall be unique in the context of other Resources that can be reached over the connected network. This type shall contain any additional identifiers for a Resource. <i>For property details, see Identifier.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PciClassCode (<i>deprecated v1.2</i>)	string	read-only (null)	This property shall contain the PCI Class Code, Subclass, and Programming Interface of the PCIe device function. Pattern: <code>^0xX{3}\$</code> <i>Deprecated in v1.2 and later. This property has been deprecated in favor of the ClassCode property inside the EntityPcild object.</i>
PciFunctionNumber (<i>deprecated v1.2</i>) }]	integer	read-only (null)	This property shall contain the PCI Function Number of the connected PCIe entity. <i>Deprecated in v1.2 and later. This property has been deprecated in favor of the FunctionNumber property inside the EntityPcild object.</i>
EndpointProtocol	string (enum)	read-only (null)	This property shall contain the protocol this endpoint uses to communicate with other endpoints on this fabric. <i>For the possible property values, see EndpointProtocol in Property Details.</i>
HostReservationMemoryBytes	integer	read-only	This property shall contain the

	(bytes)	(null)	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 be reached over the connected network. This type shall contain any additional identifiers for a Resource. <i>For property details, see Identifier.</i>
IPTransportDetails (v1.1+) [{	array		This array shall contain the details for each IP transport supported by this endpoint.
IPv4Address { }	object		This property shall contain the IPv4Address. <i>For property details, see IPv4Address.</i>
IPv6Address { }	object		This property shall contain the IPv6Address. <i>For property details, see IPv6Address.</i>
Port	number	read-only	This property shall contain a specify UDP or TCP port number used for communication with the endpoint.
TransportProtocol }]	string (enum)	read-only	This property shall contain the protocol used by the connection entity. <i>For the possible property values, see TransportProtocol in Property Details.</i>
Links {	object		The Redfish Specification-described Links Property shall contain links to Resources related to but not subordinate to this Resource.
MutuallyExclusiveEndpoints [{	array		This property shall contain an array of links of the Endpoint type that cannot be used in a zone if this endpoint is in a zone.
@odata.id }]	string	read-only	<i>Link to another Endpoint resource.</i>
NetworkDeviceFunction (v1.1+) [{	array		This property shall contain a link to a NetworkDeviceFunction Resource, with which this endpoint is associated.
@odata.id	string	read-only	<i>Link to a NetworkDeviceFunction</i>

}}]			<i>resource. See the Links section and the NetworkDeviceFunction schema for details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
Ports [{	array		This property shall contain an array of links of the Port type that are utilized by this endpoint.
@odata.id }} }	string	read-only	<i>Link to a Port resource. See the Links section and the Port schema for details.</i>
Pcild {	object		This property shall contain the PCI ID of the endpoint.
ClassCode (v1.2+)	string	read-only (null)	This property shall contain the PCI Class Code, Subclass, and Programming Interface of the PCIe device function. Pattern: $^0xX\{3\}$$
DeviceId	string	read-only (null)	This property shall contain the PCI Device ID of the PCIe device function. Pattern: $^0xX\{2\}$$
FunctionNumber (v1.2+)	integer	read-only (null)	This property shall contain the PCI Function Number of the connected PCIe entity.
SubsystemId	string	read-only (null)	This property shall contain the PCI Subsystem Vendor ID of the PCIe device function. Pattern: $^0xX\{2\}$$
SubsystemVendorId	string	read-only (null)	This property shall contain the PCI Subsystem Vendor ID of the PCIe device function. Pattern: $^0xX\{2\}$$
VendorId }	string	read-only (null)	This property shall contain the PCI Vendor ID of the PCIe device function. Pattern: $^0xX\{2\}$$
Redundancy [{ }]	array (object)		The values of the properties in this array shall show how this endpoint is grouped with other endpoints for form redundancy sets. This object represents the redundancy element property. <i>For property details, see Redundancy.</i>
Status { }	object		This property shall contain any

			status or health properties of the Resource. <i>For property details, see Status.</i>
--	--	--	--

Property Details

EndpointProtocol:

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

string	Description
AHCI	This value shall indicate conformance to the Intel Advanced Host Controller Interface (AHCI) Specification.
FC	This value shall indicate conformance to the T11 Fibre Channel Physical and Signaling Interface Specification.
FCoE	This value shall indicate conformance to the T11 FC-BB-5 Specification.
FCP	This value shall indicate conformance to the INCITS 481: Information Technology - Fibre Channel Protocol for SCSI.
FICON	This value shall indicate conformance to the ANSI FC-SB-3 Single-Byte Command Code Sets-3 Mapping Protocol for the Fibre Channel (FC) protocol. Fibre Connection (FICON) is the IBM-proprietary name for this protocol.
FTP	This value shall indicate conformance to the RFC114-defined File Transfer Protocol (FTP).
HTTP	This value shall indicate conformance to the Hypertext Transport Protocol (HTTP) as defined by RFC3010 or RFC5661.
HTTPS	This value shall indicate conformance to the Hypertext Transfer Protocol Secure (HTTPS) as defined by RFC2068 or RFC2616, which uses Transport Layer Security (TLS) as defined by RFC5246 or RFC6176.
I2C	This value shall indicate conformance to the NXP Semiconductors I2C-bus Specification.
iSCSI	This value shall indicate conformance to the IETF Internet Small Computer Systems Interface (iSCSI) Specification.
iWARP	This value shall indicate conformance to the RFC5042-defined Internet Wide Area RDMA Protocol (iWARP) that uses the transport layer mechanisms as defined by RFC5043 or RFC5044.
NFSv3	This value shall indicate conformance to the RFC1813-defined Network File System (NFS) protocol.
NFSv4	
NVMe	This value shall indicate conformance to the Non-Volatile Memory Host Controller Interface Specification.

string	Description
NVMeOverFabrics	This value shall indicate conformance to the NVM Express over Fabrics Specification.
OEM	This value shall indicate conformance to an OEM-specific architecture and additional information may be included in the OEM section.
PCIe	This value shall indicate conformance to the PCI-SIG PCI Express Base Specification.
RoCE	This value shall indicate conformance to the Infiniband Architecture Specification-defined RDMA over Converged Ethernet Protocol.
RoCEv2	This value shall indicate conformance to the Infiniband Architecture Specification-defined RDMA over Converged Ethernet Protocol version 2.
SAS	This value shall indicate conformance to the T10 SAS Protocol Layer Specification.
SATA	This value shall indicate conformance to the Serial ATA International Organization Serial ATA Specification.
SFTP	This value shall indicate conformance to the RFC114-defined SSH File Transfer Protocol (SFTP) that uses Transport Layer Security (TLS) as defined by RFC5246 or RFC6176.
SMB	This value shall indicate conformance to the Server Message Block (SMB), or Common Internet File System (CIFS), protocol.
TCP	This value shall indicate conformance to the IETF-defined Transmission Control Protocol (TCP). For example, RFC7414 defines the roadmap of the TCP specification.
TFTP	This value shall indicate conformance to the IETF-defined Trivial File Transfer Protocol (TFTP). For example, RFC1350 defines the core TFTP version 2 specification.
UDP	This value shall indicate conformance to the IETF-defined User Datagram Protocol (UDP). For example, RFC768 defines the core UDP specification.
UHCI	This value shall indicate conformance to the Intel Universal Host Controller Interface (UHCI) Specification, Enhanced Host Controller Interface Specification, or the Extensible Host Controller Interface Specification.
USB	This value shall indicate conformance to the USB Implementers Forum Universal Serial Bus Specification.

EntityRole:

This property shall indicate if the specified entity is an initiator, target, or both.

string	Description
Both	The entity can both send and receive commands, messages, and other requests

string	Description
	to or from other entities on the fabric.
Initiator	The entity sends commands, messages, or other types of requests to other entities on the fabric, but cannot receive commands from other entities.
Target	The entity receives commands, messages, or other types of requests from other entities on the fabric, but cannot send commands to other entities.

EntityType:

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 an AccelerationFunction type.
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 type.
NetworkController	The entity is a network controller. The EntityLink property, if present, should contain an EthernetInterface type.
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 type.
StorageExpander	The entity is a storage expander. The EntityLink property, if present, should be a Chassis type.
StorageInitiator	The entity is a storage initiator. The EntityLink property, if present, should be a StorageController type.
Volume (v1.1+)	The entity is a volume. The EntityLink property, if present, should be a Volume type.

TransportProtocol:

This property shall contain the protocol used by the connection entity.

string	Description
AHCI	This value shall indicate conformance to the Intel Advanced Host Controller Interface (AHCI) Specification.
FC	This value shall indicate conformance to the T11 Fibre Channel Physical and Signaling Interface Specification.
FCoE	This value shall indicate conformance to the T11 FC-BB-5 Specification.

string	Description
FCP	This value shall indicate conformance to the INCITS 481: Information Technology - Fibre Channel Protocol for SCSI.
FICON	This value shall indicate conformance to the ANSI FC-SB-3 Single-Byte Command Code Sets-3 Mapping Protocol for the Fibre Channel (FC) protocol. Fibre Connection (FICON) is the IBM-proprietary name for this protocol.
FTP	This value shall indicate conformance to the RFC114-defined File Transfer Protocol (FTP).
HTTP	This value shall indicate conformance to the Hypertext Transport Protocol (HTTP) as defined by RFC3010 or RFC5661.
HTTPS	This value shall indicate conformance to the Hypertext Transfer Protocol Secure (HTTPS) as defined by RFC2068 or RFC2616, which uses Transport Layer Security (TLS) as defined by RFC5246 or RFC6176.
I2C	This value shall indicate conformance to the NXP Semiconductors I2C-bus Specification.
iSCSI	This value shall indicate conformance to the IETF Internet Small Computer Systems Interface (iSCSI) Specification.
iWARP	This value shall indicate conformance to the RFC5042-defined Internet Wide Area RDMA Protocol (iWARP) that uses the transport layer mechanisms as defined by RFC5043 or RFC5044.
NFSv3	This value shall indicate conformance to the RFC1813-defined Network File System (NFS) protocol.
NFSv4	
NVMe	This value shall indicate conformance to the Non-Volatile Memory Host Controller Interface Specification.
NVMeOverFabrics	This value shall indicate conformance to the NVM Express over Fabrics Specification.
OEM	This value shall indicate conformance to an OEM-specific architecture and additional information may be included in the OEM section.
PCIe	This value shall indicate conformance to the PCI-SIG PCI Express Base Specification.
RoCE	This value shall indicate conformance to the Infiniband Architecture Specification-defined RDMA over Converged Ethernet Protocol.
RoCEv2	This value shall indicate conformance to the Infiniband Architecture Specification-defined RDMA over Converged Ethernet Protocol version 2.
SAS	This value shall indicate conformance to the T10 SAS Protocol Layer Specification.
SATA	This value shall indicate conformance to the Serial ATA International

string	Description
	Organization Serial ATA Specification.
SFTP	This value shall indicate conformance to the RFC114-defined SSH File Transfer Protocol (SFTP) that uses Transport Layer Security (TLS) as defined by RFC5246 or RFC6176.
SMB	This value shall indicate conformance to the Server Message Block (SMB), or Common Internet File System (CIFS), protocol.
TCP	This value shall indicate conformance to the IETF-defined Transmission Control Protocol (TCP). For example, RFC7414 defines the roadmap of the TCP specification.
TFTP	This value shall indicate conformance to the IETF-defined Trivial File Transfer Protocol (TFTP). For example, RFC1350 defines the core TFTP version 2 specification.
UDP	This value shall indicate conformance to the IETF-defined User Datagram Protocol (UDP). For example, RFC768 defines the core UDP specification.
UHCI	This value shall indicate conformance to the Intel Universal Host Controller Interface (UHCI) Specification, Enhanced Host Controller Interface Specification, or the Extensible Host Controller Interface Specification.
USB	This value shall indicate conformance to the USB Implementers Forum Universal Serial Bus Specification.

Example Response

```
{
  "@odata.type": "#Endpoint.v1_3_2.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.id": "/redfish/v1/Fabrics/SAS/Endpoints/Drive1"
}

```

EthernetInterface 1.5.1

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 contains 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)	This property shall indicate whether the speed and duplex are automatically negotiated and configured on this interface.
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 Ethernet interface.
FallbackAddress (v1.5+)	string (enum)	read-write (null)	This property shall contain the fallback address method of DHCPv4. <i>For the possible property values, see FallbackAddress in Property Details.</i>

UseDNSServers	boolean	read-write (null)	This property shall indicate whether the interface uses DHCP v4-supplied DNS servers.
UseDomainName	boolean	read-write (null)	This property shall indicate whether the interface uses a DHCP v4-supplied domain name.
UseGateway	boolean	read-write (null)	This property shall indicate whether the interface uses a DHCP v4-supplied gateway.
UseNTPServers	boolean	read-write (null)	This property shall indicate whether the interface uses DHCP v4-supplied NTP servers.
UseStaticRoutes }	boolean	read-write (null)	This property shall indicate whether the interface uses a DHCP v4-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 configures addresses, and when it is enabled, stateless mode is also implicitly enabled. <i>For the possible property values, see OperatingMode in Property Details.</i>
UseDNSServers	boolean	read-write (null)	This property shall indicate whether the interface uses DHCP v6-supplied DNS servers.
UseDomainName	boolean	read-write (null)	This property shall indicate whether the interface uses a domain name supplied through DHCP v6 stateless mode.
UseNTPServers	boolean	read-write (null)	This property shall indicate whether the interface uses DHCP v6-supplied NTP servers.
UseRapidCommit }	boolean	read-write (null)	This property shall indicate whether the interface uses DHCP v6 rapid commit mode for stateful mode address assignments.
FQDN	string	read-write (null)	This property shall contain the fully qualified domain name that DNS obtains for this interface.
FullDuplex	boolean	read-write (null)	This property shall indicate whether full-duplex mode is enabled on the Ethernet

			connection for this interface.
HostName	string	read-write (null)	This property shall contain DNS host name for this interface.
InterfaceEnabled	boolean	read-write (null)	This property shall indicate whether this interface is enabled.
IPv4Addresses [{}]	array (object)		This property shall contain an array of objects that represent the IPv4 connection characteristics for this interface. It is recommended that this property be regarded as read-only with configuration of static addresses performed by updating the values within IPv4StaticAddresses. Services may reject updates to this array for this reason. This type shall describe an IPv4 address assigned to an interface. <i>For property details, see IPv4Address.</i>
IPv4StaticAddresses (v1.4+) [{}]	array (object)	(null)	This property shall contain an array of objects that represent all IPv4 static addresses assigned to, but not necessarily in use by, this interface. The IPv4Addresses property shall also list the addresses that this interface uses. This type shall describe an IPv4 address assigned to an interface. <i>For property details, see IPv4Address.</i>
IPv6Addresses [{}]	array (object)		This property shall contain an array of objects that represent the IPv6 connection characteristics for this interface. This type shall describe an IPv6 address assigned to an interface. <i>For property details, see IPv6Address.</i>
IPv6AddressPolicyTable [{	array		This property shall contain an array of objects that represent the RFC6724-defined address selection policy table.
Label	integer	read-write (null)	This property shall contain the IPv6 label value for this table entry, as defined in RFC6724, section 2.1.
Precedence	integer	read-write (null)	This property shall contain the IPv6 precedence value for this table entry, as defined in

			RFC6724, section 2.1.
Prefix }]	string	read-write (null)	This property shall contain the IPv6 address prefix for this table entry, as defined in RFC6724, section 2.1.
IPv6DefaultGateway	string	read-only (null)	This property shall contain the current IPv6 default gateway address in use on this interface.
IPv6StaticAddresses [{}]	array (object)	(null)	This property shall contain an array of objects that 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. <i>For property details, see IPv6StaticAddress.</i>
IPv6StaticDefaultGateways (v1.4+) [{}]	array (object)	(null)	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. <i>For property details, see IPv6GatewayStaticAddress.</i>
Links (v1.1+) {	object		The Redfish Specification-described Links Property shall contain links to Resources related to but not subordinate to this Resource.
Chassis (v1.3+) {	object		This property shall contain a link to a Resource of type Chassis that represent the physical container associated with this Ethernet interface. <i>See the Chassis schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a Chassis resource. See the Links section and the Chassis schema for details.</i>
Endpoints [{	array		This property shall contain a link to the Resources of the Endpoint type with which this Ethernet interface is associated.
@odata.id }]	string	read-only	<i>Link to a Endpoint resource. See the Links section and the Endpoint schema for details.</i>
HostInterface (v1.2+) {	object		This property shall contain a link to

			a Resource of type HostInterface that represents the interface that a host uses to communicate with a manager. <i>See the HostInterface schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a HostInterface resource. See the Links section and the HostInterface schema for details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
LinkStatus (v1.1+)	string (enum)	read-only (null)	This property shall contain the link status of this interface, or port. <i>For the possible property values, see LinkStatus in Property Details.</i>
MACAddress	string	read-write (null)	This property shall contain the effective current MAC address of this interface. If an assignable MAC address is not supported, this value 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)	This property shall indicate the number of array items supported by IPv6StaticAddresses, or the maximum number of static IPv6 addresses that can be configured on this interface.
MTUSize	integer	read-write (null)	This property shall contain 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	This property shall contain the DNS servers in use on this interface.
PermanentMACAddress	string	read-only (null)	This property shall contain the permanent MAC address of this interface, or port. Typically, this value is programmed during manufacturing. This address is not assignable. Pattern: ^([0-9A-Fa-f]{2}[:-]){5}([0-9A-Fa-f]{2})\$
SpeedMbps	integer	read-write	This property shall contain the link

	(Mbit/s)	(null)	speed of the interface, in Mbps. This property shall be writable only when the AutoNeg property is <code>false</code> .
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 autoconfiguration (SLAAC) is enabled for this interface.
IPv6AutoConfigEnabled }	boolean	read-write (null)	This property shall indicate whether IPv6 stateless address autoconfiguration (SLAAC) is enabled for this interface.
StaticNameServers (v1.4+) []	array (string, null)	read-write	This property shall contain the statically-defined set of DNS server IP addresses to use when DHCP provisioning is not 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 assignments.
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
UefiDevicePath	string	read-only (null)	This property shall contain the UEFI device path to the device that implements this interface, or port.
VLAN {	object		This property shall contain the VLAN for this interface. If this interface supports more than one VLAN, the VLAN property shall be absent and, instead, the VLAN collection link shall be present. 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		This property shall contain a link to a collection of VLAN Resources, which applies only if the interface

			supports more than one VLAN. If this property is present, the VLANEnabled and VLANId properties shall not be present. 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:

This property shall contain the link status of this interface, or port.

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

OperatingMode:

This property shall control the operating mode of DHCPv6 on this interface. DHCPv6 stateful mode configures 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 configures 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_5_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::1ecl: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::1ecl: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.id": "/redfish/v1/Systems/437XR1138R2/EthernetInterfaces/12446A3B0411"
}

```

Event 1.4.1

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

This Resource contains 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	This property shall contain an array of Event objects that represent the occurrence of one or more events.
Actions (v1.2+) { }	object		This property shall contain the available actions for this Resource.
Context (deprecated v1.1)	string	read-only	This property shall contain a client supplied context for the event destination to which this event is being sent. <i>Deprecated in v1.1 and later. Events are triggered independently from subscriptions to those events. This property has been deprecated in favor of Context found at the root level of the object.</i>
EventGroupId (v1.3+)	integer	read-only	This property shall indicate that events are related and shall have the same value when multiple event messages are produced by the same root cause. Implementations shall use separate values for events with a separate root cause. This property value shall not imply an ordering of events. The 0 value shall indicate that this event is not grouped with any other event.
EventId	string	read-only	This property shall indicate a unique identifier for the event. The value should be a string of a positive integer, and should be generated in a sequential manner.
EventTimestamp	string	read-only	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	This property shall indicate the type of EventService schema-defined event. <i>For the possible property values, see EventType in Property Details. Deprecated in</i>

			<i>v1.3 and later. This property has been deprecated. Starting with Redfish Specification v1.6 (Event v1.3), subscriptions are based on the RegistryPrefix and ResourceType properties and not on the EventType property.</i>
MemberId	string	read-only required	This property shall uniquely identify the member within the collection. For services supporting Redfish v1.6 or higher, this value shall contain the zero-based array index.
Message	string	read-only	This property shall contain a human-readable event message.
MessageArgs []	array (string)	read-only	This property shall contain an array of message arguments that are substituted for the arguments in the message when looked up in the Message Registry. It has the same semantics as the MessageArgs property in the Redfish Event schema.
MessageId	string	read-only required	This property shall contain a MessageId, as defined in the Redfish Specification. Pattern: <code>^[A-Za-z0-9]+\.\d+\.\d+\.[A-Za-z0-9.]+\$</code>
Oem { }	object		This property shall contain the OEM extensions. All values for properties that this object contains shall conform to the Redfish Specification-described requirements.
OriginOfCondition { }	object		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	This property shall contain the severity of the event, as defined in the Status section of the Redfish Specification.

Property Details

EventType:

This property shall indicate the type of EventService schema-defined event.

string	Description
Alert	
MetricReport (v1.3+)	Events of the MetricReport type shall be sent to a client in accordance with the MetricReport schema definition.

string	Description
Other (v1.4+)	Events of the Other type shall be sent to a client in accordance with subscriptions to RegistryPrefixes or ResourceTypes.
ResourceAdded	
ResourceRemoved	
ResourceUpdated	
StatusChange	

EventDestination 1.7.0

v1.7	v1.6	v1.5	v1.4	v1.3	v1.2	v1.1	v1.0
2019.3	2019.2	2019.1	2018.2	2018.1	2017.1	2016.2	1.0

This Resource shall represent the target of an event subscription, including the event types 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 remains with the connection through the connection's lifetime.
DeliveryRetryPolicy (v1.6+)	string (enum)	read-write (null)	This property shall indicate the subscription delivery retry policy for events where the subscription type is RedfishEvent. If this property is not present, the policy shall be assumed to be TerminateAfterRetries. <i>For the possible property values, see DeliveryRetryPolicy in Property Details.</i>
Destination	string	read-only required on create	This property shall contain a URI to the destination where the events are sent. If Protocol is SMTP, the URI shall follow the RFC6068-described format. SNMP URIs shall be consistent with RFC4088. Specifically, for SNMPv3, if a username is specified in the SNMP URI, the SNMPv3 authentication and

			<p>encryption configuration associated with that user shall be utilized in the SNMPv3 traps. For other URIs, such as HTTP or HTTPS, they shall be consistent with RFC3986.</p>
EventFormatType (v1.4+)	string (enum)	read-only (null)	<p>This property shall indicate the content types of the message that this service sends to the EventDestination. If this property is not present, the EventFormatType shall be assumed to be Event.</p> <p><i>For the possible property values, see EventFormatType in Property Details.</i></p>
EventTypes (deprecated v1.5) []	array (string (enum))	read-only	<p>This property shall contain 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 the subscription does not include this property, the service shall use a single element with a default of Other.</p> <p><i>For the possible property values, see EventTypes in Property Details. Deprecated in v1.5 and later. This property has been deprecated. Starting with Redfish Specification v1.6 (Event v1.3), subscriptions are based on the RegistryPrefix and ResourceType properties and not on the EventType property. Use EventFormatType to create subscriptions for Metric Reports. If the subscription does not include this property, the service shall use a single element with a default of `Other`.</i></p>
HttpHeaders [{	array		<p>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 object shall be null or an empty array in responses. An empty array is the preferred return value in responses.</p>
(pattern)	string	read-write	Property names follow regular

}]			expression pattern "[^:\s]+\$"
MessageIds (v1.1+) []	array (string, null)	read-only	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 that are 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.
MetricReportDefinitions (v1.6+) [{	array		This property shall specify an array of metric report definitions that are the only allowable generators of metric reports for this subscription. Metric reports originating from metric report definitions 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 metric reports originating from any metric report definition to the subscriber.
@odata.id }]	string	read-only	<i>Link to a MetricReportDefinition resource. See the Links section and the MetricReportDefinition schema for details.</i>
OriginResources (v1.1+) [{	array		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 that the service sends to the subscriber. The service shall not send events that originate from Resources, Resource Collections, or Referenceable Members, and that this array does not contain, to the subscriber. If this property is absent or the array is empty, the service shall send events that originate 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 uses to send the event to the destination. A <i>Redfish</i> value shall indicate that the event type shall adhere to the type defined in the Redfish Specification. <i>For the possible property values, see Protocol in Property Details.</i>
RegistryPrefixes (v1.4+) []	array (string, null)	read-only	This property shall contain 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	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. This property shall contain only the general namespace for the type and not the versioned value. For example, it shall not contain Task.v1_2_0.Task and instead shall contain Task. To specify that a client is subscribing to metric reports, the EventTypes property should include MetricReport.
SNMP (v1.7+) {	object		This property shall contain the settings for an SNMP event destination.
AuthenticationKey	string	read-write (null)	This property shall contain the

			key used for SNMPv3 authentication. The value shall be <code>null</code> in responses. Pattern: <code>(^[A-Za-z0-9]+\$)(^[*]+\$)</code>
AuthenticationProtocol	string (enum)	read-write (null)	This property shall contain the SNMPv3 authentication protocol. <i>For the possible property values, see AuthenticationProtocol in Property Details.</i>
EncryptionKey	string	read-write (null)	This property shall contain the key for SNMPv3 encryption. The value shall be <code>null</code> in responses. Pattern: <code>(^[A-Za-z0-9]+\$)(^[*]+\$)</code>
EncryptionProtocol	string (enum)	read-write (null)	This property shall contain the SNMPv3 encryption protocol. <i>For the possible property values, see EncryptionProtocol in Property Details.</i>
TrapCommunity }	string	read-write (null)	This property shall contain the SNMP trap community string. The value shall be <code>null</code> in responses.
Status (v1.6+) { }	object		This property shall contain the status of the subscription. <i>For property details, see Status.</i>
SubordinateResources (v1.4+)	boolean	read-only (null)	This property shall indicate whether the subscription is for events in the OriginResources array and its subordinate Resources. If <code>true</code> and the OriginResources array is specified, the subscription is for events in the OriginResources array and its subordinate Resources. Note that Resources associated through the Links section are not considered subordinate. If <code>false</code> and the OriginResources array is specified, the subscription shall be for events in the OriginResources array only. If the OriginResources array is not present, this property shall have no relevance.
SubscriptionType (v1.3+)	string (enum)	read-only required (null)	This property shall indicate the type of subscription for events. If this property is not present, the

			SubscriptionType shall be assumed to be RedfishEvent. For the possible property values, see SubscriptionType in <i>Property Details</i> .
--	--	--	---

Actions

ResumeSubscription

This action shall resume a suspended event subscription, which affects the subscription status.

URIs:

/redfish/v1/EventService/Subscriptions/{EventDestinationId}/Actions/EventDestination.ResumeSubscription

(This action takes no parameters.)

Property Details

AuthenticationProtocol:

This property shall contain the SNMPv3 authentication protocol.

string	Description
CommunityString	This value shall indicate authentication using SNMP community strings and the value of TrapCommunity.
HMAC_MD5	This value shall indicate authentication conforms to the RFC3414-defined HMAC-MD5-96 authentication protocol.
HMAC_SHA96	This value shall indicate authentication conforms to the RFC3414-defined HMAC-SHA-96 authentication protocol.
None	This value shall indicate authentication is not required.

DeliveryRetryPolicy:

This property shall indicate the subscription delivery retry policy for events where the subscription type is RedfishEvent. If this property is not present, the policy shall be assumed to be TerminateAfterRetries.

string	Description
RetryForever	The subscription is not suspended or terminated, and attempts at delivery of future events shall continue even after the after the maximum number of retries is reached.
SuspendRetries	The subscription is suspended after the maximum number of retries is reached.
TerminateAfterRetries	The subscription is terminated after the maximum number of retries is reached.

EncryptionProtocol:

This property shall contain the SNMPv3 encryption protocol.

string	Description
CBC_DES	This value shall indicate encryption conforms to the RFC3414-defined CBC-DES encryption protocol.
CFB128_AES128	This value shall indicate encryption conforms to the RFC3414-defined CFB128-AES-128 encryption protocol.
None	This value shall indicate there is no encryption.

EventFormatType:

This property shall indicate the content types of the message that this service sends to the EventDestination. If this property is not present, the EventFormatType shall be assumed to be Event.

string	Description
Event	The subscription destination receives JSON bodies of the Resource of type Event.
MetricReport	The subscription destination receives JSON bodies of the Resource of type MetricReport.

EventTypes:

This property shall contain 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 the subscription does not include this property, the service shall use a single element with a default of 'Other'.

string	Description
Alert	
MetricReport	Events of the MetricReport type shall be sent to a client in accordance with the MetricReport schema definition.
Other	Events of the Other type 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 uses to send the event to the destination. A 'Redfish' value shall indicate that the event type shall adhere to the type defined in the Redfish Specification.

string	Description
Redfish	
SMTP (v1.7+)	This value shall indicate the destination follows the RFC5321-defined SMTP specification.
SNMPv1 (v1.7+)	This value shall indicate the destination follows the RFC1157-defined SNMPv1 protocol.
SNMPv2c (v1.7+)	This value shall indicate the destination follows the SNMPv2c protocol as defined by RFC1441 and RFC1452.
SNMPv3 (v1.7+)	This value shall indicate the destination follows the SNMPv3 protocol as defined by RFC3411 and RFC3418.

SubscriptionType:

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	
SNMPInform (v1.7+)	This value shall indicate the subscription follows versions 2 and 3 of SNMP Inform for event notifications. EventDestinationProtocol shall specify the appropriate version of SNMP.
SNMPTrap (v1.7+)	This value shall indicate the subscription follows the various versions of SNMP Traps for event notifications. EventDestinationProtocol shall specify the appropriate version of SNMP.
SSE	

Example Response

```
{
  "@odata.type": "#EventDestination.v1_6_0.EventDestination",
  "Id": "1",
  "Name": "EventSubscription 1",
  "Destination": "http://www.dnsname.com/Destination1",
  "SubscriptionType": "RedfishEvent",
  "DeliveryRetryPolicy": "TerminateAfterRetries",
  "Status": {
    "State": "Enabled"
  },
  "Actions": {
    "#EventDestination.ResumeSubscription": {
      "target": "/redfish/v1/EventService/Subscriptions/1/Actions/EventDestination.Re
    }
  },
  "EventTypes": [
    "Alert"
  ],
  "Context": "WebUser3",
  "Protocol": "Redfish",
}
```

```

"@odata.id": "/redfish/v1/EventService/Subscriptions/1"
}

```

EventService 1.5.0

v1.5	v1.4	v1.3	v1.2	v1.1	v1.0
2019.3	2019.2	2019.1	2018.2	2018.1	1.0

This Resource shall represent an Event Service for a Redfish implementation.

URIs:

/redfish/v1/EventService

DeliveryRetryAttempts	integer	read-write	This property shall contain the number of times that the POST of an event is retried before the subscription terminates. This retry occurs at the service level, which means that the HTTP POST to the event destination fails with an HTTP 4XX or 5XX status code or an HTTP timeout occurs this many times before the event destination subscription terminates.
DeliveryRetryIntervalSeconds	integer (seconds)	read-write	This property shall contain the interval, in seconds, between the retry attempts for any event sent to the subscription destination.
EventFormatTypes (v1.2+) []	array (string (enum))	read-only (null)	This property shall contain 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 <code>Event</code> . For the possible property values, see EventFormatTypes in Property Details .
EventTypesForSubscription (deprecated v1.3) []	array (string (enum))	read-only	This property shall contain the types of events to which a client can subscribe. The semantics

			<p>associated with the enumeration values are defined in the Redfish Specification.</p> <p><i>For the possible property values, see EventTypesForSubscription in Property Details.</i></p> <p><i>Deprecated in v1.3 and later. This property has been deprecated. Starting with Redfish Specification v1.6 (Event v1.3), subscriptions are based on the RegistryPrefix and ResourceType properties and not on the EventType property.</i></p>
RegistryPrefixes (v1.2+) []	array (string, null)	read-only	This property shall contain 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	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	This property shall contain a URI that specifies an HTML5 Server-Sent Event-conformant endpoint.
ServiceEnabled	boolean	read-write (null)	This property shall indicate whether this service is enabled.
SMTP (v1.5+) {	object		This property shall contain settings for SMTP event delivery.
Authentication	string (enum)	read-write (null)	<p>This property shall contain the authentication method for the SMTP server.</p> <p><i>For the possible property values, see Authentication in Property Details.</i></p>
ConnectionProtocol	string (enum)	read-write (null)	<p>This property shall contain the connection type to the outgoing SMTP server.</p> <p><i>For the possible property values, see ConnectionProtocol in Property Details.</i></p>

FromAddress	string	read-write (null)	This property shall contain the email address to use for the 'from' field in an outgoing email.
Password	string	read-write (null)	This property shall contain the password for authentication with the SMTP server. The value shall be <code>null</code> in responses.
Port	integer	read-write (null)	This property shall contain the destination port for the SMTP server.
ServerAddress	string	read-write (null)	This property shall contain the address of the SMTP server for outgoing email.
ServiceEnabled	boolean	read-write (null)	This property shall indicate if SMTP for event delivery is enabled.
Username }	string	read-write (null)	This property shall contain the username for authentication with the SMTP server.
SSEFilterPropertiesSupported (v1.2+) {	object		This property shall contain the properties that are supported in the <code>\$filter</code> query parameter for the URI indicated by the <code>ServerSentEventUri</code> property.
EventFormatType	boolean	read-only	This property shall indicate whether this service supports the <code>EventFormatType</code> property in the <code>\$filter</code> query parameter, as described by the Redfish Specification.
EventType (deprecated v1.3)	boolean	read-only	This property shall indicate whether this service supports the <code>EventType</code> property in the <code>\$filter</code> query parameter, as described by the Redfish Specification. <i>Deprecated in v1.3 and later. This property has been deprecated. Starting with Redfish Specification v1.6 (Event v1.3), subscriptions are based on the RegistryPrefix and</i>

			<i>ResourceType properties and not on the EventType property.</i>
MessageId	boolean	read-only	This property shall indicate whether this service supports the MessageId property in the \$filter query parameter, as described by the Redfish Specification.
MetricReportDefinition	boolean	read-only	This property shall indicate whether this service supports the MetricReportDefinition property in the \$filter query parameter, as described by the Redfish Specification.
OriginResource	boolean	read-only	This property shall indicate whether this service supports the OriginResource property in the \$filter query parameter, as described by the Redfish Specification.
RegistryPrefix	boolean	read-only	This property shall indicate whether this service supports the RegistryPrefix property in the \$filter query parameter, as described by the Redfish Specification.
ResourceType	boolean	read-only	This property shall indicate whether this service supports the ResourceType property in the \$filter query parameter, as described by the Redfish Specification.
SubordinateResources (v1.4+) }	boolean	read-only	This property shall indicate whether this service supports the SubordinateResources property in the \$filter query parameter, as described by the Redfish Specification.
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
SubordinateResourcesSupported (v1.2+)	boolean	read-only (null)	This property shall indicate whether the service supports the

			SubordinateResource property on both event subscriptions and generated events.
Subscriptions {	object		This property shall contain the link to a Resource Collection of type EventDestinationCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of EventDestination. See the EventDestination schema for details.</i>

Actions

SubmitTestEvent

This action shall add a test event to the Event Service with the event data specified in the action parameters. Then, this message should be sent to any appropriate event destinations.

URIs:

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

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

{			
EventGroupId (v1.3+)	integer	optional	The parameter shall contain the group ID for the event. It has the same semantics as the EventGroupId property in the Event schema for Redfish.
EventId	string	optional	This parameter shall have the same semantics as the EventId property in the Event schema for Redfish. A service may ignore this value and replace it with its own.
EventTimestamp	string	optional	This parameter shall contain the date and time stamp for the event to add and have the same semantics as the EventTimestamp property in the Event schema for Redfish.
EventType (deprecated v1.3)	string (enum)	optional	This parameter shall contain the property name for which the following allowable values apply. <i>For the possible property values, see EventType in Property Details. Deprecated in v1.3 and later. This parameter has been deprecated.</i>

			<i>Starting with Redfish Specification v1.6 (Event v1.3), subscriptions are based on the RegistryPrefix and ResourceType properties and not on the EventType property.</i>
Message	string	optional	This parameter shall have the same semantics as the Message property in the Event schema for Redfish.
MessageArgs []	array (string)	optional	This parameter shall have the same semantics as the MessageArgs property in the Event schema for Redfish.
MessageId	string	required	This parameter shall contain the MessageId for the event to add and have the same semantics as the MessageId property in the Event schema for Redfish.
OriginOfCondition	string	optional	This parameter shall be a string that represents the URL contained by the OriginOfCondition property in the Event schema for Redfish.
Severity }	string	optional	This parameter shall contain the severity for the event to add and have the same semantics as the Severity property in the Event schema for Redfish.

Property Details

Authentication:

This property shall contain the authentication method for the SMTP server.

string	Description
AutoDetect	This value shall indicate authentication is auto-detected.
CRAM_MD5	This value shall indicate authentication conforms to the RFC4954-defined AUTH CRAM-MD5 mechanism.
Login	This value shall indicate authentication conforms to the RFC4954-defined AUTH LOGIN mechanism.
None	This value shall indicate authentication is not required.
Plain	This value shall indicate authentication conforms to the RFC4954-defined AUTH PLAIN mechanism.

ConnectionProtocol:

This property shall contain the connection type to the outgoing SMTP server.

string	Description
AutoDetect	This value shall indicate the connection is auto-detected.
None	This value shall indicate the connection is in clear text.
StartTLS	This value shall indicate the connection conforms to the RFC3207-defined StartTLS extension.
TLS_SSL	This value shall indicate the connection is TLS/SSL.

EventFormatTypes:

This property shall contain 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 receives JSON bodies of the Resource of type Event.
MetricReport	The subscription destination receives JSON bodies of the Resource of type MetricReport.

EventType:

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

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

EventTypesForSubscription:

This property shall contain the types of events to which a client can subscribe. The semantics associated with the enumeration values are defined in the Redfish Specification.

string	Description
Alert	
MetricReport	Events of the MetricReport type shall be sent to a client in

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

Example Response

```
{
  "@odata.type": "#EventService.v1_4_0.EventService",
  "Id": "EventService",
  "Name": "Event Service",
  "Status": {
    "State": "Enabled",
    "Health": "OK"
  },
  "ServiceEnabled": true,
  "DeliveryRetryAttempts": 3,
  "DeliveryRetryIntervalSeconds": 60,
  "EventTypesForSubscription": [
    "StatusChange",
    "ResourceUpdated",
    "ResourceAdded",
    "ResourceRemoved",
    "Alert"
  ],
  "ServerSentEventUri": "/redfish/v1/EventService/SSE",
  "SSEFilterPropertiesSupported": {
    "EventType": true,
    "MetricReportDefinition": false,
    "RegistryPrefix": true,
    "ResourceType": true,
    "EventFormatType": false,
    "MessageId": true,
    "OriginResource": true,
    "SubordinateResources": true
  },
  "Subscriptions": {
    "@odata.id": "/redfish/v1/EventService/Subscriptions"
  },
  "Actions": {
    "#EventService.SubmitTestEvent": {
      "target": "/redfish/v1/EventService/Actions/EventService.SubmitTestEvent",
      "@Redfish.ActionInfo": "/redfish/v1/EventService/SubmitTestEventActionInfo"
    },
    "Oem": {}
  },
  "Oem": {},
}
```

```

"@odata.id": "/redfish/v1/EventService"
}

```

ExternalAccountProvider 1.1.2

v1.1	v1.0
2018.3	2018.1

The ExternalAccountProvider Schema contains 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)	This property shall contain the type of external account provider to which this Service connects. <i>For the possible property values, see AccountProviderType in Property Details.</i>
Authentication {	object		This property shall contain the authentication information for the external account provider.
AuthenticationType	string (enum)	read-write (null)	This property shall contain the type of authentication used to connect to the external account provider. <i>For the possible property values, see AuthenticationType in Property Details.</i>
KerberosKeytab	string	read-write (null)	This property shall contain a Base64-encoded version of the Kerberos keytab for this Service. A PATCH or PUT operation writes the keytab. The value shall be <code>null</code> in responses.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.

Password	string	read-write (null)	This property shall contain the password for this Service. A PATCH or PUT operation writes the password. The value shall be <code>null</code> in responses.
Token	string	read-write (null)	This property shall contain the token for this Service. A PATCH or PUT operation writes the token. The value shall be <code>null</code> in responses.
Username }	string	read-write	This property shall contain the user name for this Service.
Certificates (v1.1+) {	object		This property shall contain a link to a Resource Collection of type CertificateCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Certificate. See the Certificate schema for details.</i>
LDAPService {	object		This property shall contain any additional mapping information needed to parse a generic LDAP service. This property should only be present if AccountProviderType is LDAPService.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
SearchSettings {	object		This property shall contain the required settings to search an external LDAP service.
BaseDistinguishedNames []	array (string, null)	read-write	This property shall contain a collection of base distinguished names to search an external LDAP service.
GroupNameAttribute	string	read-write (null)	This property shall contain the attribute name that contains the LDAP group name.
GroupsAttribute	string	read-write (null)	This property shall contain the attribute name that contains the groups for an LDAP user entry.

UsernameAttribute } }	string	read-write (null)	This property shall contain the attribute name that contains the LDAP user name.
Links {	object		The Redfish Specification-define Links Property shall contain links to Resources related to but not subordinate to this Resource.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
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)	This property shall contain the RoleId property value within a Role Resource on this Redfish Service to which to map the remote user or group.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
RemoteGroup	string	read-write (null)	This property shall contain the name of the remote group, or the remote role in the case of a Redfish Service, that maps to the local Redfish Role to which this entity links.
RemoteUser }]	string	read-write (null)	This property shall contain the name of the remote user that maps to the local Redfish Role to which this entity links.
ServiceAddresses []	array (string, null)	read-write	This property shall contain the addresses of the account providers to which this external account provider links. The format of this field depends on the type of external account provider. 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)	This property shall indicate whether this service is enabled.

Property Details

AccountProviderType:

This property shall contain the type of external account provider to which this Service connects.

string	Description
ActiveDirectoryService	The external account provider shall be a Microsoft Active Directory Technical Specification-conformant service. The ServiceAddresses format shall contain a collection of fully qualified domain names (FQDN) or NetBIOS names that links to the set of domain servers for the Active Directory service.
LDAPService	The external account provider shall be an RFC4511-conformant service. The ServiceAddresses format shall contain a collection of fully qualified domain names (FQDN) that links to the set of LDAP servers for the Service.
OEM	
RedfishService	The external account provider shall be a DMTF Redfish Specification-conformant service. The ServiceAddresses format shall contain a collection of URIs that correspond to a Redfish Account Service entity.

AuthenticationType:

This property shall contain 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	A user name and password combination.

Example Response

```
{
  "@odata.type": "#ExternalAccountProvider.v1_1_2.ExternalAccountProvider",
  "Id": "ExternalRedfishService",
  "Name": "Remote Redfish Service",
  "Description": "Remote Redfish Service providing additional Accounts to this Redfish Se",
  "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.id": "/redfish/v1/AccountService/ExternalAccountProviders/ExternalRedfishService"
}

```

Fabric 1.0.6

v1.0

2016.2

This Resource shall represent a simple switchable fabric for a Redfish implementation.

URIs:

/redfish/v1/Fabrics/{[FabricId](#)}

Endpoints {	object		This property shall contain a link to the Resources of the Endpoint type that this fabric uses. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Endpoint. See the Endpoint schema for details.</i>
FabricType	string (enum)	read-only (null)	This property shall contain the type of fabric being represented by this simple fabric. <i>For the possible property values, see FabricType in Property Details.</i>
Links {	object		This property shall contain links to Resources that are related to but are not contained by or subordinate to this Resource.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
MaxZones	integer	read-only	This property shall contain the maximum number of zones the

		(null)	switch can currently configure. This value may 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. <i>For property details, see Status.</i>
Switches { }	object		This property shall contain a link to the Resources of the Switch type that this fabric uses. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Switch. See the Switch schema for details.</i>
Zones { }	object		This property shall contain a link to the Resources of the Zone type that this fabric uses. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Zone. See the Zone schema for details.</i>

Property Details

FabricType:

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

string	Description
AHCI	This value shall indicate conformance to the Intel Advanced Host Controller Interface (AHCI) Specification.
FC	This value shall indicate conformance to the T11 Fibre Channel Physical and Signaling Interface Specification.
FCoE	This value shall indicate conformance to the T11 FC-BB-5 Specification.
FCP	This value shall indicate conformance to the INCITS 481: Information Technology - Fibre Channel Protocol for SCSI.
FICON	This value shall indicate conformance to the ANSI FC-SB-3 Single-Byte Command Code Sets-3 Mapping Protocol for the Fibre Channel (FC) protocol. Fibre Connection (FICON) is the IBM-proprietary name for this protocol.
FTP	This value shall indicate conformance to the RFC114-defined File Transfer Protocol (FTP).
HTTP	This value shall indicate conformance to the Hypertext Transport Protocol (HTTP) as defined by RFC3010 or RFC5661.
HTTPS	This value shall indicate conformance to the Hypertext Transfer Protocol Secure (HTTPS) as defined by RFC2068 or RFC2616, which uses Transport Layer Security (TLS) as defined by RFC5246 or RFC6176.

string	Description
I2C	This value shall indicate conformance to the NXP Semiconductors I2C-bus Specification.
iSCSI	This value shall indicate conformance to the IETF Internet Small Computer Systems Interface (iSCSI) Specification.
iWARP	This value shall indicate conformance to the RFC5042-defined Internet Wide Area RDMA Protocol (iWARP) that uses the transport layer mechanisms as defined by RFC5043 or RFC5044.
NFSv3	This value shall indicate conformance to the RFC1813-defined Network File System (NFS) protocol.
NFSv4	
NVMe	This value shall indicate conformance to the Non-Volatile Memory Host Controller Interface Specification.
NVMeOverFabrics	This value shall indicate conformance to the NVM Express over Fabrics Specification.
OEM	This value shall indicate conformance to an OEM-specific architecture and additional information may be included in the OEM section.
PCIe	This value shall indicate conformance to the PCI-SIG PCI Express Base Specification.
RoCE	This value shall indicate conformance to the Infiniband Architecture Specification-defined RDMA over Converged Ethernet Protocol.
RoCEv2	This value shall indicate conformance to the Infiniband Architecture Specification-defined RDMA over Converged Ethernet Protocol version 2.
SAS	This value shall indicate conformance to the T10 SAS Protocol Layer Specification.
SATA	This value shall indicate conformance to the Serial ATA International Organization Serial ATA Specification.
SFTP	This value shall indicate conformance to the RFC114-defined SSH File Transfer Protocol (SFTP) that uses Transport Layer Security (TLS) as defined by RFC5246 or RFC6176.
SMB	This value shall indicate conformance to the Server Message Block (SMB), or Common Internet File System (CIFS), protocol.
TCP	This value shall indicate conformance to the IETF-defined Transmission Control Protocol (TCP). For example, RFC7414 defines the roadmap of the TCP specification.
TFTP	This value shall indicate conformance to the IETF-defined Trivial File Transfer Protocol (TFTP). For example, RFC1350 defines the core TFTP version 2 specification.
UDP	This value shall indicate conformance to the IETF-defined User Datagram Protocol (UDP). For example, RFC768 defines the core

string	Description
	UDP specification.
UHCI	This value shall indicate conformance to the Intel Universal Host Controller Interface (UHCI) Specification, Enhanced Host Controller Interface Specification, or the Extensible Host Controller Interface Specification.
USB	This value shall indicate conformance to the USB Implementers Forum Universal Serial Bus Specification.

Example Response

```
{
  "@odata.type": "#Fabric.v1_0_6.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.id": "/redfish/v1/Fabrics/SAS"
}
```

HostInterface 1.2.2

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

This Resource shall represent a Host Interface as part of the Redfish Specification.

URIs:

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

AuthenticationModes []	array (string (enum))	read-write	This property shall contain an array consisting of the authentication modes allowed on this interface. <i>For the possible property values, see AuthenticationModes in Property Details.</i>
AuthNoneRoleId (v1.2+)	string	read-write	This property shall contain the Id property of the Role Resource that is used when no authentication on this interface is performed. This property shall contain absent if AuthNone is not supported by the service for the AuthenticationModes property.
ExternallyAccessible	boolean	read-only (null)	This property shall indicate whether external entities can access this interface. External entities are non-host entities. For example, if the host and manager are connected through a switch and the switch also exposes an external port on the system, external clients can also use the interface, and this property value is <code>true</code> .
FirmwareAuthEnabled	boolean	read-write (null)	This property shall indicate whether firmware authentication is enabled for this interface.
FirmwareAuthRoleId	string	read-write	This property shall contain the Id property of the Role Resource that is configured for firmware authentication on this interface.
HostEthernetInterfaces {	object		This property shall contain a link to a Resource Collection of type EthernetInterface that computer systems use as the Host Interface to this manager. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of EthernetInterface. See the EthernetInterface schema for details.</i>
HostInterfaceType	string (enum)	read-only (null)	This property shall contain an enumeration that describes the type of the interface. <i>For the possible property values, see HostInterfaceType in Property Details.</i>
InterfaceEnabled	boolean	read-write (null)	This property shall indicate whether this interface is enabled.
KernelAuthEnabled	boolean	read-write (null)	This property shall indicate whether kernel authentication is enabled for this interface.
KernelAuthRoleId	string	read-write	This property shall contain the Id property of the Role Resource that is configured for kernel authentication on this interface.
Links {	object		The Redfish Specification-described Links Property shall contain links to Resources related to but not subordinate to this Resource.
AuthNoneRole (v1.2+) {	object		This property shall contain a link to a Resource

			of type Role, and should link to the Resource identified by property AuthNoneRoleId. This property shall be absent if AuthNone is not supported by the service for the AuthenticationModes property. <i>See the Role schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a Role resource. See the Links section and the Role schema for details.</i>
ComputerSystems [{	array		This property shall contain an array of links to Resources of the ComputerSystem type that are connected to this Host Interface.
@odata.id }]	string	read-only	<i>Link to a ComputerSystem resource. See the Links section and the ComputerSystem schema for details.</i>
FirmwareAuthRole {	object		This property shall contain a link to a Resource of type Role, and should link to the Resource identified by property FirmwareAuthRoleId. <i>See the Role schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a Role resource. See the Links section and the Role schema for details.</i>
KernelAuthRole {	object		This property shall contain a link to a Resource of type Role, and should link to the Resource identified by property KernelAuthRoleId. <i>See the Role schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a Role resource. See the Links section and the Role schema for details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
ManagerEthernetInterface {	object		This property shall contain a link to a Resource of type EthernetInterface that represents the network interface that this manager uses as the Host Interface. <i>See the EthernetInterface schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a EthernetInterface resource. See the Links section and the EthernetInterface schema for details.</i>
NetworkProtocol {	object		This property shall contain a link to a Resource of type ManagerNetworkProtocol that represents the network services for this manager. <i>See the ManagerNetworkProtocol schema for</i>

			<i>details on this property.</i>
<code>@odata.id</code> }	string	read-only	Link to a <code>ManagerNetworkProtocol</code> resource. See the Links section and the ManagerNetworkProtocol schema for details.
<code>Status {}</code>	object		This property shall contain any status or health properties of the Resource. For property details, see Status .

Property Details

AuthenticationModes:

This property shall contain 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:

This property shall contain an enumeration that describes the type of the interface.

string	Description
NetworkHostInterface	This interface is a Network Host Interface.

Example Response

```
{
  "@odata.id": "/redfish/v1/Managers/BMC/HostInterfaces/1",
  "@odata.type": "#HostInterface.v1_2_2.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 1.0.3

v1.0

2018.2

This Resource shall contain a job in a Redfish implementation.

URIs:

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

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

Property Name	Type	Read-Only	Description
CreatedBy	string	read-only	This property shall contain the user name, software program name, or other identifier indicating the creator of this job.
EndTime	string	read-only	This property shall indicate the date and time when the job was completed. This property shall not appear if the job is running or was not completed. This property shall appear only if the JobState is Completed, Cancelled, or Exception.
HidePayload	boolean	read-only	This property shall indicate whether the contents of the payload should be hidden from view after the job has

			been created. If <code>true</code> , responses shall not return the Payload property. If <code>false</code> , responses shall return the Payload property. If this property is not present when the job is created, the default is <code>false</code> .
JobState	string (enum)	read-write	This property shall indicate the state of the job. <i>For the possible property values, see JobState in Property Details.</i>
JobStatus	string (enum)	read-only	This property shall indicate the health status of the job. <i>For the possible property values, see JobStatus in Property Details.</i>
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)		This property shall contain an array of messages associated with the job. This type shall contain a message that the Redfish Service returns, as described in the Redfish Specification. <i>For property details, see Message.</i>
Payload {	object		This property shall contain the HTTP and JSON payload information for executing this job. This property shall not be included in the response if the HidePayload property is <code>true</code> .
HttpHeaders []	array (string)	read-only	This property shall contain an array of HTTP headers in this job.
HttpOperation	string	read-only	This property shall contain the HTTP operation that executes this job.
JsonBody	string	read-only	This property shall contain JSON-formatted payload for this job.
TargetUri }	string	read-only	This property shall contain link to a target location for an HTTP operation.
PercentComplete	integer (%)	read-only (null)	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 the scheduling details for this job and the recurrence frequency for future instances of this job. <i>For property details, see Schedule.</i>
StartTime	string	read-only	This property shall indicate the date and time when the job was last started or is scheduled to start.
StepOrder []	array (string)	read-only	This property shall contain 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 omitted and may occur in parallel or in series as determined by the service.
Steps {	object		This property shall contain the link to a Resource Collection of type JobCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Job. See the Job schema for details.</i>

Property Details

JobState:

This property shall indicate the state of the job.

string	Description
Cancelled	This value shall represent that the operation completed because the job was cancelled by an operator.
Completed	This value shall represent that the operation 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 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:

This property shall indicate the health status of the job.

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

Example Response

```
{
  "@odata.type": "#Job.v1_0_3.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.id": "/redfish/v1/JobService/Jobs/RebootRack"
}
```

JobService 1.0.2

v1.0

2018.2

This Resource shall represent a Job Service for a Redfish implementation.

URIs:

/redfish/v1/JobService

DateTime	string	read-only (null)	This property shall represent the current DateTime value for the Job Service, with UTC offset, in Redfish Timestamp format.
Jobs {	object		This property shall contain a link to a Resource of type JobCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Job. See the Job schema for details.</i>
Log {	object		This property shall contain a link to a Log Service that this Job Service uses. <i>See the LogService schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a LogService resource. See the Links section and the LogService schema for details.</i>
ServiceCapabilities {	object		This type shall contain properties that describe the capabilities or supported features of this implementation of a Job Service.
MaxJobs	integer	read-only (null)	This property shall contain the maximum number of jobs supported by the implementation.
MaxSteps	integer	read-only (null)	This property shall contain the maximum number of steps supported by a single job instance.
Scheduling }	boolean	read-only (null)	This property shall indicate whether the Schedule property within the job supports scheduling of jobs.
ServiceEnabled	boolean	read-write (null)	This property shall indicate whether this service is enabled.
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>

Example Response

```
{
  "@odata.type": "#JobService.v1_0_2.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 1.1.4

v1.1	v1.0
2017.1	1.0

This Resource shall represent the schema file locator Resource for a Redfish implementation.

URIs:

/redfish/v1/JsonSchemas/{[JsonSchemaFileId](#)}

Languages []	array (string)	read-only required	This property contains a set of RFC5646-conformant language codes.
Location [{	array	required	This property shall contain the location information for this schema file.
ArchiveFile	string	read-only	This property shall contain the file name of the individual schema file within the archive file that the ArchiveUri property specifies. The file name shall conform to the Redfish Specification-described format.
ArchiveUri	string	read-only	This property shall contain a URI colocated with the Redfish Service that specifies the location of the schema file, which can be retrieved using the Redfish protocol and authentication methods. This property shall be used for only archive files, in zip or other formats. The ArchiveFile value shall be the individual schema file name within the archive file.
Language	string	read-only	This property shall contain an RFC5646-conformant language code or the <code>default</code> string.
PublicationUri	string	read-only	This property shall contain a URI not colocated with the

			Redfish Service that specifies the canonical location of the schema file. This property shall be used for only individual schema files.
Uri }]	string	read-only	This property shall contain a URI colocated with the Redfish Service that specifies the location of the schema file, which can be retrieved using the Redfish protocol and authentication methods. This property shall be used for only 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	This property shall contain the @odata.type property value for that schema and shall conform to the Redfish Specification-specified syntax for the Type property.

Example Response

```
{
  "@odata.type": "#JsonSchemaFile.v1_1_4.JsonSchemaFile",
  "Id": "Chassis.v1_0_0",
  "Name": "Chassis Schema File",
  "Description": "Chassis Schema File Location",
  "Languages": [
    "en"
  ],
  "Schema": "#Chassis.v1_10_0.Chassis",
  "Oem": {},
  "Location": [
    {
      "Language": "en",
      "ArchiveUri": "/Schemas.gz",
      "PublicationUri": "http://redfish.dmtf.org/schemas/v1/Chassis.v1_0_0.json",
      "ArchiveFile": "Chassis.v1_0_0.json"
    },
    {
      "Language": "zh",
      "ArchiveUri": "/Schemas.zh.gz",
      "PublicationUri": "http://schemas.contoso.com/Chassis.v1_0_0.zh.json",
      "ArchiveFile": "Chassis.v1_0_0.zh.json"
    },
    {
      "Language": "xy",
      "Uri": "/redfish/v1/JsonSchemas/Chassis.v1_0_0.xy.json",
      "PublicationUri": "http://schemas.contoso.com/Chassis.v1_0_0.xy.json"
    }
  ],
  "@odata.id": "/redfish/v1/JsonSchemas/Chassis.v1_0_0"
}
```

LogEntry 1.5.0

v1.5	v1.4	v1.3	v1.2	v1.1	v1.0
------	------	------	------	------	------

2019.3	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/JobService/Log/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}](#)

[/redfish/v1/TelemetryService/LogService/Entries/{LogEntryId}](#)

Created	string	read-only	This property shall contain the date and time when the log entry was created.
EntryCode	string (enum)	read-only (null)	This property shall contain the entry code for the log entry if the EntryType is <code>SEL</code> . Tables 42-1 and 42-2 of the IPMI Specification describe these enumerations. <i>For the possible property values, see EntryCode in Property Details.</i>
EntryType	string (enum)	read-only required	This property shall represent the type of log entry. If the Resource represents an IPMI SEL entry, the value shall contain <code>SEL</code> . If the Resource represents a Redfish event log entry, the value shall contain <code>Event</code> . If the Resource represents an OEM log entry format, the value shall contain <code>Oem</code> . <i>For the possible property values, see EntryType in Property Details.</i>
EventGroupId (v1.4+)	integer	read-only (null)	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 this property's value.
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 contain the date and time when 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. <i>For the possible property values, see EventType in Property Details.</i> <i>Deprecated in v1.4 and later. This property has been deprecated. Starting with Redfish Specification v1.6 (Event v1.3), subscriptions are based on the RegistryPrefix and ResourceType properties and not on the EventType property.</i>
GeneratorId (v1.5+)	string	read-only (null)	If EntryType is SEL, this property shall contain the 'Generator ID' field of the IPMI SEL Event Record. If EntryType is not SEL, this property should not be present. Pattern: ^0xX{2}\$
Links {	object		This Redfish Specification-described property shall contain links to Resources that are related to but are not contained by or subordinate to this Resource.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
OriginOfCondition {	object		This property shall contain a link to the Resource that caused the log entry.
@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)	This property shall contain the message of the log entry. This property decodes from the entry type. If the entry type is Event, this property contains a message. If the entry type is SEL, this property contains an SEL-specific. Otherwise, this property contains an OEM-specific log entry. In most cases, this property contains the actual log entry.
MessageArgs []	array (string)	read-only	This property shall contain message arguments to substitute into the included or looked-up message.
MessageId	string	read-only	This property shall contain the MessageId, event data, or OEM-specific information. This property decodes from the entry type. If the entry type is Event, this property contains a Redfish

			Specification-defined MessageId property of the event. If the entry type is <code>SEL</code> , the format should follow the pattern <code>^0xX{4}\$</code> , which results in a string in the form <code>'0xNNAabbcc'</code> , where <code>'NN'</code> is the EventDir/EventType byte, <code>'aa'</code> is the Event Data 1 byte, <code>'bb'</code> is Event Data 2 byte, <code>'cc'</code> is Event Data 3 byte, corresponding with bytes 13-16 in the IPMI SEL Event Record. Otherwise, this property contains OEM-specific information.
OemLogEntryCode (v1.3+)	string	read-only (null)	This property shall represent the OEM-specific Log Entry Code type of the Entry. This property shall only be present if EntryType is <code>SEL</code> and LogEntryCode is <code>OEM</code> .
OemRecordFormat	string	read-only (null)	This property shall represent the OEM-specific format of the entry. This property shall be required if the EntryType value is <code>Oem</code> .
OemSensorType (v1.3+)	string	read-only (null)	This property shall represent the OEM-specific sensor type of the entry. This property shall only be used if EntryType is <code>SEL</code> and SensorType is <code>OEM</code> .
SensorNumber	integer	read-only (null)	This property shall contain the sensor number, the count of events, or OEM-specific information. This property value is decoded from the entry type. If the entry type is <code>SEL</code> , this property contains the sensor number. If the entry type is <code>Event</code> , this property contains the count of events. Otherwise, this property contains OEM-specific information.
SensorType	string (enum)	read-only (null)	This property shall contain the sensor type to which the log entry pertains if the entry type is <code>SEL</code> . Table 42-3 in the IPMI Specification describes these enumerations. <i>For the possible property values, see SensorType in Property Details.</i>
Severity	string (enum)	read-only (null)	This property shall contain the severity of the condition that created the log entry, as defined in the Status section of the Redfish Specification. <i>For the possible property values, see Severity in Property Details.</i>

Property Details

EntryCode:

This property shall contain the entry code for the log entry if the EntryType is `SEL`. Tables 42-1 and 42-2 of the IPMI Specification describe these enumerations.

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 present.
Device Removed / Device Absent	A device has been removed or is 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	Unit is non-redundant and has insufficient resources to

string	Description
Resources	maintain normal operation.
Non-redundant:Sufficient Resources from Insufficient Resources	Unit has regained 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	A state has changed to Non-recoverable from less

string	Description
from less severe	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 log entry. If the Resource represents an IPMI SEL entry, the value shall contain `SEL`. If the Resource represents a Redfish event log entry, the value shall contain `Event`. If the Resource represents an OEM log entry format, the value shall contain `Oem`.

string	Description
Event	A Redfish-defined message.
Oem	An entry in an OEM-defined format.
SEL	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	

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

SensorType:

This property shall contain the sensor type to which the log entry pertains if the entry type is `SEL`. Table 42-3 in the IPMI Specification describes these enumerations.

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 device type.
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.

string	Description
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 another 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:

This property shall contain the severity of the condition that created the log entry, as defined in the Status section of the Redfish Specification.

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

Example Response

```
{
  "@odata.type": "#LogEntry.v1_4_3.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.id": "/redfish/v1/Systems/437XR1138R2/LogServices/Log1/Entries/1"
}
```

LogService 1.1.3

v1.1	v1.0
2017.3	1.0

This Resource shall represent a Log Service for a Redfish implementation.

URIs:

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

/redfish/v1/JobService/Log

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

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

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

/redfish/v1/TelemetryService/LogService

DateTime	string	read-write (null)	This property shall represent the current DateTime value, with UTC offset, in Redfish Timestamp format that the Log Service uses to set or read time.
DateTimeLocalOffset	string	read-write (null)	This property shall represent the UTC offset that the current DateTime property value contains. Pattern: ^([-+][0-1][0-9]:[0-5][0-9])\$
Entries {	object		This property shall contain a link to a Resource Collection of type LogEntryCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of LogEntry. See the LogEntry schema for details.</i>
LogEntryType (v1.1+)	string (enum)	read-only (null)	This property shall represent the EntryType of all LogEntry Resources contained in the Entries collection. If the service cannot determine or guarantee a single EntryType for all LogEntry Resources, this property's value shall be <code>Multiple</code> . <i>For the possible property values, see LogEntryType in Property Details.</i>
MaxNumberOfRecords	integer	read-only	This property shall contain the maximum number of LogEntry Resources in the Entries collection for this service.
OverWritePolicy	string (enum)	read-only	This property shall indicate the policy of the Log Service when the MaxNumberOfRecords has been reached. <i>For the possible property values, see OverWritePolicy in Property Details.</i>
ServiceEnabled	boolean	read-write (null)	This property shall indicate whether this service is enabled.
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>

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/JobService/Log/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

```

/redfish/v1/TelemetryService/LogService/Actions/LogService.ClearLog
(This action takes no parameters.)

Property Details

LogEntryType:

This property shall represent the EntryType of all LogEntry Resources contained in the Entries collection. If the service cannot determine or guarantee a single EntryType for all LogEntry Resources, this property's value shall be `Multiple`.

string	Description
Event	The log contains Redfish-defined messages.
Multiple	The log contains multiple log entry types and, therefore, the Log Service cannot guarantee a single entry type.
OEM	The log contains entries in an OEM-defined format.
SEL	The log contains legacy IPMI System Event Log (SEL) entries.

OverWritePolicy:

This property shall indicate the policy of the Log Service when the MaxNumberOfRecords has been reached.

string	Description
NeverOverWrites	When full, new entries to the log are discarded.
Unknown	The overwrite policy is not known or is undefined.
WrapsWhenFull	When full, new entries to the log overwrite earlier entries.

Example Response

```
{
  "@odata.type": "#LogService.v1_1_3.LogService",
  "Id": "Log1",
  "Name": "System Log Service",
  "Description": "This log contains entries related to the operation of the host Computer",
  "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.id": "/redfish/v1/Managers/1/LogServices/Log1"
}

```

Manager 1.6.0

v1.6	v1.5	v1.4	v1.3	v1.2	v1.1	v1.0
2019.2	2018.2	2018.1	2016.3	2016.2	2016.1	1.0

This Resource shall represent a management subsystem for a Redfish implementation.

URIs:

/redfish/v1/Managers/{[ManagerId](#)}

AutoDSTEnabled (v1.4+)	boolean	read-write	This property shall indicate whether the manager is configured for automatic Daylight Saving Time (DST) adjustment.
CommandShell {	object		This property shall contain information about the command shell service of this manager.
ConnectTypesSupported []	array (string (enum))	read-only	This property shall contain an array of the enumerations. 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 (SOL) protocol is supported. <i>For the possible property values, see ConnectTypesSupported in Property Details.</i>
MaxConcurrentSessions	integer	read-only	This property shall contain the maximum number of concurrent service sessions that this implementation supports.
ServiceEnabled }	boolean	read-write	This property shall indicate whether the protocol for the service is enabled.
DateTime	string	read-write (null)	This property shall represent the current DateTime value for the manager, with UTC offset, in Redfish Timestamp format.
DateTimeLocalOffset	string	read-write (null)	This property shall represent the offset from UTC time that the current

			DateTime property contains. Pattern: ^([-+][0-1][0-9]:[0-5][0-9])\$
EthernetInterfaces {	object		This property shall contain a link to a Resource Collection of type EthernetInterfaceCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of EthernetInterface. See the EthernetInterface schema for details.</i>
FirmwareVersion	string	read-only (null)	This property shall contain the firmware version as defined by the manufacturer for the associated manager.
GraphicalConsole {	object		This property shall contain the information about the graphical console (KVM-IP) service of this manager.
ConnectTypesSupported []	array (string (enum))	read-only	This property shall contain an array of the enumerations. 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. <i>For the possible property values, see ConnectTypesSupported in Property Details.</i>
MaxConcurrentSessions	integer	read-only	This property shall contain the maximum number of concurrent service sessions that this implementation supports.
ServiceEnabled }	boolean	read-write	This property shall indicate whether the protocol for the service is enabled.
HostInterfaces (v1.3+) {	object		This property shall contain a link to a Resource Collection of type HostInterfaceCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of HostInterface. See the HostInterface schema for details.</i>
Links {	object		This property shall contain links to Resources that are related to but are not contained by or subordinate to this Resource.
ActiveSoftwareImage (v1.6+) {	object		This property shall contain a link to the SoftwareInventory Resource that represent the active firmware image for this manager. <i>See the SoftwareInventory schema for details on this property.</i>

@odata.id }	string	read-only	<i>Link to a SoftwareInventory resource. See the Links section and the SoftwareInventory schema for details.</i>
ManagerForChassis [{	array		This property shall contain an array of links to chassis over which this manager instance has control.
@odata.id }]	string	read-only	<i>Link to a Chassis resource. See the Links section and the Chassis schema for details.</i>
ManagerForServers [{	array		This property shall contain an array of links to computer systems over which this manager instance has control.
@odata.id }]	string	read-only	<i>Link to a ComputerSystem resource. See the Links section and the ComputerSystem schema for details.</i>
ManagerForSwitches (v1.4+) [{	array		This property shall contain an array of links to switches that this manager instance controls.
@odata.id }]	string	read-only	<i>Link to a Switch resource. See the Links section and the Switch schema for details.</i>
ManagerInChassis (v1.1+) {	object		This property shall contain a link to the chassis where this manager is located. See the Chassis schema for details on this property.
@odata.id }	string	read-only	<i>Link to a Chassis resource. See the Links section and the Chassis schema for details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
SoftwareImages (v1.6+) [{	array		This property shall contain an array of links to the SoftwareInventory Resources that represent the firmware images that apply to this manager.
@odata.id }] }	string	read-only	<i>Link to a SoftwareInventory resource. See the Links section and the SoftwareInventory schema for details.</i>
LogServices {	object		This property shall contain a link to a Resource Collection of type LogServiceCollection that this manager uses. <i>Contains a link to a resource.</i>

@odata.id }	string	read-only	Link to Collection of LogService . See the LogService schema for details.
ManagerType	string (enum)	read-only	This property shall describe the function of this manager. The <code>ManagementController</code> value shall be used if none of the other enumerations apply. <i>For the possible property values, see ManagerType in Property Details.</i>
Model	string	read-only (null)	This property shall contain the information about how the manufacturer refers to this manager.
NetworkProtocol {	object		This property shall contain a link to a Resource of the <code>ManagerNetworkProtocol</code> , which represents the network services for this manager. <i>See the ManagerNetworkProtocol schema for details on this property.</i>
@odata.id }	string	read-only	Link to a <code>ManagerNetworkProtocol</code> resource. See the Links section and the ManagerNetworkProtocol schema for details.
PowerState (v1.2+)	string (enum)	read-only (null)	This property shall contain the power state of the manager. <i>For the possible property values, see PowerState in Property Details.</i>
Redundancy [{}]	array (object)		The properties in this array shall show how this manager is grouped with other managers for form redundancy sets. This object represents the redundancy element property. <i>For property details, see Redundancy.</i>
RemoteAccountService (v1.5+) {	object		This property shall contain a link to the <code>AccountService</code> Resource for the remote manager that this Resource represents. This property shall only be present when providing aggregation of Redfish Services. <i>See the AccountService schema for details on this property.</i>
@odata.id }	string	read-only	Link to a <code>AccountService</code> 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 that this Resource represents. This property shall only be present when providing aggregation of Redfish

			Services.
SerialConsole {	object		This property shall contain information about the serial console service of this manager.
ConnectTypesSupported []	array (string (enum))	read-only	This property shall contain an array of the enumerations. 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 (SOL) protocol is supported. <i>For the possible property values, see ConnectTypesSupported in Property Details.</i>
MaxConcurrentSessions	integer	read-only	This property shall contain the maximum number of concurrent service sessions that this implementation supports.
ServiceEnabled }	boolean	read-write	This property shall indicate whether the protocol for the service is enabled.
SerialInterfaces {	object		This property shall contain a link to a Resource Collection of type <code>SerialInterfaceCollection</code> , which this manager uses. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of SerialInterface. See the SerialInterface schema for details.</i>
ServiceEntryPointUUID	string	read-only (null)	This property shall contain the UUID of the Redfish Service that is hosted 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. <i>For property details, see Status.</i>
UUID	string	read-only (null)	This property shall contain the UUID 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		This property shall contain a link to a

			Resource Collection of type VirtualMediaCollection, which this manager uses. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of VirtualMedia. See the VirtualMedia schema for details.</i>

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 that are included in the POST body to the URI shown in the "target" property of the Action.

{			
NewManager {	object	required	This parameter shall contain the manager to which to fail over.
@odata.id }	string	read-only	<i>Link to another Manager resource.</i>
}			

ModifyRedundancySet

The ModifyRedundancySet operation shall add members to or remove members from a redundant group of managers.

URIs:

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

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

{			
Add [{	array	optional	This parameter shall contain an array of managers to add to the redundancy set.
@odata.id }]	string	read-only	<i>Link to another Manager resource.</i>
Remove [{	array	optional	This parameter shall contain an array of managers to remove from the redundancy set.
@odata.id }]	string	read-only	<i>Link to another Manager resource.</i>
}			

Reset

This action shall reset the manager.

URIs:

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

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

{			
ResetType	string (enum)	optional	This parameter shall contain the type of reset. The Service may accept a request without the parameter and perform an implementation specific default reset. For the possible property values, see ResetType in <i>Property Details</i> .
}			

Property Details

ConnectTypesSupported:

This property shall contain an array of the enumerations. 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 (SOL) protocol is supported.

string	Description
IPMI	The controller supports a serial console connection through the IPMI Serial Over LAN (SOL) protocol.
Oem	The controller supports a serial console connection through an OEM-specific protocol.
SSH	The controller supports a serial console connection through the SSH protocol.
Telnet	The controller supports a serial console connection through the Telnet protocol.

ManagerType:

This property shall describe the function of this manager. The `ManagementController` value shall be used if none of the other enumerations apply.

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

PowerState:

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 contain the type of reset. The Service may accept a request without the parameter and perform an implementation specific default reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the system.
GracefulRestart	Shut down gracefully and restart the system.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
PowerCycle	Power cycle the unit.
PushPowerButton	Simulate the pressing of the physical power button on this unit.

Example Response

```
{
  "@odata.type": "#Manager.v1_6_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.id": "/redfish/v1/Managers/BMC"
  }
}

```

ManagerAccount 1.4.0

v1.4	v1.3	v1.2	v1.1	v1.0
2019.3	2019.1	2018.3	2017.1	1.0

This Resource shall represent Resources that represent the user accounts for the manager.

URIs:

</redfish/v1/AccountService/Accounts/{ManagerAccountId}>

</redfish/v1/Managers/{ManagerId}/RemoteAccountService/Accounts/{ManagerAccountId}>

AccountTypes (v1.4+) []	array (string (enum))	read-write (null)	This property shall contain an array of the various account types that apply to the account. If this property is not provided by the client, the default value shall be an array with the single value <code>Redfish</code> . <i>For the possible property values, see AccountTypes in Property Details.</i>
Certificates (v1.2+) {	object		This property shall contain a link to a Resource Collection of type <code>CertificateCollection</code> . <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Certificate. See the Certificate schema for details.</i>
Enabled	boolean	read-write	This property shall indicate whether an account is enabled. If <code>true</code> , the account is enabled and the user can log in. If <code>false</code> , the account is disabled and, in the future, the user

			cannot log in. This property overrides the Locked property.
Links {	object		This property shall contain links to Resources that are related to but are not contained by or subordinate to this Resource.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
Role {	object		This property shall contain a link to a Role Resource instance, and should link to the Resource identified by the RoleId property. <i>See the Role schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a Role resource. See the Links section and the Role schema for details.</i>
Locked	boolean	read-write	This property shall indicate whether the Account Service automatically locked the account because the AccountLockoutThreshold was exceeded. To manually unlock the account before the lockout duration period, an administrator shall be able to change the property to <code>false</code> to clear the lockout condition.
OEMAccountTypes (v1.4+) []	array (string, null)	read-write	This property shall contain an array of the OEM account types for this account. This property shall be valid when AccountTypes contains OEM.
Password	string	read-write required on create (null)	This property shall contain the password for this account. The value shall be <code>null</code> in responses.
PasswordChangeRequired (v1.3+)	boolean	read-write (null)	This property shall indicate whether the service requires that the password for this account be changed before further access to the account is allowed. The implementation may deny access to the service if the password has not been

			changed. A manager account created with an initial PasswordChangeRequired value of <code>true</code> may force a password change before first access of the account. When the Password property for this account is updated, the service shall set this property to <code>false</code> .
RoleId	string	read-write required on create	This property shall contain the RoleId of the Role Resource configured for this account. The Service shall reject POST, PATCH, or PUT operations that provide a RoleId that does not exist by returning the HTTP 400 (Bad Request) status code.
SNMP (v1.4+) {	object	(null)	This property shall contain the SNMP settings for this account when AccountTypes contains SNMP.
AuthenticationKey	string	read-write (null)	This property shall contain the key for SNMPv3 authentication. The value shall be <code>null</code> in responses. Pattern: <code>(^[A-Za-z0-9]+\$)(^*+\$)</code>
AuthenticationProtocol	string (enum)	read-write (null)	This property shall contain the SNMPv3 authentication protocol. <i>For the possible property values, see AuthenticationProtocol in Property Details.</i>
EncryptionKey	string	read-write (null)	This property shall contain the key for SNMPv3 encryption. The value shall be <code>null</code> in responses. Pattern: <code>(^[A-Za-z0-9]+\$)(^*+\$)</code>
EncryptionProtocol }	string (enum)	read-write (null)	This property shall contain the SNMPv3 encryption protocol. <i>For the possible property values, see EncryptionProtocol in Property Details.</i>
UserName	string	read-write required on create	This property shall contain the user name for this account.

Property Details

AccountTypes:

This property shall contain an array of the various account types that apply to the account. If this property is not provided by the client, the default value shall be an array with the single value `Redfish`.

string	Description
OEM	OEM account type.
Redfish	Allow access to the Redfish Service.
SNMP	Allow access to SNMP services.

AuthenticationProtocol:

This property shall contain the SNMPv3 authentication protocol.

string	Description
HMAC_MD5	This value shall indicate authentication conforms to the RFC3414-defined HMAC-MD5-96 authentication protocol.
HMAC_SHA96	This value shall indicate authentication conforms to the RFC3414-defined HMAC-SHA-96 authentication protocol.
None	This value shall indicate authentication is not required.

EncryptionProtocol:

This property shall contain the SNMPv3 encryption protocol.

string	Description
CBC_DES	This value shall indicate encryption conforms to the RFC3414-defined CBC-DES encryption protocol.
CFB128_AES128	This value shall indicate encryption conforms to the RFC3414-defined CFB128-AES-128 encryption protocol.
None	This value shall indicate there is no encryption.

Example Response

```
{
  "@odata.type": "#ManagerAccount.v1_3_1.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.id": "/redfish/v1/AccountService/Accounts/1"
}

```

ManagerNetworkProtocol 1.5.0

v1.5	v1.4	v1.3	v1.2	v1.1	v1.0
2019.3	2018.3	2018.2	2017.1	2016.3	1.0

This Resource shall represent the network service settings for the manager.

URIs:

/redfish/v1/Managers/{[ManagerId](#)}/NetworkProtocol

DHCP (v1.1+) {	object		This object shall contain the DHCPv4 protocol settings for the manager.
Port	integer	read-write (null)	This property shall contain the port assigned to the protocol.
ProtocolEnabled }	boolean	read-write (null)	This property shall indicate whether the protocol is enabled.
DHCPv6 (v1.3+) {	object		This object shall contain the DHCPv6 protocol settings for the manager.
Port	integer	read-write (null)	This property shall contain the port assigned to the protocol.
ProtocolEnabled }	boolean	read-write (null)	This property shall indicate whether the protocol is enabled.
FQDN	string	read-only (null)	This property shall contain the fully qualified domain name for the manager.
HostName	string	read-only (null)	This property shall contain the host name without any domain information.
HTTP {	object		This object shall contain the HTTP protocol settings for the manager. The default Port property value should be 80 for compatibility with established client implementations.
Port	integer	read-write (null)	This property shall contain the port assigned to the protocol.
ProtocolEnabled }	boolean	read-write (null)	This property shall indicate whether the protocol is enabled.

HTTPS {	object		This object shall contain the HTTPS/SSL protocol settings for this manager. The default Port property value should be 443 for compatibility with established client implementations.
Certificates (v1.4+) {	object		This property shall contain a link to a Resource Collection of type CertificateCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Certificate. See the Certificate schema for details.</i>
Port	integer	read-write (null)	This property shall contain the port assigned to the protocol.
ProtocolEnabled }	boolean	read-write (null)	This property shall indicate whether the protocol is enabled.
IPMI {	object		This object shall contain the IPMI over LAN protocol settings for the manager. The default Port property value should be 623 for compatibility with established client implementations.
Port	integer	read-write (null)	This property shall contain the port assigned to the protocol.
ProtocolEnabled }	boolean	read-write (null)	This property shall indicate whether the protocol is enabled.
KVMIP {	object		This object shall contain the KVM-IP (Keyboard, Video, Mouse over IP) protocol settings for the manager.
Port	integer	read-write (null)	This property shall contain the port assigned to the protocol.
ProtocolEnabled }	boolean	read-write (null)	This property shall indicate whether the protocol is enabled.
NTP (v1.2+) {	object		This object shall contain the NTP protocol settings for the manager.
NTPServers []	array (string, null)	read-write	This property shall contain all the NTP servers for which this manager is using to obtain time.
Port	integer	read-write (null)	This property shall contain the port assigned to the protocol.
ProtocolEnabled }	boolean	read-write (null)	This property shall indicate whether the protocol is enabled.
RDP (v1.3+) {	object		This object shall contain the Remote

			Desktop Protocol settings for the manager.
Port	integer	read-write (null)	This property shall contain the port assigned to the protocol.
ProtocolEnabled }	boolean	read-write (null)	This property shall indicate whether the protocol is enabled.
RFB (v1.3+) {	object		This object shall contain the Remote Frame Buffer protocol settings for the manager.
Port	integer	read-write (null)	This property shall contain the port assigned to the protocol.
ProtocolEnabled }	boolean	read-write (null)	This property shall indicate whether the protocol is enabled.
SNMP {	object		This object shall contain the SNMP protocol settings for this manager. The default Port property value should be 161 for compatibility with established client implementations.
AuthenticationProtocol (v1.5+)	string (enum)	read-write (null)	This property shall contain the SNMP authentication protocol. <i>For the possible property values, see AuthenticationProtocol in Property Details.</i>
CommunityAccessMode (v1.5+)	string (enum)	read-write (null)	This property shall contain the access/privilege level of the SNMP community used to access an SNMP manager. <i>For the possible property values, see CommunityAccessMode in Property Details.</i>
CommunityStrings (v1.5+) [{	array		This property shall contain an array of the SNMP community strings used to access an SNMP manager.
AccessMode	string (enum)	read-write (null)	This property shall contain the access/privilege level of the SNMP community used to access an SNMP manager. <i>For the possible property values, see AccessMode in Property Details.</i>
CommunityString	string	read-write (null)	This property shall contain the SNMP community string used for accessing an SNMP service on this manager. If HideCommunityStrings is true, this value shall be null in responses.
Name }]	string	read-write (null)	This property shall contain a display name describing the SNMP

			community.
EnableSNMPv1 (v1.5+)	boolean	read-write (null)	This property shall indicate if access to the SNMP service on this manager using the SNMPv1 protocol is enabled.
EnableSNMPv2c (v1.5+)	boolean	read-write (null)	This property shall indicate if access to the SNMP service on this manager using the SNMPv2c protocol is enabled.
EnableSNMPv3 (v1.5+)	boolean	read-write (null)	This property shall indicate if access to the SNMP service on this manager using the SNMPv3 protocol is enabled.
EncryptionProtocol (v1.5+)	string (enum)	read-write (null)	This property shall contain the SNMPv3 encryption protocol. <i>For the possible property values, see EncryptionProtocol in Property Details.</i>
EngineId (v1.5+) {	object	(null)	This property shall contain the RFC3411-defined engine ID.
EnterpriseSpecificMethod	string	read-write (null)	This property shall contain an RFC3411-defined enterprise specific method. Pattern: <code>^[A-Fa-f0-9]{2}{7}[A-Fa-f0-9]{2}\$</code>
PrivateEnterpriseld }	string	read-write (null)	This property shall contain an RFC3411-defined private enterprise ID. Pattern: <code>^[A-Fa-f0-9]{2} {3}[A-Fa-f0-9]{2}\$</code>
HideCommunityStrings (v1.5+)	boolean	read-write (null)	This property shall indicate if the community strings should be hidden in responses.
Port	integer	read-write (null)	This property shall contain the port assigned to the protocol.
ProtocolEnabled }	boolean	read-write (null)	This property shall indicate whether the protocol is enabled.
SSDP {	object		This object shall contain the SSDP protocol settings for this manager. Simple Service Discovery Protocol (SSDP) is for network discovery of devices supporting the Redfish Service. The default Port property value should be 1900 for compatibility with established client implementations.
NotifyIPv6Scope	string (enum)	read-write (null)	This property shall contain the IPv6 scope for multicast NOTIFY

			<p>messages. The valid enumerations are a subset of the available IPv6 scope types.</p> <p><i>For the possible property values, see NotifyIPv6Scope in Property Details.</i></p>
NotifyMulticastIntervalSeconds	integer (seconds)	read-write (null)	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)	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)	This property shall contain the port assigned to the protocol.
ProtocolEnabled }	boolean	read-write (null)	This property shall indicate whether the protocol is enabled.
SSH {	object		This object shall contain the Secure Shell (SSH) protocol settings for the manager. The default value should be 22 for compatibility with established client implementations.
Port	integer	read-write (null)	This property shall contain the port assigned to the protocol.
ProtocolEnabled }	boolean	read-write (null)	This property shall indicate whether the protocol is enabled.
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
Telnet {	object		This object shall contain the Telnet protocol settings for this manager. The default Port property value should be 23 for compatibility with established client implementations.
Port	integer	read-write (null)	This property shall contain the port assigned to the protocol.
ProtocolEnabled }	boolean	read-write (null)	This property shall indicate whether the protocol is enabled.
VirtualMedia {	object		This object shall contain the virtual media protocol settings for this manager. The Port property shall contain the TCP port assigned for Virtual Media usage.

Port	integer	read-write (null)	This property shall contain the port assigned to the protocol.
ProtocolEnabled }	boolean	read-write (null)	This property shall indicate whether the protocol is enabled.

Property Details

AccessMode:

This property shall contain the access/privilege level of the SNMP community used to access an SNMP manager.

string	Description
Full	This value shall indicate the RFC1157-defined READ-WRITE access mode.
Limited	This value shall indicate the RFC1157-defined READ-ONLY access mode.

AuthenticationProtocol:

This property shall contain the SNMP authentication protocol.

string	Description
Account	This value shall indicate authentication for SNMPv3 access is determined based on the corresponding account settings.
CommunityString	This value shall indicate authentication uses SNMP community strings.
HMAC_MD5	This value shall indicate authentication for SNMPv3 access conforms to the RFC3414-defined HMAC-MD5-96 authentication protocol.
HMAC_SHA96	This value shall indicate authentication for SNMPv3 access conforms to the RFC3414-defined HMAC-SHA-96 authentication protocol.

CommunityAccessMode:

This property shall contain the access/privilege level of the SNMP community used to access an SNMP manager.

string	Description
Full	This value shall indicate the RFC1157-defined READ-WRITE access mode.
Limited	This value shall indicate the RFC1157-defined READ-ONLY access mode.

EncryptionProtocol:

This property shall contain the SNMPv3 encryption protocol.

string	Description
Account	This value shall indicate encryption is determined based on the corresponding account settings.
CBC_DES	This value shall indicate encryption conforms to the RFC3414-defined

string	Description
	CBC-DES encryption protocol.
CFB128_AES128	This value shall indicate encryption conforms to the RFC3414-defined CFB128-AES-128 encryption protocol.
None	This value shall indicate there is no encryption.

NotifyIPv6Scope:

This property shall contain the IPv6 scope 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_4_2.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.id": "/redfish/v1/Managers/BMC/NetworkProtocol"
}

```

Memory 1.8.0

v1.8	v1.7	v1.6	v1.5	v1.4	v1.3	v1.2	v1.1	v1.0
2019.2	2018.3	2018.2	2018.1	2017.3	2017.2	2017.1	2016.3	2016.1

This Resource contains 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)	This property shall contain the alignment boundary on which memory regions are allocated, measured in MiB.
AllocationIncrementMiB (v1.2+)	integer (mebibytes)	read-only (null)	This property shall contain the allocation increment for regions, measured in MiB.
AllowedSpeedsMHz []	array (MHz) (integer)	read-only	This property shall contain the speeds supported by this memory.
Assembly (v1.4+) {	object		This property shall contain a link to a Resource of type assembly.

			See the Assembly schema for details property.
@odata.id }	string	read-only	Link to a Assembly resource. See the section and the Assembly schema for details.
BaseModuleType	string (enum)	read-only (null)	This property shall contain the base module type of the memory. For the possible property values, see BaseModuleType in Property Details.
BusWidthBits	integer	read-only (null)	This property shall contain the bus width in bits.
CacheSizeMiB (v1.4+)	integer (mebibytes)	read-only (null)	This property shall contain the total size of the cache portion memory in MiB.
CapacityMiB	integer (mebibytes)	read-only (null)	This property shall contain the memory capacity in MiB.
ConfigurationLocked (v1.7+)	boolean	read-only (null)	This property shall indicate whether the configuration of this memory is locked and cannot be altered.
DataWidthBits	integer	read-only (null)	This property shall contain the data width in bits.
DeviceID (deprecated v1.3)	string	read-only (null)	This property shall contain the device ID of the memory. <i>Deprecated in v1.3 and later. This property has been deprecated in favor of ModuleProductID.</i>
DeviceLocator	string	read-only (null)	This property shall contain location of the memory in the platform, typically marked on the silk screen.
ErrorCorrection	string (enum)	read-only (null)	This property shall contain the error correction scheme supported for this memory. For the possible property values, see ErrorCorrection in Property Details.
FirmwareApiVersion	string	read-only (null)	This property shall contain the version of the firmware supported by the firmware.
FirmwareRevision	string	read-only (null)	This property shall contain the revision of the firmware on the memory controller.
FunctionClasses (deprecated v1.3) []	array (string)	read-only	This property shall contain the function classes supported by the memory. <i>Deprecated in v1.3 and later. This property has been deprecated in favor of OperatingMemoryModes and MemoryClassification found within RegionSet.</i>
IsRankSpareEnabled	boolean	read-only	This property shall indicate whether rank spare is enabled.

		(null)	spare is enabled for this memory.
IsSpareDeviceEnabled	boolean	read-only (null)	This property shall indicate whether the spare device is enabled.
Links (v1.2+) {	object		The Redfish Specification-described Links Property shall contain links to Resources related to but not subordinate to this Resource.
Chassis {	object		This property shall contain a link to a Resource of type Chassis that represents the physical container associated with this memory. <i>See the Chassis schema for details of this property.</i>
@odata.id	string	read-only	Link to a Chassis resource. See the @odata.id section and the Chassis schema for details.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
Location (v1.4+) { }	object		This property shall contain location information of the associated memory. <i>For property details, see Location.</i>
LogicalSizeMiB (v1.4+)	integer (mebibytes)	read-only (null)	This property shall contain the total size of the logical memory in MiB.
Manufacturer	string	read-only (null)	This property shall contain the manufacturer of the memory.
MaxTDPMilliWatts []	array (milliWatts) (integer)	read-only	This property shall contain an array of maximum power budgets supported by the memory in milliwatts.
MemoryDeviceType	string (enum)	read-only (null)	This property shall contain the Memory Device Type as defined by SMBIOS. <i>For the possible property values, see MemoryDeviceType in Property Details.</i>
MemoryLocation {	object		This object shall contain properties that describe the memory connection information to sockets and memory controllers.
Channel	integer	read-only (null)	This property shall contain the channel number to which the memory is connected.
MemoryController	integer	read-only (null)	This property shall contain the memory controller number to which the memory is connected.
Slot	integer	read-only (null)	This property shall contain the slot number to which the memory is connected.

Socket }	integer	read-only (null)	This property shall contain the socket number to which the memory is connected.
MemoryMedia []	array (string (enum))	read-only	This property shall contain the media of this memory. <i>For the possible property values, see MemoryMedia in Property Details.</i>
MemorySubsystemControllerManufacturerID (v1.3+)	string	read-only (null)	This property shall contain the two-byte manufacturer ID of the memory subsystem controller of this memory module as defined by JEDEC in JEP-106. Pattern: <code>^0xX{2}</code>
MemorySubsystemControllerProductID (v1.3+)	string	read-only (null)	This property shall contain the two-byte product ID of the memory subsystem controller of this memory module as defined by the manufacturer. Pattern: <code>^0xX{2}</code>
MemoryType	string (enum)	read-only (null)	This property shall contain the type of memory that this Resource represents. <i>For the possible property values, see MemoryType in Property Details.</i>
Metrics {	object		The link to the metrics associated with this memory. <i>See the MemoryMetrics schema for details on this property.</i>
@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)	This property shall contain the two-byte manufacturer ID of this memory module as defined by JEDEC in JEP-106. Pattern: <code>^0xX{2}\$</code>
ModuleProductID (v1.3+)	string	read-only (null)	This property shall contain the two-byte product ID of this memory module as defined by the manufacturer. Pattern: <code>^0xX{2}</code>
NonVolatileSizeMiB (v1.4+)	integer (mebibytes)	read-only (null)	This property shall contain the total size of the non-volatile portion memory in MiB.
OperatingMemoryModes []	array (string (enum))	read-only	This property shall contain the memory modes supported by the memory. <i>For the possible property values, see OperatingMemoryModes in Property Details.</i>
OperatingSpeedMhz	integer (MHz)	read-only (null)	This property shall contain the operating speed of memory in MHz or MT/s (mega-transfers per second) as reported by the memory device. memory devices that operate at their bus speed shall report operating speed in MHz (bus speed), memory devices that transfer data faster than their bus speed, such as DDR memory shall report the operating speed in MT/s.

			(mega-transfers/second). In any case reported value shall match the converted reported values for the technology used on the memory device.
PartNumber	string	read-only (null)	This property shall indicate the part number as provided by the manufacturer of the memory.
PersistentRegionNumberLimit (v1.2+)	integer	read-only (null)	This property shall contain the total number of persistent regions this memory can support.
PersistentRegionSizeLimitMiB	integer (mebibytes)	read-only (null)	This property shall contain the total size of persistent regions in MiB.
PersistentRegionSizeMaxMiB (v1.2+)	integer (mebibytes)	read-only (null)	This property shall contain the maximum size of a single persistent regions in MiB.
PowerManagementPolicy {	object		This object shall contain properties that describe the power management policy for this Resource.
AveragePowerBudgetMilliWatts	integer (milliWatts)	read-only (null)	This property shall contain the average power budget, in milliwatts.
MaxTDPMilliWatts	integer (milliWatts)	read-only (null)	This property shall contain the maximum TDP in milliwatts.
PeakPowerBudgetMilliWatts	integer (milliWatts)	read-only (null)	This property shall contain the peak power budget, in milliwatts.
PolicyEnabled	boolean	read-only (null)	This property shall indicate whether the power management policy is enabled.
}			
RankCount	integer	read-only (null)	This property shall contain the number of ranks available in the memory. The rank could be used for spare or interleave.
Regions [{	array		This property shall contain the memory region information within the memory.
MemoryClassification	string (enum)	read-only (null)	This property shall contain the classification of memory that the memory region occupies. <i>For the possible property values, see MemoryClassification in Property Definitions.</i>
OffsetMiB	integer (mebibytes)	read-only (null)	This property shall contain the offset within the memory that corresponds to the start of this memory region in MiB.
PassphraseEnabled (v1.5+)	boolean	read-only (null)	This property shall indicate whether the passphrase is enabled for this region.
PassphraseState (deprecated v1.5)	boolean	read-only (null)	This property shall indicate whether the state of the passphrase for this region is enabled. <i>Deprecated in v1.5 and later. This property has been deprecated in favor of PassphraseEnabled found within Regions.</i>

RegionId	string	read-only (null)	This property shall contain the unique ID representing a specific region with memory.
SizeMiB }]	integer (mebibytes)	read-only (null)	This property shall contain the size of memory region in MiB.
SecurityCapabilities {	object		This property shall contain properties describe the security capabilities of the memory.
ConfigurationLockCapable (v1.7+)	boolean	read-only (null)	This property shall indicate whether the memory supports the locking, or freezing the configuration.
DataLockCapable (v1.7+)	boolean	read-only (null)	This property shall indicate whether the memory supports the locking of data.
MaxPassphraseCount	integer	read-only (null)	This property shall contain the maximum number of passphrases supported for memory.
PassphraseCapable	boolean	read-only (null)	This property shall indicate whether the memory is passphrase capable.
PassphraseLockLimit (v1.7+)	integer	read-only (null)	This property shall contain the maximum number of incorrect passphrase access attempts allowed before access to data is locked. If 0, the number of attempts is infinite.
SecurityStates (deprecated v1.7) [] }	array (string (enum))	read-only	This property shall contain the security states supported by the memory. <i>For the possible property values, see SecurityStates in Property Details.</i> <i>Deprecated in v1.7 and later. This property has been deprecated in favor of using individual PassphraseCapable, DataLockCapable and ConfigurationLockCapable properties.</i>
SecurityState (v1.7+)	string (enum)	read-write (null)	This property shall contain the current security state of this memory. <i>For the possible property values, see SecurityState in Property Details.</i>
SerialNumber	string	read-only (null)	This property shall indicate the serial number as provided by the manufacturer of the memory.
SpareDeviceCount	integer	read-only (null)	This property shall contain 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. <i>For property details, see Status.</i>

SubsystemDeviceID (<i>deprecated v1.3</i>)	string	read-only (null)	This property shall contain the subsystem device ID of the memory. <i>Deprecated and later. This property has been deprecated in favor of MemorySubsystemControllerProductID.</i>
SubsystemVendorID (<i>deprecated v1.3</i>)	string	read-only (null)	This property shall contain the subsystem vendor ID of the memory. <i>Deprecated and later. This property has been deprecated in favor of MemorySubsystemControllerManufacturerID.</i>
VendorID (<i>deprecated v1.3</i>)	string	read-only (null)	This property shall contain the vendor ID of the memory. <i>Deprecated in v1.3 and later. This property has been deprecated in favor of ModuleManufacturerID.</i>
VolatileRegionNumberLimit (<i>v1.2+</i>)	integer	read-only (null)	This property shall contain the total number of volatile regions this memory can support.
VolatileRegionSizeLimitMiB	integer (mebibytes)	read-only (null)	This property shall contain the total size of volatile regions in MiB.
VolatileRegionSizeMaxMiB (<i>v1.2+</i>)	integer (mebibytes)	read-only (null)	This property shall contain the maximum size of a single volatile regions in MiB.
VolatileSizeMiB (<i>v1.4+</i>)	integer (mebibytes)	read-only (null)	This property shall contain the total size of the volatile portion memory in MiB.

Actions

DisablePassphrase

This action shall disable 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 that are included in the POST body to the URI shown in the "target" property of the Action.

{			
Passphrase	string	required	This property shall contain the passphrase used in this action.

RegionId	string	required	This property shall contain the memory region ID to which to apply this action.
}			

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 that are included in the POST body to the URI shown in the "target" property of the Action.

Passphrase	string	required	This property shall contain the passphrase used in this action.
RegionId	string	required	This property shall contain the memory region ID to which to apply this action.
}			

Reset

This action shall reset this memory.

URIs:

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

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

/redfish/v1/ResourceBlocks/{ResourceBlockId}/Memory/{MemoryId}/Actions/Memory.Reset

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

/redfish/v1/Systems/{ComputerSystemId}/Memory/{MemoryId}/Actions/Memory.Reset

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

ResetType	string (enum)	optional	This parameter shall contain the type of reset. The Service may accept a request without the parameter and perform an implementation specific default reset. For the possible property values, see ResetType in
}			

			<i>Property Details.</i>
--	--	--	--------------------------

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 that are included in the POST body to the URI shown in the "target" property of the Action.

{			
Passphrase	string	required	This property shall contain the passphrase used in this action.
RegionId	string	required	This property shall contain the memory region ID to which to apply this action.
}			

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 that are included in the POST body to the URI shown in the "target" property of the Action.

{			
Passphrase	string	required	This property shall contain the passphrase used in this action.
RegionId	string	required	This property shall contain the memory region ID to

}			which to apply this action.
---	--	--	-----------------------------

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 that are included in the POST body to the URI shown in the "target" property of the Action.

{			
Passphrase	string	required	This property shall contain the passphrase required to complete this action.
RegionId	string	required	This property shall contain the memory region ID to which to apply this action.
}			

Property Details

BaseModuleType:

This property shall contain the base module type of the 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.

string	Description
UDIMM	UDIMM.

ErrorCorrection:

This property shall contain the error correction scheme supported for this memory.

string	Description
AddressParity	Address parity errors can be corrected.
MultiBitECC	Multibit data errors can be corrected by ECC.
NoECC	No ECC available.
SingleBitECC	Single bit data errors can be corrected by ECC.

MemoryClassification:

This property shall contain the classification of memory that the memory region occupies.

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

MemoryDeviceType:

This property shall contain 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.

string	Description
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:

This property shall contain the media types of this memory.

string	Description
DRAM	DRAM media.
Intel3DXPoint	Intel 3D XPoint media.
NAND	NAND media.
Proprietary	Proprietary media.

MemoryType:

This property shall contain the type of memory that this Resource represents.

string	Description
DRAM	This memory type shall represent volatile DRAM.
IntelOptane (v1.6+)	This memory type shall represent an Intel Optane DC Persistent Memory Module.
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:

This property shall contain the memory modes supported by the memory.

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

ResetType:

This parameter shall contain the type of reset. The Service may accept a request without the parameter and perform an implementation specific default reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the system.
GracefulRestart	Shut down gracefully and restart the system.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
PowerCycle	Power cycle the unit.
PushPowerButton	Simulate the pressing of the physical power button on this unit.

SecurityState:

This property shall contain 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 <i>(deprecated v1.7)</i>	Secure state is frozen and cannot be modified until reset. <i>This value has been deprecated in favor of using the ConfigurationLocked to indicate that the configuration has been frozen.</i>
Locked	Secure mode is enabled and access to the data is locked.
Passphraselimit	Number of attempts to unlock the memory exceeded limit.
Unlocked <i>(deprecated v1.7)</i>	Secure mode is enabled and access to the data is unlocked. <i>This value has been deprecated in favor of 'Enabled' to indicate normal security operation.</i>

SecurityStates:

This property shall contain the 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	Secure state is frozen and cannot be modified until reset.
Locked	Secure mode is enabled and access to the data is locked.
Passphraselimit	Number of attempts to unlock the memory exceeded limit.
Unlocked	Secure mode is enabled and access to the data is unlocked.

Example Response

```
{
  "@odata.type": "#Memory.v1_8_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.id": "/redfish/v1/Systems/437XR1138R2/Memory/DIMM1"
}
```

MemoryChunks 1.2.4

v1.2

v1.1

v1.0

2017.3	2017.1	2016.2
--------	--------	--------

This Resource shall 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)	This property shall contain the type of memory chunk. <i>For the possible property values, see AddressRangeType in Property Details.</i>
InterleaveSets [{	array		These properties shall represent the interleave sets for the memory chunk.
Memory {	object		This property shall contain 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)	This property shall contain the level of this interleave set for multi-level tiered memory.
OffsetMiB	integer (mebibytes)	read-only (null)	This property shall contain the offset within the DIMM that corresponds to the start of this memory region, with units in MiB.
RegionId	string	read-only (null)	This property shall contain the DIMM region identifier.
SizeMiB	integer (mebibytes)	read-only (null)	This property shall contain the size of this memory region, with units in MiB.
}]			
IsMirrorEnabled	boolean	read-only (null)	This property shall indicate whether memory mirroring is enabled for this memory chunk.
IsSpare	boolean	read-only (null)	This property shall indicate whether sparing is enabled for this memory chunk.
MemoryChunkSizeMiB	integer (mebibytes)	read-only (null)	This property shall contain the size of the memory chunk in MiB.
Status (v1.2+) { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>

Property Details

AddressRangeType:

This property shall contain 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_2_4.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_2_2.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.id": "/redfish/v1/Systems/2/MemoryDomains/1/MemoryChunks/1"
}

```

MemoryDomain 1.2.3

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

This Resource shall 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)	This property shall indicate whether this memory domain supports the creation of blocks of memory.
AllowsMemoryChunkCreation	boolean	read-only (null)	This property shall indicate whether this memory domain supports the creation of memory chunks.
AllowsMirroring (v1.1+)	boolean	read-only (null)	This property shall indicate whether this memory domain supports the creation of memory chunks with mirroring enabled.
AllowsSparing (v1.1+)	boolean	read-only (null)	This property shall indicate whether this memory domain supports the creation of memory chunks with sparing enabled.
InterleavableMemorySets [{	array		This property shall represent the interleave sets for the memory chunk.
MemorySet [{	array		The values in this array shall be links to Resources of the Memory type.
@odata.id]]	string	read-only	Link to a Memory resource. See the Links section and the Memory schema for details.
MemoryChunks {	object		This property shall contain a link to a Resource Collection of type MemoryChunkCollection. Contains a link to a resource.
@odata.id	string	read-only	Link to Collection of MemoryChunks . See the

}			<i>MemoryChunks schema for details.</i>
---	--	--	---

Example Response

```
{
  "@odata.type": "#MemoryDomain.v1_2_3.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.id": "/redfish/v1/Systems/2/MemoryDomains/1"
}
```

MemoryMetrics 1.2.0

v1.2	v1.1	v1.0
2019.2	2016.2	2016.1

The MemoryMetrics Schema shall contain the memory metrics for a memory device or system memory summary 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/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/MemorySummary/MemoryMetrics

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

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

/redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/MemorySummary/MemoryMetrics

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

/redfish/v1/Systems/{ComputerSystemId}/MemorySummary/MemoryMetrics

BandwidthPercent (v1.2+)	number (%)	read-only (null)	This property shall contain memory bandwidth utilization as a percentage. When this Resource is subordinate to the MemorySummary object, this property shall be the memory bandwidth utilization over all memory as a percentage.
BlockSizeBytes	integer (bytes)	read-only (null)	This property shall contain the block size, in bytes, of all sturcture elements. When this Resource is subordinate to the MemorySummary object, this property is not applicable.
CurrentPeriod {	object		This property shall contain properties that describe the memory metrics for the current period.
BlocksRead	integer	read-only (null)	This property shall contain the number of blocks read since reset. When this Resource is subordinate to the MemorySummary object, this property shall be the sum of BlocksRead over all memory.
BlocksWritten }	integer	read-only (null)	This property shall contain the number of blocks written since reset. When this Resource is subordinate to the MemorySummary object, this property shall be the sum of BlocksWritten over all memory.
HealthData {	object		This property shall contain properties that describe the health data memory metrics for the memory. When this Resource is subordinate to the MemorySummary object, this property is not applicable.
AlarmTrips {	object		This object shall contain properties describe the types of alarms that have been raised by the memory. When this Resource

			is subordinate to the MemorySummary object, this property shall indicate whether an alarm of a given type have been raised by any area of memory.
AddressParityError	boolean	read-only (null)	This property shall indicate whether an address parity error was detected that a retry could not correct.
CorrectableECCError	boolean	read-only (null)	This property shall indicate whether the correctable error threshold crossing alarm trip was detected.
SpareBlock	boolean	read-only (null)	This property shall indicate whether the spare block capacity crossing alarm trip was detected.
Temperature	boolean	read-only (null)	This property shall indicate whether a temperature threshold alarm trip was detected.
UncorrectableECCError }	boolean	read-only (null)	This property shall indicate whether the uncorrectable error threshold alarm trip was detected.
DataLossDetected	boolean	read-only (null)	This property shall indicate whether data loss was detected. When this Resource is subordinate to the MemorySummary object, this property shall indicate whether any data loss was detected in any area of memory.
LastShutdownSuccess	boolean	read-only (null)	This property shall indicate whether the last shutdown succeeded.
PerformanceDegraded	boolean	read-only (null)	This property shall indicate whether performance has degraded. When this Resource is subordinate to the MemorySummary object, this property shall indicate whether degraded performance mode status is detected in any area of memory.
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)	This property shall contain the remaining spare blocks as a percentage. When this Resource

			is subordinate to the MemorySummary object, this property shall be the RemainingSpareBlockPercentage over all memory.
LifeTime {	object		This property shall contain properties that describe the memory metrics for the lifetime of the memory.
BlocksRead	integer	read-only (null)	This property shall contain the number of blocks read for the lifetime of the Memory. When this Resource is subordinate to the MemorySummary object, this property shall be the sum of BlocksRead over all memory.
BlocksWritten }	integer	read-only (null)	This property shall contain the number of blocks written for the lifetime of the Memory. When this Resource is subordinate to the MemorySummary object, this property shall be the sum of BlocksWritten over all memory.

Actions

ClearCurrentPeriod

This action shall set the CurrentPeriod property's values to 0.

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/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/MemorySummary/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/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/MemorySummary/MemoryMetrics/Actions/MemoryMetrics.ClearCurrentPeriod

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

/redfish/v1/Systems/{ComputerSystemId}/MemorySummary/MemoryMetrics/Actions/MemoryMetrics.ClearCurrentPeriod

(This action takes no parameters.)

Example Response

```

{
  "@odata.type": "#MemoryMetrics.v1_2_0.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.ClearCurrentPer
    },
    "Oem": {}
  },
  "Oem": {},
  "@odata.id": "/redfish/v1/Systems/1/Memory/1/MemoryMetrics"
}

```

MessageRegistry 1.3.1

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

This Resource shall represent a Message Registry for a Redfish implementation.

Language	string	read-only required	This property shall contain an RFC5646-conformant language code.
Messages {	object	required	This property shall contain the message keys contained in the Message Registry. The message keys are the suffix of 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, null)	read-only	This property shall contain an ordered array of normative language for each argument used as substitution in the message.
ClearingLogic (v1.2+) {	object		This type shall contain the available actions for this Resource.
ClearsAll	boolean	read-only (null)	This property shall indicate whether all prior conditions and messages are cleared, provided the ClearsIf condition is met.
ClearsIf	string (enum)	read-only (null)	This property shall contain the condition the event is cleared. <i>For the possible property values, see ClearsIf in Property Details.</i>
ClearsMessage [] }	array (string, null)	read-only	This property shall contain an array of MessageIds that this message clears when the other conditions are met. The MessageIds shall not include the Message Registry name or version and shall contain only the MessageId portion. MessageIds shall not refer to other Message Registries.
Description	string	read-only required	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 that describes this message's usage in a Redfish implementation.
Message	string	read-only required	This property shall contain the message to display. If a %integer is included in part of the string, it shall represent a string substitution for any MessageArgs that accompany the message, in order.
NumberOfArgs	integer	read-only required	This property shall contain the number of arguments that are substituted for the locations marked with %<integer> in the message.

Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
ParamTypes []	array (string (enum))	read-only	This property shall contain an ordered array of argument data types that match the data types of the MessageArgs. <i>For the possible property values, see ParamTypes in Property Details.</i>
Resolution	string	read-only required	This property shall contain an override of the resolution of the message in the Message Registry, if present.
Severity }	string	read-only required	This property shall contain the severity of the condition resulting in the message, as defined in the Status clause of the Redfish Specification.
OwningEntity	string	read-only required	This property shall represent the publisher of this Message Registry.
RegistryPrefix	string	read-only required	This property shall contain the Redfish Specification-defined prefix used in forming and decoding MessageIds that uniquely identifies all messages that belong to this Message Registry.
RegistryVersion	string	read-only required	This property shall contain the version of this Message Registry. Pattern: ^\d+.\d+.\d+\$

Property Details

ClearsIf:

This property shall contain the condition the event is cleared.

string	Description
SameOriginOfCondition	This enumeration shall describe when the message for an event is cleared by the other messages in the ClearingLogic property, provided the OriginOfCondition for both events are the same.

ParamTypes:

This property shall contain an ordered array of argument data types that match the data types of the MessageArgs.

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

Example Response

```
{
  "@odata.type": "#MessageRegistry.v1_3_1.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 specified URI failed.",
      "Message": "While accessing the resource at %1, the service received an unauthorized response.",
      "Severity": "Critical",
      "NumberOfArgs": 2,
      "ParamTypes": [
        "string",
        "string"
      ],
      "Resolution": "Ensure that the appropriate access is provided for the service i"
    }
  }
}
```

MessageRegistryFile 1.1.3

v1.1	v1.0
2017.1	2016.1

This Resource shall represent the Message Registry file locator for a Redfish implementation.

URIs:

/redfish/v1/Registries/{[MessageRegistryFileId](#)}

Languages []	array (string)	read-only required	This property contains a set of RFC5646-conformant language codes.
Location [{	array	required	This property shall contain the location information for this Message Registry file.
ArchiveFile	string	read-only	This property shall contain the file name of the individual Message Registry file within the archive file specified by the ArchiveUri property. The file name shall conform to the Redfish Specification-specified syntax.
ArchiveUri	string	read-only	This property shall contain a URI that is colocated with the Redfish Service that specifies the location of the Message Registry file, which can be retrieved using the Redfish protocol and authentication methods. This property shall be used for only ZIP or other archive files. The ArchiveFile property shall contain the file name of the individual Message Registry file within the archive file.
Language	string	read-only	This property shall contain an RFC5646-conformant language code or <code>default</code> .
PublicationUri	string	read-only	This property shall contain a URI not colocated with the Redfish Service that specifies the canonical location of the Message Registry file. This property shall be used for only individual Message Registry files.
Uri }]	string	read-only	This property shall contain a URI colocated with the Redfish Service that specifies the location of the Message Registry file, which can be retrieved using the Redfish protocol and authentication methods. This property shall be used for only individual Message Registry files. The file name portion of the URI shall conform to Redfish Specification-specified syntax.
Registry	string	read-only required	This property shall contain the Message Registry name and its major and minor versions, as defined by the Redfish Specification. This registry can be any type of registry, such as Message Registry, Privilege Registry, or Attribute Registry.

Example Response

```
{
  "@odata.id": "/redfish/v1/Registries/Base.v1_0_0",
  "@odata.type": "#MessageRegistryFile.v1_1_3.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 1.0.3

v1.0

2018.2

This Resource shall contain the metadata information for a metric.

URIs:

/redfish/v1/TelemetryService/MetricDefinitions/[{MetricDefinitionId}](#)

Accuracy	number	read-only (null)	This property shall contain the percent error +/- of the measured versus actual values. The property is not meaningful when the MetricType property is Discrete.
Calculable	string (enum)	read-write (null)	This property shall specify whether the metric can be used in a calculation. <i>For the possible property values, see Calculable in Property Details.</i>
CalculationAlgorithm	string (enum)	read-only (null)	This property shall contain the calculation performed to obtain the metric. <i>For the possible property values, see CalculationAlgorithm in Property Details.</i>
CalculationParameters [{	array		This property shall list the metric properties that are part of the synthesis calculation. When MetricType=Synthesis, this property may be present.
ResultMetric	string	read-only (null)	This property shall contain a link to a metric property that stores the result of the calculation.
SourceMetric }]	string	read-only (null)	This property shall contain a link to a metric property used in a calculation.
CalculationTimeInterval	string	read-write	This property shall specify the time interval over

		(null)	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)	This property shall contain the calibration offset added to the metric reading. The value shall have the units specified in the Units property. The property is not meaningful when the MetricType property is <i>Discrete</i> .
DiscreteValues []	array (string, null)	read-write	The values of the property shall specify the possible values of the discrete metric. This property shall have values when the MetricType property has the value 'Discrete'.
Implementation	string (enum)	read-only (null)	This property shall specify the implementation of the metric. <i>For the possible property values, see Implementation in Property Details.</i>
IsLinear	boolean	read-write (null)	This property shall indicate whether the metric values are linear versus non-linear. Linear metrics may use a greater than relation to compared them. 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)	This property shall specify the data-type of the metric. <i>For the possible property values, see MetricDataType in Property Details.</i>
MetricProperties []	array (string, null)	read-write	This array property shall list the URIs with wildcards and property identifiers that this metric defines. A set of curly braces shall delimit each wildcard in the URI. The corresponding entry in the Wildcard property shall replace each wildcard. After a URI with wildcards replaces its wildcards, it shall identify a Resource property to which the metric definition applies. The property identifiers portion of the URI shall follow RFC6901-defined JSON fragment notation rules.
MetricType	string (enum)	read-write (null)	This property shall specify the type of metric. <i>For the possible property values, see MetricType in Property Details.</i>
MinReadingRange	number	read-only (null)	This property shall contain 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)	This property shall contain the physical context of the metric. <i>For the possible property values, see PhysicalContext in Property Details.</i>
Precision	integer	read-only (null)	This 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)	This property 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)	This property 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)	This property shall specify the units of the metric. This property shall be consistent with the case-sensitive ('C/s' column) Unified Code for Units of Measure. Note: Not all units of measured are covered by 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, null)	read-only	This property shall contain the list of values to substitute for the wildcard.

Property Details

Calculable:

This property 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:

This property shall contain the calculation performed to obtain the metric.

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

Implementation:

This property 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 provided.

MetricDataType:

This property shall specify the data-type of the metric.

string	Description
Boolean	The JSON boolean definition.
DateTime	The JSON string definition with the 'date-time' format.
Decimal	The JSON decimal definition.
Enumeration	The JSON string definition with a set of defined enumerations.
Integer	The JSON integer definition.
String	The JSON string definition.

MetricType:

This property shall specify the type of metric.

string	Description
Countdown	
Counter	
Discrete	The metric values shall indicate discrete states.
Gauge	
Numeric	

PhysicalContext:

This property shall contain 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 a networking chip or 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, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	Within an expansion bay.
Fan	A fan.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).

string	Description
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points 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_3.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.id": "/redfish/v1/TelemetryService/MetricDefinitions/PowerConsumedWatts"
  }

```

MetricReport 1.2.0

v1.2	v1.1	v1.0
2019.2	2018.3	2018.2

The definition for this metric report.

URIs:

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

MetricReportDefinition {	object		The definitions in 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 Metric Definition Resource that describes what this Metric Report captures. 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)	This property shall contain 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 property following the JSON fragment notation, as defined by RFC6901, to identify an individual property in a Redfish Resource.

MetricValue	string	read-only (null)	This property shall contain the metric value, as a string.
Oem (v1.2+) {}	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
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	This property shall contain the current sequence identifier for this metric report.
Timestamp (v1.1+)	string	read-only (null)	This property shall contain the time when the metric report was generated.

Example Response

```
{
  "@odata.type": "#MetricReport.v1_2_0.MetricReport",
  "Id": "AvgPlatformPowerUsage",
  "Name": "Average Platform Power Usage metric report",
  "ReportSequence": "127",
  "MetricReportDefinition": {
    "@odata.id": "/redfish/v1/TelemetryService/MetricReportDefinitions/AvgPlatformPower
  },
  "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.id": "/redfish/v1/TelemetryService/MetricReports/AvgPlatformPowerUsage"
}
```

MetricReportDefinition 1.3.0

v1.3	v1.2	v1.1	v1.0
2019.2	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 contain 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 Redfish Specification-described Links Property shall contain links to Resources related to but not subordinate to this Resource.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
Triggers [{	array		This property shall contain a set of triggers that cause this metric report to generate a new metric report upon a trigger occurrence when the TriggerActions property contains RedfishMetricReport.
@odata.id }] }	string	read-only	<i>Link to a Triggers resource. See the Links section and the Triggers schema for details.</i>
MetricProperties []	array (string, null)	read-write	This property shall contain a list of URIs with wildcards and property identifiers to include in the metric report. A set of curly braces shall delimit each wildcard in the URI. The corresponding entry in the Wildcard property shall replace each wildcard. After a URI with wildcards replaces each wildcard, it shall describe a Resource property to include in the metric report. The property identifiers portion of the URI shall follow RFC6901-specified JSON fragment notation rules.
MetricReport {	object		This property shall contain a link 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)	This property shall indicate whether the generation of new metric reports is enabled.
MetricReportDefinitionType	string (enum)	read-write (null)	This property shall specify when the metric report is generated. If the value is <code>Periodic</code> , the <code>Schedule</code> property shall be present. For the possible property values, see MetricReportDefinitionType in Property Details .
MetricReportHeartbeatInterval (v1.2+)	string	read-write (null)	The property value shall contain a Redfish duration that describes the time interval between generations of the unsuppressed metric report. It shall always be a value greater than the <code>RecurrenceInterval</code> of a <code>MetricReport</code> and should only apply when the <code>SuppressRepeatedMetricValue</code> property is <code>true</code> . Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(\.\d+)?)S)??
Metrics [{	array		The property shall contain a list of metrics to include in the metric report. The metrics may include metric properties or calculations that are applied to a metric property.
CollectionDuration	string	read-write (null)	This property shall specify the duration over which the function is computed. The value shall conform to the <code>Duration</code> 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 <code>MetricProperties</code> property. For the possible property values, see CollectionFunction in Property Details .
CollectionTimeScope	string (enum)	read-write (null)	This property shall specify the scope of time over which the function is applied. For the possible property values, see CollectionTimeScope in Property Details .
MetricId	string	read-only (null)	This property shall specify the label for the metric definition that is derived by applying the <code>collectionFunction</code> to the metric property. This property shall match the <code>Id</code> property of the corresponding metric definition.

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 contain a URI for a property in a Resource that matches a property declaration in the corresponding MetricDefinition.
ReportActions []	array (string (enum))	read-only	This property shall contain the set of actions to perform when the metric report is generated. This type shall specify the actions to perform when a metric report is generated. <i>For the possible property values, see ReportActions in Property Details.</i>
ReportTimespan (v1.3+)	string	read-write (null)	This property shall specify the timespan duration that this metric report covers. Pattern: -?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(\.\d+)?)S)??
ReportUpdates	string (enum)	read-only	This property shall contain how subsequent metric reports are handled in relationship to an existing metric report created from the metric report definition. <i>For the possible property values, see ReportUpdates in Property Details.</i>
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 is no longer generated after the specified number of occurrences. <i>For property details, see Schedule.</i>
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
SuppressRepeatedMetricValue (v1.2+)	boolean	read-write (null)	This property shall indicate whether any metrics are suppressed from the generated metric report. If <code>true</code> , any metric that equals the same metric in the previously generated metric report is suppressed from the current report. Also, duplicate metrics are suppressed. If <code>false</code> , no metrics are suppressed from the current report. The current report may contain no metrics if all metrics equal the values of the same metrics in the previously generated metric report.
Wildcards [{	array		The property shall contain a set of wildcards and their replacement strings, which are

			applied to the MetricProperties property. Each wildcard expressed in the MetricProperties property shall have a corresponding entry in this property.
Keys (<i>deprecated v1.1</i>) []	array (string, null)	read-only	This property shall contain the list of values to substitute for the wildcard. <i>Deprecated in v1.1 and later. This property has been deprecated in favor of using the property 'Values'.</i>
Name	string	read-only (null)	This property shall contain the string used as a wildcard.
Values (<i>v1.1+</i>) [] }]	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 metric reading over a duration. The duration shall be the CollectionDuration property value.
Maximum	The metric shall be calculated as the maximum metric reading over a duration. The duration shall be the CollectionDuration property value.
Minimum	The metric shall be calculated as the minimum of a metric reading over a duration. The duration shall be the CollectionDuration property value.
Summation	The metric shall be calculated as the sum of the specified metric reading over a duration. The duration shall be the CollectionDuration property value.

CollectionTimeScope:

This property 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 Timestamp property value 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 Timestamp property value 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, such as the Resources that Links.MetricDefinitionForResources associates. On the corresponding metric value instances, the Timestamp value shall specify the end of the

string	Description
	time interval. The Duration value shall specify the duration between the startup of Resource and Timestamp.

MetricReportDefinitionType:

This property shall specify when the metric report is generated. If the value is `Periodic`, 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:

This property shall contain the set of actions to perform when the metric report is generated. This type 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 send an event of the MetricReport type to subscribers that the EventSubscription collection in the Event Service describes.

ReportUpdates:

This property shall contain 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, new information is appended to the report. 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

string	Description name concatenated with the timestamp.
Overwrite	When a metric report is updated, overwrite the metric report.

Example Response

```
{
  "@odata.type": "#MetricReportDefinition.v1_3_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.id": "/redfish/v1/TelemetryService/MetricReportDefinitions/PlatformPowerUsage"
}
```

NetworkAdapter 1.3.0

v1.3	v1.2	v1.1	v1.0
------	------	------	------

2019.2	2018.2	2017.3	2016.3
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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		This property shall contain 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		This property shall contain the set of network controllers ASICs that make up this NetworkAdapter.
ControllerCapabilities {	object		This property shall contain the capabilities of this controller.
DataCenterBridging {	object		This property shall contain capability, status, and configuration values related to data center bridging (DCB) for this controller.
Capable }	boolean	read-only (null)	This property shall indicate whether this controller is capable of data center bridging (DCB).
NetworkDeviceFunctionCount	integer	read-only (null)	This property shall contain the number of physical functions available on this controller.
NetworkPortCount	integer	read-only (null)	This property shall contain the number of physical ports on this controller.
NPAR (v1.2+) {	object		This property shall contain capability, status, and configuration values related to NIC partitioning for this controller.
NparCapable	boolean	read-only (null)	This property shall indicate whether the controller supports NIC function partitioning.
NparEnabled }	boolean	read-write (null)	This property shall indicate whether NIC function partitioning is active on this controller.
NPIV {	object		This property shall contain N_Port

			ID Virtualization (NPIV) capabilities for this controller.
MaxDeviceLogins	integer	read-only (null)	This property shall contain the maximum number of N_Port ID Virtualization (NPIV) logins allowed simultaneously from all ports on this controller.
MaxPortLogins }	integer	read-only (null)	This property shall contain the maximum number of N_Port ID Virtualization (NPIV) logins allowed per physical port on this controller.
VirtualizationOffload {	object		This property shall contain capability, status, and configuration values related to virtualization offload for this controller.
SRIOV {	object		This property shall contain Single-Root Input/Output Virtualization (SR-IOV) capabilities.
SRIOVVEPACapable }	boolean	read-only (null)	This property shall indicate 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)	This property shall contain the maximum number of virtual functions supported by this controller.
MinAssignmentGroupSize	integer	read-only (null)	This property shall contain the minimum number of virtual functions that can be allocated or moved between physical functions for this controller.
NetworkPortMaxCount } } }	integer	read-only (null)	This property shall contain the maximum number of virtual functions supported per network port for this controller.
FirmwarePackageVersion	string	read-only (null)	This property shall contain the version number of the user-facing firmware package.
Identifiers (v1.3+) [{}]	array		This property shall contain a list of

	(object)		all known durable names for the associated network adapter. This type shall contain any additional identifiers for a Resource. <i>For property details, see Identifier.</i>
Links {	object		Links for this controller.
NetworkDeviceFunctions [{	array		This property shall contain an array of links of the NetworkDeviceFunction type that represent the network device functions associated with this Network Controller.
@odata.id }]	string	read-only	<i>Link to a NetworkDeviceFunction resource. See the Links section and the NetworkDeviceFunction schema for details.</i>
NetworkPorts [{	array		This property shall contain an array of links of the NetworkPort type that represent the Network Ports associated with this Network Controller.
@odata.id }]	string	read-only	<i>Link to a NetworkPort resource. See the Links section and the NetworkPort schema for details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PCleDevices [{	array		This property shall contain an array of links of the PCleDevice type that represent the PCle devices associated with this Network Controller.
@odata.id }] }	string	read-only	<i>Link to a PCleDevice resource. See the Links section and the PCleDevice schema for details.</i>
Location (v1.1+) { }	object		This property shall contain location information of the associated network adapter controller. <i>For property details, see Location.</i>
PCleInterface (v1.2+) {	object		This property shall contain details for the PCle interface that connects this PCle-based controller to its host.

LanesInUse (v1.3+)	integer	read-only (null)	This property shall contain the number of PCIe lanes in use by this device, which shall be equal to or less than the MaxLanes property value.
MaxLanes (v1.3+)	integer	read-only (null)	This property shall contain the maximum number of PCIe lanes supported by this device.
MaxPCleType (v1.3+)	string (enum)	read-only (null)	This property shall contain the maximum PCIe specification that this device supports. <i>For the possible property values, see MaxPCleType in Property Details.</i>
Oem (v1.3+) { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PCleType (v1.3+) }]	string (enum)	read-only (null)	This property shall contain the negotiated PCIe interface version in use by this device. <i>For the possible property values, see PCleType in Property Details.</i>
Manufacturer	string	read-only (null)	This property shall contain a value that represents the manufacturer of the network adapter.
Model	string	read-only (null)	This property shall contain the information about how the manufacturer refers to this network adapter.
NetworkDeviceFunctions {	object		This property shall contain a link to a Resource Collection of type NetworkDeviceFunctionCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of NetworkDeviceFunction. See the NetworkDeviceFunction schema for details.</i>
NetworkPorts {	object		This property shall contain a link to a Resource Collection of type NetworkPortCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of NetworkPort. See the NetworkPort schema for details.</i>

PartNumber	string	read-only (null)	This property shall contain the part number for the network adapter as defined by the manufacturer.
SerialNumber	string	read-only (null)	This property shall contain the serial number for the network adapter.
SKU	string	read-only (null)	This property shall contain the SKU for the network adapter.
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>

Actions

ResetSettingsToDefault

This action shall 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.)

Property Details

MaxPCIeType:

This property shall contain 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:

This property shall contain the negotiated PCIe interface version in use by this device.

string	Description
Gen1	A PCIe v1.0 slot.
Gen2	A PCIe v2.0 slot.

string	Description
Gen3	A PCIe v3.0 slot.
Gen4	A PCIe v4.0 slot.
Gen5	A PCIe v5.0 slot.

Example Response

```
{
  "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1",
  "@odata.type": "#NetworkAdapter.v1_3_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"
          }
        ],
        "NetworkDeviceFunctions": [
          {
            "@odata.id": "/redfish/v1/Chassis/1/NetworkAdapters/9fd725a1/NetworkDeviceFunctions"
          }
        ]
      },
      "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/NetworkAdapte
  },
  "Oem": {}
}
}

```

NetworkDeviceFunction 1.3.3

v1.3	v1.2	v1.1	v1.0
2018.2	2017.3	2017.1	2016.3

A network device function represents a logical interface that a network adapter exposes.

URIs:

/redfish/v1/Chassis/{[ChassisId](#)}/NetworkAdapters/{[NetworkAdapterId](#)}/NetworkDeviceFunctions/{[NetworkDeviceFunctionId](#)}

Property Name	Type	Description
AssignablePhysicalPorts [{	array	This property shall contain an array of physical ports to

			which this network device function may be assigned.
@odata.id }]	string	read-only	<i>Link to a NetworkPort resource. See the Links section and the NetworkPort schema for details.</i>
BootMode	string (enum)	read-write (null)	This property shall contain the boot mode configured for this network device function. If the value is not Disabled, this network device function shall be configured for boot by using the specified technology. <i>For the possible property values, see BootMode in Property Details.</i>
DeviceEnabled	boolean	read-write (null)	This property shall indicate whether the network device function is enabled. The operating system shall not enumerate or see disabled network device functions.
Ethernet {	object		This property shall contain Ethernet capabilities, status, and configuration values for this network device function.
MACAddress	string	read-write (null)	This property shall contain 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. Pattern: <code>^([0-9A-Fa-f]{2}[:-]){5}([0-9A-Fa-f]{2})\$</code>
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)	This property shall contain the permanent MAC Address of this function. Typically, this value is programmed during manufacturing. This address is not assignable. Pattern: <code>^([0-9A-Fa-f]{2}[:-]){5}([0-9A-Fa-f]{2})\$</code>

VLAN (v1.3+) {	object		This property shall contain 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. <i>See the VlanNetworkInterface schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a VLAN resource. See the Links section and the VlanNetworkInterface schema for details.</i>
VLANS (v1.3+) {	object		This property shall contain a link to a collection of VLANs. If this property is used, the VLANEnabled and VLANId property shall not be used. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of VlanNetworkInterface. See the VlanNetworkInterface schema for details.</i>
FibreChannel {	object		This property shall contain Fibre Channel capabilities, status, and configuration values for this network device function.
AllowFIPVLANDiscovery	boolean	read-write (null)	For FCoE connections, this boolean property shall indicate whether the FIP VLAN Discovery Protocol determines the FCoE VLAN ID selected by the network device function for the FCoE connection. If <code>true</code> and the FIP VLAN discovery succeeds, the FCoEActiveVLANId property shall reflect the FCoE VLAN ID to use for all FCoE traffic. If <code>false</code> 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		This property shall contain an array of Fibre Channel boot targets configured for this network device function.

BootPriority	integer	read-write (null)	This property shall contain 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)	This property shall contain the logical unit number (LUN) ID from which to boot on the device to which the corresponding WWPN refers.
WWPN }]	string	read-write (null)	This property shall contain World Wide Port Name (WWPN) from which to boot.
FCoEActiveVLANId	integer	read-only (null)	For FCoE connections, this property shall contain <code>null</code> 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 through the FIP protocol.
FCoELocalVLANId	integer	read-write (null)	For FCoE connections, this property shall contain 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 <code>true</code> and a valid FCoE VLAN ID is found through the FIP VLAN Discovery Protocol.
FibreChannelId (v1.3+)	string	read-only (null)	This property shall indicate the Fibre Channel ID that the switch assigns for this interface.
PermanentWWNN	string	read-only (null)	This property shall contain the permanent World Wide Node Name (WWNN) of this function. Typically, this value is programmed during manufacturing. This address is not assignable.
PermanentWWPN	string	read-only	This property shall contain the

		(null)	permanent World Wide Port Name (WWPN) of this function. Typically, this value is programmed during manufacturing. This address is not assignable.
WWNN	string	read-write (null)	This property shall contain the effective current World Wide Node Name (WWNN) of this function. If an assignable WWNN is not supported, this is a read-only alias of the permanent WWNN.
WWNSource	string (enum)	read-write (null)	This property shall contain the configuration source of the World Wide Name (WWN) for this World Wide Node Name (WWNN) and World Wide Port Name (WWPN) connection. <i>For the possible property values, see WWNSource in Property Details.</i>
WWPN }	string	read-write (null)	This property shall contain the effective current World Wide Port Name (WWPN) of this function. If an assignable WWPN is not supported, this is a read-only alias of the permanent WWPN.
iSCSIBoot {	object		This property shall contain iSCSI boot capabilities, status, and configuration values for this network device function.
AuthenticationMethod	string (enum)	read-write (null)	This property shall contain the iSCSI boot authentication method for this network device function. <i>For the possible property values, see AuthenticationMethod in Property Details.</i>
CHAPSecret	string	read-write (null)	This property shall contain the shared secret for CHAP authentication.
CHAPUsername	string	read-write (null)	This property shall contain the user name for CHAP authentication.
InitiatorDefaultGateway	string	read-write (null)	This property shall contain the IPv6 or IPv4 iSCSI boot default gateway.

InitiatorIPAddress	string	read-write (null)	This property shall contain the IPv6 or IPv4 address of the iSCSI boot initiator.
InitiatorName	string	read-write (null)	This property shall contain the iSCSI boot initiator name. This property should match formats defined in RFC3720 or RFC3721.
InitiatorNetmask	string	read-write (null)	This property shall contain the IPv6 or IPv4 netmask of the iSCSI boot initiator.
IPAddressType	string (enum)	read-write (null)	This property shall contain the type of IP address being populated in the iSCSIBoot IP address fields. Mixing IPv6 and IPv4 addresses on the same network device function shall not be permissible. <i>For the possible property values, see IPAddressType in Property Details.</i>
IPMaskDNSViaDHCP	boolean	read-write (null)	This property shall indicate whether the iSCSI boot initiator uses DHCP to obtain the initiator name, IP address, and netmask.
MutualCHAPSecret	string	read-write (null)	This property shall contain the CHAP secret for two-way CHAP authentication.
MutualCHAPUsername	string	read-write (null)	This property shall contain the CHAP user name for two-way CHAP authentication.
PrimaryDNS	string	read-write (null)	This property shall contain the IPv6 or IPv4 address of the primary DNS server for the iSCSI boot initiator.
PrimaryLUN	integer	read-write (null)	This property shall contain the logical unit number (LUN) for the primary iSCSI boot target.
PrimaryTargetIPAddress	string	read-write (null)	This property shall contain the IPv4 or IPv6 address for the primary iSCSI boot target.
PrimaryTargetName	string	read-write (null)	This property shall contain the name of the primary iSCSI boot target. This property should match formats defined in RFC3720 or RFC3721.

PrimaryTargetTCPPort	integer	read-write (null)	This property shall contain the TCP port for the primary iSCSI boot target.
PrimaryVLANEnable	boolean	read-write (null)	This property shall indicate whether this VLAN is enabled for the primary iSCSI boot target.
PrimaryVLANId	integer	read-write (null)	This property shall contain 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)	This property shall indicate whether IPv6 router advertisement is enabled for the iSCSI boot target. This setting shall apply to only IPv6 configurations.
SecondaryDNS	string	read-write (null)	This property shall contain the IPv6 or IPv4 address of the secondary DNS server for the iSCSI boot initiator.
SecondaryLUN	integer	read-write (null)	This property shall contain the logical unit number (LUN) for the secondary iSCSI boot target.
SecondaryTargetIPAddress	string	read-write (null)	This property shall contain the IPv4 or IPv6 address for the secondary iSCSI boot target.
SecondaryTargetName	string	read-write (null)	This property shall contain the name of the secondary iSCSI boot target. This property should match formats defined in RFC3720 or RFC3721.
SecondaryTargetTCPPort	integer	read-write (null)	This property shall contain the TCP port for the secondary iSCSI boot target.
SecondaryVLANEnable	boolean	read-write (null)	This property shall indicate whether this VLAN is enabled for the secondary iSCSI boot target.
SecondaryVLANId	integer	read-write (null)	This property shall contain 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)	This property shall indicate whether the iSCSI boot target name, LUN, IP address, and netmask should be obtained from DHCP.
Links {	object		This property shall contain the Links for this network device function.
Endpoints (v1.2+) [{	array		The type shall contain an array property. The members of this array are Resources of the Endpoint type, which are associated with this network device function.
@odata.id }]	string	read-only	<i>Link to a Endpoint resource. See the Links section and the Endpoint schema for details.</i>
PCleFunction {	object		This property shall contain a link of the PCleFunction type that represents the PCle function associated with this network device function. See the PCleFunction schema for details on this property.
@odata.id }	string	read-only	<i>Link to a PCleFunction resource. See the Links section and the PCleFunction schema for details.</i>
PhysicalPortAssignment (v1.3+) {	object		This property shall contain the physical port to which this network device function is currently assigned. This value shall be one of the AssignablePhysicalPorts array members. See the NetworkPort schema for details on this property.
@odata.id }	string	read-only	<i>Link to a NetworkPort resource. See the Links section and the NetworkPort schema for details.</i>
MaxVirtualFunctions	integer	read-only (null)	This property shall contain the number of virtual functions that are available for this network device function.
NetDevFuncCapabilities []	array (string)	read-only (null)	This property shall contain an array of capabilities for this

	(enum))		network device function. <i>For the possible property values, see NetDevFuncCapabilities in Property Details.</i>
NetDevFuncType	string (enum)	read-write (null)	This property shall contain the configured capability of this network device function. <i>For the possible property values, see NetDevFuncType in Property Details.</i>
PhysicalPortAssignment (<i>deprecated v1.3</i>) {	object		This property shall contain the physical port to which this network device function is currently assigned. This value shall be one of the AssignablePhysicalPorts array members. <i>See the NetworkPort schema for details on this property. Deprecated in v1.3 and later. This property has been deprecated and moved to the Links section to avoid loops on expand.</i>
@odata.id }	string	read-only	<i>Link to a NetworkPort resource. See the Links section and the NetworkPort schema for details.</i>
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
VirtualFunctionsEnabled	boolean	read-only (null)	This property shall indicate whether single root input/output virtualization (SR-IOV) virtual functions are enabled for this network device function.

Property Details

AuthenticationMethod:

This property shall contain the iSCSI boot authentication method for this network device function.

string	Description
CHAP	iSCSI Challenge Handshake Authentication Protocol (CHAP) authentication is used.

string	Description
MutualCHAP	iSCSI Mutual Challenge Handshake Authentication Protocol (CHAP) authentication is used.
None	No iSCSI authentication is used.

BootMode:

This property shall contain the boot mode configured for this network device function. If the value is not `Disabled`, this network device function shall be configured for boot by using the specified technology.

string	Description
Disabled	Do not indicate to UEFI/BIOS that this device is bootable.
FibreChannel	Boot this device by using the embedded Fibre Channel support and configuration. Only applicable if the NetworkDeviceFunctionType is `FibreChannel`.
FibreChannelOverEthernet	Boot this device by using the embedded Fibre Channel over Ethernet (FCoE) boot support and configuration. Only applicable if the NetworkDeviceFunctionType is `FibreChannelOverEthernet`.
iSCSI	Boot this device by using the embedded iSCSI boot support and configuration. Only applicable if the NetworkDeviceFunctionType is `iSCSI`.
PXE	Boot this device by using the embedded PXE support. Only applicable if the NetworkDeviceFunctionType is `Ethernet`.

IPAddressType:

This property shall contain the type of IP address being populated in the iSCSIBoot IP address fields. Mixing 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 property shall contain an array of capabilities for 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.

string	Description
iSCSI	Appears to the operating system as an iSCSI device.

NetDevFuncType:

This property shall contain 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:

This property shall contain the configuration source of the World Wide Name (WWN) for this World Wide Node Name (WWNN) and World Wide Port Name (WWPN) connection.

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/111",
  "@odata.type": "#NetworkDeviceFunction.v1_3_3.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 1.1.3

v1.1	v1.0
2017.1	2016.3

This Resource contains links to the 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		This property shall contain a link 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 property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
NetworkDeviceFunctions {	object		This property shall contain a link to a Resource 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		This property shall contain a link to a Resource 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. For property details, see Status .

Example Response

```
{
  "@odata.id": "/redfish/v1/Systems/1/NetworkInterfaces/9fd725a1",
  "@odata.type": "#NetworkInterface.v1_1_3.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 1.2.3

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

A network port represents a discrete physical port that can connect to a network.

URIs:

/redfish/v1/Chassis/{[ChassisId](#)}/NetworkAdapters/{[NetworkAdapterId](#)}/NetworkPorts/{[NetworkPortId](#)}

ActiveLinkTechnology	string (enum)	read-write (null)	This property shall contain the configured link technology of this port. For the possible property values, see ActiveLinkTechnology in Property Details .
AssociatedNetworkAddresses []	array (string, null)	read-only	This property shall contain 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)	This property shall contain the current configured link speed of this port.
EEEEEnabled	boolean	read-write (null)	This property shall indicate 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)	This property shall contain the connection type for this port. <i>For the possible property values, see FCPortConnectionType in Property Details.</i>
FlowControlConfiguration	string (enum)	read-write (null)	This property shall contain the locally configured 802.3x flow control setting for this network port. <i>For the possible property values, see FlowControlConfiguration in Property Details.</i>
FlowControlStatus	string (enum)	read-only (null)	This property shall contain the 802.3x flow control behavior negotiated with the link partner for this network port (Ethernet-only). <i>For the possible property values, see FlowControlStatus in Property Details.</i>
LinkStatus	string (enum)	read-only (null)	This property shall contain the link status between this port and its link partner. <i>For the possible property values, see LinkStatus in Property Details.</i>
MaxFrameSize (v1.2+)	integer (bytes)	read-only (null)	This property shall contain the maximum frame size supported by the port.
NetDevFuncMaxBWAlloc [{	array		This property shall contain an array of maximum bandwidth allocation percentages for the network device functions associated with this port.
MaxBWAllocPercent	integer	read-write	This property shall contain the

	(%)	(null)	maximum bandwidth percentage allocation for the associated network device function.
NetworkDeviceFunction {	object		This property shall contain a link of the NetworkDeviceFunction type that represents the network device function associated with this bandwidth setting of this network port. <i>See the NetworkDeviceFunction schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a NetworkDeviceFunction resource. See the Links section and the NetworkDeviceFunction schema for details.</i>
}]			
NetDevFuncMinBWAlloc [{	array		This property shall contain an array of minimum bandwidth percentage allocations for each of the network device functions associated with this port.
MinBWAllocPercent	integer (%)	read-write (null)	This property shall contain the minimum bandwidth percentage allocation for the associated network device function. The sum total of all minimum percentages shall not exceed 100.
NetworkDeviceFunction {	object		This property shall contain a link of the NetworkDeviceFunction type that represents the network device function associated with this bandwidth setting of this network port. <i>See the NetworkDeviceFunction schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a NetworkDeviceFunction resource. See the Links section and the NetworkDeviceFunction schema for details.</i>
}]			
NumberDiscoveredRemotePorts (v1.2+)	integer	read-only (null)	This property shall contain the number of ports not on this adapter that this port has discovered.
PhysicalPortNumber	string	read-only (null)	This property shall contain 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.

PortMaximumMTU	integer	read-only (null)	This property shall contain the largest maximum transmission unit (MTU) that can be configured for this network port.
SignalDetected	boolean	read-only (null)	This property shall indicate whether the port has detected enough signal on enough lanes to establish a link.
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
SupportedEthernetCapabilities []	array (string (enum))	read-only (null)	This property shall contain an array of zero or more Ethernet capabilities supported by this port. <i>For the possible property values, see SupportedEthernetCapabilities in Property Details.</i>
SupportedLinkCapabilities [{ }	array		This property shall describe the static capabilities of the port, irrespective of transient conditions such as cabling, interface module presence, or remote link partner status or configuration.
AutoSpeedNegotiation (v1.2+)	boolean	read-only (null)	This property shall indicate whether the port is capable of auto-negotiating speed.
CapableLinkSpeedMbps (v1.2+) []	array (integer, null)	read-only	This property shall contain all of the possible network link speed capabilities of this port.
LinkNetworkTechnology	string (enum)	read-only (null)	This property shall contain a network technology capability of this port. <i>For the possible property values, see LinkNetworkTechnology in Property Details.</i>
LinkSpeedMbps (deprecated v1.2) }]	integer (Mbit/s)	read-only (null)	This property shall contain the speed of the link in megabits per second (Mbps) for this port when this link network technology is active. <i>Deprecated in v1.2 and later. This property has been deprecated in favor of the CapableLinkSpeedMbps.</i>
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)	This property shall indicate whether Wake on LAN (WoL) is enabled for this network port.
-------------------------	---------	----------------------	--

Property Details

ActiveLinkTechnology:

This property shall contain 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:

This property shall contain 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 through 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:

This property shall contain 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:

This property shall contain 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:

This property shall contain 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:

This property shall contain 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:

This property shall contain 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 1.4.0

<i>v1.4</i>	<i>v1.3</i>	<i>v1.2</i>	<i>v1.1</i>	<i>v1.0</i>
2019.2	2018.2	2017.3	2017.1	2016.2

This Resource contains a PCIeDevice that is attached to a system.

URIs:

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

/redfish/v1/Systems/{ComputerSystemId}/PCleDevices/{PCleDeviceId}

Assembly (v1.2+) {	object		This property shall contain a link to a Resource of type assembly. <i>See the Assembly schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a Assembly resource. See the Links section and the Assembly schema for details.</i>
AssetTag	string	read-write (null)	This property shall contain an identifying string that tracks the PCIe device for inventory purposes.
DeviceType	string (enum)	read-only	This property shall contain the device type of the PCIe device such as SingleFunction or MultiFunction. <i>For the possible property values, see DeviceType in Property Details.</i>
FirmwareVersion	string	read-only (null)	This property shall contain the firmware version of the PCIe device.
Links {	object		This property shall contain links to Resources that are related to but are not contained by, or subordinate to, this Resource.
Chassis [{	array		This property shall link to a Resource of type Chassis that represents the physical container associated with this Resource.
@odata.id }]	string	read-only	<i>Link to a Chassis resource. See the Links section and the Chassis schema for details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PCleFunctions (deprecated v1.4) [{	array		This property shall contain a link to the Resources of the PCIeFunction type that this device exposes. <i>Deprecated in v1.4 and later. This property has been deprecated in favor of the PCIeFunctions property in the root that provides a link to a Resource Collection.</i>
@odata.id }]	string	read-only	<i>Link to a PCIeFunction resource. See the Links section and the PCleFunction schema for details.</i>
Manufacturer	string	read-only (null)	This property shall contain 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)	This property shall contain the name by which the manufacturer generally refers to the PCIe device.
PartNumber	string	read-only (null)	This property shall contain a part number assigned by the organization that is responsible for producing or manufacturing the PCIe device.
PCleFunctions (v1.4+) {	object		This property shall contain a link to a Resource Collection of type PCIeFunctionCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of PCleFunction. See the PCIeFunction schema for details.</i>
PCleInterface (v1.3+) {	object		This object shall contain details for the PCIe interface that connects this PCIe device to its host or upstream switch.
LanesInUse	integer	read-only (null)	This property shall contain the number of PCIe lanes in use by this device, which shall be equal to or less than the MaxLanes property value.
MaxLanes	integer	read-only (null)	This property shall contain the maximum number of PCIe lanes supported by this device.
MaxPCleType	string (enum)	read-only (null)	This property shall contain the maximum PCIe specification that this device supports. <i>For the possible property values, see MaxPCleType in Property Details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PCleType }	string (enum)	read-only (null)	This property shall contain the negotiated PCIe interface version in use by this device. <i>For the possible property values, see PCleType in Property Details.</i>
SerialNumber	string	read-only (null)	This property shall contain a manufacturer-allocated number that

			identifies the PCIe device.
SKU	string	read-only (null)	This property shall contain the stock-keeping unit number for this PCIe device.
Status {}	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>

Property Details

DeviceType:

This property shall contain the device type of the PCIe device such as SingleFunction or MultiFunction.

string	Description
MultiFunction	A multi-function PCIe device.
Simulated	A PCIe device that is not currently physically present, but is being simulated by the PCIe infrastructure.
SingleFunction	A single-function PCIe device.

MaxPCleType:

This property shall contain 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.

PCleType:

This property shall contain 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_4_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": "2M220100SI",
  "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 1.2.3

v1.2	v1.1	v1.0
2018.1	2017.1	2016.2

This Resource shall represent a PCIeFunction attached to a System.

URIs:

/redfish/v1/Chassis/{ChassisId}/PCleDevices/{PCleDeviceId}/PCleFunctions/{PCleFunctionId}

/redfish/v1/Systems/{ComputerSystemId}/PCleDevices/{PCleDeviceId}/PCleFunctions/{PCleFunctionId}

ClassCode	string	read-only (null)	This property shall contain the PCI Class Code of the PCIe device function. Pattern: ^0xX{3}\$
DeviceClass	string (enum)	read-only	This property shall contain the device class of the PCIe device function, such as storage, network, or memory. <i>For the possible property values, see DeviceClass in Property Details.</i>
DeviceId	string	read-only (null)	This property shall contain the PCI Device ID of the PCIe device function. Pattern: ^0xX{2}\$
FunctionId	integer	read-only (null)	This property shall contain the PCIe Function Number within a given PCIe device.
FunctionType	string (enum)	read-only	This property shall contain the function type of the PCIe device function such as Physical or Virtual. <i>For the possible property values, see FunctionType in Property Details.</i>
Links {	object		This property shall contain links to Resources that are related to but are not contained by, or subordinate to, this Resource.
Drives [{	array		This property shall link to a Resource of type Drive that represents the storage drives associated with this Resource.
@odata.id }]	string	read-only	<i>Link to a Drive resource. See the Links section and the Drive schema for details.</i>
EthernetInterfaces [{	array		This property shall link to a Resource of type EthernetInterface that represents the network interfaces associated with this Resource.
@odata.id }]	string	read-only	<i>Link to a EthernetInterface resource. See the Links section and the EthernetInterface schema for details.</i>
NetworkDeviceFunctions (v1.2+) [{	array		This property shall contain an array of links to Resources of the NetworkDeviceFunction type that represents the network device

			functions associated with this Resource.
@odata.id }]	string	read-only	<i>Link to a NetworkDeviceFunction resource. See the Links section and the NetworkDeviceFunction schema for details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PCleDevice {	object		This property shall contain a link to a Resource of type PCleDevice of which this function is a part. See the PCleDevice schema for details on this property.
@odata.id }	string	read-only	<i>Link to a PCleDevice resource. See the Links section and the PCleDevice schema for details.</i>
StorageControllers [{	array		This property shall link to a Resource of type StorageController that represents the storage controllers associated with this Resource.
@odata.id }]	string	read-only	<i>Link to a StorageController resource. See the Links section and the Storage schema for details.</i>
RevisionId	string	read-only (null)	This property shall contain the PCI Revision ID of the PCIe device function. Pattern: <code>^0xX{1}\$</code>
Status { }	object		This property shall contain any status or health properties of the Resource. For property details, see Status .
SubsystemId	string	read-only (null)	This property shall contain the PCI Subsystem ID of the PCIe device function. Pattern: <code>^0xX{2}\$</code>
SubsystemVendorId	string	read-only (null)	This property shall contain the PCI Subsystem Vendor ID of the PCIe device function. Pattern: <code>^0xX{2}\$</code>
VendorId	string	read-only (null)	This property shall contain the PCI Vendor ID of the PCIe device function. Pattern: <code>^0xX{2}\$</code>

Property Details

DeviceClass:

This property shall contain the device class of the PCIe device function, such as storage,

network, or memory.

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:

This property shall contain the function type of the PCIe device function such as Physical or Virtual.

string	Description
Physical	A physical PCIe function.

string	Description
Virtual	A virtual PCIe function.

Example Response

```
{
  "@odata.id": "/redfish/v1/Chassis/1/PCIeDevices/FC/PCIeFunctions/2",
  "@odata.type": "#PCIeFunction.v1_2_3.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 1.1.1

v1.1	v1.0
2019.1	2018.2

This Resource shall represent a set of PCIe slot information for a Redfish implementation.

URIs:

/redfish/v1/Chassis/{[ChassisId](#)}/PCIeSlots

Slots [{	array		This array shall contain an entry for each PCIe slot, including empty slots (with no device or card installed).
HotPluggable (v1.1+)	boolean	read-only (null)	This property shall contain indicating whether this PCIe slot supports hotplug.

Lanes	integer	read-only (null)	This property shall contain the maximum number of PCIe lanes supported by the slot.
Links {	object		The Redfish Specification-described type shall contain links to Resources related to but not subordinate to this Resource.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PCleDevice [{	array		This property shall contain an array of links to the Resources of the PCleDevice type with which this physical slot is associated. If the Status.State of this slot is <i>Absent</i> , this property shall not appear in the Resource.
 @odata.id }] }	string	read-only	<i>Link to a PCleDevice resource. See the Links section and the PCleDevice schema for details.</i>
Location { }	object		This property shall contain part location information, including a ServiceLabel of the associated PCIe Slot. <i>For property details, see Location.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PCleType	string (enum)	read-only (null)	This property shall contain the maximum PCIe specification that this slot supports. <i>For the possible property values, see PCleType in Property Details.</i>
SlotType	string (enum)	read-only (null)	This property shall contain the slot type as specified by the PCIe specification. <i>For the possible property values, see SlotType in Property Details.</i>
Status { } }]	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>

Property Details

PCleType:

This property shall contain the maximum PCIe specification that this slot supports.

string	Description
Gen1	A PCIe v1.0 slot.
Gen2	A PCIe v2.0 slot.

string	Description
Gen3	A PCIe v3.0 slot.
Gen4	A PCIe v4.0 slot.
Gen5	A PCIe v5.0 slot.

SlotType:

This property shall contain 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_1_1.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.id": "/redfish/v1/Chassis/1/PCIESlots"
}

```

Port 1.1.3

v1.1	v1.0
2017.3	2016.2

This Resource contains 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)	This property shall contain the speed of this port currently negotiated and running.
Links {	object		The Redfish Specification-described Links Property shall contain links to Resources related to but not subordinate to this Resource.
AssociatedEndpoints [{	array		This property shall contain a link to the Resources of the Endpoint type with which this port is associated.
@odata.id }]	string	read-only	<i>Link to a Endpoint resource. See the Links section and the Endpoint schema for details.</i>
ConnectedSwitches [{	array		This property shall contain a link to the Resources of the Switch type with which this port is associated.
@odata.id }]	string	read-only	<i>Link to a Switch resource. See the Links section and the Switch schema for details.</i>
ConnectedSwitchPorts [{	array		This property shall contain a link to the Resources of the Port type with which this port is associated.
@odata.id }]	string	read-only	<i>Link to another Port resource.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
Location (v1.1+) { }	object		This property shall contain location information of the associated port. <i>For property details, see Location.</i>
MaxSpeedGbps	number (Gbit/s)	read-only (null)	This property shall contain 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)	This property shall contain the name of the port as indicated on the device containing the port.
PortProtocol	string (enum)	read-only (null)	This property shall contain the protocol being sent over this port. <i>For the possible property values, see PortProtocol in Property Details.</i>

PortType	string (enum)	read-only (null)	This property shall contain the port type for this port. <i>For the possible property values, see PortType in Property Details.</i>
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
Width	integer	read-only (null)	This property shall contain the number of physical transport links that this port contains.

Actions

Reset

This action shall reset 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 that are included in the POST body to the URI shown in the "target" property of the Action.

{			
ResetType	string (enum)	optional	This parameter shall contain the type of reset. The Service may accept a request without the parameter and perform an implementation specific default reset. <i>For the possible property values, see ResetType in Property Details.</i>
}			

Property Details

PortProtocol:

This property shall contain the protocol being sent over this port.

string	Description
AHCI	This value shall indicate conformance to the Intel Advanced Host Controller Interface (AHCI) Specification.
FC	This value shall indicate conformance to the T11 Fibre Channel

string	Description
	Physical and Signaling Interface Specification.
FCoE	This value shall indicate conformance to the T11 FC-BB-5 Specification.
FCP	This value shall indicate conformance to the INCITS 481: Information Technology - Fibre Channel Protocol for SCSI.
FICON	This value shall indicate conformance to the ANSI FC-SB-3 Single-Byte Command Code Sets-3 Mapping Protocol for the Fibre Channel (FC) protocol. Fibre Connection (FICON) is the IBM-proprietary name for this protocol.
FTP	This value shall indicate conformance to the RFC114-defined File Transfer Protocol (FTP).
HTTP	This value shall indicate conformance to the Hypertext Transport Protocol (HTTP) as defined by RFC3010 or RFC5661.
HTTPS	This value shall indicate conformance to the Hypertext Transfer Protocol Secure (HTTPS) as defined by RFC2068 or RFC2616, which uses Transport Layer Security (TLS) as defined by RFC5246 or RFC6176.
I2C	This value shall indicate conformance to the NXP Semiconductors I2C-bus Specification.
iSCSI	This value shall indicate conformance to the IETF Internet Small Computer Systems Interface (iSCSI) Specification.
iWARP	This value shall indicate conformance to the RFC5042-defined Internet Wide Area RDMA Protocol (iWARP) that uses the transport layer mechanisms as defined by RFC5043 or RFC5044.
NFSv3	This value shall indicate conformance to the RFC1813-defined Network File System (NFS) protocol.
NFSv4	
NVMe	This value shall indicate conformance to the Non-Volatile Memory Host Controller Interface Specification.
NVMeOverFabrics	This value shall indicate conformance to the NVM Express over Fabrics Specification.
OEM	This value shall indicate conformance to an OEM-specific architecture and additional information may be included in the OEM section.
PCIe	This value shall indicate conformance to the PCI-SIG PCI Express Base Specification.
RoCE	This value shall indicate conformance to the Infiniband Architecture Specification-defined RDMA over Converged Ethernet Protocol.
RoCEv2	This value shall indicate conformance to the Infiniband Architecture Specification-defined RDMA over Converged Ethernet Protocol version 2.

string	Description
SAS	This value shall indicate conformance to the T10 SAS Protocol Layer Specification.
SATA	This value shall indicate conformance to the Serial ATA International Organization Serial ATA Specification.
SFTP	This value shall indicate conformance to the RFC114-defined SSH File Transfer Protocol (SFTP) that uses Transport Layer Security (TLS) as defined by RFC5246 or RFC6176.
SMB	This value shall indicate conformance to the Server Message Block (SMB), or Common Internet File System (CIFS), protocol.
TCP	This value shall indicate conformance to the IETF-defined Transmission Control Protocol (TCP). For example, RFC7414 defines the roadmap of the TCP specification.
TFTP	This value shall indicate conformance to the IETF-defined Trivial File Transfer Protocol (TFTP). For example, RFC1350 defines the core TFTP version 2 specification.
UDP	This value shall indicate conformance to the IETF-defined User Datagram Protocol (UDP). For example, RFC768 defines the core UDP specification.
UHCI	This value shall indicate conformance to the Intel Universal Host Controller Interface (UHCI) Specification, Enhanced Host Controller Interface Specification, or the Extensible Host Controller Interface Specification.
USB	This value shall indicate conformance to the USB Implementers Forum Universal Serial Bus Specification.

PortType:

This property shall contain 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 contain the type of reset. The Service may accept a request without the parameter and perform an implementation specific default reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the system.
GracefulRestart	Shut down gracefully and restart the system.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
PowerCycle	Power cycle the unit.
PushPowerButton	Simulate the pressing of the physical power button on this unit.

Example Response

```
{
  "@odata.type": "#Port.v1_1_3.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.id": "/redfish/v1/Fabrics/SAS/Switches/Switch1/Ports/1"
}
```

Power 1.6.0

v1.6	v1.5	v1.4	v1.3	v1.2	v1.1	v1.0
2019.3	2017.3	2017.2	2017.1	2016.2	2016.1	1.0

This Resource contains a Power Metrics Resource for a Redfish implementation.

URIs:

/redfish/v1/Chassis/{[ChassisId](#)}/Power

PowerControl [{	array		This property shall contain the set of power control readings and settings.
@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		This property shall contain the available actions for this Resource.
MemberId	string	read-only required	This property shall uniquely identify the member within the collection. For services supporting Redfish v1.6 or higher, this value shall contain the zero-based array index.
Name	string	read-only (null)	This property shall contain the name of the power control function name.
Oem { }	object		This property shall contain the OEM extensions. All values for properties that this object contains shall conform to the Redfish Specification-described requirements.
PhysicalContext (v1.4+)	string (enum)	read-only	This property shall contain a description of the affected device(s) or region within the chassis to which this power control applies. <i>For the possible property values, see PhysicalContext in Property Details.</i>
PowerAllocatedWatts	number (Watts)	read-only (null)	This property shall represent the total power currently allocated or budgeted to the chassis.
PowerAvailableWatts	number (Watts)	read-only (null)	This property shall represent the amount of reserve power capacity, in watts, that remains. This value is the PowerCapacity value minus the PowerAllocated value.
PowerCapacityWatts	number (Watts)	read-only (null)	This property shall represent the total power capacity that can be allocated to the chassis.

PowerConsumedWatts	number (Watts)	read-only (null)	This property shall represent the actual power that the chassis consumes, in watts.
PowerLimit {	object		This property shall contain power limit status and configuration information for this chassis.
CorrectionInMs	integer (ms)	read-write (null)	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)	This property shall represent the action to be taken if the Resource power consumption cannot be limited below the specified limit after several correction time periods. <i>For the possible property values, see LimitException in Property Details.</i>
LimitInWatts }	number (Watts)	read-write (null)	This property shall represent the power capping limit, in watts, for the Resource. If <code>null</code> , power capping shall be disabled.
PowerMetrics {	object		This property shall contain power metrics for power readings, such as interval, minimum, maximum, and average power consumption, for the chassis.
AverageConsumedWatts	number (Watts)	read-only (null)	This property shall represent the average power level that occurred over the last <code>IntervallInMin</code> minutes.
IntervallInMin	integer (min)	read-only (null)	This property shall represent the time interval or window, in minutes, over which the power metrics are measured.
MaxConsumedWatts	number (Watts)	read-only (null)	This property shall represent the maximum power level, in watts, that occurred within the last <code>IntervallInMin</code> minutes.
MinConsumedWatts }	number (Watts)	read-only (null)	This property shall represent the minimum power level, in watts, that occurred within the last <code>IntervallInMin</code> minutes.
PowerRequestedWatts	number (Watts)	read-only (null)	This property shall represent the amount of power, in watts, that the chassis currently requests to be budgeted for future use.
RelatedItem [{	array		This property shall contain an array of IDs for 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. <i>For property details, see Status.</i>
PowerSupplies [{	array		This property shall contain the set of 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		This property shall contain the available actions for this Resource.
Assembly (v1.5+) {	object		This property shall contain a link to a Resource of type assembly. <i>See the Assembly schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a Assembly resource. See the Links section and the Assembly schema for details.</i>
EfficiencyPercent (v1.5+)	number (%)	read-only (null)	This property shall contain the measured power efficiency, as a percentage, of the associated power supply.
FirmwareVersion	string	read-only (null)	This property shall contain the firmware version as defined by the manufacturer for the associated power supply.
HotPluggable (v1.5+)	boolean	read-only (null)	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)	This property shall contain the indicator light state for the indicator light associated with this power supply. <i>For the possible property values, see IndicatorLED in Property Details.</i>
InputRanges (v1.1+) [{	array		This property shall contain 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. <i>For the possible property values, see InputType in Property Details.</i>
MaximumFrequencyHz	number (Hz)	read-only (null)	This property shall contain the value, in Hertz, of the maximum line input frequency that 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 that 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 that 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 that the power supply is capable of consuming for this range.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
OutputWattage }]	number (Watts)	read-only (null)	This property shall contain 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. <i>For the possible property values, see LineInputVoltageType in Property Details.</i>
Location (v1.5+) { }	object		This property shall contain location information of the associated power supply. <i>For property details, see Location.</i>
Manufacturer (v1.1+)	string	read-only	This property shall contain the name of the

		(null)	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	This property shall uniquely identify the member within the collection. For services supporting Redfish v1.6 or higher, this value shall contain 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		This property shall contain the OEM extensions. All values for properties that this object contains shall conform to the Redfish Specification-described requirements.
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 contain 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 measured input power, in watts, of the associated power supply.
PowerOutputWatts (v1.5+)	number (Watts)	read-only (null)	This property shall contain 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. <i>For the possible property values, see PowerSupplyType in Property Details.</i>
Redundancy [{ }]	array (object)		This property shall contain an array of links to the redundancy groups to which this power supply belongs. This object represents the redundancy element property. <i>For property details, see Redundancy.</i>
RelatedItem [{	array		This property shall contain an array of IDs for 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. <i>For property details, see Status.</i>
Redundancy [{ }]	array (object)		This property shall contain redundancy information for the set of power supplies in this system or device. This object represents the redundancy element property. <i>For property details, see Redundancy.</i>
Voltages [{	array		This property shall contain the set of voltage sensors for this chassis.
@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		This property shall contain the available actions for this Resource.
LowerThresholdCritical	number (Volts)	read-only (null)	This property shall contain the value at which the ReadingVolts property is below the normal range but is not yet fatal. The value of the property shall use the same units as the ReadingVolts property.
LowerThresholdFatal	number (Volts)	read-only (null)	This property shall contain the value at which the ReadingVolts property is below the normal range and is fatal. The value of the property shall use the same units as the ReadingVolts property.
LowerThresholdNonCritical	number (Volts)	read-only (null)	This property shall contain the value at which the ReadingVolts property is below normal range. The value of the property shall use the same units as the ReadingVolts property.
MaxReadingRange	number (Volts)	read-only (null)	This property shall indicate the highest possible value for the ReadingVolts property. The value of the property shall use the same units as the ReadingVolts

			property.
MemberId	string	read-only required	This property shall uniquely identify the member within the collection. For services supporting Redfish v1.6 or higher, this value shall contain the zero-based array index.
MinReadingRange	number (Volts)	read-only (null)	This property shall indicate the lowest possible value for the ReadingVolts property. The value of the property shall use the same units as the ReadingVolts property.
Name	string	read-only (null)	This property shall contain the name of the Voltage sensor.
Oem { }	object		This property shall contain the OEM extensions. All values for properties that this object contains shall conform to the Redfish Specification-described requirements.
PhysicalContext	string (enum)	read-only	This property shall contain a description of the affected device or region within the chassis to which this voltage measurement applies. <i>For the possible property values, see PhysicalContext in Property Details.</i>
ReadingVolts	number (Volts)	read-only (null)	This property shall contain the voltage sensor's reading.
RelatedItem [{	array		This property shall contain an array of IDs for 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)	This property shall contain 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. <i>For property details, see Status.</i>
UpperThresholdCritical	number (Volts)	read-only (null)	This property shall contain the value at which the ReadingVolts property is above the normal range but is not yet fatal. The value of the property shall use the same units as the ReadingVolts property.
UpperThresholdFatal	number	read-only	This property shall contain the value at

	(Volts)	(null)	which the ReadingVolts property is above the normal range and is fatal. The value of the property shall use the same units as the ReadingVolts property.
UpperThresholdNonCritical }]	number (Volts)	read-only (null)	This property shall contain the value at which the ReadingVolts property is above the normal range. The value of the property shall use the same units as the ReadingVolts property.

Actions

PowerSupplyReset

This action shall reset a power supply specified by the MemberId from the PowerSupplies array. A `GracefulRestart` ResetType shall reset the power supply but shall not affect the power output. A `ForceRestart` ResetType may affect the power supply output.

URIs:

/redfish/v1/Chassis/{ChassisId}/Power/Actions/Power.PowerSupplyReset

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

{			
MemberId	string	required	This parameter shall contain the identifier of the member within the PowerSupplies array on which to perform the reset.
ResetType	string (enum)	optional	This parameter shall contain the type of reset. The Service may accept a request without the parameter and shall perform a <i>GracefulRestart</i> . <i>For the possible property values, see ResetType in Property Details.</i>
}			

Property Details

IndicatorLED:

This property shall contain the indicator light state for the indicator light associated with this power supply.

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

string	Description
	containing this value by returning the HTTP 400 (Bad Request) status code.

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:

This property shall represent the action to be taken if the Resource power consumption cannot 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 (v1.1+)	AC 120V nominal input.
AC240V (v1.1+)	AC 240V nominal input.
AC277V (v1.1+)	AC 277V nominal input.
ACandDCWideRange (v1.1+)	Wide range AC or DC input.
ACHighLine (deprecated v1.1)	277V AC input. <i>This value has been deprecated in favor of AC277V.</i>
ACLowLine (deprecated v1.1)	100-127V AC input. <i>This value has been deprecated in favor of AC120V.</i>
ACMidLine (deprecated v1.1)	200-240V AC input. <i>This value has been deprecated in favor of AC240V.</i>
ACWideRange (v1.1+)	Wide range AC input.
DC240V (v1.1+)	DC 240V nominal input.

string	Description
DC380V	High Voltage DC input (380V).
DCNeg48V	-48V DC input.
Unknown	The power supply line input voltage type cannot be determined.

PhysicalContext:

This property shall contain 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 a networking chip or 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, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	Within an expansion bay.
Fan	A fan.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).

string	Description
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points 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	The power supply supports both DC or AC.
DC	Direct Current (DC) power supply.
Unknown	The power supply type cannot be determined.

ResetType:

This parameter shall contain the type of reset. The Service may accept a request without the parameter and shall perform a `GracefulRestart`.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the system.
GracefulRestart	Shut down gracefully and restart the system.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
PowerCycle	Power cycle the unit.
PushPowerButton	Simulate the pressing of the physical power button on this unit.

Example Response

```
{
  "@odata.type": "#Power.v1_6_0.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"
            }
        ]
    }
],
"Actions": {
    "#Power.PowerSupplyReset": {
        "target": "/redfish/v1/Chassis/1U/Power/Actions/Power.PowerSupplyReset"
    }
},
"Oem": {},
"@odata.id": "/redfish/v1/Chassis/1U/Power"

```

}

PrivilegeRegistry 1.1.4

v1.1	v1.0
2017.1	2016.3

This Resource contains operation-to-privilege mappings.

Mappings [{	array		This property shall describe the mappings between entities and the relevant privileges that access those entities.
Entity	string	read-only	This property shall contain the Resource name, such as <i>Manager</i> .
OperationMap {	object		This property shall list the mapping between HTTP methods and the privilege required for the Resource.
DELETE [{	array		This property shall contain the privilege required to complete an HTTP DELETE operation.
Privilege [] }]	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the <i>PrivilegesUsed</i> and <i>OEMPrivilegesUsed</i> properties.
GET [{	array		This property shall contain the privilege required to complete an HTTP GET operation.
Privilege [] }]	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the <i>PrivilegesUsed</i> and <i>OEMPrivilegesUsed</i> properties.
HEAD [{	array		This property shall contain the privilege required to complete an HTTP HEAD operation.
Privilege [] }]	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the <i>PrivilegesUsed</i> and <i>OEMPrivilegesUsed</i> properties.
PATCH [{	array		This property shall contain the privilege required to complete an HTTP PATCH

			operation.
Privilege [] }]	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
POST [{	array		This property shall contain the privilege required to complete an HTTP POST operation.
Privilege [] }]	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
PUT [{	array		This property shall contain the privilege required to complete an HTTP PUT operation.
Privilege [] }] }	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
PropertyOverrides [{	array		This property shall contain the privilege overrides of properties, such as the Password property in the ManagerAccount Resource.
OperationMap {	object		This property shall contain the mapping between the HTTP operation and the privilege required to complete the operation.
DELETE [{	array		This property shall contain the privilege required to complete an HTTP DELETE operation.
Privilege [] }]	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
GET [{	array		This property shall contain the privilege required to complete an HTTP GET operation.
Privilege [] }]	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed

			properties.
HEAD [{	array		This property shall contain the privilege required to complete an HTTP HEAD operation.
Privilege [] }]	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
PATCH [{	array		This property shall contain the privilege required to complete an HTTP PATCH operation.
Privilege [] }]	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
POST [{	array		This property shall contain the privilege required to complete an HTTP POST operation.
Privilege [] }]	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
PUT [{	array		This property shall contain the privilege required to complete an HTTP PUT operation.
Privilege [] }] }	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
Targets [] }]	array (string, null)	read-only	This property shall contain the array of URIs, Resource types, or properties. For example, /redfish/v1/Systems/1, Manager, or Password. When the Targets property is not present, no override is specified.
ResourceURIOverrides [{	array		This property shall contain the privilege overrides of Resource URIs. The target lists the Resource URI and the new privileges.
OperationMap {	object		This property shall contain the mapping between the HTTP operation and the privilege required to complete the operation.

DELETE [{	array		This property shall contain the privilege required to complete an HTTP DELETE operation.
Privilege [] }]	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
GET [{	array		This property shall contain the privilege required to complete an HTTP GET operation.
Privilege [] }]	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
HEAD [{	array		This property shall contain the privilege required to complete an HTTP HEAD operation.
Privilege [] }]	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
PATCH [{	array		This property shall contain the privilege required to complete an HTTP PATCH operation.
Privilege [] }]	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
POST [{	array		This property shall contain the privilege required to complete an HTTP POST operation.
Privilege [] }]	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
PUT [{	array		This property shall contain the privilege required to complete an HTTP PUT operation.
Privilege []	array	read-only	This array shall contain an array of privileges

<pre> } } } </pre>	(string)		that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
<pre> Targets [] } </pre>	array (string, null)	read-only	This property shall contain the array of URIs, Resource types, or properties. For example, /redfish/v1/Systems/1, Manager, or Password. When the Targets property is not present, no override is specified.
<pre> SubordinateOverrides [{ </pre>	array		This property shall contain the privilege overrides of the subordinate Resource. The target lists are identified by Resource type.
<pre> OperationMap { </pre>	object		This property shall contain the mapping between the HTTP operation and the privilege required to complete the operation.
<pre> DELETE [{ </pre>	array		This property shall contain the privilege required to complete an HTTP DELETE operation.
<pre> Privilege [] } } </pre>	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
<pre> GET [{ </pre>	array		This property shall contain the privilege required to complete an HTTP GET operation.
<pre> Privilege [] } } </pre>	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
<pre> HEAD [{ </pre>	array		This property shall contain the privilege required to complete an HTTP HEAD operation.
<pre> Privilege [] } } </pre>	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
<pre> PATCH [{ </pre>	array		This property shall contain the privilege required to complete an HTTP PATCH operation.
<pre> Privilege [] } } </pre>	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP

			operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
POST [{	array		This property shall contain the privilege required to complete an HTTP POST operation.
Privilege [] }]	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
PUT [{	array		This property shall contain the privilege required to complete an HTTP PUT operation.
Privilege [] }] }	array (string)	read-only	This array shall contain an array of privileges that are required to complete a specific HTTP operation on a Resource. This set of strings match zero or more strings in the PrivilegesUsed and OEMPrivilegesUsed properties.
Targets [] }] }]	array (string, null)	read-only	This property shall contain the array of URIs, Resource types, or properties. For example, /redfish/v1/Systems/1, Manager, or Password. When the Targets property is not present, no override is specified.
OEMPrivilegesUsed []	array (string)	read-only	This property shall contain an array of OEM privileges used in this mapping.
PrivilegesUsed []	array (string (enum))	read-only	This property shall contain an array of Redfish standard privileges used in this mapping. <i>For the possible property values, see PrivilegesUsed in Property Details.</i>

Property Details

PrivilegesUsed:

This property shall contain an array of Redfish standard privileges used in this mapping.

string	Description
ConfigureComponents	
ConfigureManager	
ConfigureSelf	
ConfigureUsers	
Login	

string	Description
NoAuth	This value shall be used to indicate an operation does not require authentication. This privilege shall not be used in Redfish Roles.

Example Response

```
{
  "@odata.type": "#PrivilegeRegistry.v1_1_4.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"
            ]
          }
        ]
      }
    }
  ]
}
```


Assembly (v1.2+) {	object		This property shall contain 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		This property shall contain an object containing properties for processors of the FPGA type.
ExternalInterfaces [{	array		This property shall contain an array of objects that describe the external connectivity of the FPGA.
Ethernet {	object		This property shall contain an object the describes the Ethernet-related information for this FPGA interface.
MaxLanes	integer	read-only (null)	This property shall contain the maximum number of lanes supported by this interface.
MaxSpeedMbps	integer (Mbit/s)	read-only (null)	This property shall contain the maximum speed supported by this interface.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
InterfaceType	string (enum)	read-only (null)	This property shall contain an enumerated value that describes the type of interface to the FPGA. For the possible property values, see InterfaceType in <i>Property Details</i> .
PCIe {	object		This property shall contain an object the describes the PCIe-related information for this FPGA interface.
LanesInUse	integer	read-only (null)	This property shall contain the number of PCIe lanes in use by this device, which shall be equal to or less than the MaxLanes property value.
MaxLanes	integer	read-only (null)	This property shall contain the maximum number of PCIe lanes supported by this device.

MaxPCleType	string (enum)	read-only (null)	This property shall contain the maximum PCIe specification that this device supports. <i>For the possible property values, see MaxPCleType in Property Details.</i>
Oem {}	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PCleType } }]	string (enum)	read-only (null)	This property shall contain the negotiated PCIe interface version in use by this device. <i>For the possible property values, see PCleType in Property Details.</i>
FirmwareId	string	read-only	This property shall contain a string describing the FPGA firmware identifier.
FirmwareManufacturer	string	read-only	This property shall contain a string describing the FPGA firmware manufacturer.
FirmwareVersion	string	read-only	This property shall contain a string describing the FPGA firmware version.
FpgaType	string (enum)	read-only	This property shall contain a type of the FPGA device. <i>For the possible property values, see FpgaType in Property Details.</i>
HostInterface {	object		This property shall contain an object that describes the connectivity to the host for system software to use.
Ethernet {	object		This property shall contain an object the describes the Ethernet-related information for this FPGA interface.
MaxLanes	integer	read-only (null)	This property shall contain the maximum number of lanes supported by this interface.
MaxSpeedMbps	integer (Mbit/s)	read-only (null)	This property shall contain the maximum speed supported by this interface.
Oem {} }	object		This property shall contain the OEM extensions. All values for properties contained in this object

			shall conform to the Redfish Specification-described requirements.
InterfaceType	string (enum)	read-only (null)	This property shall contain an enumerated value that describes the type of interface to the FPGA. <i>For the possible property values, see InterfaceType in Property Details.</i>
PCle {	object		This property shall contain an object the describes the PCIe-related information for this FPGA interface.
LanesInUse	integer	read-only (null)	This property shall contain the number of PCIe lanes in use by this device, which shall be equal to or less than the MaxLanes property value.
MaxLanes	integer	read-only (null)	This property shall contain the maximum number of PCIe lanes supported by this device.
MaxPCleType	string (enum)	read-only (null)	This property shall contain the maximum PCIe specification that this device supports. <i>For the possible property values, see MaxPCleType in Property Details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PCleType } }	string (enum)	read-only (null)	This property shall contain the negotiated PCIe interface version in use by this device. <i>For the possible property values, see PCleType in Property Details.</i>
Model	string	read-only	This property shall contain a model of the FPGA device.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PCleVirtualFunctions	integer	read-write	This property shall contain an integer that describes the number

			of PCIe Virtual Functions configured within the FPGA.
ProgrammableFromHost	boolean	read-write (null)	This property shall indicate whether the FPGA firmware can be reprogrammed from the host by using system software. If false, system software shall not be able to program the FPGA firmware from the system interface. In either state, a management controller may be able to program the FPGA firmware by using the sideband interface.
ReconfigurationSlots [{	array		This property shall contain an array of the structures that describe the FPGA reconfiguration slots that the acceleration functions can program.
AccelerationFunction {	object		This property shall contain a link to the acceleration function that the code programmed into a reconfiguration slot provides. It shall link to a Resource of type AccelerationFunction. <i>See the AccelerationFunction schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a AccelerationFunction resource. See the Links section and the AccelerationFunction schema for details.</i>
ProgrammableFromHost	boolean	read-write (null)	This property shall indicate whether the reconfiguration slot can be reprogrammed from the host by using system software. If false, system software shall not be able to program the reconfiguration slot from the system interface. In either state, a management controller may be able to program the reconfiguration slot by using the sideband interface.
SlotId	string	read-only (null)	This property shall contain the FPGA reconfiguration slot identifier.
UUID }] }	string	read-only (null)	This property shall 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}) <i>For more information about this</i>

			<i>property, see Property Details.</i>
InstructionSet	string (enum)	read-only (null)	This property shall contain the string that identifies the instruction set of the processor contained in this socket. <i>For the possible property values, see InstructionSet in Property Details.</i>
Links (v1.1+) {	object		The Redfish Specification-described Links Property shall contain links to Resources related to but not subordinate to this Resource.
Chassis {	object		This property shall contain a link to a Resource of type chassis that represents the physical container associated with this processor. <i>See the Chassis schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a Chassis resource. See the Links section and the Chassis schema for details.</i>
ConnectedProcessors (v1.4+) [{	array		This property shall contain an array of links of the Processor type that are directly connected to this Processor.
@odata.id }]	string	read-only	<i>Link to another Processor resource.</i>
Endpoints (v1.4+) [{	array		This property shall contain an array of links of the Endpoint type that represent endpoints associated with this Processor.
@odata.id }]	string	read-only	<i>Link to a Endpoint resource. See the Links section and the Endpoint schema for details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PCleDevice (v1.4+) {	object		This property shall contain a link of the PCleDevice type that represents the PCle device associated with this processor. <i>See the PCleDevice schema for details on this property.</i>

@odata.id }	string	read-only	<i>Link to a PCIeDevice resource. See the Links section and the PCIeDevice schema for details.</i>
PCIeFunctions (v1.4+) [{	array		This property shall contain an array of links of the PCIeFunction type that represent the PCIe functions associated with this Processor.
@odata.id }] }	string	read-only	<i>Link to a PCIeFunction resource. See the Links section and the PCIeFunction schema for details.</i>
Location (v1.2+) { }	object		This property shall contain location information of the associated processor. <i>For property details, see Location.</i>
Manufacturer	string	read-only (null)	This property shall contain a string that 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)	This property shall contain the maximum Thermal Design Power (TDP) in watts.
Metrics (v1.4+) {	object		This property shall contain a link to the metrics associated with this processor. <i>See the ProcessorMetrics schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a ProcessorMetrics resource. See the Links section and the ProcessorMetrics schema for details.</i>
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 that identifies the architecture of the processor contained in this Socket. <i>For the possible property values, see ProcessorArchitecture in Property Details.</i>
ProcessorId {	object		This object shall contain identification information for this processor. <i>For more information about this</i>

			<i>property, see Property Details.</i>
EffectiveFamily	string	read-only (null)	This property shall indicate the effective Family information as provided by the manufacturer of this processor. <i>For more information about this property, see Property Details.</i>
EffectiveModel	string	read-only (null)	This property shall indicate the effective Model information as provided by the manufacturer of this processor. <i>For more information about this property, see Property Details.</i>
IdentificationRegisters	string	read-only (null)	This property shall contain the raw manufacturer-provided processor-specific identification registers of this processor's features. <i>For more information about this property, see Property Details.</i>
MicrocodeInfo	string	read-only (null)	This property shall indicate the Microcode Information as provided by the manufacturer of this processor. <i>For more information about this property, see Property Details.</i>
Step	string	read-only (null)	This property shall indicate the Step or revision string information as provided by the manufacturer of this processor. <i>For more information about this property, see Property Details.</i>
VendorId }	string	read-only (null)	This property shall indicate the vendor Identification string information as provided by the manufacturer of this processor. <i>For more information about this property, see Property Details.</i>
ProcessorMemory (v1.4+) [{	array		This property shall contain the memory directly attached or integrated within this Processor.
CapacityMiB	integer (mebibytes)	read-only (null)	This property shall contain the memory capacity in MiB.
IntegratedMemory	boolean	read-only (null)	This property shall indicate whether this memory is integrated within the processor. Otherwise, it is discrete memory attached to the processor.
MemoryType	string	read-only	This property shall contain a type

	(enum)	(null)	of the processor memory type. <i>For the possible property values, see MemoryType in Property Details.</i>
SpeedMHz }]	integer	read-only (null)	This property shall contain the operating speed of the memory in MHz.
ProcessorType	string (enum)	read-only (null)	This property shall contain the string that identifies the type of processor contained in this Socket. <i>For the possible property values, see ProcessorType in Property Details.</i>
Socket	string	read-only (null)	This property shall contain the string that identifies the physical location or socket of the processor.
Status {}	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
SubProcessors (v1.3+) {	object		This property shall contain a link to a Resource Collection of type ProcessorCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Processor. See the Processor schema for details.</i>
TDPWatts (v1.4+)	integer (Watts)	read-only (null)	This property shall contain 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 that this processor supports.
UUID (v1.4+)	string	read-only (null)	This property shall contain a universal unique identifier number for the processor. RFC4122 describes methods to use 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}) <i>For more information about this property, see Property Details.</i>
--	--	---

Actions

Reset

This action shall reset the processor.

URIs:

- /redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Processors/{ProcessorId}/Actions/Processor.Reset
- /redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Processors/{ProcessorId}/SubProcessors/{ProcessorId2}/Actions/Processor.Reset
- /redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Processors/{ProcessorId}/Actions/Processor.Reset
- /redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Processors/{ProcessorId}/SubProcessors/{ProcessorId2}/Actions/Processor.Reset
- /redfish/v1/ResourceBlocks/{ResourceBlockId}/Processors/{ProcessorId}/Actions/Processor.Reset
- /redfish/v1/ResourceBlocks/{ResourceBlockId}/Processors/{ProcessorId}/SubProcessors/{ProcessorId2}/Actions/Processor.Reset
- /redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Processors/{ProcessorId}/Actions/Processor.Reset
- /redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Processors/{ProcessorId}/SubProcessors/{ProcessorId2}/Actions/Processor.Reset
- /redfish/v1/Systems/{ComputerSystemId}/Processors/{ProcessorId}/Actions/Processor.Reset
- /redfish/v1/Systems/{ComputerSystemId}/Processors/{ProcessorId}/SubProcessors/{ProcessorId2}/Actions/Processor.Reset

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

{			
ResetType	string (enum)	optional	This parameter shall contain the type of reset. The Service may accept a request without the parameter and perform an implementation specific default reset. <i>For the possible property values, see ResetType in Property Details.</i>
}			

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 formula:

```
((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 formula:

```
((cpuid.1.eax & 0x000f0000) >> 12) + ((cpuid.1.eax & 0x000000f0) >> 4)
```

FpgaType:

This property shall contain a type of the FPGA device.

string	Description
Discrete	The discrete FPGA device.
Integrated	The FPGA device integrated with other processor in the single chip.

IdentificationRegisters:

This property shall contain the raw manufacturer-provided processor-specific identification registers of this processor's features.

This property shall contain the register contents resulting from the execution of the CPUID instruction.

InstructionSet:

This property shall contain the string that 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.

string	Description
x86-64	x86 64-bit.

InterfaceType:

This property shall contain an enumerated value 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.

MaxPCIeType:

This property shall contain 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.

MemoryType:

This property shall contain 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.

string	Description
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.

PCIeType:

This property shall contain 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.

string	Description
Gen5	A PCIe v5.0 slot.

ProcessorArchitecture:

This property shall contain the string that 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 that identifies the type of processor contained in this Socket.

string	Description
Accelerator	An accelerator.
Core (v1.3+)	A core in a processor.
CPU	A CPU.
DSP	A DSP.
FPGA	An FPGA.
GPU	A GPU.
OEM	An OEM-defined processing unit.
Thread (v1.3+)	A thread in a processor.

ResetType:

This parameter shall contain the type of reset. The Service may accept a request without the parameter and perform an implementation specific default reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the system.
GracefulRestart	Shut down gracefully and restart the system.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
PowerCycle	Power cycle the unit.
PushPowerButton	Simulate the pressing of the physical power button on this unit.

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 formula:

```
(cpuid->eax & 0xf)
```

UUID:

This property shall contain a universal unique identifier number for the processor. RFC4122 describes methods to use 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 RFC4122-specified 35-character string format is xxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx, where each x represents a hexadecimal value from 0 to f.

If the computer system supports SMBIOS, 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.

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,
  for (i=0; i<=3; i++) { vendorID[ byte(k*4 + i) ] = reg[byte(i)]; }
  k++;
}
```

Example Response

```
{
  "@odata.type": "#Processor.v1_5_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.id": "/redfish/v1/Systems/437XR1138R2/Processors/CPU1"
}
```

ProcessorMetrics 1.0.2

v1.0

2018.3

This Resource contains the Processor Metrics for a single Processor in a Redfish implementation.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Processors/{ProcessorId}/Proce

ssorMetrics

/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)	This property shall contain average frequency in MHz, across all enabled cores in the processor. When this Resource is subordinate to the ProcessorSummary object, this property is not applicable.
BandwidthPercent	number (%)	read-only (null)	This property shall contain CPU utilization of the processor as a percentage. When this Resource is subordinate to the ProcessorSummary object, this property shall be the CPU utilization over all processors as a percentage.
Cache [{	array		This property shall contain properties that describe this processor's cache. When this Resource is subordinate to the ProcessorSummary object, this property is not applicable.
CacheMiss	number	read-only (null)	This property shall contain the number of cache line misses of the processor or core in millions.
CacheMissesPerInstruction	number	read-only (null)	This property shall contain the number of cache misses per instruction of the processor or core.
HitRatio	number	read-only	This property shall contain the cache

		(null)	hit ratio of the processor or core.
Level	string	read-only (null)	This property shall contain the level of the cache in the processor or core.
OccupancyBytes	integer (bytes)	read-only (null)	This property shall contain the total cache occupancy of the processor or core in bytes.
OccupancyPercent }]	number (%)	read-only (null)	This property shall contain the total cache occupancy percentage of the processor or core.
ConsumedPowerWatt	number (Watts)	read-only (null)	This property shall contain the power, in watts, that the processor has consumed. When this Resource is subordinate to the ProcessorSummary object, this property shall be the sum of power, in watts, that all processors have consumed.
CoreMetrics [{	array		This property shall contain properties that describe the cores of this processor. When this Resource is subordinate to the ProcessorSummary object, this property is not applicable.
CoreCache [{	array		This property shall contain properties that describe the cache metrics of this core in the processor.
CacheMiss	number	read-only (null)	This property shall contain the number of cache line misses of the processor or core in millions.
CacheMissesPerInstruction	number	read-only (null)	This property shall contain the number of cache misses per instruction of the processor or core.
HitRatio	number	read-only (null)	This property shall contain the cache hit ratio of the processor or core.
Level	string	read-only (null)	This property shall contain the level of the cache in the processor or core.
OccupancyBytes	integer (bytes)	read-only (null)	This property shall contain the total cache occupancy of the processor or core in bytes.
OccupancyPercent }]	number (%)	read-only (null)	This property shall contain the total cache occupancy percentage of the processor or core.
CoreId	string	read-only (null)	This property shall contain the identifier of the core within the processor.
CStateResidency [{	array		This property shall contain properties that describe the C-state residency of

			this core in the processor.
Level	string	read-only (null)	This property shall contain the C-state level, such as C0, C1, or C2. When this Resource is subordinate to the ProcessorSummary object, this property is not applicable.
ResidencyPercent }]	number (%)	read-only (null)	This property shall contain the percentage of time that the processor or core has spent in this particular level of C-state. When this Resource is subordinate to the ProcessorSummary object, this property is not applicable.
InstructionsPerCycle	number	read-only (null)	This property shall contain the number of instructions per clock cycle of this core in the processor.
IOStallCount	number	read-only (null)	This property shall contain the number of stalled cycles due to I/O operations of this core in the processor.
MemoryStallCount	number	read-only (null)	This property shall contain the number of stalled cycles due to memory operations of this core in the processor.
UnhaltedCycles }]	number	read-only (null)	This property shall contain the number of unhalted cycles of this core in the processor.
FrequencyRatio	number	read-only (null)	This property shall contain the frequency relative to the nominal processor frequency ratio of this processor. When this Resource is subordinate to the ProcessorSummary object, this property shall be the average FrequencyRatio over all processors.
KernelPercent	number (%)	read-only (null)	This property shall contain total percentage of time the processor has spent in kernel mode. When this Resource is subordinate to the ProcessorSummary object, this property shall be the average KernelPercent over all processors.
LocalMemoryBandwidthBytes	integer (bytes)	read-only (null)	This property shall contain the local memory bandwidth usage of this processor in bytes. When this Resource is subordinate to the ProcessorSummary object, this property shall be the sum of LocalMemoryBandwidthBytes over all processors.
RemoteMemoryBandwidthBytes	integer	read-only	This property shall contain the remote

	(bytes)	(null)	memory bandwidth usage of this processor in bytes. When this Resource is subordinate to the ProcessorSummary object, this property shall be the sum of RemoteMemoryBandwidthBytes over all processors.
TemperatureCelsius	number (Celsius)	read-only (null)	This property shall contain the temperature, in Celsius, of the processor. When this Resource is subordinate to the ProcessorSummary object, this property shall be the average temperature, in Celcius, over all processors.
ThrottlingCelsius	number (Celsius)	read-only (null)	This property shall contain 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. When this Resource is subordinate to the ProcessorSummary object, this property is not applicable.
UserPercent	number (%)	read-only (null)	This property shall contain total percentage of time the processor has spent in user mode. When this Resource is subordinate to the ProcessorSummary object, this property shall be the average UserPercent over all processors.

Example Response

```
{
  "@odata.type": "#ProcessorMetrics.v1_0_2.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 1.3.2

v1.3	v1.2	v1.1	v1.0
2018.3	2018.2	2018.1	2017.1

This Resource shall represent a Resource Block for a Redfish implementation.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/{[ResourceBlockId](#)}

/redfish/v1/ResourceBlocks/{[ResourceBlockId](#)}

CompositionStatus {	object	required	This property shall contain composition status information about this Resource Block.
CompositionState	string (enum)	read-only required (null)	This property shall contain an enumerated value that describes the composition state of the Resource Block. <i>For the possible property values, see CompositionState in Property Details.</i>
MaxCompositions (v1.1+)	integer	read-only (null)	This property shall contain a number indicating the maximum number of compositions in which this Resource Block can participate 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 false, this value shall be set to 1. The Service shall support this property if SharingCapable supported.
NumberOfCompositions (v1.1+)	integer	read-only (null)	This property shall contain the number of compositions in which this Resource Block is currently participating.
Reserved	boolean	read-write (null)	This property shall indicate whether any client has reserved the Resource Block. A client sets this property after the Resource Block is identified as composed. It shall provide a way for multiple clients to negotiate the ownership of the Resource Block.
SharingCapable (v1.1+)	boolean	read-only (null)	This property shall indicate whether this Resource Block can participate 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)	This property shall indicate whether this Resource Block can participate in multiple compositions simultaneously. The Service shall reject modifications of this property with HTTP 400 Bad Request if this Resource Block is already being used as part of a composed Resource. If <code>false</code> , the service shall not use the ComposedAndAvailable state for this

			Resource Block.
ComputerSystems [{	array		This property shall contain an array of links of the ComputerSystem type that this Resource Block contains.
@odata.id }]	string	read-only	<i>Link to a ComputerSystem resource. See the Links section and the ComputerSystem schema for details.</i>
Drives (v1.3+) [{	array		This property shall contain an array of links of the Drive type that this Resource Block contains.
@odata.id }]	string	read-only	<i>Link to a Drive resource. See the Links section and the Drive schema for details.</i>
EthernetInterfaces [{	array		This property shall contain an array of links of the EthernetInterface type that this Resource Block contains.
@odata.id }]	string	read-only	<i>Link to a EthernetInterface resource. See the Links section and the EthernetInterface schema for details.</i>
Links {	object		This property shall contain links to Resources that are related to but are not contained by or subordinate to this Resource.
Chassis [{	array		This property shall contain an array of links of the Chassis type that represent the physical container associated with this Resource Block.
@odata.id }]	string	read-only	<i>Link to a Chassis resource. See the Links section and the Chassis schema for details.</i>
ComputerSystems [{	array		This property shall contain an array of links of the ComputerSystem type that represent the computer systems composed from this Resource Block.
@odata.id }]	string	read-only	<i>Link to a ComputerSystem resource. See the Links section and the ComputerSystem schema for details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
Zones [{	array		This property shall contain an array of links of the Zone type that represent the binding constraints associated with

			this Resource Block.
@odata.id }] }	string	read-only	<i>Link to a Zone resource. See the Links section and the Zone schema for details.</i>
Memory [{	array		This property shall contain an array of links of the Memory type that this Resource Block contains.
@odata.id }]	string	read-only	<i>Link to a Memory resource. See the Links section and the Memory schema for details.</i>
NetworkInterfaces [{	array		This property shall contain an array of links of the NetworkInterface type that this Resource Block contains.
@odata.id }]	string	read-only	<i>Link to a NetworkInterface resource. See the Links section and the NetworkInterface schema for details.</i>
Processors [{	array		This property shall contain an array of links of the Processor type that this Resource Block contains.
@odata.id }]	string	read-only	<i>Link to a Processor resource. See the Links section and the Processor schema for details.</i>
ResourceBlockType []	array (string (enum))	read-only	This property shall contain an array of enumerated values that describe the type of Resources available. <i>For the possible property values, see ResourceBlockType in Property Details.</i>
SimpleStorage [{	array		This property shall contain an array of links of the SimpleStorage type that this Resource Block contains.
@odata.id }]	string	read-only	<i>Link to a SimpleStorage resource. See the Links section and the SimpleStorage schema for details.</i>
Status {}	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
Storage [{	array		This property shall contain an array of links of Storage type that this Resource Block contains.
@odata.id }]	string	read-only	<i>Link to a Storage resource. See the Links section and the Storage schema for details.</i>

Property Details

CompositionState:

This property shall contain an enumerated value that describes the composition state of the Resource Block.

string	Description
Composed	Final successful state of a Resource Block that has participated in composition.
ComposedAndAvailable (v1.1+)	The Resource Block is currently participating in one or more compositions, and is available to use 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+)	The Resource Block has been made unavailable by the service, such as due to maintenance being performed on the Resource Block.
Unused	The Resource Block is free and can participate in composition.

ResourceBlockType:

This property shall contain an array of enumerated values that describe the type of Resources available.

string	Description
Compute	This Resource Block contains Resources of the Processor type and Memory type in a manner that creates a compute complex.
ComputerSystem	This Resource Block contains Resources of the ComputerSystem type.
Expansion	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 Resources of the Memory type.
Network	This Resource Block contains network Resources, such as the EthernetInterface and NetworkInterface types.
Processor	This Resource Block contains Resources of the Processor type.
Storage	This Resource Block contains storage Resources, such as the Storage and SimpleStorage types.

Example Response

```
{  
  "@odata.type": "#ResourceBlock.v1_3_2.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/Proce
  },
  {
    "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/Proce
  }
],
"Memory": [
  {
    "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/Memor
  },
  {
    "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/Memor
  },
  {
    "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/Memor
  },
  {
    "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/Memor
  }
],
"Storage": [],
"SimpleStorage": [],
"EthernetInterfaces": [
  {
    "@odata.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1/Ether
  }
],
"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.id": "/redfish/v1/CompositionService/ResourceBlocks/ComputeBlock1"
}

```

Role 1.2.4

v1.2	v1.1	v1.0
2017.2	2017.1	1.0

This Resource represents the Redfish Role for the user account.

URIs:

/redfish/v1/AccountService/Roles/{RoleId}

/redfish/v1/Managers/{ManagerId}/RemoteAccountService/Roles/{RoleId}

AssignedPrivileges []	array (string (enum))	read-write	This property shall contain the Redfish privileges for this Role. For predefined Roles, this property shall be read-only. For custom Roles, some implementations may not allow writing to this property. <i>For the possible property values, see AssignedPrivileges in Property Details.</i>
IsPredefined	boolean	read-only	This property shall indicate whether the Role is a Redfish-predefined Role rather than a custom Redfish Role.
OemPrivileges []	array (string)	read-write	This property shall contain the OEM privileges for this Role. For predefined Roles, this property shall be read-only. For custom Roles, some implementations may not allow writing to 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:

This property shall contain the Redfish privileges for this Role. For predefined Roles, this property shall be read-only. For custom Roles, some implementations may not allow writing to this property.

string	Description
ConfigureComponents	

string	Description
ConfigureManager	
ConfigureSelf	
ConfigureUsers	
Login	
NoAuth	This value shall be used to indicate an operation does not require authentication. This privilege shall not be used in Redfish Roles.

Example Response

```
{
  "@odata.type": "#Role.v1_2_4.Role",
  "Id": "Administrator",
  "Name": "User Role",
  "Description": "Admin User Role",
  "IsPredefined": true,
  "AssignedPrivileges": [
    "Login",
    "ConfigureManager",
    "ConfigureUsers",
    "ConfigureSelf",
    "ConfigureComponents"
  ],
  "OemPrivileges": [
    "OemClearLog",
    "OemPowerControl"
  ],
  "@odata.id": "/redfish/v1/AccountService/Roles/Administrator"
}
```

SecureBoot 1.0.6

v1.0

2016.1

This Resource contains 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)	This property shall indicate the UEFI Secure Boot state during the current boot cycle. <i>For the possible property values, see</i>
------------------------------	------------------	---------------------	--

			SecureBootCurrentBoot in Property Details.
SecureBootEnable	boolean	read-write (null)	This property shall indicate whether the UEFI Secure Boot takes effect on next boot. This property can be enabled in UEFI boot mode only.
SecureBootMode	string (enum)	read-only (null)	This property shall contain the current Secure Boot mode, as defined in the UEFI Specification. <i>For the possible property values, see SecureBootMode in Property Details.</i>

Actions

ResetKeys

This action shall 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 that are included in the POST body to the URI shown in the "target" property of the Action.

{			
ResetKeyType	string (enum)	required	This parameter shall specify the type of keys to reset or delete. <i>For the possible property values, see ResetKeyType in Property Details.</i>
}			

Property Details

ResetKeyType:

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:

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.type": "#SecureBoot.v1_0_6.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": {},
  "@odata.id": "/redfish/v1/Systems/1/SecureBoot"
}
```

Sensor 1.0.3

v1.0

2018.3

This Resource represents a Sensor for a Redfish implementation.

URIs:

/redfish/v1/Chassis/{[ChassisId](#)}/Sensors/{[SensorId](#)}

Accuracy	number (%)	read-only (null)	This property shall contain the percent error +/- of the measured versus actual values of the Reading property.
AdjustedMaxAllowableOperatingValue	number	read-only (null)	This property shall contain the adjusted maximum allowable operating value for the equipment that this sensor monitors, as specified by a standards body, manufacturer, or both. The value is adjusted based on environmental conditions. For example, liquid inlet temperature may be adjusted based on the available liquid pressure.
AdjustedMinAllowableOperatingValue	number	read-only (null)	This property shall contain the adjusted minimum allowable operating value for the equipment that this sensor monitors, as specified by a standards body, manufacturer, or both. This value is adjusted based on environmental conditions. For example, liquid inlet temperature may be adjusted based on the available liquid pressure.
ApparentVA	number (V.A)	read-only (null)	This property shall contain the product of VoltageRMS multiplied by CurrentRMS for a circuit. This property may appear in sensors of the Power ReadingType, 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 distribute power. <i>For the possible property values, see ElectricalContext in Property Details.</i>
LoadPercent	number (%)	read-only (null)	This property shall indicate the power load utilization percent for this sensor. This property may appear in sensors of the Power ReadingType, and shall not appear in sensors of other ReadingType values.
Location { }	object		This property shall indicate the location information for this sensor. <i>For property details, see Location.</i>
MaxAllowableOperatingValue	number	read-only (null)	This property shall contain the maximum allowable operating value for the equipment that this sensor monitors, as specified by a standards body, manufacturer, or both.
MinAllowableOperatingValue	number	read-only	This property shall contain the minimum

		(null)	allowable operating value for the equipment that this sensor monitors, as specified by a standards body, manufacturer, or both.
PeakReading	number	read-only (null)	This property shall contain the peak sensor value since the last ResetStatistics action was performed or the service last reset the time-based property values.
PeakReadingTime	string	read-only (null)	This property shall contain the date and time when the peak sensor value was observed.
PhysicalContext	string (enum)	read-only (null)	This property shall contain a description of the affected component or region within the equipment to which this sensor measurement applies. <i>For the possible property values, see PhysicalContext in Property Details.</i>
PhysicalSubContext	string (enum)	read-only (null)	This property shall contain a description of the usage or sub-region within the equipment to which this sensor measurement applies. This property generally differentiates multiple sensors within the same PhysicalContext instance. <i>For the possible property values, see PhysicalSubContext in Property Details.</i>
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 the Power ReadingType, and shall not appear in sensors of other ReadingType values.
Precision	number	read-only (null)	This property shall contain the number of significant digits in the Reading property.
ReactiveVAR	number (V.A)	read-only (null)	This property shall contain the arithmetic mean of product terms of instantaneous voltage and quadrature current measurements calculated over an integer number of line cycles for a circuit. This property may appear in sensors of the Power ReadingType, and shall not appear in sensors of other ReadingType values.
Reading	number	read-only (null)	This property shall contain the sensor value.
ReadingRangeMax	number	read-only (null)	This property shall indicate the maximum possible value of the Reading property for this sensor. This value is the range of valid readings for this sensor. Values outside this range are discarded as reading errors.
ReadingRangeMin	number	read-only	This property shall indicate the minimum

		(null)	possible value of the Reading property for this sensor. This value 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 contain the type of the sensor. <i>For the possible property values, see ReadingType in Property Details.</i>
ReadingUnits	string	read-only (null)	This property shall contain the units of the sensor's reading and thresholds.
SensingFrequency	number	read-only (null)	This property shall contain the time interval between readings of the physical sensor.
SensorResetTime	string	read-only (null)	This property shall contain the date and time when the ResetStatistics action was last performed or the service last reset the time-based property values.
Status { }	object		This property shall contain the status and health of the Resource and its children. <i>For property details, see Status.</i>
Thresholds { }	object		This property shall contain the set of thresholds that derive a sensor's health and operational range.
LowerCaution { }	object		This property shall contain the value at which the Reading property is below normal range. The value of the property shall use the same units as the Reading property.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the reading for this sensor that activates the threshold. <i>For the possible property values, see Activation in Property Details.</i>
DwellTime	string	read-write (null)	This property shall indicate the duration the sensor value must violate the threshold before the threshold is activated. Pattern: <code>-?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(\.\d+)?)S)?</code> ?
Reading }	number	read-write (null)	This property shall indicate the reading for this sensor that activates the threshold. The value of the property shall use the same units as the Reading property.
LowerCritical { }	object		This property shall contain the value at which the Reading property is below the normal range but is not yet fatal. The value of the property shall use the same units as the Reading property.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the reading for this sensor that

			activates the threshold. <i>For the possible property values, see Activation in Property Details.</i>
DwellTime	string	read-write (null)	This property shall indicate the duration the sensor value must violate the threshold before the threshold is activated. Pattern: <code>-?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(\.\d+)?)S)??</code>
Reading }	number	read-write (null)	This property shall indicate the reading for this sensor that activates the threshold. The value of the property shall use the same units as the Reading property.
LowerFatal {	object		This property shall contain the value at which the Reading property is below the normal range and is fatal. The value of the property shall use the same units as the Reading property.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the reading for this sensor that activates the threshold. <i>For the possible property values, see Activation in Property Details.</i>
DwellTime	string	read-write (null)	This property shall indicate the duration the sensor value must violate the threshold before the threshold is activated. Pattern: <code>-?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(\.\d+)?)S)??</code>
Reading }	number	read-write (null)	This property shall indicate the reading for this sensor that activates the threshold. The value of the property shall use the same units as the Reading property.
UpperCaution {	object		This property shall contain the value at which the Reading property is above the normal range. The value of the property shall use the same units as the Reading property.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the reading for this sensor that activates the threshold. <i>For the possible property values, see Activation in Property Details.</i>
DwellTime	string	read-write (null)	This property shall indicate the duration the sensor value must violate the threshold before the threshold is activated. Pattern: <code>-?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(\.\d+)?)S)??</code>
Reading }	number	read-write (null)	This property shall indicate the reading for this sensor that activates the threshold. The value of the property shall use the same units as the Reading property.

UpperCritical {	object		This property shall contain the value at which the Reading property is above the normal range but is not yet fatal. The value of the property shall use the same units as the Reading property.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the reading for this sensor that activates the threshold. <i>For the possible property values, see Activation in Property Details.</i>
DwellTime	string	read-write (null)	This property shall indicate the duration the sensor value must violate the threshold before the threshold is activated. Pattern: <code>-?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(\.\d+)?)S)??</code>
Reading }	number	read-write (null)	This property shall indicate the reading for this sensor that activates the threshold. The value of the property shall use the same units as the Reading property.
UpperFatal {	object		This property shall contain the value at which the Reading property is above the normal range and is fatal. The value of the property shall use the same units as the Reading property.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the reading for this sensor that activates the threshold. <i>For the possible property values, see Activation in Property Details.</i>
DwellTime	string	read-write (null)	This property shall indicate the duration the sensor value must violate the threshold before the threshold is activated. Pattern: <code>-?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(\.\d+)?)S)??</code>
Reading } }	number	read-write (null)	This property shall indicate the reading for this sensor that activates the threshold. The value of the property shall use the same units as the Reading property.
VoltageType	string (enum)	read-only (null)	This property shall represent the type of input voltage the sensor monitors. <i>For the possible property values, see VoltageType in Property Details.</i>

Actions

ResetStatistics

This action shall reset 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 for this sensor that activates the threshold.

string	Description
Decreasing	This threshold is activated when the 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 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 distribute power.

string	Description
Line1	This property shall contain the circuits that share the 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 that share the 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

string	Description
	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 that share the 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:

This property shall contain 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.

string	Description
ACUtilityInput	An AC utility input.
ASIC	An ASIC device, such as a networking chip or 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, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	Within an expansion bay.
Fan	A fan.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points 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.

string	Description
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:

This property shall contain a description of the usage or sub-region within the equipment to which this sensor measurement applies. This property generally differentiates multiple sensors within the same PhysicalContext instance.

string	Description
Input	The input.
Output	The output.

ReadingType:

This property shall contain the type of the sensor.

string	Description
AirFlow	This value shall indicate 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	This value shall indicate a measurement of altitude, in meter units, and the ReadingUnits value shall be `m`.
Barometric	This value shall indicate a measurement of barometric pressure, in millimeters, of a mercury column, and the ReadingUnits value shall be `mm[Hg]`.
Current	This value shall indicate 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	This value 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 value is used for device-level energy consumption measurements, while EnergykWh is used for large-scale consumption measurements.

string	Description
EnergykWh	This value 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 value is used for large-scale energy consumption measurements, while EnergyJoules is used for device-level consumption measurements.
Frequency	This value shall indicate a frequency measurement, in Hertz units, and the ReadingUnits value shall be `Hz`.
Humidity	This value shall indicate a relative humidity measurement, in percent units, and the ReadingUnits value shall be `%`.
LiquidFlow	This value shall indicate a measurement of a volume of liquid per unit of time that flows through a particular junction. The ReadingUnits shall be `L/s`.
LiquidLevel	This value shall indicate a measurement of fluid height relative to a specified vertical datum and the ReadingUnits value shall be `cm`.
Power	This value shall indicate 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	This value shall indicate 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	This value shall indicate a measurement of rotational frequency, in revolutions per minute unit, and the ReadingUnits value shall be `RPM`.
Temperature	This value shall indicate a temperature measurement, in degrees Celsius units, and the ReadingUnits value shall be `Cel`.
Voltage	This value shall indicate 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.

string	Description
AC	Alternating current.
DC	Direct current.

Example Response

```
{
  "@odata.type": "#Sensor.v1_0_2.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 1.1.5

v1.1	v1.0
2017.1	1.0

This Resource contains SerialInterface 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. <i>For the possible property values, see BitRate in Property Details.</i>
ConnectorType	string (enum)	read-only	This property shall indicate the type of physical connector used for this serial connection. <i>For the possible property values, see ConnectorType in Property Details.</i>
DataBits	string	read-write	This property shall indicate number of data bits for the

	(enum)		serial connection. <i>For the possible property values, see DataBits in Property Details.</i>
FlowControl	string (enum)	read-write	This property shall indicate the flow control mechanism for the serial connection. <i>For the possible property values, see FlowControl in Property Details.</i>
InterfaceEnabled	boolean	read-write (null)	This property shall indicate whether this interface is enabled.
Parity	string (enum)	read-write	This property shall indicate parity information for a serial connection. <i>For the possible property values, see Parity in Property Details.</i>
PinOut	string (enum)	read-only (null)	This property shall indicate the physical pinout for the serial connector. <i>For the possible property values, see PinOut in Property Details.</i>
SignalType	string (enum)	read-only	This property shall contain the type of serial signalling in use for the serial connection. <i>For the possible property values, see SignalType in Property Details.</i>
StopBits	string (enum)	read-write	This property shall indicate the stop bits for the serial connection. <i>For the possible property values, see StopBits in Property Details.</i>

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 physical 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	Five bits of data following the start bit.
6	Six bits of data following the start bit.
7	Seven bits of data following the start bit.
8	Eight 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.

string	Description
None	No parity bit.
Odd	An odd parity bit.
Space	A space parity bit.

PinOut:

This property shall indicate the physical pinout for the serial connector.

string	Description
Cisco	The Cisco pinout configuration.
Cyclades	The Cyclades pinout configuration.
Digi	The Digi pinout configuration.

SignalType:

This property shall contain the type of serial signalling in use 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	One stop bit following the data bits.
2	Two stop bits following the data bits.

Example Response

```
{
  "@odata.type": "#SerialInterface.v1_1_5.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.id": "/redfish/v1/Managers/BMC/SerialInterfaces/TTY0"
```

}

ServiceRoot 1.5.2

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 Resource represents the root Redfish Service. All values that this schema describes for Resources shall comply with the Redfish Specification-described requirements.

URIs:

/redfish/v1

/redfish/v1/

AccountService {	object		This property shall contain a link to a Resource of type AccountService. 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		This property shall contain a link to a Resource of type 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 property shall contain a link to a Resource Collection of type ChassisCollection. 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		This property shall contain a link to a Resource of type CompositionService. 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		This property shall contain a link to a Resource of type EventService. See the EventService schema for

			<i>details on this property.</i>
@odata.id }	string	read-only	<i>Link to a EventService resource. See the Links section and the EventService schema for details.</i>
Fabrics (v1.1+) {	object		<i>This property shall contain a link to a Resource Collection of type FabricCollection. Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Fabric. See the Fabric schema for details.</i>
JobService (v1.4+) {	object		<i>This property shall contain a link to a Resource of type JobService. See the JobService schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a JobService resource. See the Links section and the JobService schema for details.</i>
JsonSchemas {	object		<i>This property shall contain a link to a Resource Collection of type JsonSchemaFileCollection. Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of JsonSchemaFile. See the JsonSchemaFile schema for details.</i>
Links {	object	required	<i>The Redfish Specification-described Links Property shall contain links to Resources related to but not subordinate to this Resource.</i>
Oem { }	object		<i>This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.</i>
Sessions {	object	required	<i>This property shall contain a link to a Resource Collection of type SessionCollection. Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Session. See the Session schema for details.</i>
Managers {	object		<i>This property shall contain a link to a Resource Collection of type ManagerCollection. Contains a link to a resource.</i>
@odata.id	string	read-only	<i>Link to Collection of Manager. See the</i>

}			<i>Manager schema for details.</i>
Product (v1.3+)	string	read-only (null)	This property shall include the name of the product represented by this Redfish Service.
ProtocolFeaturesSupported (v1.3+) {	object		This property shall contain information about protocol features that the service supports.
ExcerptQuery (v1.4+)	boolean	read-only	This property shall indicate whether this service supports the excerpt query parameter.
ExpandQuery {	object		This property shall contain information about the support of the \$expand query parameter by the service.
ExpandAll	boolean	read-only	This property shall indicate whether this service supports the asterisk (*) option of the \$expand query parameter.
Levels	boolean	read-only	This property shall indicate whether the service supports the \$levels option of the \$expand query parameter.
Links	boolean	read-only	This property shall indicate whether this service supports the supports the tilde (~) option of the \$expand query parameter.
MaxLevels	integer	read-only	This property shall contain the maximum \$levels option value in the \$expand query parameter. Shall be included only if \$levels is true.
NoLinks }	boolean	read-only	This property shall indicate whether the service supports the period (.) option of the \$expand query parameter.
FilterQuery	boolean	read-only	This property shall indicate whether this service supports the \$filter query parameter.
OnlyMemberQuery (v1.4+)	boolean	read-only	This property shall indicate whether this service supports the only query parameter.
SelectQuery }	boolean	read-only	This property shall indicate whether this service supports the \$select query parameter.
RedfishVersion	string	read-only	This property shall represent the Redfish protocol version, as specified in the Protocol Version clause of the Redfish Specification, to which this

			Service conforms. Pattern: ^\d+.\d+.\d+\$
Registries {	object		This property shall contain a link to a Resource Collection of type MessageRegistryFileCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of MessageRegistryFile. See the MessageRegistryFile schema for details.</i>
ResourceBlocks (v1.5+) {	object		This property shall contain a link to a Resource Collection of type ResourceBlockCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of ResourceBlock. See the ResourceBlock schema for details.</i>
SessionService {	object		This property shall contain a link to a Resource of type SessionService. <i>See the SessionService schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a SessionService resource. See the Links section and the SessionService schema for details.</i>
StorageServices (v1.1+) {	object		This property shall contain a link to a Resource Collection of type StorageServiceCollection.
@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 (v1.1+) {	object		This property shall contain a link to a Resource Collection of type StorageSystemCollection. This collection shall contain computer systems that act as storage servers. The HostingRoles attribute of each such computer system shall have a StorageServer entry.
@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 property shall contain a link to a Resource Collection of type ComputerSystemCollection. <i>Contains a link to a resource.</i>

@odata.id }	string	read-only	<i>Link to Collection of ComputerSystem. See the ComputerSystem schema for details.</i>
Tasks {	object		<i>This property shall contain a link to a Resource of type TaskService. See the TaskService schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a TaskService resource. See the Links section and the TaskService schema for details.</i>
TelemetryService (v1.4+) {	object		<i>This property shall contain a link to a Resource of type TelemetryService. See the TelemetryService schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a TelemetryService resource. See the Links section and the TelemetryService schema for details.</i>
UpdateService (v1.1+) {	object		<i>This property shall contain a link to a Resource of type UpdateService. See the UpdateService schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a UpdateService resource. See the Links section and the UpdateService schema for details.</i>
UUID	string	read-only (null)	<i>This property shall represent the id of the Redfish Service instance. The format of this string shall contain 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 200 OK from an SSDP M-SEARCH request during discovery. RFC4122 describes methods to use 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})</i>
Vendor (v1.5+)	string	read-only (null)	<i>This property 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 Product property value.</i>

Example Response

```
{
  "@odata.type": "#ServiceRoot.v1_5_2.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.id": "/redfish/v1/"
}
```

Session 1.2.1

v1.2	v1.1	v1.0
2019.1	2017.1	1.0

This Resource shall represent a session for a Redfish implementation.

URIs:

/redfish/v1/SessionService/Sessions/{[SessionId](#)}

OemSessionType (v1.2+)	string	read-only (null)	When SessionType is reported as OEM, this property should report the OEM-specific session type. Thus, this property shall represent the type of OEM session that is currently active.
Password	string	read-only required on create (null)	This property shall contain the password for this session. The value shall be <code>null</code> in responses.
SessionType (v1.2+)	string (enum)	read-only (null)	This property shall represent the type of session that is currently active. <i>For the possible property values, see SessionType in Property Details.</i>
UserName	string	read-only required on create (null)	This property shall contain the user name that matches an account recognized by the Account Service.

Property Details

SessionType:

This property shall represent the type of session that is currently active.

string	Description
HostConsole	The host's console, which could be connected through Telnet, SSH, or other protocol.
IPMI	Intelligent Platform Management Interface.
KVMIP	Keyboard-Video-Mouse over IP Session.
ManagerConsole	The manager's console, which could be connected through Telnet, SSH, SM CLP, or other protocol.
OEM	OEM Type. For OEM session types, see the OemSessionType property.
Redfish	A Redfish session.
VirtualMedia	Virtual media.
WebUI	A non-Redfish web user interface session, such as a graphical

string	Description interface or another web-based protocol.
--------	--

Example Response

```
{
  "@odata.type": "#Session.v1_2_1.Session",
  "Id": "1234567890ABCDEF",
  "Name": "User Session",
  "Description": "Manager User Session",
  "UserName": "Administrator",
  "Oem": {},
  "@odata.id": "/redfish/v1/SessionService/Sessions/1234567890ABCDEF"
}
```

SessionService 1.1.6

v1.1	v1.0
2016.2	1.0

This Resource contains the Session Service properties for a Redfish implementation.

URIs:

/redfish/v1/SessionService

ServiceEnabled	boolean	read-write (null)	This property shall indicate whether this service is enabled. If <code>true</code> , this service is enabled. If <code>false</code> , it is disabled, and 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 Resource Collection of type <code>SessionCollection</code> . <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Session. See the Session schema for details.</i>
SessionTimeout	integer (seconds)	read-write	This property shall contain 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 <code>Validation.Minimum</code> and <code>Validation.Maximum</code> .
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>

Example Response

```
{
  "@odata.type": "#SessionService.v1_1_6.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.id": "/redfish/v1/SessionService"
}
```

SimpleStorage 1.2.3

v1.2	v1.1	v1.0
2017.1	2016.1	1.0

This Resource contains 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 related to this Resource.
CapacityBytes (v1.1+)	integer (bytes)	read-only (null)	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 of this Resource or array member. The Resource values shall

			comply with the Redfish Specification-described requirements. This string value shall be of the 'Name' reserved word format.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
Status { } }]	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
Links (v1.2+) {	object		The Redfish Specification-described Links Property shall contain links to Resources related to but not subordinate to this Resource.
Chassis {	object		This property shall contain a link to a Resource of type Chassis that represents the physical container associated with this Resource. <i>See the Chassis schema for details on this property.</i>
@odata.id }	string	read-only	Link to a Chassis resource. See the Links section and the Chassis schema for details.
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
UefiDevicePath	string	read-only (null)	This property shall contain the UEFI device path that identifies and locates the specific storage controller.

Example Response

```
{
  "@odata.type": "#SimpleStorage.v1_2_3.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.id": "/redfish/v1/Systems/437XR1138R2/SimpleStorage/1"
}

```

SoftwareInventory 1.2.3

v1.2	v1.1	v1.0
2018.1	2016.3	2016.2

This Resource contains a single software component that this Redfish Service manages.

URIs:

</redfish/v1/UpdateService/FirmwareInventory/{SoftwareInventoryId}>

</redfish/v1/UpdateService/SoftwareInventory/{SoftwareInventoryId}>

LowestSupportedVersion (v1.1+)	string	read-only (null)	This property shall represent 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)	This property shall represent the name of the manufacturer or producer of this software.
RelatedItem (v1.1+) [{	array		This property shall contain an array of IDs

			for 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)	This property shall contain the date of release or production for this software. If the time of day is unknown, the time of day portion of the property shall contain 00:00:00Z.
SoftwareId (v1.1+)	string	read-only	This property shall represent an implementation-specific label that identifies this software. This string correlates with a component repository or database.
Status {}	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
UefiDevicePaths (v1.1+) []	array (string, null)	read-only	This property shall contain a list of UEFI device paths of the components associated with this software inventory item. The UEFI device paths shall be formatted as defined by the UEFI Specification.
Updateable	boolean	read-only (null)	This property shall indicate whether the Update Service can update this software. If <code>true</code> , the Service can update this software. If <code>false</code> , the Service cannot update this software and the software is for reporting purposes only.
Version	string	read-only (null)	This property shall contain the version of this software.

Example Response

```
{
  "@odata.type": "#SoftwareInventory.v1_2_3.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.id": "/redfish/v1/UpdateService/FirmwareInventory/BMC"
}

```

Storage 1.8.0

v1.8	v1.7	v1.6	v1.5	v1.4	v1.3	v1.2	v1.1	v1.0
2019.3	2019.1	2018.3	2018.2	2017.3	2017.2	2017.1	2016.2	2016.1

This Resource shall 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}](#)

ConsistencyGroups (v1.8+) {	object		This property shall contain a link to a Resource of type ConsistencyGroupCollection. The property shall be used when groups of volumes are treated as a single resource by an application or set of applications.
@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 [{	array		This property shall contain a set of the drives attached to the storage controllers that this Resource represents.

@odata.id }]	string	read-only	<i>Link to a Drive resource. See the Links section and the Drive schema for details.</i>
EndpointGroups (v1.8+) {	object		This property shall contain a link to a Resource of type EndpointGroupCollection. This property shall be implemented when atomic control is needed to perform mapping, masking and zoning operations.
@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.
FileSystems (v1.8+) {	object		This property shall contain a link to a Resource of type FileSystemCollection. This property shall be used when file systems are shared or exported by 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.
Links {	object		This property shall contain links to Resources that are related to but are not contained by or subordinate to this Resource.
Enclosures [{	array		This property shall link to a Resource of type Chassis that represents the physical containers attached to this Resource.
@odata.id }]	string	read-only	<i>Link to a Chassis resource. See the Links section and the Chassis schema for details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
Redundancy [{ }	array (object)		This property shall contain redundancy information for the storage subsystem. This object represents the redundancy element property.

			<i>For property details, see Redundancy.</i>
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
StorageControllers [{	array		This property shall contain a set of the storage controllers that this Resource represents.
@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 (v1.2+) { }	object		This property shall contain the available actions for this Resource.
Assembly (v1.4+) {	object		This property shall contain a link to a Resource of type Assembly. See the Assembly schema for details on this property.
@odata.id }	string	read-only	<i>Link to a Assembly resource. See the Links section and the Assembly schema for details.</i>
AssetTag	string	read-write (null)	This property shall track the storage controller for inventory purposes.
CacheSummary (v1.5+) {	object		This property shall contain properties that describe the cache memory for this 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. <i>For property details, see Status.</i>
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	string	read-only (null)	This property shall contain the firmware 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 for a Resource. <i>For property details, see Identifier.</i>
Links (v1.1+) {	object		This property shall contain links to Resources that are related to but are not contained by or subordinate to this Resource.
Endpoints [{	array		This property shall contain a link to the Resources of the Endpoint type with which this controller is associated.
@odata.id }]	string	read-only	<i>Link to a Endpoint resource. See the Links section and the Endpoint schema for details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PCleFunctions (v1.7+) [{	array		This property shall link to a Resource of type PCIeFunction that represents the PCIe functions associated with this Resource.

<pre> @odata.id }} </pre>	string	read-only	<p>Link to a PCleFunction resource. See the Links section and the PCleFunction schema for details.</p>
<pre> StorageServices (v1.4+) [{ </pre>	array		<p>This property shall contain a link to the Resources of the StorageService type with which this controller is associated.</p>
<pre> @odata.id }} } </pre>	string	read-only	<p>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.</p>
<pre> Location (v1.4+) { } </pre>	object		<p>This property shall contain location information of the associated storage controller. For property details, see Location.</p>
<pre> Manufacturer </pre>	string	read-only (null)	<p>This property shall contain the name of the organization responsible for producing the storage controller. This organization might be the entity from which the storage controller is purchased, but this is not necessarily true.</p>
<pre> MemberId </pre>	string	read-only required	<p>This property shall uniquely identify the member within the collection. For services supporting Redfish v1.6 or higher, this value shall contain the zero-based array index.</p>
<pre> Model </pre>	string	read-only (null)	<p>This property shall contain the name by which the manufacturer generally refers to the storage controller.</p>
<pre> Name (v1.3+) </pre>	string	read-only (null)	<p>This property shall contain the name of the Storage Controller.</p>
<pre> Oem { } </pre>	object		<p>This property shall contain the OEM extensions. All values for properties that this object contains shall conform to the Redfish Specification-described requirements.</p>
<pre> PartNumber </pre>	string	read-only (null)	<p>This property shall contain a part number assigned by the organization that is responsible for producing or manufacturing the storage controller.</p>

PCIeInterface (v1.5+) {	object		This property shall contain details on the PCIe interface that connects this PCIe-based controller to its host.
LanesInUse	integer	read-only (null)	This property shall contain the number of PCIe lanes in use by this device, which shall be equal to or less than the MaxLanes property value.
MaxLanes	integer	read-only (null)	This property shall contain the maximum number of PCIe lanes supported by this device.
MaxPCIeType	string (enum)	read-only (null)	This property shall contain the maximum PCIe specification that this device supports. <i>For the possible property values, see MaxPCIeType in Property Details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
PCIeType }	string (enum)	read-only (null)	This property shall contain the negotiated PCIe interface version in use by this device. <i>For the possible property values, see PCIeType in Property Details.</i>
Ports (v1.7+) {	object		This property shall contain a link to a Resource Collection of type PortCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Port. See the Port schema for details.</i>
SerialNumber	string	read-only (null)	This property shall contain a manufacturer-allocated number that identifies the storage controller.
SKU	string	read-only (null)	This property shall contain the stock-keeping unit number for this storage storage controller.
SpeedGbps	number (Gbit/s)	read-only (null)	This property shall represent the maximum supported speed of the storage bus interface, in Gigabits per second. The specified interface connects the

			controller to the storage devices, not the controller to a host. For example, SAS bus not PCIe host bus.
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
SupportedControllerProtocols []	array (string (enum))	read-only	This property shall contain the supported set of protocols for communicating to this storage controller. <i>For the possible property values, see SupportedControllerProtocols in Property Details.</i>
SupportedDeviceProtocols []	array (string (enum))	read-only	This property shall contain the set of protocols this storage controller can use to communicate with attached devices. <i>For the possible property values, see SupportedDeviceProtocols in Property Details.</i>
SupportedRAIDTypes (v1.6+) [] }]	array (string (enum))	read-only (null)	This property shall contain an array of all the RAID types supported by this controller. <i>For the possible property values, see SupportedRAIDTypes in Property Details.</i>
StorageGroups (v1.8+) {	object		This property shall contain a link to a Resource of type StorageGroupsCollection. This property shall be used when implementing mapping and masking.
@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.
StoragePools (v1.8+) {	object		This property shall contain a link to a Resource of type StoragePoolCollection. This property shall be used when an abstraction of media, rather than references to individual media, are used as the storage data source.

@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.
Volumes {	object		This property shall contain a link to a Resource of type VolumeCollection.
@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 that are included in the POST body to the URI shown in the "target" property of the Action.

{			
EncryptionKey	string	required	This parameter shall contain the encryption key to set on the storage subsystem.
}			

Property Details

MaxPCleType:

This property shall contain 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.

string	Description
Gen4	A PCIe v4.0 slot.
Gen5	A PCIe v5.0 slot.

PCIeType:

This property shall contain 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.

SupportedControllerProtocols:

This property shall contain the supported set of protocols for communicating to this storage controller.

string	Description
AHCI	This value shall indicate conformance to the Intel Advanced Host Controller Interface (AHCI) Specification.
FC	This value shall indicate conformance to the T11 Fibre Channel Physical and Signaling Interface Specification.
FCoE	This value shall indicate conformance to the T11 FC-BB-5 Specification.
FCP	This value shall indicate conformance to the INCITS 481: Information Technology - Fibre Channel Protocol for SCSI.
FICON	This value shall indicate conformance to the ANSI FC-SB-3 Single-Byte Command Code Sets-3 Mapping Protocol for the Fibre Channel (FC) protocol. Fibre Connection (FICON) is the IBM-proprietary name for this protocol.
FTP	This value shall indicate conformance to the RFC114-defined File Transfer Protocol (FTP).
HTTP	This value shall indicate conformance to the Hypertext Transport Protocol (HTTP) as defined by RFC3010 or RFC5661.
HTTPS	This value shall indicate conformance to the Hypertext Transfer Protocol Secure (HTTPS) as defined by RFC2068 or RFC2616, which uses Transport Layer Security (TLS) as defined by RFC5246 or RFC6176.
I2C	This value shall indicate conformance to the NXP Semiconductors

string	Description
	I2C-bus Specification.
iSCSI	This value shall indicate conformance to the IETF Internet Small Computer Systems Interface (iSCSI) Specification.
iWARP	This value shall indicate conformance to the RFC5042-defined Internet Wide Area RDMA Protocol (iWARP) that uses the transport layer mechanisms as defined by RFC5043 or RFC5044.
NFSv3	This value shall indicate conformance to the RFC1813-defined Network File System (NFS) protocol.
NFSv4	
NVMe	This value shall indicate conformance to the Non-Volatile Memory Host Controller Interface Specification.
NVMeOverFabrics	This value shall indicate conformance to the NVM Express over Fabrics Specification.
OEM	This value shall indicate conformance to an OEM-specific architecture and additional information may be included in the OEM section.
PCIe	This value shall indicate conformance to the PCI-SIG PCI Express Base Specification.
RoCE	This value shall indicate conformance to the Infiniband Architecture Specification-defined RDMA over Converged Ethernet Protocol.
RoCEv2	This value shall indicate conformance to the Infiniband Architecture Specification-defined RDMA over Converged Ethernet Protocol version 2.
SAS	This value shall indicate conformance to the T10 SAS Protocol Layer Specification.
SATA	This value shall indicate conformance to the Serial ATA International Organization Serial ATA Specification.
SFTP	This value shall indicate conformance to the RFC114-defined SSH File Transfer Protocol (SFTP) that uses Transport Layer Security (TLS) as defined by RFC5246 or RFC6176.
SMB	This value shall indicate conformance to the Server Message Block (SMB), or Common Internet File System (CIFS), protocol.
TCP	This value shall indicate conformance to the IETF-defined Transmission Control Protocol (TCP). For example, RFC7414 defines the roadmap of the TCP specification.
TFTP	This value shall indicate conformance to the IETF-defined Trivial File Transfer Protocol (TFTP). For example, RFC1350 defines the core TFTP version 2 specification.
UDP	This value shall indicate conformance to the IETF-defined User Datagram Protocol (UDP). For example, RFC768 defines the core UDP specification.

string	Description
UHCI	This value shall indicate conformance to the Intel Universal Host Controller Interface (UHCI) Specification, Enhanced Host Controller Interface Specification, or the Extensible Host Controller Interface Specification.
USB	This value shall indicate conformance to the USB Implementers Forum Universal Serial Bus Specification.

SupportedDeviceProtocols:

This property shall contain the set of protocols this storage controller can use to communicate with attached devices.

string	Description
AHCI	This value shall indicate conformance to the Intel Advanced Host Controller Interface (AHCI) Specification.
FC	This value shall indicate conformance to the T11 Fibre Channel Physical and Signaling Interface Specification.
FCoE	This value shall indicate conformance to the T11 FC-BB-5 Specification.
FCP	This value shall indicate conformance to the INCITS 481: Information Technology - Fibre Channel Protocol for SCSI.
FICON	This value shall indicate conformance to the ANSI FC-SB-3 Single-Byte Command Code Sets-3 Mapping Protocol for the Fibre Channel (FC) protocol. Fibre Connection (FICON) is the IBM-proprietary name for this protocol.
FTP	This value shall indicate conformance to the RFC114-defined File Transfer Protocol (FTP).
HTTP	This value shall indicate conformance to the Hypertext Transport Protocol (HTTP) as defined by RFC3010 or RFC5661.
HTTPS	This value shall indicate conformance to the Hypertext Transfer Protocol Secure (HTTPS) as defined by RFC2068 or RFC2616, which uses Transport Layer Security (TLS) as defined by RFC5246 or RFC6176.
I2C	This value shall indicate conformance to the NXP Semiconductors I2C-bus Specification.
iSCSI	This value shall indicate conformance to the IETF Internet Small Computer Systems Interface (iSCSI) Specification.
iWARP	This value shall indicate conformance to the RFC5042-defined Internet Wide Area RDMA Protocol (iWARP) that uses the transport layer mechanisms as defined by RFC5043 or RFC5044.
NFSv3	This value shall indicate conformance to the RFC1813-defined Network File System (NFS) protocol.

string	Description
NFSv4	
NVMe	This value shall indicate conformance to the Non-Volatile Memory Host Controller Interface Specification.
NVMeOverFabrics	This value shall indicate conformance to the NVM Express over Fabrics Specification.
OEM	This value shall indicate conformance to an OEM-specific architecture and additional information may be included in the OEM section.
PCIe	This value shall indicate conformance to the PCI-SIG PCI Express Base Specification.
RoCE	This value shall indicate conformance to the Infiniband Architecture Specification-defined RDMA over Converged Ethernet Protocol.
RoCEv2	This value shall indicate conformance to the Infiniband Architecture Specification-defined RDMA over Converged Ethernet Protocol version 2.
SAS	This value shall indicate conformance to the T10 SAS Protocol Layer Specification.
SATA	This value shall indicate conformance to the Serial ATA International Organization Serial ATA Specification.
SFTP	This value shall indicate conformance to the RFC114-defined SSH File Transfer Protocol (SFTP) that uses Transport Layer Security (TLS) as defined by RFC5246 or RFC6176.
SMB	This value shall indicate conformance to the Server Message Block (SMB), or Common Internet File System (CIFS), protocol.
TCP	This value shall indicate conformance to the IETF-defined Transmission Control Protocol (TCP). For example, RFC7414 defines the roadmap of the TCP specification.
TFTP	This value shall indicate conformance to the IETF-defined Trivial File Transfer Protocol (TFTP). For example, RFC1350 defines the core TFTP version 2 specification.
UDP	This value shall indicate conformance to the IETF-defined User Datagram Protocol (UDP). For example, RFC768 defines the core UDP specification.
UHCI	This value shall indicate conformance to the Intel Universal Host Controller Interface (UHCI) Specification, Enhanced Host Controller Interface Specification, or the Extensible Host Controller Interface Specification.
USB	This value shall indicate conformance to the USB Implementers Forum Universal Serial Bus Specification.

SupportedRAIDTypes:

This property shall contain an array of all the RAID types supported by this controller.

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

string	Description
	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	A placement policy that uses parity-based protection for storing stripes of 'n' logical blocks of data and three logical blocks of independent parity across a set of 'n+3' independent storage devices where the parity and data blocks are interleaved across the storage devices. This is commonly referred to as Triple Parity RAID. Data stored using this form of RAID is able to survive any three independent storage device failures without data loss.

Example Response

```
{
  "@odata.type": "#Storage.v1_7_1.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": "2M220100SI",
    "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.SetEncrypt"
  }
},
"@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1"
}

```

Switch 1.2.0

v1.2	v1.1	v1.0
2019.2	2017.3	2016.2

This Resource contains a switch for a Redfish implementation.

URIs:

/redfish/v1/Fabrics/{FabricId}/Switches/{SwitchId}

AssetTag	string	read-write (null)	This property shall contain the user-assigned asset tag, which is an identifying string that tracks the drive for inventory purposes.
DomainID	integer	read-only (null)	This property shall contain The domain ID for this switch. This property has a scope of uniqueness within the fabric of which the switch is a member.
FirmwareVersion (v1.2+)	string	read-only (null)	This property shall contain the firmware version as defined by the manufacturer for the associated switch.
IndicatorLED	string (enum)	read-write (null)	This property shall contain the state of the indicator light associated with this switch. <i>For the possible property values, see IndicatorLED in Property Details.</i>
IsManaged	boolean	read-write (null)	This property shall indicate whether this switch is in a managed or unmanaged state.
Links {	object		The Redfish Specification-described Links Property shall contain links to Resources related to but not subordinate to this Resource.
Chassis {	object		This property shall contain a link to the Resource of type Chassis with which this switch is associated. <i>See the Chassis schema for details on this property.</i>
@odata.id	string	read-only	<i>Link to a Chassis resource. See the Links section and the Chassis schema for details.</i>
ManagedBy [{	array		This property shall contain a link to the Resource of type Manager with which this switch is associated.
@odata.id	string	read-only	<i>Link to a Manager resource. See the Links section and the Manager schema for details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
Location (v1.1+) { }	object		This property shall contain location information of the associated switch. <i>For property details, see Location.</i>
LogServices {	object		This property shall contain a link to a Resource Collection of type LogServiceCollection. <i>Contains a link to a resource.</i>

@odata.id }	string	read-only	Link to Collection of LogService . See the LogService schema for details.
Manufacturer	string	read-only (null)	This property shall contain the name of the organization responsible for producing the switch. This organization might be the entity from which the switch is purchased, but this is not necessarily true.
Model	string	read-only (null)	This property shall contain the manufacturer-provided model information of this switch.
PartNumber	string	read-only (null)	This property shall contain the manufacturer-provided part number for the switch.
Ports {	object		This property shall contain a link to a Resource Collection of type PortCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	Link to Collection of Port . See the Port schema for details.
PowerState	string (enum)	read-only (null)	This property shall contain the power state of the switch. <i>For the possible property values, see PowerState in Property Details.</i>
Redundancy [{}]	array (object)		This property shall contain an array that shows how this switch is grouped with other switches for form redundancy sets. This object represents the redundancy element property. <i>For property details, see Redundancy.</i>
SerialNumber	string	read-only (null)	This property shall contain a manufacturer-allocated number that identifies the switch.
SKU	string	read-only (null)	This property shall contain the SKU number for this switch.
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
SwitchType	string (enum)	read-only (null)	This property shall contain the type of switch. <i>For the possible property values, see SwitchType in Property Details.</i>
TotalSwitchWidth	integer	read-only (null)	This property shall contain the number of physical transport lanes, phys, or other physical transport links that this switch contains. For PCIe, this value shall be the lane count.

Actions

Reset

This action shall reset this switch.

URIs:

/redfish/v1/Fabrics/{FabricId}/Switches/{SwitchId}/Actions/Switch.Reset

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

{			
ResetType	string (enum)	optional	This parameter shall contain the type of reset. The Service may accept a request without this parameter and can complete an implementation-specific default reset. <i>For the possible property values, see ResetType in Property Details.</i>
}			

Property Details

IndicatorLED:

This property shall contain the state of the indicator light associated with this switch.

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

PowerState:

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 contain the type of reset. The Service may accept a request without this parameter and can complete an implementation-specific default reset.

string	Description
ForceOff	Turn off the unit immediately (non-graceful shutdown).

string	Description
ForceOn	Turn on the unit immediately.
ForceRestart	Shut down immediately and non-gracefully and restart the system.
GracefulRestart	Shut down gracefully and restart the system.
GracefulShutdown	Shut down gracefully and power off.
Nmi	Generate a diagnostic interrupt, which is usually an NMI on x86 systems, to stop normal operations, complete diagnostic actions, and, typically, halt the system.
On	Turn on the unit.
PowerCycle	Power cycle the unit.
PushPowerButton	Simulate the pressing of the physical power button on this unit.

SwitchType:

This property shall contain the type of switch.

string	Description
AHCI	This value shall indicate conformance to the Intel Advanced Host Controller Interface (AHCI) Specification.
FC	This value shall indicate conformance to the T11 Fibre Channel Physical and Signaling Interface Specification.
FCoE	This value shall indicate conformance to the T11 FC-BB-5 Specification.
FCP	This value shall indicate conformance to the INCITS 481: Information Technology - Fibre Channel Protocol for SCSI.
FICON	This value shall indicate conformance to the ANSI FC-SB-3 Single-Byte Command Code Sets-3 Mapping Protocol for the Fibre Channel (FC) protocol. Fibre Connection (FICON) is the IBM-proprietary name for this protocol.
FTP	This value shall indicate conformance to the RFC114-defined File Transfer Protocol (FTP).
HTTP	This value shall indicate conformance to the Hypertext Transport Protocol (HTTP) as defined by RFC3010 or RFC5661.
HTTPS	This value shall indicate conformance to the Hypertext Transfer Protocol Secure (HTTPS) as defined by RFC2068 or RFC2616, which uses Transport Layer Security (TLS) as defined by RFC5246 or RFC6176.
I2C	This value shall indicate conformance to the NXP Semiconductors I2C-bus Specification.
iSCSI	This value shall indicate conformance to the IETF Internet Small Computer Systems Interface (iSCSI) Specification.

string	Description
iWARP	This value shall indicate conformance to the RFC5042-defined Internet Wide Area RDMA Protocol (iWARP) that uses the transport layer mechanisms as defined by RFC5043 or RFC5044.
NFSv3	This value shall indicate conformance to the RFC1813-defined Network File System (NFS) protocol.
NFSv4	
NVMe	This value shall indicate conformance to the Non-Volatile Memory Host Controller Interface Specification.
NVMeOverFabrics	This value shall indicate conformance to the NVM Express over Fabrics Specification.
OEM	This value shall indicate conformance to an OEM-specific architecture and additional information may be included in the OEM section.
PCIe	This value shall indicate conformance to the PCI-SIG PCI Express Base Specification.
RoCE	This value shall indicate conformance to the Infiniband Architecture Specification-defined RDMA over Converged Ethernet Protocol.
RoCEv2	This value shall indicate conformance to the Infiniband Architecture Specification-defined RDMA over Converged Ethernet Protocol version 2.
SAS	This value shall indicate conformance to the T10 SAS Protocol Layer Specification.
SATA	This value shall indicate conformance to the Serial ATA International Organization Serial ATA Specification.
SFTP	This value shall indicate conformance to the RFC114-defined SSH File Transfer Protocol (SFTP) that uses Transport Layer Security (TLS) as defined by RFC5246 or RFC6176.
SMB	This value shall indicate conformance to the Server Message Block (SMB), or Common Internet File System (CIFS), protocol.
TCP	This value shall indicate conformance to the IETF-defined Transmission Control Protocol (TCP). For example, RFC7414 defines the roadmap of the TCP specification.
TFTP	This value shall indicate conformance to the IETF-defined Trivial File Transfer Protocol (TFTP). For example, RFC1350 defines the core TFTP version 2 specification.
UDP	This value shall indicate conformance to the IETF-defined User Datagram Protocol (UDP). For example, RFC768 defines the core UDP specification.
UHCI	This value shall indicate conformance to the Intel Universal Host Controller Interface (UHCI) Specification, Enhanced Host Controller Interface Specification, or the Extensible Host Controller Interface Specification.

string	Description
USB	This value shall indicate conformance to the USB Implementers Forum Universal Serial Bus Specification.

Example Response

```
{
  "@odata.type": "#Switch.v1_2_0.Switch",
  "Id": "Switch1",
  "Name": "SAS Switch",
  "SwitchType": "SAS",
  "Manufacturer": "Contoso",
  "Model": "SAS1000",
  "SKU": "67B",
  "SerialNumber": "2M220100SI",
  "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.id": "/redfish/v1/Fabrics/SAS/Switches/Switch1"
}

```

Task 1.4.2

v1.4	v1.3	v1.2	v1.1	v1.0
2018.3	2018.2	2018.1	2017.1	1.0

This Resource contains a Task for a Redfish implementation.

URIs:

/redfish/v1/TaskService/Tasks/{*TaskId*}

EndTime	string	read-only	This property shall indicate the date and time when the task was completed. This property shall not appear if the task is running or otherwise has not been completed. This property shall appear only if the TaskState is Completed, Killed, Cancelled, or Exception.
HidePayload (v1.3+)	boolean	read-only	This property shall indicate whether the contents of the payload should be hidden from view after the task has been created. If <code>true</code> , responses shall not return the Payload property. If <code>false</code> , responses shall return the Payload property. If this property is not present when the task is created, the default is <code>false</code> .
Messages [{}]	array (object)		This property shall contain an array of messages associated with the task. This type shall contain a message that the Redfish Service returns, as described in the Redfish Specification. <i>For property details, see Message.</i>
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 <code>true</code> .
HttpHeaders []	array (string)	read-only	This property shall contain an array of HTTP headers that this task includes.
HttpOperation	string	read-only	This property shall contain the HTTP operation to

			execute for this task.
JsonBody	string	read-only	This property shall contain JSON formatted payload used for this task.
TargetUri }	string	read-only	This property shall contain a link to the location to use as the target for an HTTP operation.
PercentComplete (v1.4+)	integer (%)	read-only (null)	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	This property shall indicate the date and time when 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	This property shall indicate the state of the task. <i>For the possible property values, see TaskState in Property Details.</i>
TaskStatus	string (enum)	read-only	This property shall contain the completion status of the task, as defined in the Status section of the Redfish Specification and shall not be set until the task completes. <i>For the possible property values, see TaskStatus in Property Details.</i>

Property Details

TaskState:

This property shall indicate the state of the task.

string	Description
Cancelled (v1.2+)	This value shall represent that either a DELETE operation on a Task Monitor or Task Resource or by an internal process cancelled the task.
Cancelling (v1.2+)	This value shall represent that the task is in the process of being cancelled.
Completed	This value shall represent that the task completed successfully or with warnings.
Exception	This value shall represent that the task completed with errors.
Interrupted	This value shall represent that the task has been interrupted but is expected to restart and is therefore not complete.
Killed (deprecated v1.2)	This value shall represent that the task is complete because an operator killed it. <i>This value has been deprecated and is being replaced by the Cancelled value, which has more determinate semantics.</i>
New	This value shall represent that the task is newly created, but has not started.

string	Description
Pending	This value shall represent that the task is pending some condition and has not yet begun to execute.
Running	This value shall represent that the task is executing.
Service	This value shall represent that the task is now running as a service and expected to continue operation until stopped or killed.
Starting	This value shall represent that the task is starting.
Stopping	This value shall represent that the task is stopping but is not yet complete.
Suspended	This value shall represent that the task has been suspended but is expected to restart and is therefore not complete.

TaskStatus:

This property shall contain the completion status of the task, as defined in the Status section of the Redfish Specification and shall not be set until the task completes.

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

Example Response

```
{
  "@odata.type": "#Task.v1_4_2.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 v",
      "MessageArgs": [
        "SKU"
      ],
      "Severity": "Warning"
    }
  ],
  "@odata.id": "/redfish/v1/TaskService/Tasks/545"
}
```

TaskService 1.1.4

v1.1	v1.0
2017.1	1.0

This Resource contains a Task Service for a Redfish implementation.

URIs:

/redfish/v1/TaskService

CompletedTaskOverWritePolicy	string (enum)	read-only	This property shall indicate how the Task Service shall handle completed tasks if the service must track more tasks. This property indicates whether the Task Service overwrites completed task information. <i>For the possible property values, see CompletedTaskOverWritePolicy in Property Details.</i>
DateTime	string	read-only (null)	This property shall represent the current DateTime value for the Task Service, with UTC offset, in Redfish Timestamp format.
LifeCycleEventOnTaskStateChange	boolean	read-only	This property shall indicate whether a task state change sends an event. The Eventing section of the Redfish Specification defines life-cycle events.
ServiceEnabled	boolean	read-write (null)	This property shall indicate whether this service is enabled.
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
Tasks {	object		This property shall contain a link to a Resource of type TaskCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Task. See the Task schema for details.</i>

Property Details

CompletedTaskOverWritePolicy:

This property shall indicate how the Task Service shall handle completed tasks if the service must track more tasks. This property indicates whether the Task Service overwrites completed task information.

string	Description
Manual	Completed tasks are not automatically overwritten.
Oldest	Oldest completed tasks are overwritten.

Example Response

```
{
  "@odata.type": "#TaskService.v1_1_4.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.id": "/redfish/v1/TaskService"
}
```

TelemetryService 1.1.2

v1.1	v1.0
2018.3	2018.2

This Resource contains a Telemetry Service for a Redfish implementation.

URIs:

/redfish/v1/TelemetryService

LogService {	object		This property shall contain a link to a Log Service that this Telemetry Service uses. 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)	This property shall contain the maximum number of metric reports that this service supports.
MetricDefinitions {	object		This property shall contain a link to a

			Resource Collection of type MetricDefinitionCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of MetricDefinition. See the MetricDefinition schema for details.</i>
MetricReportDefinitions {	object		This property shall contain a link to a Resource Collection of type MetricReportDefinitionCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of MetricReportDefinition. See the MetricReportDefinition schema for details.</i>
MetricReports {	object		This property shall contain a link to a Resource Collection of type MetricReportCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of MetricReport. See the MetricReport schema for details.</i>
MinCollectionInterval	string	read-only (null)	This property shall contain the minimum time interval between gathering metric data that this service allows. Pattern: <code>-?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(\.\d+)?)S)??</code>
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
SupportedCollectionFunctions []	array (string (enum))	read-write (null)	This property shall contain the function to apply over the collection duration. If present, the metric value shall be computed according to this function. <i>For the possible property values, see SupportedCollectionFunctions in Property Details.</i>
Triggers {	object		This property shall contain a link to a Resource Collection of type TriggersCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of Triggers. See the Triggers schema for details.</i>

Actions

SubmitTestMetricReport

This action shall cause the Event Service to immediately generate the metric report as an alert event. Then, this message should be sent to any appropriate event destinations.

URIs:

`/redfish/v1/TelemetryService/Actions/TelemetryService.SubmitTestMetricReport`

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

{			
GeneratedMetricReportValues (v1.1+) [{	array	required	This parameter shall contain the contents of the MetricReportValues array property in the generated metric report.
MetricDefinition {	object		The link to the Metric Definition Resource that describes what this metric report captures. 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)	This property shall contain the same as the Id property of the source metric within the associated MetricDefinition.
MetricProperty	string	read-only (null)	This property shall contain the URI to the property, which follows the RFC6901-defined JSON fragment notation, to identify an individual property in a Redfish Resource.
MetricValue	string	read-only (null)	This property shall contain the metric value, as a string.
Timestamp }]	string	read-only (null)	This property shall contain the time when the metric value was obtained. Note that this may be different from the time when this instance is created.
MetricReportName	string	required	This parameter shall contain the name of the generated metric report.
MetricReportValues (deprecated v1.1) }	string	optional	This parameter shall contain the contents of the MetricReportValues array property in the generated metric report. <i>Deprecated in v1.1 and later. This property has been deprecated in favor of using the property 'GeneratedMetricReportValues'.</i>

Property Details

SupportedCollectionFunctions:

This property shall contain 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_1_2.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.id": "/redfish/v1/TelemetryService"
}
```

Thermal 1.5.3

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 contain the thermal management properties for temperature monitoring and management of cooling fans for a Redfish implementation.

URIs:

/redfish/v1/Chassis/{[ChassisId](#)}/Thermal

Fans [{	array		This property shall contain the set of fans for this chassis.
@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		This property shall contain the available actions for this Resource.
Assembly (v1.4+) {	object		This property shall contain a link to a Resource of type Assembly. <i>See the Assembly schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a Assembly resource. See the Links section and the Assembly schema for details.</i>
FanName (deprecated v1.1)	string	read-only (null)	This property shall contain the name of the fan. <i>Deprecated in v1.1 and later. This property has been deprecated in favor of the Name property.</i>
HotPluggable (v1.4+)	boolean	read-only (null)	This property shall indicate whether the device can be inserted or removed while the underlying equipment otherwise remains in its current operational state. Hot-pluggable devices can 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 not hot-pluggable.
IndicatorLED (v1.2+)	string (enum)	read-write (null)	This property shall contain the state of the indicator light associated with this fan. <i>For the possible property values, see IndicatorLED in Property Details.</i>
Location (v1.4+) { }	object		This property shall contain location information of the associated fan. <i>For property details, see Location.</i>
LowerThresholdCritical	integer	read-only (null)	This property shall contain the value at which the Reading property is below the normal range but is not yet fatal. The value of the property shall use the same units as the Reading property.
LowerThresholdFatal	integer	read-only (null)	This property shall contain the value at which the Reading property is below the normal range and is fatal. The value of the property shall use the same units as the Reading property.
LowerThresholdNonCritical	integer	read-only (null)	This property shall contain the value at which the Reading property is below normal range. The value of the property

			shall use the same units as the Reading property.
Manufacturer (v1.2+)	string	read-only (null)	This property shall contain 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)	This property shall indicate the highest possible value for the Reading property. The value of the property shall use the same units as the Reading property.
MemberId	string	read-only required	This property shall uniquely identify the member within the collection. For services supporting Redfish v1.6 or higher, this value shall contain the zero-based array index.
MinReadingRange	integer	read-only (null)	This property shall indicate the lowest possible value for the Reading property. The value of the property shall use the same units as the 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)	This property shall contain the name of the fan.
Oem { }	object		This property shall contain the OEM extensions. All values for properties that this object contains shall

			conform to the Redfish Specification-described requirements.
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	This property shall contain a description of the affected device or region within the chassis with which this fan is associated. <i>For the possible property values, see PhysicalContext in Property Details.</i>
Reading	integer	read-only (null)	This property shall contain the fan sensor reading.
ReadingUnits (v1.0.1+)	string (enum)	read-only (null)	This property shall contain the units in which the fan reading and thresholds are measured. <i>For the possible property values, see ReadingUnits in Property Details.</i>
Redundancy [{}]	array (object)		This property shall contain an array of links to the redundancy groups to which this fan belongs. This object represents the redundancy element property. <i>For property details, see Redundancy.</i>
RelatedItem [{	array		This property shall contain an array of IDs for pointers consistent with JSON Pointer syntax to the Resources that this fan services.
@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)	This property shall contain 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. <i>For property details, see Status.</i>
UpperThresholdCritical	integer	read-only (null)	This property shall contain the value at which the Reading property is above the normal range but is not yet fatal. The value of the property shall use the same units as the Reading property.
UpperThresholdFatal	integer	read-only (null)	This property shall contain the value at which the Reading property is above the normal range and is fatal. The value of the property shall use the same units as the Reading property.
UpperThresholdNonCritical }]	integer	read-only (null)	This property shall contain the value at which the Reading property is above the normal range. The value of the property shall use the same

			units as the Reading property.
Redundancy [{}]	array (object)		This property shall contain redundancy information for the fans in this chassis. This object represents the redundancy element property. <i>For property details, see Redundancy.</i>
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>
Temperatures [{	array		This property shall contain the set of temperature sensors for this chassis.
@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		This property shall contain the available actions for this Resource.
AdjustedMaxAllowableOperatingValue (v1.4+)	integer (Celsius)	read-only (null)	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)	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	This property shall contain a description of the affected device or region within the chassis to which the DeltaReadingCelsius temperature measurement applies, relative to PhysicalContext. <i>For the possible property values, see DeltaPhysicalContext in Property Details.</i>
DeltaReadingCelsius (v1.4+)	number (Celsius)	read-only (null)	This property shall contain the delta of the values of the temperature readings across this sensor and the sensor at DeltaPhysicalContext.
LowerThresholdCritical	number (Celsius)	read-only (null)	This property shall contain the value at which the ReadingCelsius property is below the normal range but is not yet fatal. The value of the property shall use the same units as the ReadingCelsius property.
LowerThresholdFatal	number (Celsius)	read-only (null)	This property shall contain the value at

			which the ReadingCelsius property is below the normal range and is fatal. The value of the property shall use the same units as the ReadingCelsius property.
LowerThresholdNonCritical	number (Celsius)	read-only (null)	This property shall contain the value at which the ReadingCelsius property is below normal range. The value of the property shall use the same units as the ReadingCelsius property.
MaxAllowableOperatingValue (v1.4+)	integer (Celsius)	read-only (null)	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)	This property shall indicate the highest possible value for the ReadingCelsius property. The value of the property shall use the same units as the ReadingCelsius property.
MemberId	string	read-only required	This property shall uniquely identify the member within the collection. For services supporting Redfish v1.6 or higher, this value shall contain the zero-based array index.
MinAllowableOperatingValue (v1.4+)	integer (Celsius)	read-only (null)	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)	This property shall indicate the lowest possible value for the ReadingCelsius property. The value of the property shall use the same units as the ReadingCelsius property.
Name	string	read-only (null)	This property shall contain the name of the temperature sensor.
Oem { }	object		This property shall contain the OEM extensions. All values for properties that this object contains shall conform to the Redfish Specification-described requirements.
PhysicalContext	string (enum)	read-only	This property shall contain a description of the affected device or region within the chassis to which this temperature applies. <i>For the possible property values, see PhysicalContext in Property Details.</i>
ReadingCelsius	number (Celsius)	read-only (null)	This property shall contain the temperature in Celsius degrees.
RelatedItem [{	array		This array property shall contain the IDs of areas or devices to which this temperature 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)	This property shall contain 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. <i>For property details, see Status.</i>
UpperThresholdCritical	number (Celsius)	read-only (null)	This property shall contain the value at which the ReadingCelsius property is above the normal range but is not yet fatal. The value of the property shall use the same units as the ReadingCelsius property.
UpperThresholdFatal	number (Celsius)	read-only (null)	This property shall contain the value at which the ReadingCelsius property is above the normal range and is fatal. The value of the property shall use the same units as the ReadingCelsius property.
UpperThresholdNonCritical }]	number (Celsius)	read-only (null)	This property shall contain the value at which the ReadingCelsius property is above the normal range. The value of the property shall use the same units as the ReadingCelsius property.

Property Details

DeltaPhysicalContext:

This property shall contain 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 a networking chip or 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, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	Within an expansion bay.
Fan	A fan.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points 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.

string	Description
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:

This property shall contain the state of the indicator light associated with this fan.

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

PhysicalContext:

This property shall contain a description of the affected device or region within the chassis to which this temperature applies.

string	Description
Accelerator	An accelerator.

string	Description
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 a networking chip or 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, or air and liquid, subsystem.
CPU	A processor (CPU).
CPUSubsystem	The entire processor (CPU) subsystem.
DCBus	A DC bus.
Exhaust	The air exhaust point or points or region of the chassis.
ExpansionBay	Within an expansion bay.
Fan	A fan.
FPGA	An FPGA.
Front	The front of the chassis.
GPU	A graphics processor (GPU).
GPUSubsystem	The entire graphics processor (GPU) subsystem.
Intake	The air intake point or points 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.

string	Description
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:

This property shall contain the units in which the fan reading and thresholds are measured.

string	Description
Percent	The fan reading and thresholds are measured as a percentage.
RPM	The fan reading and thresholds are measured in rotations per minute.

Example Response

```
{
  "@odata.type": "#Thermal.v1_5_3.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.id": "/redfish/v1/Chassis/1U/Thermal"
}

```

Triggers 1.1.1

v1.1	v1.0
2019.1	2018.2

This Resource shall contain a trigger that applies to metrics.

URIs:

/redfish/v1/TelemetryService/Triggers/[{TriggersId}](#)

DiscreteTriggerCondition	string (enum)	read-only (null)	This property shall contain the conditions when a discrete metric triggers. <i>For the possible property values, see Discrete Trigger Condition in Property Details.</i>
DiscreteTriggers [{	array		This property shall contain a list of values to which to compare a metric reading. This property shall be present when the DiscreteTriggerCondition property is Specified.
DwellTime	string	read-write (null)	This property shall contain the amount of time that a trigger event 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	read-write	This property shall contain the Severity

	(enum)	(null)	property to be used in the Event message. <i>For the possible property values, see Severity in Property Details.</i>
Value }]	string	read-write (null)	This property shall contain the value discrete metric that constitutes a trigger event. The DwellTime shall be measured from this point in time.
EventTriggers (v1.1+) []	array (string, null)	read-write	This property shall contain an array of MessageIds that specify when a trigger condition is met based on an event. When the Service generates an event and if it contains a MessageId within this array, a trigger condition shall be met. Pattern: <code>^[A-Za-z0-9]+\d+\d+[A-Za-z0-9]+\$</code>
Links (v1.1+) {	object		The Redfish Specification-described Links Property shall contain links to Resources related to but not subordinate to this Resource.
MetricReportDefinitions [{	array		This property shall contain a set of links to metric report definitions that generate new metric reports when a trigger condition is met and when the TriggerActions property contains <code>RedfishMetricReport</code> .
@odata.id }]	string	read-only	<i>Link to a MetricReportDefinition resource. See the Links section and the MetricReportDefinition schema for details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
MetricProperties []	array (string, null)	read-write	This property shall contain an array of URIs with wildcards and property identifiers for this trigger. Use a set of curly braces to delimit each wildcard in the URI. Replace each wildcard with its corresponding entry in the Wildcard array property. A URI that contains wildcards shall link to a Resource property to which the metric definition applies after all wildcards are replaced with their corresponding entries in the Wildcard array property. The property identifiers portion of the URI shall follow the RFC6901-defined JSON fragment notation rules.
MetricType	string (enum)	read-only (null)	This property shall contain the metric type of the trigger. <i>For the possible property values, see MetricType in Property Details.</i>
NumericThresholds {	object		This property shall contain the list of

			thresholds to which to compare a numeric metric value.
LowerCritical {	object		This property shall contain the value at which the MetricProperties property is below the normal range and may require attention. The value of the property shall use the same units as the MetricProperties property.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the reading for this sensor that activates the threshold. <i>For the possible property values, see Activation in Property Details.</i>
DwellTime	string	read-write (null)	This property shall indicate the duration the sensor value must violate the threshold before the threshold is activated. Pattern: <code>-?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(\.d+)?)S)??</code>
Reading }	number	read-write (null)	This property shall indicate the reading for this sensor that activates the threshold. The value of the property shall use the same units as the MetricProperties property.
LowerWarning {	object		This property shall contain the value at which the MetricProperties property is below the normal range. The value of the property shall use the same units as the MetricProperties property.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the reading for this sensor that activates the threshold. <i>For the possible property values, see Activation in Property Details.</i>
DwellTime	string	read-write (null)	This property shall indicate the duration the sensor value must violate the threshold before the threshold is activated. Pattern: <code>-?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(\.d+)?)S)??</code>
Reading }	number	read-write (null)	This property shall indicate the reading for this sensor that activates the threshold. The value of the property shall use the same units as the MetricProperties property.
UpperCritical {	object		This property shall contain the value at which the MetricProperties property is above the normal range and may require attention. The value of the property shall use the same units as the MetricProperties property.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the reading for this sensor that activates the threshold. <i>For the possible property values, see Activation in Property Details.</i>

DwellTime	string	read-write (null)	This property shall indicate the duration the sensor value must violate the threshold before the threshold is activated. Pattern: <code>-?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(\.\d+)?)S)?</code> ?
Reading }	number	read-write (null)	This property shall indicate the reading for this sensor that activates the threshold. The value of the property shall use the same units as the MetricProperties property.
UpperWarning {	object		This property shall contain the value at which the MetricProperties property is above the normal range. The value of the property shall use the same units as the MetricProperties property.
Activation	string (enum)	read-write (null)	This property shall indicate the direction of crossing of the reading for this sensor that activates the threshold. <i>For the possible property values, see Activation in Property Details.</i>
DwellTime	string	read-write (null)	This property shall indicate the duration the sensor value must violate the threshold before the threshold is activated. Pattern: <code>-?P(\d+D)?(T(\d+H)?(\d+M)?(\d+(\.\d+)?)S)?</code> ?
Reading }	number	read-write (null)	This property shall indicate the reading for this sensor that activates the threshold. The value of the property shall use the same units as the MetricProperties property.
Status {}	object		This property shall contain any status and health properties of the Resource. <i>For property details, see Status.</i>
TriggerActions []	array (string (enum))	read-only	This property shall contain the actions that the trigger initiates. This type shall specify the actions to perform when a trigger condition is met. <i>For the possible property values, see TriggerActions in Property Details.</i>
Wildcards [{	array		This property shall contain the wildcards and their substitution values for the entries in 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 array property shall contain the list of values to substitute for the wildcard.

Property Details

Activation:

This property shall indicate the direction of crossing of the reading for this sensor that activates the threshold.

string	Description
Decreasing	This threshold is activated when the 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 reading changes from a value lower than the threshold to a value higher than the threshold.

DiscreteTriggerCondition:

This property shall contain the conditions when a discrete metric triggers.

string	Description
Changed	A discrete trigger condition is met whenever the metric value changes.
Specified	A discrete trigger condition is met when the metric value becomes one of the values that the DiscreteTriggers property lists.

MetricType:

This property shall contain the metric type of the trigger.

string	Description
Discrete	The trigger is for a discrete sensor.
Numeric	The trigger is for numeric sensor.

Severity:

This property shall contain the Severity property to be used in the Event message.

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

TriggerActions:

This property shall contain the actions that the trigger initiates. This type shall specify the actions to perform when a trigger condition is met.

string	Description
LogToLogService	This value indicates that when a trigger condition is met, the Service shall log the occurrence of the condition to the log that the LogService property in the TelemetryService Resource describes.
RedfishEvent	This value indicates that when a trigger condition is met, the Service shall send an event to subscribers.
RedfishMetricReport	This value indicates that 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 value. The actions specified in the ReportActions property of each MetricReportDefinition shall be performed.

Example Response

```
{
  "@odata.type": "#Triggers.v1_1_1.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.id": "/redfish/v1/TelemetryService/Triggers/PlatformPowerCapTriggers"
}
```

UpdateService 1.7.0

v1.7	v1.6	v1.5	v1.4	v1.3	v1.2	v1.1	v1.0
2019.3	2019.2	2019.1	2018.3	2018.2	2017.1	2016.3	2016.2

This Resource shall represent an Update Service and the properties that affect the Service itself for a Redfish implementation.

URIs:

/redfish/v1/UpdateService

FirmwareInventory {	object		This property shall contain a link to a Resource of type SoftwareInventoryCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of SoftwareInventory. See the SoftwareInventory schema for details.</i>
HttpPushUri (v1.1+)	string	read-only	This property shall contain a URI at which the Update Service 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 the 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		This property shall contain options and requirements of the Service for HttpPushUri-provided software updates.
HttpPushUriApplyTime {	object		This property shall contain settings for when to apply HttpPushUri-provided firmware.
ApplyTime	string (enum)	read-write	This property shall indicate the time when to apply the HttpPushUri-provided software update. <i>For the possible property values, see ApplyTime in Property Details.</i>
MaintenanceWindowDurationInSeconds	integer (seconds)	read-write	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 contain required if the HttpPushUriApplyTime property value is AtMaintenanceWindowStart or InMaintenanceWindowOnReset.
MaintenanceWindowStartTime }	string	read-write	This property shall indicate the date and time when the Service can start to apply the HttpPushUri-provided software as part of a maintenance window. This property shall contain required if the HttpPushUriApplyTime property value is AtMaintenanceWindowStart or InMaintenanceWindowOnReset.

HttpPushUriOptionsBusy (v1.4+)	boolean	read-write (null)	This property shall indicate whether a client uses the HttpPushUriOptions properties for software updates. When a client uses any HttpPushUriOptions properties for software updates, it should set this property to <code>true</code> . When a client no longer uses HttpPushUriOptions properties for software updates, it should set this property to <code>false</code> . This property can provide multiple clients a way to negotiate ownership of HttpPushUriOptions properties. Clients can use this property to determine whether another client uses HttpPushUriOptions properties for software updates. 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 that indicate where to apply the update image when using the URI specified by the HttpPushUri property to push a software image. These targets should correspond to SoftwareInventory instances or their related items. If this property is not present or contains no 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 indicate whether any client has reserved the HttpPushUriTargets property for firmware updates. A client should set this property to <code>true</code> when it uses HttpPushUriTargets for firmware updates. A client should set it to <code>false</code> when it is no longer uses HttpPushUriTargets for updates. The property can provide multiple clients a way to negotiate ownership of HttpPushUriTargets and helps clients determine whether another client is using HttpPushUriTargets to make firmware updates. This property has no functional requirements for the Service.
MaxImageSizeBytes (v1.5+)	integer (bytes)	read-only (null)	This property shall indicate the maximum size of the software update image that clients can send to this Update Service.
MultipartHttpPushUri (v1.6+)	string	read-only	This property shall contain a URI used to perform a Redfish Specification-defined Multipart HTTP or HTTPS POST of a software image for the purpose of installing software contained within the image.

ServiceEnabled	boolean	read-write (null)	This property shall indicate whether this service is enabled.
SoftwareInventory {	object		This property shall contain a link to a Resource of type SoftwareInventoryCollection. <i>Contains a link to a resource.</i>
@odata.id }	string	read-only	<i>Link to Collection of SoftwareInventory. See the SoftwareInventory schema for details.</i>
Status { }	object		This property shall contain any status or health properties of the Resource. <i>For property details, see Status.</i>

Actions

SimpleUpdate

This action shall update installed software components in a software image file located at an ImageURI parameter-specified URI.

URIs:

/redfish/v1/UpdateService/Actions/UpdateService.SimpleUpdate

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

{			
ImageURI	string	required	This parameter shall contain an RFC3986-defined URI that links to a software image that the Update Service retrieves to install software in that image. This URI should contain a scheme that describes the transfer protocol. If the TransferProtocol parameter is absent or not supported, and a transfer protocol is not specified by a scheme contained within this URI, the Service shall use HTTP to get the image.
Password (v1.4+)	string	optional	This parameter shall represent the password to access the URI specified by the ImageURI parameter.
Targets (v1.2+) []	array (string)	optional	This array property shall contain zero or more URIs that indicate where to apply the update image. These targets should correspond to SoftwareInventory instances or their related items. If this parameter is not present or contains no targets, the Service shall apply the software image to all applicable targets, as determined by the Service.
TransferProtocol	string (enum)	optional	This parameter shall contain the network protocol that the Update Service shall use to retrieve 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 this URI, the Service shall use HTTP to retrieve the image. <i>For the possible property values, see TransferProtocol in Property Details.</i>
Username (v1.4+) }	string	optional	This parameter shall represent the user name to access the URI specified by the ImageURI parameter.

StartUpdate

This action shall start an update of software component that have been scheduled with the OperationApplyTime value of `OnStartUpdateRequest`.

URIs:

/redfish/v1/UpdateService/Actions/UpdateService.StartUpdate

(This action takes no parameters.)

Property Details

ApplyTime:

This property shall indicate the time when to apply the HttpPushUri-provided software update.

string	Description
AtMaintenanceWindowStart	This value shall indicate the HttpPushUri-provided software is applied during the maintenance window specified by the MaintenanceWindowStartTime and MaintenanceWindowDurationInSeconds properties. A Service may perform resets during this maintenance window.
Immediate	This value shall indicate the HttpPushUri-provided software is applied immediately.
InMaintenanceWindowOnReset	This value shall indicate the HttpPushUri-provided software is applied during the maintenance window specified by the MaintenanceWindowStartTime and MaintenanceWindowDurationInSeconds properties, and if a reset occurs within the maintenance window.
OnReset	This value shall indicate the HttpPushUri-provided software is applied when the system or Service is reset.

TransferProtocol:

This parameter shall contain the network protocol that the Update Service shall use to retrieve 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 this URI, the Service shall use HTTP to retrieve the image.

string	Description
CIFS	Common Internet File System (CIFS).
FTP	File Transfer Protocol (FTP).
HTTP	Hypertext Transfer Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
NFS (v1.3+)	Network File System (NFS).
NSF (<i>deprecated v1.3</i>)	Network File System (NFS). <i>This value has been deprecated in favor of NFS.</i>
OEM	A manufacturer-defined protocol.
SCP	Secure Copy Protocol (SCP).
SFTP (v1.1+)	Secure File Transfer Protocol (SFTP).
TFTP	Trivial File Transfer Protocol (TFTP).

Example Response

```
{
  "@odata.type": "#UpdateService.v1_6_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.id": "/redfish/v1/UpdateService"
}
```

VirtualMedia 1.3.2

v1.3	v1.2	v1.1	v1.0
2018.3	2017.3	2017.1	1.0

This Resource shall represent a virtual media service for a Redfish implementation.

URIs:

/redfish/v1/Managers/{[ManagerId](#)}/VirtualMedia/{[VirtualMediaId](#)}

ConnectedVia	string (enum)	read-only (null)	This property shall contain the current connection method from a client to the virtual media that this Resource represents. <i>For the possible property values, see ConnectedVia in Property Details.</i>
Image	string	read-write (null)	This property shall contain an URI. A null value indicated no image connection.
ImageName	string	read-only (null)	This property shall contain the name of the image.
Inserted	boolean	read-write (null)	This property shall indicate whether media is present in the virtual media device.
MediaTypes []	array (string (enum))	read-only	The values of this array shall be the supported media types for this connection. <i>For the possible property values, see MediaTypes in Property Details.</i>
Password (v1.3+)	string	read-write (null)	This parameter shall represent the password to access the Image parameter-specified URI. The value shall be null in responses.
TransferMethod (v1.3+)	string (enum)	read-write (null)	This parameter shall describe how the image transfer occurs. <i>For the possible property values, see TransferMethod in Property Details.</i>
TransferProtocolType (v1.3+)	string (enum)	read-write (null)	This parameter shall represent the network protocol to use with the specified image URI. <i>For the possible property values, see TransferProtocolType in Property Details.</i>
UserName (v1.3+)	string	read-write (null)	This parameter shall represent the user name to access the Image parameter-specified URI.
WriteProtected	boolean	read-write (null)	This property shall indicate whether 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 that are included in the POST body to the URI shown in the "target" property of the Action.

{			
Image	string	required	This parameter shall specify the URI of the remote media to be attached to the virtual media.
Inserted	boolean	optional	This parameter shall indicate whether the image is treated as inserted upon completion of the action. If the client does not provide this parameter, the service shall default this value to <code>true</code> .
Password (v1.3+)	string	optional	This parameter shall represent the password to access the Image parameter-specified URI.
TransferMethod (v1.3+)	string (enum)	optional	This parameter shall describe how the image transfer occurs. <i>For the possible property values, see TransferMethod in Property Details.</i>
TransferProtocolType (v1.3+)	string (enum)	optional	This parameter shall represent the network protocol to use with the specified image URI. <i>For the possible property values, see TransferProtocolType in Property Details.</i>
UserName (v1.3+)	string	optional	This parameter shall contain the user name to access the Image parameter-specified URI.
WriteProtected	boolean	optional	This parameter shall indicate

}		whether the remote media is treated as write-protected. If the client does not provide this parameter, the service shall default this value to <code>true</code> .
---	--	--

Property Details

ConnectedVia:

This property shall contain the current connection method from a client to the virtual media that this Resource represents.

string	Description
Applet	Connected to a client application.
NotConnected	No current connection.
Oem	Connected through 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 describe how the image transfer occurs.

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 represent the network protocol to use with the specified image URI.

string	Description
CIFS	Common Internet File System (CIFS).
FTP	File Transfer Protocol (FTP).

string	Description
HTTP	Hypertext Transfer Protocol (HTTP).
HTTPS	Hypertext Transfer Protocol Secure (HTTPS).
NFS	Network File System (NFS).
OEM	A manufacturer-defined protocol.
SCP	Secure Copy Protocol (SCP).
SFTP	Secure File Transfer Protocol (SFTP).
TFTP	Trivial File Transfer Protocol (TFTP).

Example Response

```
{
  "@odata.type": "#VirtualMedia.v1_3_2.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.id": "/redfish/v1/Managers/BMC/VirtualMedia/CD1"
}
```

VlanNetworkInterface 1.1.4

v1.1	v1.0
2017.1	1.0

The VlanNetworkInterface Schema shall contain any attributes of a VLAN.

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)	This property shall indicate whether this VLAN is enabled for this interface.
VLANId	integer	read-write required on create (null)	This property shall contain the ID for this VLAN.

Example Response

```
{
  "@odata.type": "#VlanNetworkInterface.v1_1_4.VlanNetworkInterface",
  "Id": "1",
  "Name": "VLAN Network Interface",
  "Description": "System NIC 1 VLAN",
  "VLANEnable": true,
  "VLANId": 101,
  "@odata.id": "/redfish/v1/Systems/437XR1138R2/EthernetInterfaces/12446A3B0411/VLANS/1"
}
```

Volume 1.4.0

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/StorageServices/{StorageServiceId}/ConsistencyGroups/{ConsistencyGroupId}/Volumes/{VolumeId}

/redfish/v1/StorageServices/{StorageServiceId}/FileSystems/{FileSystemId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}

/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/AllocatedVolumes/{VolumeId}

/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}

/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumeId}

/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumeId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/ConsistencyGroups/{ConsistencyGroupId}/Volumes/{VolumeId}

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/FileSystems/{FileSystemId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoolId}/AllocatedVolumes/{VolumeId}

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoolId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes/{VolumeId}

AccessCapabilities (v1.1+) []	array (string (enum))	read-write (null)	Each entry shall specify a current storage access capability. StorageAccessCapability enumeration literals may be used to describe abilities to read/write storage. <i>For the possible property values, see AccessCapabilities in Property Details.</i>
AllocatedPools (v1.1+) {	object		The value of this property shall contain references to all storage pools allocated from this volume.
@odata.id }	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the type defined in the Redfish specification.
BlockSizeBytes	integer (bytes)	read-only (null)	This property shall contain size of the smallest addressable unit of the associated volume.
Capacity (v1.1+) { }	object		Information about the utilization of capacity allocated to this storage volume. <i>For property details, see Capacity (v1.0.0).</i>
CapacityBytes	integer (bytes)	read-write (null)	This property shall contain the size in bytes of the associated volume.
CapacitySources (v1.1+) [{	array		Fully or partially consumed storage from a source resource. Each entry provides capacity allocation information from a named source 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 type defined in the Redfish specification.
Compressed (v1.4+)	boolean	read-write (null)	This property shall contain a boolean indicator if the Volume is currently utilizing compression or not.
Deduplicated (v1.4+)	boolean	read-write (null)	This property shall contain a boolean indicator if the Volume is currently utilizing deduplication or not.
DisplayName (v1.4+)	string	read-write (null)	This property shall contain a user-configurable string to name the 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. <i>For the possible property values, see EncryptionTypes in Property Details.</i>
Identifiers [{ }]	array (object)		This property shall contain a list of all known durable names for the associated volume. This type shall contain any additional identifiers for Resource. <i>For property details, see Identifier.</i>
IOStatistics (v1.2+) { }	object		The value shall represent IO statistics for this volume. <i>For property details, see IOStatistics (v1.0.3).</i>
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.
ClassOfService (v1.1+) {	object		This property shall contain a reference to the ClassOfService that this storage volume conforms to.
@odata.id }	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the type defined in the Redfish specification.
ClientEndpoints (v1.4+) [{	array		The value of this property shall be references to the client Endpoints this volume is associated with.
@odata.id }]	string	read-only	<i>Link to a Endpoint resource. See the Links section and the Endpoint schema for details.</i>
ConsistencyGroups (v1.4+) [{	array		The value of this property shall be references to the ConsistencyGroups this volume is associated with.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the type defined in the Redfish specification.
DedicatedSpareDrives (v1.2+) [{	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 assigned as a dedicated spare and are able to support this Volume.
@odata.id }]	string	read-only	<i>Link to a Drive resource. See the Links section and the Drive schema for details.</i>
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	<i>Link to a Drive resource. See the Links section the Drive schema for details.</i>
Oem { }	object		This object represents the Oem property. All v for resources described by this schema shall comply to the requirements as described in the Redfish specification.
OwningStorageService (v1.4+) {	object		This shall be a pointer to the StorageService t owns or contains this volume.
@odata.id }	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the defined in the Redfish specification.
ServerEndpoints (v1.4+) [{	array		The value of this property shall be references the server Endpoints this volume is associated with.
@odata.id }]	string	read-only	<i>Link to a Endpoint resource. See the Links section and the Endpoint schema for details.</i>
SpareResourceSets (v1.3+) [{	array		Each referenced SpareResourceSet shall con resources that may be utilized to replace the capacity provided by a failed resource having compatible type.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the defined in the Redfish specification.
StorageGroups (v1.4+) [{	array		The value of this property shall be references the StorageGroups this volume is associated v
@odata.id }] }	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the defined in the Redfish specification.
LogicalUnitNumber (v1.4+)	integer	read-only (null)	This property shall contain host-visible LogicalUnitNumber assigned to this Volume. T property shall only be used when in a single connect configuration and no StorageGroup configuration is used.
LowSpaceWarningThresholdPercents (v1.1+) []	array (%) (integer, null)	read-write	Each time the following value is less than one the values in the array the LOW_SPACE_THRESHOLD_WARNING ever shall be triggered: Across all CapacitySources entries, percent = (SUM(AllocatedBytes) - SUM(ConsumedBytes))/SUM(AllocatedBytes)
Manufacturer (v1.1+)	string	read-only (null)	This property shall contain a value that repres the manufacturer or implementer of the storag volume.

MaxBlockSizeBytes (v1.1+)	integer (bytes)	read-only (null)	This property shall contain size of the largest addressable unit of this storage volume.
MediaSpanCount (v1.4+)	integer	read-only (null)	This property shall indicate the number of media elements used per span in the secondary RAID or a hierarchical RAID type.
Model (v1.1+)	string	read-only (null)	The value is assigned by the manufacturer and shall represent a specific storage volume implementation.
Operations [{	array		This property shall contain a list of all currently running on the Volume.
AssociatedTask {	object		This Resource contains a Task for a Redfish implementation. <i>See the Task schema for details on this property.</i>
@odata.id	string	read-only	<i>Link to a Task resource. See the Links section of the Task schema for details.</i>
OperationName	string	read-only (null)	The name of the operation.
PercentageComplete	integer	read-only (null)	The percentage of the operation that has been completed.
OptimumIOSizeBytes	integer (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.
ProvisioningPolicy (v1.4+)	string (enum)	read-write (null)	This property shall specify the volume's supported storage allocation policy. <i>For the possible property values, see ProvisioningPolicy in Property Details.</i>
RAIDType (v1.3.1+)	string (enum)	read-only (null)	This property shall contain the RAID type of the associated Volume. <i>For the possible property values, see RAIDType in Property Details.</i>
ReadCachePolicy (v1.4+)	string (enum)	read-write (null)	This property shall contain a boolean indicator of the read cache policy for the Volume. <i>For the possible property values, see ReadCachePolicy in Property Details.</i>
RecoverableCapacitySourceCount (v1.3+)	integer	read-write (null)	The value is the number of available capacity source resources currently available in the event that an equivalent capacity source resource fails.
RemainingCapacityPercent (v1.2+)	integer	read-only (null)	If present, this value shall return $\frac{\text{SUM(AllocatedBytes)} - \text{SUM(ConsumedBytes)}}{\text{SUM(AllocatedBytes)}}$ represented as an integer value.
ReplicaInfo (v1.1+) { }	object		This property shall describe the replica relationship between this storage volume and a corresponding volume.

			source volume. <i>For property details, see ReplicaInfo (v1.2.0).</i>
ReplicaTargets (v1.3+) [{	array		The value shall reference the target replicas that are sourced by this replica.
@odata.id }]	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the type defined in the Redfish specification.
Status {}	object		The property shall contain the status of the Volume. <i>For property details, see Status.</i>
StorageGroups (v1.1+) {	object		The value of this property shall contain references to all storage groups that include this volume.
@odata.id }	string	read-only	The value of this property shall be the unique identifier for the resource and it shall be of the type defined in the Redfish specification.
StripSizeBytes (v1.4+)	integer (bytes)	read-write (null)	The number of consecutively addressed virtual disk blocks (bytes) mapped to consecutively addressed blocks on a single member extent of the disk array. Synonym for stripe depth and chunk size.
VolumeType	string (enum)	read-only (null)	This property shall contain the type of the associated Volume. <i>For the possible property values, see VolumeType in Property Details.</i>
VolumeUsage (v1.4+)	string (enum)	read-only (null)	This property shall contain the volume usage type for the Volume. <i>For the possible property values, see VolumeUsage in Property Details.</i>
WriteCachePolicy (v1.4+)	string (enum)	read-write (null)	This property shall contain a boolean indicator of the write cache policy for the Volume. <i>For the possible property values, see WriteCachePolicy in Property Details.</i>
WriteCacheState (v1.4+)	string (enum)	read-only (null)	This property shall contain the WriteCacheState policy setting for the Volume. <i>For the possible property values, see WriteCacheState in Property Details.</i>
WriteHoleProtectionPolicy (v1.4+)	string (enum)	read-write	This property specifies the policy that is enabled to address the write hole issue on the RAID volume. If no policy is enabled at the moment, this property shall be set to 'Off'. <i>For the possible property values, see WriteHoleProtectionPolicy in Property Details.</i>

Actions

AssignReplicaTarget

This action shall be used to establish a replication relationship by assigning an existing volume to serve as a target replica for an existing source volume.

URIs:

```
/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/
Volumes/{VolumeId}/Actions/Volume.AssignReplicaTarget

/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{Computer
SystemId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.AssignReplicaTar
get

/redfish/v1/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/Volumes/{VolumeId}/
Actions/Volume.AssignReplicaTarget

/redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage/{S
torageId}/Volumes/{VolumeId}/Actions/Volume.AssignReplicaTarget

/redfish/v1/StorageServices/{StorageServiceId}/ConsistencyGroups/{ConsistencyGroupI
d}/Volumes/{VolumeId}/Actions/Volume.AssignReplicaTarget

/redfish/v1/StorageServices/{StorageServiceId}/FileSystems/{FileSystemId}/CapacitySou
rces/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.AssignReplica
Target

/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/AllocatedV
olumes/{VolumeId}/Actions/Volume.AssignReplicaTarget

/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/CapacityS
ources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.AssignRepli
caTarget

/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumeId}/Actions/Volume.Ass
ignReplicaTarget

/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumeId}/CapacitySources/{C
apacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.AssignReplicaTarget

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/ConsistencyGroups/{Consi
stencyGroupId}/Volumes/{VolumeId}/Actions/Volume.AssignReplicaTarget

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/FileSystems/{FileSysteml
d}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volum
e.AssignReplicaTarget

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoo
lId}/AllocatedVolumes/{VolumeId}/Actions/Volume.AssignReplicaTarget

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoo
lId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volum
e.AssignReplicaTarget

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes/{VolumeId}/Actio
ns/Volume.AssignReplicaTarget
```

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

{			
ReplicaType	string (enum)	required	This parameter shall contain the type of replica relationship to be created (e.g., Clone, Mirror, Snap). <i>For the possible property values, see</i>

			ReplicaType in Property Details.
ReplicaUpdateMode	string (enum)	required	This parameter shall specify the replica update mode. For the possible property values, see ReplicaUpdateMode in Property Details.
TargetVolume	string	required	This parameter shall contain the Uri to the existing target volume.

CheckConsistency

This defines the name of the custom action supported on this resource.

URIs:

```

/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/
  Volumes/{VolumeId}/Actions/Volume.CheckConsistency

/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{Computer
  SystemId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.CheckConsistenc
  y

/redfish/v1/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/Volumes/{VolumeId}/
  Actions/Volume.CheckConsistency

/redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage/{S
  torageId}/Volumes/{VolumeId}/Actions/Volume.CheckConsistency

/redfish/v1/StorageServices/{StorageServiceId}/ConsistencyGroups/{ConsistencyGroupI
  d}/Volumes/{VolumeId}/Actions/Volume.CheckConsistency

/redfish/v1/StorageServices/{StorageServiceId}/FileSystems/{FileSystemId}/CapacitySou
  rces/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.CheckConsiste
  ncy

/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/AllocatedV
  olumes/{VolumeId}/Actions/Volume.CheckConsistency

/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/CapacityS
  ources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.CheckConsi
  stency

/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumeId}/Actions/Volume.Che
  ckConsistency

/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumeId}/CapacitySources/{C
  apacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.CheckConsistency

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/ConsistencyGroups/{Consi
  stencyGroupId}/Volumes/{VolumeId}/Actions/Volume.CheckConsistency

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/FileSystems/{FileSysteMl
  d}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volum
  e.CheckConsistency

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoo
  lId}/AllocatedVolumes/{VolumeId}/Actions/Volume.CheckConsistency

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoo
  lId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volum
  e.CheckConsistency

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes/{VolumeId}/Actio
  ns/Volume.CheckConsistency

```

(This action takes no parameters.)

CreateReplicaTarget

This action shall be used to create a new volume resource to provide expanded data protection through a replica relationship with the specified source volume.

URIs:

```
/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.CreateReplicaTarget  
  
/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.CreateReplicaTarget  
  
/redfish/v1/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.CreateReplicaTarget  
  
/redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.CreateReplicaTarget  
  
/redfish/v1/StorageServices/{StorageServiceId}/ConsistencyGroups/{ConsistencyGroupId}/Volumes/{VolumeId}/Actions/Volume.CreateReplicaTarget  
  
/redfish/v1/StorageServices/{StorageServiceId}/FileSystems/{FileSystemId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.CreateReplicaTarget  
  
/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/AllocatedVolumes/{VolumeId}/Actions/Volume.CreateReplicaTarget  
  
/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.CreateReplicaTarget  
  
/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumeId}/Actions/Volume.CreateReplicaTarget  
  
/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumeId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.CreateReplicaTarget  
  
/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/ConsistencyGroups/{ConsistencyGroupId}/Volumes/{VolumeId}/Actions/Volume.CreateReplicaTarget  
  
/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/FileSystems/{FileSystemId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.CreateReplicaTarget  
  
/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoolId}/AllocatedVolumes/{VolumeId}/Actions/Volume.CreateReplicaTarget  
  
/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoolId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.CreateReplicaTarget  
  
/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.CreateReplicaTarget
```

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

{			
ReplicaType	string (enum)	required	This parameter shall contain the type of replica relationship to be created (e.g., Clone, Mirror, Snap). <i>For the possible property values, see ReplicaType in Property Details.</i>

ReplicaUpdateMode	string (enum)	required	This parameter shall specify the replica update mode. <i>For the possible property values, see ReplicaUpdateMode in Property Details.</i>
TargetStoragePool	string	required	This parameter shall contain the Uri to the existing StoragePool in which to create the target volume.
VolumeName }	string	optional	This parameter shall contain the Name for the target volume.

Initialize

This defines the name of the custom action supported on this resource. If InitializeType is not specified in the request body, the InitializeType should be Fast.

URIs:

```

/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/
Volumes/{VolumeId}/Actions/Volume.Initialize

/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{Computer
SystemId}/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/{S
torageId}/Volumes/{VolumeId}/Actions/Volume.Initialize

/redfish/v1/StorageServices/{StorageServiceId}/ConsistencyGroups/{ConsistencyGroupI
d}/Volumes/{VolumeId}/Actions/Volume.Initialize

/redfish/v1/StorageServices/{StorageServiceId}/FileSystems/{FileSystemId}/CapacitySou
rces/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.Initialize

/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/AllocatedV
olumes/{VolumeId}/Actions/Volume.Initialize

/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/CapacityS
ources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.Initialize

/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumeId}/Actions/Volume.Initi
alize

/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumeId}/CapacitySources/{C
apacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.Initialize

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/ConsistencyGroups/{Consi
stencyGroupId}/Volumes/{VolumeId}/Actions/Volume.Initialize

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/FileSystems/{FileSystemI
d}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volum
e.Initialize

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoo
lId}/AllocatedVolumes/{VolumeId}/Actions/Volume.Initialize

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoo
lId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volum
e.Initialize

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes/{VolumeId}/Actio
ns/Volume.Initialize

```

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

{			
InitializeType	string (enum)	optional	This defines the property name for the action. <i>For the possible property values, see InitializeType in Property Details.</i>
}			

RemoveReplicaRelationship

This action shall be used to disable data synchronization between a source and target volume, remove the replication relationship, and optionally delete the target volume.

URIs:

```

/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/
Volumes/{VolumeId}/Actions/Volume.RemoveReplicaRelationship

/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{Computer
SystemId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.RemoveReplicaR
elationship

/redfish/v1/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/Volumes/{VolumeId}/
Actions/Volume.RemoveReplicaRelationship

/redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage/{S
torageId}/Volumes/{VolumeId}/Actions/Volume.RemoveReplicaRelationship

/redfish/v1/StorageServices/{StorageServiceId}/ConsistencyGroups/{ConsistencyGroupI
d}/Volumes/{VolumeId}/Actions/Volume.RemoveReplicaRelationship

/redfish/v1/StorageServices/{StorageServiceId}/FileSystems/{FileSystemId}/CapacitySou
rces/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.RemoveReplic
aRelationship

/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/AllocatedV
olumes/{VolumeId}/Actions/Volume.RemoveReplicaRelationship

/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/CapacityS
ources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.RemoveRep
licaRelationship

/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumeId}/Actions/Volume.Re
moveReplicaRelationship

/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumeId}/CapacitySources/{C
apacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.RemoveReplicaRelati
onship

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/ConsistencyGroups/{Consi
stencyGroupId}/Volumes/{VolumeId}/Actions/Volume.RemoveReplicaRelationship

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/FileSystems/{FileSysteml
d}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volum
e.RemoveReplicaRelationship

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoo
lId}/AllocatedVolumes/{VolumeId}/Actions/Volume.RemoveReplicaRelationship

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoo
lId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volum
e.RemoveReplicaRelationship

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes/{VolumeId}/Actio
ns/Volume.RemoveReplicaRelationship

```

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

{			
DeleteTargetVolume	boolean	optional	This parameter shall indicate whether or not to delete the target volume as part of the operation. If not defined, the system should use its default behavior.
TargetVolume	string	required	This parameter shall contain the Uri to the existing target volume.
}			

ResumeReplication

This action shall be used to resume the active data synchronization between a source and target volume, without otherwise altering the replication relationship.

URIs:

```

/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.ResumeReplication
/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.ResumeReplication
/redfish/v1/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.ResumeReplication
/redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.ResumeReplication
/redfish/v1/StorageServices/{StorageServiceId}/ConsistencyGroups/{ConsistencyGroupId}/Volumes/{VolumeId}/Actions/Volume.ResumeReplication
/redfish/v1/StorageServices/{StorageServiceId}/FileSystems/{FileSystemId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.ResumeReplication
/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/AllocatedVolumes/{VolumeId}/Actions/Volume.ResumeReplication
/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.ResumeReplication
/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumeId}/Actions/Volume.ResumeReplication
/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumeId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.ResumeReplication
/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/ConsistencyGroups/{ConsistencyGroupId}/Volumes/{VolumeId}/Actions/Volume.ResumeReplication
/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/FileSystems/{FileSystemId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.ResumeReplication
/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoolId}/AllocatedVolumes/{VolumeId}/Actions/Volume.ResumeReplication
/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoolId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.ResumeReplication
/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.ResumeReplication

```

The following table shows the parameters for the action that are included in the POST body to

the URI shown in the "target" property of the Action.

{			
TargetVolume	string	required	This parameter shall contain the Uri to the existing target volume.
}			

ReverseReplicationRelationship

This action shall be used to reverse the replication relationship between a source and target volume.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.ReverseReplicationRelationship

/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.ReverseReplicationRelationship

/redfish/v1/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.ReverseReplicationRelationship

/redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.ReverseReplicationRelationship

/redfish/v1/StorageServices/{StorageServiceId}/ConsistencyGroups/{ConsistencyGroupId}/Volumes/{VolumeId}/Actions/Volume.ReverseReplicationRelationship

/redfish/v1/StorageServices/{StorageServiceId}/FileSystems/{FileSystemId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.ReverseReplicationRelationship

/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/AllocatedVolumes/{VolumeId}/Actions/Volume.ReverseReplicationRelationship

/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.ReverseReplicationRelationship

/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumeId}/Actions/Volume.ReverseReplicationRelationship

/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumeId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.ReverseReplicationRelationship

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/ConsistencyGroups/{ConsistencyGroupId}/Volumes/{VolumeId}/Actions/Volume.ReverseReplicationRelationship

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/FileSystems/{FileSystemId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.ReverseReplicationRelationship

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoolId}/AllocatedVolumes/{VolumeId}/Actions/Volume.ReverseReplicationRelationship

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoolId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.ReverseReplicationRelationship

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.ReverseReplicationRelationship

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

{			
TargetVolume	string	required	This parameter shall contain the Uri to the existing target volume.
}			

SplitReplication

This action shall be used to split the replication relationship and suspend data synchronization between a source and target volume.

URIs:

/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.SplitReplication

/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.SplitReplication

/redfish/v1/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.SplitReplication

/redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.SplitReplication

/redfish/v1/StorageServices/{StorageServiceId}/ConsistencyGroups/{ConsistencyGroupId}/Volumes/{VolumeId}/Actions/Volume.SplitReplication

/redfish/v1/StorageServices/{StorageServiceId}/FileSystems/{FileSystemId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.SplitReplication

/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/AllocatedVolumes/{VolumeId}/Actions/Volume.SplitReplication

/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.SplitReplication

/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumeId}/Actions/Volume.SplitReplication

/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumeId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.SplitReplication

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/ConsistencyGroups/{ConsistencyGroupId}/Volumes/{VolumeId}/Actions/Volume.SplitReplication

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/FileSystems/{FileSystemId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.SplitReplication

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoolId}/AllocatedVolumes/{VolumeId}/Actions/Volume.SplitReplication

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoolId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumeId}/Actions/Volume.SplitReplication

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes/{VolumeId}/Actions/Volume.SplitReplication

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

{			
TargetVolume	string	required	This parameter shall contain the Uri to the existing

}			target volume.
---	--	--	----------------

SuspendReplication

This action shall be used to suspend active data synchronization between a source and target volume, without otherwise altering the replication relationship.

URIs:

```

/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/
  Volumes/{VolumId}/Actions/Volume.SuspendReplication

/redfish/v1/CompositionService/ResourceBlocks/{ResourceBlockId}/Systems/{Computer
  SystemId}/Storage/{StorageId}/Volumes/{VolumId}/Actions/Volume.SuspendReplicati
  on

/redfish/v1/ResourceBlocks/{ResourceBlockId}/Storage/{StorageId}/Volumes/{VolumId}/
  Actions/Volume.SuspendReplication

/redfish/v1/ResourceBlocks/{ResourceBlockId}/Systems/{ComputerSystemId}/Storage/{S
  torageId}/Volumes/{VolumId}/Actions/Volume.SuspendReplication

/redfish/v1/StorageServices/{StorageServiceId}/ConsistencyGroups/{ConsistencyGroupI
  d}/Volumes/{VolumId}/Actions/Volume.SuspendReplication

/redfish/v1/StorageServices/{StorageServiceId}/FileSystems/{FileSystemId}/CapacitySou
  rces/{CapacitySourceId}/ProvidingVolumes/{VolumId}/Actions/Volume.SuspendReplic
  ation

/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/AllocatedV
  olumes/{VolumId}/Actions/Volume.SuspendReplication

/redfish/v1/StorageServices/{StorageServiceId}/StoragePools/{StoragePoolId}/CapacityS
  ources/{CapacitySourceId}/ProvidingVolumes/{VolumId}/Actions/Volume.SuspendRe
  plication

/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumId}/Actions/Volume.Sus
  pendReplication

/redfish/v1/StorageServices/{StorageServiceId}/Volumes/{VolumId}/CapacitySources/{C
  apacitySourceId}/ProvidingVolumes/{VolumId}/Actions/Volume.SuspendReplication

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/ConsistencyGroups/{Consi
  stencyGroupId}/Volumes/{VolumId}/Actions/Volume.SuspendReplication

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/FileSystems/{FileSystemI
  d}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumId}/Actions/Volum
  e.SuspendReplication

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoo
  lId}/AllocatedVolumes/{VolumId}/Actions/Volume.SuspendReplication

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/StoragePools/{StoragePoo
  lId}/CapacitySources/{CapacitySourceId}/ProvidingVolumes/{VolumId}/Actions/Volum
  e.SuspendReplication

/redfish/v1/Systems/{ComputerSystemId}/Storage/{StorageId}/Volumes/{VolumId}/Actio
  ns/Volume.SuspendReplication

```

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

{			
TargetVolume	string	required	This parameter shall contain the Uri to the existing target volume.
}			

Property Details

AccessCapabilities:

Each entry shall specify a current storage access capability. StorageAccessCapability enumeration literals may be used to describe abilities to read or write storage.

string	Description
Append	This enumeration literal shall indicate that the storage may be written only to append.
Execute	This value shall indicate that Execute access is allowed by the file share.
Read	This enumeration literal shall indicate that the storage may be read.
Streaming	This enumeration literal shall indicate that the storage may be read sequentially.
Write	This enumeration literal shall indicate that the storage may be written multiple times.
WriteOnce	This enumeration literal shall indicate that the storage may be written only once.

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.

InitializeType:

This defines the property name for the action.

string	Description
Fast	The volume is prepared for use quickly, typically by erasing just the beginning and end of the space so that partitioning can be performed.
Slow	The volume is prepared for use slowly, typically by completely erasing the volume.

ProvisioningPolicy:

This property shall specify the volume's supported storage allocation policy.

string	Description
Fixed	This enumeration literal specifies storage shall be fully allocated.

string	Description
Thin	This enumeration literal specifies storage may be over allocated.

RAIDType:

This property shall contain the RAID type of the associated Volume.

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

string	Description
	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	A placement policy that uses parity-based protection for storing stripes of 'n' logical blocks of data and three logical blocks of independent parity across a set of 'n+3' independent storage devices where the parity and data blocks are interleaved across the storage devices. This is commonly referred to as Triple Parity RAID. Data stored using this form of RAID is able to survive any three independent storage device failures without data loss.

ReadCachePolicy:

This property shall contain a boolean indicator of the read cache policy for the Volume.

string	Description
AdaptiveReadAhead	A caching technique in which the controller dynamically determines whether to pre-fetch data anticipating future read requests, based on previous cache hit ratio.
Off	The read cache is disabled.
ReadAhead	A caching technique in which the controller pre-fetches data

string	Description
	anticipating future read requests.

ReplicaType:

This parameter shall contain the type of replica relationship to be created (e.g., Clone, Mirror, Snap).

string	Description
Clone	This enumeration literal shall indicate that replication shall create a point in time, full copy the source.
Mirror	This enumeration literal shall indicate that replication shall create and maintain a copy of the source.
Snapshot	This enumeration literal shall indicate that replication shall create a point in time, virtual copy of the source.
TokenizedClone	This enumeration literal shall indicate that replication shall create a token based clone.

ReplicaUpdateMode:

This parameter shall specify the replica update mode.

string	Description
Active	This enumeration literal shall indicate Active-Active (i.e. bidirectional) synchronous updates.
Adaptive	This enumeration literal shall indicate that an implementation may switch between synchronous and asynchronous modes.
Asynchronous	This enumeration literal shall indicate Asynchronous updates.
Synchronous	This enumeration literal shall indicate Synchronous updates.

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

string	Description
	information.

VolumeUsage:

This property shall contain the volume usage type for the Volume.

string	Description
CacheOnly	The volume shall be allocated for use as a non-consumable cache only volume.
Data	The volume shall be allocated for use as a consumable data volume.
ReplicationReserve	The volume shall be allocated for use as a non-consumable reserved volume for replication use.
SystemData	The volume shall be allocated for use as a consumable data volume reserved for system use.
SystemReserve	The volume shall be allocated for use as a non-consumable system reserved volume.

WriteCachePolicy:

This property shall contain a boolean indicator of the write cache policy for the Volume.

string	Description
ProtectedWriteBack	A caching technique in which the completion of a write request is signaled as soon as the data is in cache, and actual writing to non-volatile media is guaranteed to occur at a later time.
UnprotectedWriteBack	A caching technique in which the completion of a write request is signaled as soon as the data is in cache; actual writing to non-volatile media is not guaranteed to occur at a later time.
WriteThrough	A caching technique in which the completion of a write request is not signaled until data is safely stored on non-volatile media.

WriteCacheState:

This property shall contain the WriteCacheState policy setting for the Volume.

string	Description
Degraded	Indicates an issue with the cache state in which the cache space is diminished or disabled due to a failure or an outside influence such as a discharged battery.
Protected	Indicates that the cache state type in use generally protects write requests on non-volatile media.
Unprotected	Indicates that the cache state type in use generally does not protect write requests on non-volatile media.

WriteHoleProtectionPolicy:

This property specifies the policy that is enabled to address the write hole issue on the RAID volume. If no policy is enabled at the moment, this property shall be set to 'Off'.

string	Description
DistributedLog	The policy that distributes additional log (e.g. checksum of the parity) among the volume's capacity sources to address write hole issue. Additional data is used to detect data corruption on the volume.
Journaling	The policy that uses separate block device for write-ahead logging to address write hole issue. All write operations on the RAID volume are first logged on dedicated journaling device that is not part of the volume.
Oem	The policy that is Oem specific. The mechanism details are unknown unless provided separately by the Oem.
Off	The support for addressing the write hole issue is disabled. The volume is not performing any additional activities to close the RAID write hole.

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/3D58ECBC375F"
      }
    ]
  },
  "Actions": {
    "#Volume.Initialize": {
      "target": "/redfish/v1/Systems/3/Storage/RAIDIntegrated/Volumes/1/Actions/Volume",
      "InitializeType@Redfish.AllowableValues": [
        "Fast",
        "Slow"
      ]
    }
  },
  "@odata.id": "/redfish/v1/Systems/437XR1138R2/Storage/1/Volumes/2"
}
```

Zone 1.3.1

v1.3	v1.2	v1.1	v1.0
2019.1	2017.3	2017.1	2016.2

This Resource shall represent a simple fabric 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 property shall contain an indication of accessibility of endpoints in this zone to endpoints outside of this zone. <i>For the possible property values, see ExternalAccessibility in Property Details.</i>
Identifiers (v1.2+) [{ }]	array (object)	(null)	This property shall contain a Resource Collection of identifiers for this zone, which shall be unique in the context of other zones. This type shall contain any additional identifiers for a Resource. <i>For property details, see Identifier.</i>
Links {	object		This Redfish Specification-described property shall contain links to Resources related to but not subordinate to this Resource.
Endpoints [{	array		This property shall contain a link to the Resources of the Endpoint type that this zone contains.
@odata.id }]	string	read-only	<i>Link to a Endpoint resource. See the Links section and the Endpoint schema for details.</i>
InvolvedSwitches [{	array		This property shall contain the links to the Resource Collection of type Switch in this zone.
@odata.id }]	string	read-only	<i>Link to a Switch resource. See the Links section and the Switch schema for details.</i>
Oem { }	object		This property shall contain the OEM extensions. All values for properties contained in this object shall conform to the Redfish Specification-described requirements.
ResourceBlocks (v1.1+) [{	array		This property shall contain an array of links to Resources of the ResourceBlock type with which this zone is associated.
@odata.id }] }	string	read-only	<i>Link to a ResourceBlock resource. See the Links section and the ResourceBlock schema for details.</i>

Status {}	object	This property shall contain the status and health properties of the Resource and its children. <i>For property details, see Status.</i>
------------------	--------	--

Property Details

ExternalAccessibility:

This property shall contain and indication of accessibility of endpoints in this zone to endpoints outside of this zone.

string	Description
GloballyAccessible	This value shall indicate that any external entity with the correct access details, which may include authorization information, can access the endpoints that this zone lists, regardless of zone.
NonZonedAccessible	This value shall indicate that any external entity that another zone does not explicitly list can access the endpoints that this zone lists.
ZoneOnly	This value shall indicate that endpoints in this zone are only accessible by endpoints that this zone explicitly lists.

Example Response

```
{
  "@odata.type": "#Zone.v1_3_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.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
2019.3	2019-10-11	Release built from Redfish schema bundle DSP8010 version 2019.3
2019.2	2019-09-13	Release built from Redfish schema bundle DSP8010 version 2019.2
2019.1a	2019-05-03	Work in Progress release built from Redfish schemas released in DSP8010 version 2019.1