



Redfish

Document Identifier: DSP-IS0015

Date: 2020-05-08

Version: 0.8a

Redfish Power and Thermal Enhancements

Document Class: Informative

Document Status: Work in progress

Document Language: en-US

Information for Work-in-Progress version:

IMPORTANT: This document is not a standard. It does not necessarily reflect the views of the DMTF or its members. Because this document is a Work in Progress, this document may still change, perhaps profoundly and without notice. This document is available for public review and comment until superseded.

Provide any comments through the DMTF Feedback Portal: <http://www.dmtf.org/standards/feedback>

Copyright Notice

Copyright © 2016-2020 DMTF. All rights reserved.

DMTF is a not-for-profit association of industry members dedicated to promoting enterprise and systems management and interoperability. Members and non-members may reproduce DMTF specifications and documents, provided that correct attribution is given. As DMTF specifications may be revised from time to time, the particular version and release date should always be noted.

Implementation of certain elements of this standard or proposed standard may be subject to third party patent rights, including provisional patent rights (herein "patent rights"). DMTF makes no representations to users of the standard as to the existence of such rights, and is not responsible to recognize, disclose, or identify any or all such third party patent right, owners or claimants, nor for any incomplete or inaccurate identification or disclosure of such rights, owners or claimants. DMTF shall have no liability to any party, in any manner or circumstance, under any legal theory whatsoever, for failure to recognize, disclose, or identify any such third party patent rights, or for such party's reliance on the standard or incorporation thereof in its product, protocols or testing procedures. DMTF shall have no liability to any party implementing such standard, whether such implementation is foreseeable or not, nor to any patent owner or claimant, and shall have no liability or responsibility for costs or losses incurred if a standard is withdrawn or modified after publication, and shall be indemnified and held harmless by any party implementing the standard from any and all claims of infringement.

by a patent owner for such implementations.

For information about patents held by third-parties which have notified the DMTF that, in their opinion, such patent may relate to or impact implementations of DMTF standards, visit

<http://www.dmtf.org/about/policies/disclosures.php>.

This document's normative language is English. Translation into other languages is permitted.

Contents

[Contents](#)

[Foreword](#)

[How can I provide feedback?](#)

[Where can I find more information?](#)

[Using the reference guide](#)

[Common Properties](#)

[Schema Reference Guide](#)

[Chassis 1.14.0](#)

[CoolingMetrics 1.0.0](#)

[EnvironmentMetrics 1.0.0](#)

[Fan 1.0.0](#)

[PowerSubsystem 1.0.0](#)

[PowerSubsystemMetrics 1.0.0](#)

[PowerSupply 1.0.0](#)

[PowerSupplyMetrics 1.0.0](#)

[Sensor 1.2.0](#)

[ThermalMetrics 1.0.0](#)

[ThermalSubsystem 1.0.0](#)

[Redfish documentation generator](#)

Foreword

This Informational Specification covers a proposal to enhance the Power and Thermal monitoring schemas for Redfish.

IMPORTANT: These documents are not final. They do not necessarily reflect the views of the DMTF or its members. Because these documents are a Work in Progress, these documents may still change, perhaps profoundly and without notice. These documents are available for public review and comment until superseded.

The following files are part of the Redfish Power and Thermal Enhancement proposal:

- wip-newpowerthermal - Mockup containing a ComputerSystem and Chassis showing both the exiting Power and Thermal schema implementation, along with the proposed PowerSubsystem and ThermalSubsystem re source tree.
- DSP-IS0015_v0.8a.pdf - Presentation describing the Redfish Power and Thermal Enhancement proposal

How can I provide feedback?

Feedback on all Redfish specifications and documents is encouraged. Feedback can be directed to the DMTF and the Redfish Forum by the following means:

- **Redfish User Forum:** <http://www.redfishforum.com> User forum monitored by DMTF Redfish Forum person nel to answer questions about any Redfish-related topics.
- **DMTF Feedback Portal:** <https://www.dmtf.org/standards/feedback> Formal submission portal for enhancem ents or proposals to the DMTF and Redfish Forum.
- **Redfish Github Repository:** DMTF Redfish Forum member companies are encouraged to open issues on the group's private repository on Github.

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 Redfis h. 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 a nswer questions about any Redfish-related topics.
- **DMTF Github Repositories:** <http://www.github.com/DMTF> Open source tools and libraries for working with the Redfish API.
- **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 the reference guide

The proposed power and thermal subsystem schemas are listed in the following section for reference. This section should be considered an extension to the contents of DSP2046, the Redfish Resource and Schema Guide, which lists the common Redfish properties, other object definitions, and all released Redfish schemas (including those shown here).

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](#).

Common Properties

Schema Reference Guide

Chassis 1.14.0

v1.14	v1.13	v1.12	v1.11	v1.10	v1.9	v1.8	v1.7	v1.6	v1.5	v1.4	...
TBD	2020.2	2020.1	2019.4	2019.2	2018.3	2018.2	2018.1	2017.3	2017.1	2016.3	...

The Chassis schema represents the physical components of a system. This resource represents the sheet-metal confined spaces and logical zones such as racks, enclosures, chassis and all other containers. Subsystems, such as sensors, that operate outside of a system's data plane are linked either directly or indirectly through this resource. A subsystem that operates outside of a system's data plane are not accessible to software that runs on the system.

URIs:

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

Assembly (v1.6+) {	object		The link to the assembly associated with this chassis.
@odata.id }	string (URI)	read-only	The unique identifier for a resource.
AssetTag	string	read-write (null)	The user-assigned asset tag of this chassis.
ChassisType	string (enum)	read-only required	The type of physical form factor of the chassis. <i>For the possible property values, see ChassisType in Property details.</i>
DepthMm (v1.4+)	number (mm)	read-only (null)	The depth of the chassis.
EnvironmentalClass (v1.9+)	string (enum)	read-only (null)	The ASHRAE Environmental Class for this chassis. <i>For the possible property values, see EnvironmentalClass in Property details.</i>
HeightMm (v1.4+)	number (mm)	read-only (null)	The height of the chassis.
IndicatorLED	string (enum)	read-write (null)	The state of the indicator LED, which identifies the chassis. <i>For the possible property values, see IndicatorLED in Property details.</i>
Links {	object		The links to other resources that are related to this resource.
ComputerSystems [{	array		An array of links to the computer systems that this chassis directly and wholly contains.

@odata.id }]	string (URI)	read-only	The unique identifier for a resource.
ComputerSystems@odata.count	integer	read-only	The number of items in a collection.
ContainedBy {	object		The link to the chassis that contains this chassis.
@odata.id }	string	read-only	<i>Link to another Chassis resource.</i>
Contains [{	array		An array of links to any other chassis that this chassis has in it.
@odata.id }]	string	read-only	<i>Link to another Chassis resource.</i>
Contains@odata.count	integer	read-only	The number of items in a collection.
CooledBy [{	array		An array of links to resources or objects that cool this chassis. Normally, the link is for either a chassis or a specific set of fans.
@odata.id }]	string (URI)	read-only	The unique identifier for a resource.
CooledBy@odata.count	integer	read-only	The number of items in a collection.
Drives (v1.2+) [{	array		An array of links to the drives located in this chassis.
@odata.id }]	string (URI)	read-only	The unique identifier for a resource.
Drives@odata.count	integer	read-only	The number of items in a collection.
Facility (v1.11+) {	object		The link to the facility that contains this chassis.
@odata.id }	string (URI)	read-only	The unique identifier for a resource.
ManagedBy [{	array		An array of links to the managers responsible for managing this chassis.
@odata.id }]	string (URI)	read-only	The unique identifier for a resource.
ManagedBy@odata.count	integer	read-only	The number of items in a collection.
ManagersInChassis (v1.2+) [{	array		An array of links to the managers located in this chassis.
@odata.id }]	string (URI)	read-only	The unique identifier for a resource.
ManagersInChassis@odata.count	integer	read-only	The number of items in a collection.
Oem { }	object		The OEM extension property. <i>See the Resource schema for details on this property.</i>
PCleDevices (v1.4+, deprecated v1.10) [{	array		An array of links to the PCIe devices

			located in this chassis. <i>Deprecated in v1.10 and later. This property has been deprecated in favor of the PCIeDevices resource collection in the root of this resource.</i>
@odata.id }]	string (URI)	read-only	The unique identifier for a resource.
PCIeDevices@odata.count	integer	read-only	The number of items in a collection.
PoweredBy [{	array		An array of links to resources or objects that power this chassis. Normally, the link is for either a chassis or a specific set of power supplies.
@odata.id }]	string (URI)	read-only	The unique identifier for a resource.
PoweredBy@odata.count	integer	read-only	The number of items in a collection.
Processors (v1.9+) [{	array		An array of links to the processors located in this chassis.
@odata.id }]	string (URI)	read-only	The unique identifier for a resource.
Processors@odata.count	integer	read-only	The number of items in a collection.
ResourceBlocks (v1.5+) [{	array		An array of links to the resource blocks located in this chassis.
@odata.id }]	string (URI)	read-only	The unique identifier for a resource.
ResourceBlocks@odata.count	integer	read-only	The number of items in a collection.
Storage (v1.2+) [{	array		An array of links to the storage subsystems connected to or inside this chassis.
@odata.id }]	string (URI)	read-only	The unique identifier for a resource.
Storage@odata.count	integer	read-only	The number of items in a collection.
Switches (v1.7+) [{	array		An array of links to the switches located in this chassis.
@odata.id }]	string (URI)	read-only	The unique identifier for a resource.
Switches@odata.count }	integer	read-only	The number of items in a collection.
Location (v1.2+) { }	object		The location of the chassis. See the Resource schema for details on this property.
LogServices {	object		The link to the logs for this chassis.
@odata.id }	string (URI)	read-only	The unique identifier for a resource.

Manufacturer	string	read-only (null)	The manufacturer of this chassis.
MaxPowerWatts (v1.12+)	number (Watts)	read-only (null)	The upper bound of the total power consumed by the chassis.
MediaControllers (v1.11+) {	object		The link to the collection of media controllers located in this chassis.
@odata.id }	string (URI)	read-only	The unique identifier for a resource.
Memory (v1.11+) {	object		The link to the collection of memory located in this chassis.
@odata.id }	string (URI)	read-only	The unique identifier for a resource.
MemoryDomains (v1.11+) {	object		The link to the collection of memory domains located in this chassis.
@odata.id }	string (URI)	read-only	The unique identifier for a resource.
MinPowerWatts (v1.12+)	number (Watts)	read-only (null)	The lower bound of the total power consumed by the chassis.
Model	string	read-only (null)	The model number of the chassis.
NetworkAdapters (v1.4+) {	object		The link to the collection of network adapters associated with this chassis.
@odata.id }	string (URI)	read-only	The unique identifier for a resource.
PartNumber	string	read-only (null)	The part number of the chassis.
PCleDevices (v1.10+) {	object		The link to the collection of PCIe devices located in this chassis.
@odata.id }	string (URI)	read-only	The unique identifier for a resource.
PCleSlots (v1.8+) {	object		The link to the PCIe slot properties for this chassis.
@odata.id }	string (URI)	read-only	The unique identifier for a resource.
PhysicalSecurity (v1.1+) {	object		The state of the physical security sensor.
IntrusionSensor (v1.1+)	string (enum)	read-write (null)	This indicates the known state of the physical security sensor, such as if it is hardware intrusion detected. <i>For the possible property values, see IntrusionSensor in Property details.</i>
IntrusionSensorNumber (v1.1+)	integer	read-only (null)	A numerical identifier to represent the physical security sensor.
IntrusionSensorReArm (v1.1+)	string	read-only	The method that restores this physical

}	(enum)	(null)	security sensor to the normal state. <i>For the possible property values, see IntrusionSensorReArm in Property details.</i>
Power {	object		The link to the power properties, or power supplies, power policies, and sensors, for this chassis.
@odata.id }	string (URI)	read-only	The unique identifier for a resource.
PowerState (v1.0.1+)	string (enum)	read-only (null)	The current power state of the chassis. <i>For the possible property values, see PowerState in Property details.</i>
PowerSubsystem (v1.14+) {	object		The link to the power subsystem properties for this chassis. <i>See the PowerSubsystem schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a PowerSubsystem resource. See the Links section and the PowerSubsystem schema for details.</i>
Sensors (v1.9+) {	object		The link to the collection of sensors located in the equipment and sub-components.
@odata.id }	string (URI)	read-only	The unique identifier for a resource.
SerialNumber	string	read-only (null)	The serial number of the chassis.
SKU	string	read-only (null)	The SKU of the chassis.
Status { }	object		The status and health of the resource and its subordinate or dependent resources. <i>See the Resource schema for details on this property.</i>
Thermal {	object		The link to the thermal properties, such as fans, cooling, and sensors, for this chassis.
@odata.id }	string (URI)	read-only	The unique identifier for a resource.
ThermalSubsystem (v1.14+) {	object		The link to the thermal subsystem properties for this chassis. <i>See the ThermalSubsystem schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a ThermalSubsystem resource. See the Links section and the ThermalSubsystem schema for details.</i>
UUID (v1.7+)	string	read-only (null)	The UUID for this chassis.

WeightKg (v1.4+)	number (kg)	read-only (null)	The weight of the chassis.
WidthMm (v1.4+)	number (mm)	read-only (null)	The width of the chassis.

Actions

Reset

This action resets the chassis but does not reset systems or other contained resources, although side effects might occur that affect those resources.

Action URI: {Base URI of target resource}/Actions/Chassis.Reset

Perform the action using a POST to the specific Action URI for this resource. Parameters for the action are passed in a JSON body and are defined as follows:

{			
ResetType	string (enum)	optional	The type of reset. <i>For the possible property values, see ResetType in Property details.</i>
}			

Property details

ChassisType:

The type of physical form factor of the 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 can 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	A group of racks that form a single entity or share infrastructure.

(v1.4+)	
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.
Zone	A logical division or portion of a physical chassis that contains multiple devices or systems that cannot be physically separated.

EnvironmentalClass:

The ASHRAE Environmental Class for this chassis.

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

IndicatorLED:

The state of the indicator LED, which identifies the chassis.

string	Description
Blinking	The indicator LED is blinking.
Lit	The indicator LED is lit.
Off	The indicator LED is off.
Unknown (deprecated v1.2)	The state of the indicator LED cannot be determined. <i>This value has been deprecated in favor of returning null if the state is unknown.</i>

IntrusionSensor:

This indicates the known state of the physical security sensor, such as if it is hardware intrusion 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.
Normal	No abnormal physical security condition is detected at this time.

TamperingDetected	Physical tampering of the monitored entity is detected.
-------------------	---

IntrusionSensorReArm:

The method that restores this physical security sensor to the normal state.

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:

The current power state of the chassis.

string	Description
Off	The components within the chassis have no power, except some components might 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:

The type of 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.id": "/redfish/v1/Chassis/1U",
  "@odata.type": "#Chassis.v1_14_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"
},
"ThermalSubsystem": {
  "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem"
},
"PowerSubsystem": {
  "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem"
},
"Sensors": {
  "@odata.id": "/redfish/v1/Chassis/1U/Sensors"
},
"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"
    }
  ]
}
}

```

CoolingMetrics 1.0.0

v1.0

TBD

This is the schema definition for thermal metrics of a chassis.

URIs:

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

FanSummary [{	array (excerpt)		The summary and subsystem temperatures readings for this power supply. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
PhysicalContext	string	read-only	The area or device to which this sensor measurement

	(enum)	(null)	applies. <i>For the possible property values, see PhysicalContext in Property details.</i>
PhysicalSubContext	string (enum)	read-only (null)	The usage or location within a device to which this sensor measurement applies. <i>For the possible property values, see PhysicalSubContext in Property details.</i>
PWMInput (v1.2+)	number	read-write (null)	The PWM input value.
Reading	number	read-only (null)	The sensor value.
SpeedRPM (v1.2+) }]	number (RPM)	read-only (null)	The rotational speed.

Actions

ResetMetrics

This action resets the summary metrics related to this equipment.

Action URI: {Base URI of target resource}/Actions/CoolingMetrics.ResetMetrics

Perform the action using a POST to the specific Action URI for this resource. This action takes no parameters.

Property details

PhysicalContext:

The area or device to which this sensor measurement applies.

string	Description
Accelerator	An accelerator.
ACInput	An AC input.
ACMaintenanceBypassInput	An AC maintenance bypass input.
ACOutput	An AC output.
ACStaticBypassInput	An AC static bypass input.
ACUtilityInput	An AC utility input.
ASIC	An ASIC device, such as 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.
Rectifier	A rectifier device.
Room	The room.
StorageBay	Within a storage bay.
StorageDevice	A storage device.
SystemBoard	The system board (PCB).
Transformer	A transformer.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

PhysicalSubContext:

The usage or location within a device to which this sensor measurement applies.

string	Description
Input	The input.
Output	The output.

Example response

```

{
  "@odata.id": "/redfish/v1/Chassis/1U/CoolingMetrics",
  "@odata.type": "#CoolingMetrics.v1_0_0.CoolingMetrics",
  "Name": "Chassis Fan and Liquid Cooling Metrics",
  "Status": {
    "State": "Enabled",
    "Health": "OK"
  },
  "FanSummary": [{
    "Name": "Chassis Fan #1",
    "PhysicalContext": "System Board",
    "SpeedPercent": {
      "Reading": 45,
      "SpeedRPM": 1900,
      "InputPWM": 55,
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/FanBay1"
    }
  }, {
    "Name": "Chassis Fan #2",
    "PhysicalContext": "System Board",
    "SpeedPercent": {
      "Reading": 55,
      "SpeedRPM": 2100,
      "InputPWM": 50,
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/FanBay2"
    }
  }
],
  "Oem": {}
}

```

EnvironmentMetrics 1.0.0

v1.0

TBD

This is the schema definition for environmental metrics of a device.

URIs:

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

/redfish/v1/Systems/{ComputerSystemId}/Processors/{ProcessorId}/EnvironmentMetrics

EnergyJoules {	object (excerpt)		The energy consumption of the device. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
LifetimeReading (v1.1+)	number	read-only (null)	The total accumulation value for this sensor.
Reading	number	read-only (null)	The sensor value.
SensorResetTime }	string (date-time)	read-only (null)	The date and time when the time-based properties were last reset.
FanSpeedPercentCelsius {	object (excerpt)		The speed of the fan dedicated to this device. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
PWMInput (v1.2+)	number	read-write (null)	The PWM input value.

Reading	number	read-only (null)	The sensor value.
SpeedRPM (v1.2+) }	number (RPM)	read-only (null)	The rotational speed.
PowerArrayWatts [{	array (excerpt)		The summary and subsystem power readings for this device. PROPOSAL 3: All sensor readings provided for a device. This proposal covers all implementations, but is the most difficult for software to parse and maintain. A client attempting to obtain a specific sensor must iterate through the array to match the name or physical context to match values in an interoperable fashion. A possible alternative would be to provide a single <code>PowerWatts</code> property, with this array property used to contain additional sensors when more than one is needed (essentially a combination of Proposal 1 and Proposal 3). <i>This object is an excerpt of the Sensor resource located at the URI shown in <code>DataSourceUri</code>.</i>
ApparentVA	number (V.A)	read-only (null)	The product of voltage and current for an AC circuit, in Volt-Ampere units.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
PhysicalContext	string (enum)	read-only (null)	The area or device to which this sensor measurement applies. <i>For the possible property values, see PhysicalContext in Property details.</i>
PhysicalSubContext	string (enum)	read-only (null)	The usage or location within a device to which this sensor measurement applies. <i>For the possible property values, see PhysicalSubContext in Property details.</i>
PowerFactor	number	read-only (null)	The power factor for this sensor.
ReactiveVAR	number (V.A)	read-only (null)	The square root of the difference term of squared ApparentVA and squared Power (Reading) for a circuit, in var units.
Reading }]	number	read-only (null)	The sensor value.
PowerReadingsWatts {	object	(null)	The summary and subsystem power readings for this device. PROPOSAL 2: A set of possible sensor readings provided for a device. This proposal covers more cases than a single sensor, while attempting to maintain easy access to the reading(s) for client software. The <code>Total</code> (or similar name) sensor would be populated first to ensure an interoperable sensor is always available. Additional sensors can be populated using schema-defined physical context names (this list is preliminary). Sensor readings not covered by this proposal would still be available in the <code>Sensor</code> collection, and could be surfaced in this resource using OEM extensions if necessary.

Core {	object (excerpt)		The CPU subsystem power measured by the chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
ApparentVA	number (V.A)	read-only (null)	The product of voltage and current for an AC circuit, in Volt-Ampere units.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
PowerFactor	number	read-only (null)	The power factor for this sensor.
ReactiveVAR	number (V.A)	read-only (null)	The square root of the difference term of squared ApparentVA and squared Power (Reading) for a circuit, in var units.
Reading }	number	read-only (null)	The sensor value.
Memory {	object (excerpt)		The memory subsystem power measured by the chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
ApparentVA	number (V.A)	read-only (null)	The product of voltage and current for an AC circuit, in Volt-Ampere units.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
PowerFactor	number	read-only (null)	The power factor for this sensor.
ReactiveVAR	number (V.A)	read-only (null)	The square root of the difference term of squared ApparentVA and squared Power (Reading) for a circuit, in var units.
Reading }	number	read-only (null)	The sensor value.
Total {	object (excerpt)		The internal power of the chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading }	number	read-only (null)	The sensor value.
PowerWatts {	object (excerpt)		The internal power of the device. PROPOSAL 1: A single power sensor reading is provided for a device. This proposal is the simplest approach and covers most device use cases. For those devices with multiple sensors, this reading would represent the most important sensor, such as the highest reported value. The implementation could change reporting to a different sensor depending on conditions, by using a different DataSourceUri. That would require client software to check the

			<p><code>DataSourceUri</code> value to ensure other Sensor properties, such as thresholds, are reported consistently. Power sensor readings not covered by this proposal would still be available in the Sensor collection, and could be surfaced in this resource using OEM extensions if necessary.</p> <p><i>This object is an excerpt of the Sensor resource located at the URI shown in <code>DataSourceUri</code>.</i></p>
ApparentVA	number (V.A)	read-only (null)	The product of voltage and current for an AC circuit, in Volt-Ampere units.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
PowerFactor	number	read-only (null)	The power factor for this sensor.
ReactiveVAR	number (V.A)	read-only (null)	The square root of the difference term of squared ApparentVA and squared Power (Reading) for a circuit, in var units.
Reading }	number	read-only (null)	The sensor value.
TemperatureArrayCelsius [{	array (excerpt)		<p>The summary and subsystem temperatures readings for this device. PROPOSAL 3: All temperature sensor readings provided for a device. This proposal covers all implementations, but is the most difficult for software to parse and maintain. A client attempting to obtain a specific sensor must iterate through the array to match the name or physical context to match values in an interoperable fashion. A possible alternative would be to provide a single <code>TemperatureCelsius</code> property, with this array property used to contain additional sensors when more than one is needed (essentially a combination of Proposal 1 and Proposal 3).</p> <p><i>This object is an excerpt of the Sensor resource located at the URI shown in <code>DataSourceUri</code>.</i></p>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
PhysicalContext	string (enum)	read-only (null)	<p>The area or device to which this sensor measurement applies.</p> <p><i>For the possible property values, see PhysicalContext in Property details.</i></p>
PhysicalSubContext	string (enum)	read-only (null)	<p>The usage or location within a device to which this sensor measurement applies.</p> <p><i>For the possible property values, see PhysicalSubContext in Property details.</i></p>
Reading }]	number	read-only (null)	The sensor value.
TemperatureCelsius {	object (excerpt)		The temperature of the device. PROPOSAL 1: A single temperature sensor reading is provided for a device. This proposal is the simplest approach and covers most device use cases easily. For

			<p>those devices with multiple sensors, this reading would represent the most important sensor, such as the highest reported value. The implementation could change reporting to a different sensor depending on conditions, by using a different <code>DataSourceUri</code>. That would require client software to check the <code>DataSourceUri</code> value to ensure other Sensor properties, such as thresholds, are reported consistently. Temperature sensor readings not covered by this proposal would still be available in the Sensor collection, and could be surfaced in this resource using OEM extensions if necessary.</p> <p><i>This object is an excerpt of the Sensor resource located at the URI shown in <code>DataSourceUri</code>.</i></p>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading }	number	read-only (null)	The sensor value.
TemperatureReadingsCelsius {	object	(null)	<p>The summary and subsystem temperatures readings for this device. PROPOSAL 2: A set of possible sensor readings provided for a device. This proposal covers more cases than a single sensor, while attempting to maintain easy access to the reading(s) for client software. The <code>Internal</code> (or similar name) sensor would be populated first to ensure an interoperable sensor is always available. Additional sensors can be populated using schema-defined physical context names (this list is preliminary). Sensor readings not covered by this proposal would still be available in the Sensor collection, and could be surfaced in this resource using OEM extensions if necessary.</p>
Ambient {	object (excerpt)		<p>The ambient temperature measured by the chassis.</p> <p><i>This object is an excerpt of the Sensor resource located at the URI shown in <code>DataSourceUri</code>.</i></p>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading }	number	read-only (null)	The sensor value.
Core {	object (excerpt)		<p>The intake temperature of the chassis.</p> <p><i>This object is an excerpt of the Sensor resource located at the URI shown in <code>DataSourceUri</code>.</i></p>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading }	number	read-only (null)	The sensor value.
Internal {	object (excerpt)		<p>The internal temperature of the chassis.</p> <p><i>This object is an excerpt of the Sensor resource located at the URI shown in <code>DataSourceUri</code>.</i></p>

DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading }	number	read-only (null)	The sensor value.
Module {	object (excerpt)		The exhaust temperature of the chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading } }	number	read-only (null)	The sensor value.

Actions

ResetMetrics

This action resets the summary metrics related to this equipment.

Action URI: {Base URI of target resource}/Actions/EnvironmentMetrics.ResetMetrics

Perform the action using a POST to the specific Action URI for this resource. This action takes no parameters.

Property details

PhysicalContext:

The area or device to which this sensor measurement applies.

string	Description
Accelerator	An accelerator.
ACInput	An AC input.
ACMaintenanceBypassInput	An AC maintenance bypass input.
ACOutput	An AC output.
ACStaticBypassInput	An AC static bypass input.
ACUtilityInput	An AC utility input.
ASIC	An ASIC device, such as 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.
Rectifier	A rectifier device.
Room	The room.
StorageBay	Within a storage bay.
StorageDevice	A storage device.
SystemBoard	The system board (PCB).
Transformer	A transformer.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

PhysicalSubContext:

The usage or location within a device to which this sensor measurement applies.

string	Description
Input	The input.
Output	The output.

Example response

```

{
  "@odata.id": "/redfish/v1/Systems/437XR1138R2/Memory/1/EnvironmentMetrics",
  "@odata.type": "#EnvironmentMetrics.v1_0_0.EnvironmentMetrics",
  "Name": "Environment Metrics",
  "TemperatureCelsius": {
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/DIMM1Temp",
    "Reading": 44
  },
  "TemperatureReadingsCelsius": {
    "Internal": {
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/DIMM1Temp",
      "Reading": 44
    },
    "Module": {
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/DIMM1TempModule",
      "Reading": 42
    }
  },
  "TemperatureArraySensors": [{
    "Name": "DIMM #1 Core Temperature",
    "PhysicalContext": "Memory",
    "Reading": 48.3,
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/DIMM1CoreTemp"
  },
  {
    "Name": "DIMM #1 Board Temperature",
    "PhysicalContext": "SystemBoard",
    "Reading": 44,
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/DIMM1Temp"
  }
],
  "PowerWatts": {
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/DIMM1Power",
    "Reading": 12.87
  },
  "PowerReadingsWatts": {
    "Total": {
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/DIMM1Power",
      "Reading": 12.87
    },
    "Memory": {
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/DIMM1CorePower",
      "Reading": 10.71
    }
  },
  "PowerArrayWatts": [{
    "Name": "DIMM #1 Total Power",
    "PhysicalContext": "Total",
    "Reading": 12.87,
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/DIMM1Power"
  },
  {
    "Name": "DIMM #1 Core power",
    "PhysicalContext": "Memory",
    "Reading": 10.71,
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/DIMM1CorePower"
  }
],
  "EnergyJoules": {
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/DIMM1Energy",
    "Reading": 10512000,
    "SensorResetTime": "2020-03-13T04:14:33"
  },
  "Actions": {
    "EnvironmentMetrics.ResetMetrics": {
      "target":
"/redfish/v1/Systems/437XR1138R2/Memory/1/EnvironmentMetrics/EnvironmentMetrics.ResetMetrics"
    }
  },
  "Oem": {}
}

```

Fan 1.0.0

v1.0

TBD

The Fan schema describes a cooling fan unit for a computer system or similar devices contained within a chassis.

URIs:

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

Assembly {	object		The link to the assembly associated with this fan.
------------	--------	--	--

@odata.id }	string (URI)	read-only	The unique identifier for a resource.
FanSpeedPercent {	object (excerpt)		The fan speed reading for this power supply. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
PWMInput (v1.2+)	number	read-write (null)	The PWM input value.
Reading	number	read-only (null)	The sensor value.
SpeedRPM (v1.2+) }	number (RPM)	read-only (null)	The rotational speed.
HotPluggable	boolean	read-only (null)	An indication of whether this device can be inserted or removed while the equipment is in operation.
Location { }	object		The location of the fan. <i>See the Resource schema for details on this property.</i>
LocationIndicator	string (enum)	read-write (null)	An indicator allowing an operator to physically locate this resource. <i>For the possible property values, see LocationIndicator in Property details.</i>
Manufacturer	string	read-only (null)	The manufacturer of this fan.
Model	string	read-only (null)	The model number for this fan.
PartNumber	string	read-only (null)	The part number for this fan.
PhysicalContext	string (enum)	read-only	The area or device associated with this fan. <i>For the possible property values, see PhysicalContext in Property details.</i>
SerialNumber	string	read-only (null)	The serial number for this fan.
SparePartNumber	string	read-only (null)	The spare part number for this fan.
Status { }	object		The status and health of the Resource and its subordinate or dependent Resources. <i>See the Resource schema for details on this property.</i>

Property details

LocationIndicator:

An indicator allowing an operator to physically locate this resource.

string	Description
IdentifyLocation	Enable the location indicator.

Off	The location indicator is not in use.
-----	---------------------------------------

PhysicalContext:

The area or device associated with this fan.

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.
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.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/Fans/Bay1",
  "@odata.type": "#Fan.Fan",
  "Id": "Bay1",
  "Name": "Fan Bay 1",
  "Status": {
    "State": "Enabled",
    "Health": "OK"
  },
  "PhysicalContext": "Chassis",
  "Model": "RKS-440DC",
  "Manufacturer": "Contoso Fans",
  "PartNumber": "23456-133",
  "SparePartNumber": "93284-133",
  "LocatorBeacon": "Off",
  "HotPluggable": true,
  "FanSpeedPercent": {
    "Reading": 45,
    "SpeedRPM": 2200,
    "PWMInput": 55,
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/FanBay1"
  },
  "Location": {
    "PartLocation": {
      "ServiceLabel": "Chassis Fan Bay 1",
      "LocationType": "Bay",
      "LocationOrdinalValue": 0
    }
  }
}
```

PowerSubsystem 1.0.0

v1.0
TBD

This is the schema definition for the power subsystem of a chassis.

URIs:

/redfish/v1/Chassis/{ChassisId}/PowerSubsystem

Allocation {	object		Power allocation for this chassis.

AllocatedWatts	number (Watts)	read-only (null)	The total amount of power that has been allocated or budgeted to chassis.
CapacityWatts	number (Watts)	read-only (null)	The total amount of power that can be allocated to the chassis. This value can be either the power supply capacity or the power budget that an upstream chassis assigns to this chassis.
RequestedWatts }	number (Watts)	read-only (null)	The potential power, in watts, that the chassis requests, which may be higher than the current level being consumed because the requested power includes a budget that the chassis wants for future use.
LimitEnabled	boolean	read-write (null)	Indicates that the power limit is enforced.
LimitWatts	number (Watts)	read-write (null)	The power limit.
Metrics {	object		Link to the summary metrics for this subsystem. <i>See the PowerSubsystemMetrics schema for details on this property.</i>
@odata.id }	string	read-only	Link to a PowerSubsystemMetrics resource. See the Links section and the PowerSubsystemMetrics schema for details.
PowerSupplies {	object		Link to the power supplies for this chassis.
@odata.id }	string (URI)	read-only	The unique identifier for a resource.
PowerSupplyRedundancy [{	array		The redundancy information for the set of power supplies in this chassis.
@odata.id }]	string (URI)	read-only	The unique identifier for a resource.
Status { }	object		This property describes the status and health of the resource and its children. <i>See the Resource schema for details on this property.</i>

Example response

```
{
  "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem",
  "@odata.type": "#PowerSubsystem.v1_0_0.PowerSubsystem",
  "Name": "Power Subsystem for Chassis",
  "LimitWatts": 1200,
  "Allocation": {
    "RequestedWatts": 1500,
    "CapacityWatts": 2000,
    "AllocatedWatts": 1200
  },
  "PowerSupplyRedundancy": [
    {
      "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem#/PowerSupplyRedundancy/0",
      "MemberId": "0",
      "Name": "Power Supply Redundancy Group 1",
      "Mode": "Failover",
      "MaxNumSupported": 2,
      "MinNumNeeded": 1,
      "RedundancySet": [
        { "@odata.id": "/redfish/v1/Chassis/1U/Power#/PowerSupplies/Bay1" },
        { "@odata.id": "/redfish/v1/Chassis/1U/Power#/PowerSupplies/Bay2" }
      ],
      "Status": {
        "State": "Offline",
        "Health": "OK"
      }
    }
  ],
}
```

```

"PowerSupplies": {
  "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem/PowerSupplies"
},
"Metrics": {
  "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem/Metrics"
},
"Status": {
  "State": "Enabled",
  "Health": "OK"
},
"Oem": {}
}

```

PowerSubsystemMetrics 1.0.0

v1.0

TBD

This is the schema definition for thermal metrics of a chassis.

URIs:

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

EnergykWh {	object (excerpt)		The energy consumption reading for this chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
LifetimeReading (v1.1+)	number	read-only (null)	The total accumulation value for this sensor.
Reading	number	read-only (null)	The sensor value.
SensorResetTime }	string (date-time)	read-only (null)	The date and time when the time-based properties were last reset.
PowerArrayWatts [{	array (excerpt)		The summary and subsystem power readings for this chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
ApparentVA	number (V.A)	read-only (null)	The product of voltage and current for an AC circuit, in Volt-Ampere units.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
PhysicalContext	string (enum)	read-only (null)	The area or device to which this sensor measurement applies. <i>For the possible property values, see PhysicalContext in Property details.</i>
PhysicalSubContext	string (enum)	read-only (null)	The usage or location within a device to which this sensor measurement applies. <i>For the possible property values, see PhysicalSubContext in Property details.</i>
PowerFactor	number	read-only (null)	The power factor for this sensor.

ReactiveVAR	number (V.A)	read-only (null)	The square root of the difference term of squared ApparentVA and squared Power (Reading) for a circuit, in var units.
Reading }]	number	read-only (null)	The sensor value.
PowerWatts {	object	(null)	The summary and subsystem power readings for this power supply.
CPU {	object (excerpt)		The CPU subsystem power measured by the chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
ApparentVA	number (V.A)	read-only (null)	The product of voltage and current for an AC circuit, in Volt-Ampere units.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
PowerFactor	number	read-only (null)	The power factor for this sensor.
ReactiveVAR	number (V.A)	read-only (null)	The square root of the difference term of squared ApparentVA and squared Power (Reading) for a circuit, in var units.
Reading }	number	read-only (null)	The sensor value.
GPU {	object (excerpt)		The GPU subsystem power measured by the chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
ApparentVA	number (V.A)	read-only (null)	The product of voltage and current for an AC circuit, in Volt-Ampere units.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
PowerFactor	number	read-only (null)	The power factor for this sensor.
ReactiveVAR	number (V.A)	read-only (null)	The square root of the difference term of squared ApparentVA and squared Power (Reading) for a circuit, in var units.
Reading }	number	read-only (null)	The sensor value.
Memory {	object (excerpt)		The memory subsystem power measured by the chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
ApparentVA	number (V.A)	read-only (null)	The product of voltage and current for an AC circuit, in Volt-Ampere units.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
PowerFactor	number	read-only (null)	The power factor for this sensor.

ReactiveVAR	number (V.A)	read-only (null)	The square root of the difference term of squared ApparentVA and squared Power (Reading) for a circuit, in var units.
Reading }	number	read-only (null)	The sensor value.
Storage {	object (excerpt)		The storage subsystem power measured by the chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
ApparentVA	number (V.A)	read-only (null)	The product of voltage and current for an AC circuit, in Volt-Ampere units.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
PowerFactor	number	read-only (null)	The power factor for this sensor.
ReactiveVAR	number (V.A)	read-only (null)	The square root of the difference term of squared ApparentVA and squared Power (Reading) for a circuit, in var units.
Reading }	number	read-only (null)	The sensor value.
Total {	object (excerpt)		The internal power of the chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading }	number	read-only (null)	The sensor value.
VoltageRegulators [{	array (excerpt)		The voltage regulator readings for this chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
PhysicalContext	string (enum)	read-only (null)	The area or device to which this sensor measurement applies. <i>For the possible property values, see PhysicalContext in Property details.</i>
PhysicalSubContext	string (enum)	read-only (null)	The usage or location within a device to which this sensor measurement applies. <i>For the possible property values, see PhysicalSubContext in Property details.</i>
Reading }]	number	read-only (null)	The sensor value.

Actions

ResetMetrics

This action resets the summary metrics related to this equipment.

Action URI: {Base URI of target resource}/Actions/PowerSubsystemMetrics.ResetMetrics

Perform the action using a POST to the specific Action URI for this resource. This action takes no parameters.

Property details

PhysicalContext:

The area or device to which this sensor measurement applies.

string	Description
Accelerator	An accelerator.
ACInput	An AC input.
ACMaintenanceBypassInput	An AC maintenance bypass input.
ACOutput	An AC output.
ACStaticBypassInput	An AC static bypass input.
ACUtilityInput	An AC utility input.
ASIC	An ASIC device, such as 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.
Rectifier	A rectifier device.
Room	The room.
StorageBay	Within a storage bay.
StorageDevice	A storage device.
SystemBoard	The system board (PCB).
Transformer	A transformer.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

PhysicalSubContext:

The usage or location within a device to which this sensor measurement applies.

string	Description
Input	The input.
Output	The output.

Example response

```
{
  "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem/Metrics",
  "@odata.type": "#PowerSubsystemMetrics.v1_0_0.PowerSubsystemMetrics",
  "Id": "PowerMetrics",
  "Name": "Summary Power Metrics",
  "Status": {
    "State": "Enabled",
    "Health": "OK"
  },
  "PowerWatts": {
    "General": {
      "Reading": 374,
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/TotalPower"
    },
    "CPUSubsystem": {
      "Reading": 139,
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/CPUSubsystemPower"
    },
    "SystemBoard": {
      "Reading": 40,
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/SysBrdPower"
    },
    "MemorySubsystem": {
      "Reading": 42,
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/MemorySubsystemPower"
    }
  },
  "VoltageRegulators": [{
    "Name": "CPU #1 Voltage Regulator",
    "PhysicalContext": "System Board",
    "Voltage": {
      "Reading": 3.31,
```



```

    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/VRM1"
  },
  {
    "Name": "CPU #2 Voltage Regulator",
    "PhysicalContext": "System Board",
    "Voltage": {
      "Reading": 3.31,
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/VRM2"
    }
  },
  "EnergykWh": {
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/TotalEnergy",
    "Reading": 325675
  },
  "Links": {
    "Oem": {}
  },
  "Oem": {},
  "Actions": {
    "PowerMetrics.ResetMetrics": {
      "target":
"/redfish/v1/Chassis/1U/PowerSubsystem/Metrics/PowerSubsystemMetrics.ResetMetrics"
    }
  }
}

```

PowerSupply 1.0.0

v1.0
TBD

Details of a power supplies associated with this system or device.

URIs:

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

Assembly {	object		The link to the assembly Resource associated with this power supply.
@odata.id }	string (URI)	read-only	The unique identifier for a resource.
EfficiencyPercent	number (%)	read-only (null)	The measured efficiency of this power supply as a percentage.
FirmwareVersion	string	read-only (null)	The firmware version for this power supply.
HotPluggable	boolean	read-only (null)	An indication of whether this device can be inserted or removed while the equipment is in operation.
InputRanges [{	array		The input ranges that the power supply can use.
MaximumFrequencyHz	number (Hz)	read-only (null)	The maximum line input frequency at which this power supply input range is effective.
MaximumVoltage	number (Volts)	read-only (null)	The maximum line input voltage at which this power supply input range is effective.
MinimumFrequencyHz	number (Hz)	read-only (null)	The minimum line input frequency at which this power supply input range is effective.
MinimumVoltage	number (Volts)	read-only (null)	The minimum line input voltage at which this power supply input range is effective.
NominalVoltageType	string (enum)	read-only (null)	The input voltage range. <i>For the possible property values, see</i>

			NominalVoltageType in Property details.
Oem { }	object		The OEM extension property. See the Resource schema for details on this property.
OutputWattage }]	number (Watts)	read-only (null)	The maximum capacity of this power supply when operating in this input range.
LineInputVoltage	number (Volts)	read-only (null)	The line input voltage at which the power supply is operating.
LineInputVoltageType	string (enum)	read-only (null)	The line voltage type supported as an input to this power supply. For the possible property values, see LineInputVoltageType in Property details.
Links {	object		The links to other resources that are related to this resource.
Oem { }	object		The OEM extension property. See the Resource schema for details on this property.
Outlet {	object		The outlet connected to this power supply.
@odata.id } }	string (URI)	read-only	The unique identifier for a resource.
Location { }	object		The location of the power supply. See the Resource schema for details on this property.
LocationIndicator	string (enum)	read-write (null)	An indicator allowing an operator to physically locate this resource. For the possible property values, see LocationIndicator in Property details.
Manufacturer	string	read-only (null)	The manufacturer of this power supply.
Metrics {	object		The link to the power supply metrics resource associated with this power supply. See the PowerSupplyMetrics schema for details on this property.
@odata.id }	string	read-only	Link to a PowerSupplyMetrics resource. See the Links section and the PowerSupplyMetrics schema for details.
Model	string	read-only (null)	The model number for this power supply.
PartNumber	string	read-only (null)	The part number for this power supply.
PowerCapacityWatts	number (Watts)	read-only (null)	The maximum capacity of this power supply.
PowerSupplyType	string (enum)	read-only (null)	The power supply type (AC or DC). For the possible property values, see PowerSupplyType in Property details.
SerialNumber	string	read-only (null)	The serial number for this power supply.
SparePartNumber	string	read-only	The spare part number for this power supply.

		(null)	
Status { }	object		The status and health of the Resource and its subordinate or dependent Resources. See the Resource schema for details on this property.

Property details

LineInputVoltageType:

The line voltage type supported as an input to this power supply.

string	Description
AC120V	AC 120V nominal input.
AC240V	AC 240V nominal input.
AC277V	AC 277V nominal input.
ACandDCWideRange	Wide range AC or DC input.
ACWideRange	Wide range AC input.
DC240V	DC 240V nominal input.
DC380V	High Voltage DC input (380V).
DCNeg48V	-48V DC input.
Unknown	The power supply line input voltage type cannot be determined.

LocationIndicator:

An indicator allowing an operator to physically locate this resource.

string	Description
IdentifyLocation	Enable the location indicator.
Off	The location indicator is not in use.

NominalVoltageType:

The input voltage range.

string	Description
AC100To240V	AC 100-240V nominal.
AC100To277V	AC 100-277V nominal.
AC120V	AC 120V nominal.
AC200To240V	AC 200-240V nominal.
AC200To277V	AC 200-277V nominal.
AC208V	AC 208V nominal.
AC230V	AC 230V nominal.
AC240AndDC380V	AC 200-240V and DC 380V.
AC240V	AC 240V nominal.

AC277AndDC380V	AC 200-277V and DC 380V.
AC277V	AC 277V nominal.
AC400V	AC 400V or 415V nominal.
AC480V	AC 480V nominal.
DC240V	DC 240V nominal.
DC380V	High Voltage DC (380V).
DCNeg48V	-48V DC.

PowerSupplyType:

The power supply type (AC or DC).

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.

Example response

```
{
  "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem/PowerSupplies/Bay1",
  "@odata.type": "#PowerSupply.PowerSupply",
  "Id": "Bay1",
  "Name": "Power Supply Bay 1",
  "Status": {
    "State": "Enabled",
    "Health": "Warning"
  },
  "Model": "RKS-440DC",
  "Manufacturer": "Contoso Power",
  "FirmwareVersion": "1.00",
  "SerialNumber": "3488247",
  "PartNumber": "23456-133",
  "SparePartNumber": "93284-133",
  "LocatorBeacon": "Off",
  "HotPluggable": false,
  "InputVoltageType": "AC200To240V",
  "CapacityWatts": 400,
  "EfficiencyRating": "Gold",
  "InputRanges": [
    {
      "InputVoltageType": "AC200To240V",
      "CapacityWatts": 400
    },
    {
      "InputVoltageType": "AC120V",
      "CapacityWatts": 350
    },
    {
      "InputVoltageType": "DC380V",
      "CapacityWatts": 400
    }
  ],
  "Location": {
    "PartLocation": {
      "ServiceLabel": "PSU 1",
      "LocationType": "Bay",
      "LocationOrdinalValue": 0
    }
  },
  "Links": {
    "Outlet": {
      "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem/Outlets/A4"
    }
  },
  "Assembly": {
    "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem/PowerSupplies/Bay1/Assembly"
  },
  "Metrics": {
    "@odata.id": "/redfish/v1/Chassis/1U/PowerSubsystem/PowerSupplies/Bay1/Metrics"
  },
  "Actions": {
```

```

    "#PowerSupply.Reset": {
      "target": "/redfish/v1/Chassis/1U/PowerSubsystem/PowerSupplies/Bay1/PowerSupply.Reset"
    }
  }
}

```

PowerSupplyMetrics 1.0.0

v1.0

TBD

This is the schema definition for the metrics of a power supply.

URIs:

/redfish/v1/Chassis/{[ChassisId](#)}/PowerSubsystem/PowerSupplies/{[PowerSupplyId](#)}/Metrics

EnergykWh {	object (excerpt)		The energy consumption of this unit. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
LifetimeReading (v1.1+)	number	read-only (null)	The total accumulation value for this sensor.
Reading	number	read-only (null)	The sensor value.
SensorResetTime }	string (date-time)	read-only (null)	The date and time when the time-based properties were last reset.
FanSpeedPercent {	object (excerpt)		The fan speed reading for this power supply. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
PWMInput (v1.2+)	number	read-write (null)	The PWM input value.
Reading	number	read-only (null)	The sensor value.
SpeedRPM (v1.2+) }	number (RPM)	read-only (null)	The rotational speed.
FrequencyHz {	object (excerpt)		The frequency reading for this power supply. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading }	number	read-only (null)	The sensor value.
InputCurrentAmps {	object (excerpt)		The current reading for this power supply. <i>This object is an excerpt of the Sensor resource</i>

			<i>located at the URI shown in DataSourceUri.</i>
CrestFactor (v1.1+)	number	read-only (null)	The crest factor for this sensor.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading	number	read-only (null)	The sensor value.
THDPercent (v1.1+) }	number	read-only (null)	The total harmonic distortion (THD).
InputPowerWatts {	object (excerpt)		The input power reading for the power supply. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
ApparentVA	number (V.A)	read-only (null)	The product of voltage and current for an AC circuit, in Volt-Ampere units.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
PowerFactor	number	read-only (null)	The power factor for this sensor.
ReactiveVAR	number (V.A)	read-only (null)	The square root of the difference term of squared ApparentVA and squared Power (Reading) for a circuit, in var units.
Reading }	number	read-only (null)	The sensor value.
InputVoltage {	object (excerpt)		The voltage reading for this power supply. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
CrestFactor (v1.1+)	number	read-only (null)	The crest factor for this sensor.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading	number	read-only (null)	The sensor value.
THDPercent (v1.1+) }	number	read-only (null)	The total harmonic distortion (THD).
OutputCurrentAmps {	object	(null)	The output current readings for this power supply.
FiveVolt {	object (excerpt)		The 5V nominal output. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
CrestFactor (v1.1+)	number	read-only (null)	The crest factor for this sensor.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading	number	read-only (null)	The sensor value.

THDPercent (v1.1+) }	number	read-only (null)	The total harmonic distortion (THD).
FortyEightVolt {	object (excerpt)		The 48V nominal output. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
CrestFactor (v1.1+)	number	read-only (null)	The crest factor for this sensor.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading	number	read-only (null)	The sensor value.
THDPercent (v1.1+) }	number	read-only (null)	The total harmonic distortion (THD).
ThreeVolt {	object (excerpt)		The 3V nominal output. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
CrestFactor (v1.1+)	number	read-only (null)	The crest factor for this sensor.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading	number	read-only (null)	The sensor value.
THDPercent (v1.1+) }	number	read-only (null)	The total harmonic distortion (THD).
TwelveVolt {	object (excerpt)		The 12V nominal output. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
CrestFactor (v1.1+)	number	read-only (null)	The crest factor for this sensor.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading	number	read-only (null)	The sensor value.
THDPercent (v1.1+) }	number	read-only (null)	The total harmonic distortion (THD).
OutputPowerWatts {	object (excerpt)		The output power reading for the power supply. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
ApparentVA	number (V.A)	read-only (null)	The product of voltage and current for an AC circuit, in Volt-Ampere units.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
PowerFactor	number	read-only (null)	The power factor for this sensor.

ReactiveVAR	number (V.A)	read-only (null)	The square root of the difference term of squared ApparentVA and squared Power (Reading) for a circuit, in var units.
Reading }	number	read-only (null)	The sensor value.
OutputVoltages {	object	(null)	The output voltage readings for this power supply.
FiveVolt {	object (excerpt)		The 5V nominal output. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
CrestFactor (v1.1+)	number	read-only (null)	The crest factor for this sensor.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading	number	read-only (null)	The sensor value.
THDPercent (v1.1+) }	number	read-only (null)	The total harmonic distortion (THD).
FortyEightVolt {	object (excerpt)		The 48V nominal output. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
CrestFactor (v1.1+)	number	read-only (null)	The crest factor for this sensor.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading	number	read-only (null)	The sensor value.
THDPercent (v1.1+) }	number	read-only (null)	The total harmonic distortion (THD).
ThreeVolt {	object (excerpt)		The 3V nominal output. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
CrestFactor (v1.1+)	number	read-only (null)	The crest factor for this sensor.
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading	number	read-only (null)	The sensor value.
THDPercent (v1.1+) }	number	read-only (null)	The total harmonic distortion (THD).
TwelveVolt {	object (excerpt)		The 12V nominal output. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
CrestFactor (v1.1+)	number	read-only (null)	The crest factor for this sensor.

DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading	number	read-only (null)	The sensor value.
THDPercent (v1.1+)	number	read-only (null)	The total harmonic distortion (THD).
TemperatureCelsius {	object (excerpt)		The temperature reading for this power supply. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading	number	read-only (null)	The sensor value.

Actions

ResetMetrics

This action resets the summary metrics related to this equipment.

Action URI: {Base URI of target resource}/Actions/PowerSupplyMetrics.ResetMetrics

Perform the action using a POST to the specific Action URI for this resource. This action takes no parameters.

Example response

```
{
  "@odata.id": "/redfish/v1/Chassis/1U//PowerSubsystem/PowerSupplies/Bay1/Metrics",
  "@odata.type": "#PowerSupplyMetrics.PowerSupplyMetrics",
  "Id": "Metrics",
  "Name": "Metrics for Power Supply 1",
  "Status": {
    "State": "Enabled",
    "Health": "Warning"
  },
  "NominalInputVoltage": "AC200To240V",
  "InputVoltage": {
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1InputVoltage",
    "Reading": 230.2
  },
  "InputCurrentAmps": {
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1InputCurrent",
    "Reading": 5.19
  },
  "InputPowerWatts": {
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1InputPower",
    "Reading": 937.4,
    "ApparentVA": 937.4,
    "ReactiveVAR": 0.0,
    "PowerFactor": 0.98
  },
  "InputFrequencyHz": {
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1InputFrequency",
    "Reading": 60.0
  },
  "OutputVoltages": {
    "FiveVolt": {
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1_5VOutput",
      "Reading": 5.03
    },
    "ThreeVolt": {
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1_3VOutput",
      "Reading": 3.31
    },
    "TwelveVolt": {
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1_12VOutput",
      "Reading": 12.06
    }
  },
  "OutputCurrentAmps": {
    "FiveVolt": {
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1_5VCurrent",
      "Reading": 1.25
    }
  }
}
```

```

    },
    "ThreeVolt": {
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1_3VCurrent",
      "Reading": 9.84
    },
    "TwelveVolt": {
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1_12Current",
      "Reading": 2.58
    }
  },
  "OutputPowerWatts": {
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1OutputPower",
    "Reading": 937.4,
    "ApparentVA": 937.4,
    "ReactiveVAR": 0.0,
    "PowerFactor": 0.98
  },
  "EnergykWh": {
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1Energy",
    "Reading": 325675
  },
  "TemperatureCelsius": {
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1Temp",
    "Reading": 43.9
  },
  "FanSpeedPercent": {
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PS1Fan",
    "Reading": 68,
    "SpeedRPM": 3290
  },
  "Actions": {
    "#PowerSupplyMetrics.ResetMetrics": {
      "target":
"/redfish/v1/Chassis/1U/PowerSubsystem/PowerSupplies/Bay1/Metrics/PowerSupplyMetrics.ResetMetrics"
    }
  }
}

```

Sensor 1.2.0

v1.2	v1.1	v1.0
TBD	2019.4	2018.3

The Sensor schema describes a sensor and its properties.

URIs:

/redfish/v1/Chassis/{ChassisId}/Sensors/{SensorId}
 /redfish/v1/PowerEquipment/FloorPDUs/{PowerDistributionId}/Sensors/{SensorId}
 /redfish/v1/PowerEquipment/RackPDUs/{PowerDistributionId}/Sensors/{SensorId}
 /redfish/v1/PowerEquipment/Sensors/{SensorId}
 /redfish/v1/PowerEquipment/TransferSwitches/{PowerDistributionId}/Sensors/{SensorId}

Accuracy	number (%)	read-only (null)	The estimated percent error of measured versus actual values.
AdjustedMaxAllowableOperatingValue	number	read-only (null)	The adjusted maximum allowable operating value for this equipment based on the environmental conditions.
AdjustedMinAllowableOperatingValue	number	read-only (null)	The adjusted minimum allowable operating value for this equipment based on the environmental conditions.
ApparentVA	number (V.A)	read-only (null)	The product of voltage and current for an AC circuit, in Volt-Ampere units.
CrestFactor (v1.1+)	number	read-only (null)	The crest factor for this sensor.
ElectricalContext	string	read-only	The combination of current-carrying

	(enum)	(null)	conductors. <i>For the possible property values, see ElectricalContext in Property details.</i>
Implementation (v1.1+)	string (enum)	read-only (null)	The implementation of the sensor. <i>For the possible property values, see Implementation in Property details.</i>
LifetimeReading (v1.1+)	number	read-only (null)	The total accumulation value for this sensor.
LoadPercent (deprecated v1.1)	number (%)	read-only (null)	The power load utilization for this sensor. <i>Deprecated in v1.1 and later. This property has been deprecated in favor of using a sensor instance with a ReadingType of 'Percent' to show utilization values when needed.</i>
Location { }	object		The location information for this sensor. <i>See the Resource schema for details on this property.</i>
MaxAllowableOperatingValue	number	read-only (null)	The maximum allowable operating value for this equipment.
MinAllowableOperatingValue	number	read-only (null)	The minimum allowable operating value for this equipment.
PeakReading	number	read-only (null)	The peak sensor value.
PeakReadingTime	string (date-time)	read-only (null)	The time when the peak sensor value occurred.
PhysicalContext	string (enum)	read-only (null)	The area or device to which this sensor measurement applies. <i>For the possible property values, see PhysicalContext in Property details.</i>
PhysicalSubContext	string (enum)	read-only (null)	The usage or location within a device to which this sensor measurement applies. <i>For the possible property values, see PhysicalSubContext in Property details.</i>
PowerFactor	number	read-only (null)	The power factor for this sensor.
Precision	number	read-only (null)	The number of significant digits in the reading.
PWMInput (v1.2+)	number	read-write (null)	The PWM input value.
ReactiveVAR	number (V.A)	read-only (null)	The square root of the difference term of squared ApparentVA and squared Power (Reading) for a circuit, in var units.
Reading	number	read-only (null)	The sensor value.
ReadingRangeMax	number	read-only (null)	The maximum possible value for this sensor.

ReadingRangeMin	number	read-only (null)	The minimum possible value for this sensor.
ReadingTime (v1.1+)	string (date-time)	read-only (null)	The date and time that the reading was acquired from the sensor.
ReadingType	string (enum)	read-only (null)	The type of sensor. <i>For the possible property values, see ReadingType in Property details.</i>
ReadingUnits	string	read-only (null)	The units of the reading and thresholds.
SensingFrequency (deprecated v1.1)	number	read-only (null)	The time interval between readings of the physical sensor. <i>Deprecated in v1.1 and later. This property has been deprecated in favor of the SensingInterval property, which uses the duration time format for interoperability.</i>
SensingInterval (v1.1+)	string	read-only (null)	The time interval between readings of the sensor.
SensorResetTime	string (date-time)	read-only (null)	The date and time when the time-based properties were last reset.
SpeedRPM (v1.2+)	number (RPM)	read-only (null)	The rotational speed.
Status { }	object		The status and health of the resource and its subordinate or dependent resources. <i>See the Resource schema for details on this property.</i>
THDPercent (v1.1+)	number	read-only (null)	The total harmonic distortion (THD).
Thresholds {	object		The set of thresholds defined for this sensor.
LowerCaution {	object		The value at which the reading is below normal range.
Activation	string (enum)	read-write (null)	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string	read-write (null)	The duration the sensor value must violate the threshold before the threshold is activated.
Reading }	number	read-write (null)	The threshold value.
LowerCritical {	object		The value at which the reading is below normal range but not yet fatal.
Activation	string (enum)	read-write (null)	The direction of crossing that activates this threshold. <i>For the possible property values, see</i>

			Activation in Property details.
DwellTime	string	read-write (null)	The duration the sensor value must violate the threshold before the threshold is activated.
Reading }	number	read-write (null)	The threshold value.
LowerFatal {	object		The value at which the reading is below normal range and fatal.
Activation	string (enum)	read-write (null)	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string	read-write (null)	The duration the sensor value must violate the threshold before the threshold is activated.
Reading }	number	read-write (null)	The threshold value.
UpperCaution {	object		The value at which the reading is above normal range.
Activation	string (enum)	read-write (null)	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string	read-write (null)	The duration the sensor value must violate the threshold before the threshold is activated.
Reading }	number	read-write (null)	The threshold value.
UpperCritical {	object		The value at which the reading is above normal range but not yet fatal.
Activation	string (enum)	read-write (null)	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string	read-write (null)	The duration the sensor value must violate the threshold before the threshold is activated.
Reading }	number	read-write (null)	The threshold value.
UpperFatal {	object		The value at which the reading is above normal range and fatal.
Activation	string (enum)	read-write (null)	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string	read-write (null)	The duration the sensor value must violate the threshold before the threshold is

			activated.
Reading }	number	read-write (null)	The threshold value.
UserThresholds (v1.2+) {	object		The set of user-defined thresholds for this sensor.
LowerCaution {	object		The value at which the reading is below normal range.
Activation	string (enum)	read-write (null)	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string	read-write (null)	The duration the sensor value must violate the threshold before the threshold is activated.
Reading }	number	read-write (null)	The threshold value.
LowerCritical {	object		The value at which the reading is below normal range but not yet fatal.
Activation	string (enum)	read-write (null)	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string	read-write (null)	The duration the sensor value must violate the threshold before the threshold is activated.
Reading }	number	read-write (null)	The threshold value.
LowerFatal {	object		The value at which the reading is below normal range and fatal.
Activation	string (enum)	read-write (null)	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string	read-write (null)	The duration the sensor value must violate the threshold before the threshold is activated.
Reading }	number	read-write (null)	The threshold value.
UpperCaution {	object		The value at which the reading is above normal range.
Activation	string (enum)	read-write (null)	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string	read-write (null)	The duration the sensor value must violate the threshold before the threshold is

			activated.
Reading }	number	read-write (null)	The threshold value.
UpperCritical {	object		The value at which the reading is above normal range but not yet fatal.
Activation	string (enum)	read-write (null)	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string	read-write (null)	The duration the sensor value must violate the threshold before the threshold is activated.
Reading }	number	read-write (null)	The threshold value.
UpperFatal {	object		The value at which the reading is above normal range and fatal.
Activation	string (enum)	read-write (null)	The direction of crossing that activates this threshold. <i>For the possible property values, see Activation in Property details.</i>
DwellTime	string	read-write (null)	The duration the sensor value must violate the threshold before the threshold is activated.
Reading }	number	read-write (null)	The threshold value.
VoltageType	string (enum)	read-only (null)	The voltage type for this sensor. <i>For the possible property values, see VoltageType in Property details.</i>

Actions

ResetMetrics

Resets metrics related to this sensor.

Action URI: {Base URI of target resource}/Actions/Sensor.ResetMetrics

Perform the action using a POST to the specific Action URI for this resource. This action takes no parameters.

Property details

Activation:

The direction of crossing that activates this threshold.

string	Description
Decreasing	Value decreases below the threshold.
Either	Value crosses the threshold in either direction.
Increasing	Value increases above the threshold.

ElectricalContext:

The combination of current-carrying conductors.

string	Description
Line1	The circuits that share the L1 current-carrying conductor.
Line1ToLine2	The circuit formed by L1 and L2 current-carrying conductors.
Line1ToNeutral	The circuit formed by L1 and neutral current-carrying conductors.
Line1ToNeutralAndL1L2	The circuit formed by L1, L2, and neutral current-carrying conductors.
Line2	The circuits that share the L2 current-carrying conductor.
Line2ToLine3	The circuit formed by L2 and L3 current-carrying conductors.
Line2ToNeutral	The circuit formed by L2 and neutral current-carrying conductors.
Line2ToNeutralAndL1L2	The circuit formed by L1, L2, and Neutral current-carrying conductors.
Line2ToNeutralAndL2L3	The circuits formed by L2, L3, and neutral current-carrying conductors.
Line3	The circuits that share the L3 current-carrying conductor.
Line3ToLine1	The circuit formed by L3 and L1 current-carrying conductors.
Line3ToNeutral	The circuit formed by L3 and neutral current-carrying conductors.
Line3ToNeutralAndL3L1	The circuit formed by L3, L1, and neutral current-carrying conductors.
LineToLine	The circuit formed by two current-carrying conductors.
LineToNeutral	The circuit formed by a line and neutral current-carrying conductor.
Neutral	The grounded current-carrying return circuit of current-carrying conductors.
Total	The circuit formed by all current-carrying conductors.

Implementation:

The implementation of the sensor.

string	Description
PhysicalSensor	The reading is acquired from a physical sensor.
Reported	The reading is obtained from software or a device.
Synthesized	The reading is obtained by applying a calculation on one or more properties. The calculation is not provided.

PhysicalContext:

The area or device to which this sensor measurement applies.

string	Description
Accelerator	An accelerator.
ACInput	An AC input.
ACMaintenanceBypassInput	An AC maintenance bypass input.

ACOutput	An AC output.
ACStaticBypassInput	An AC static bypass input.
ACUtilityInput	An AC utility input.
ASIC	An ASIC device, such as 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.
Rectifier	A rectifier device.
Room	The room.
StorageBay	Within a storage bay.

StorageDevice	A storage device.
SystemBoard	The system board (PCB).
Transformer	A transformer.
Upper	The upper portion of the chassis.
VoltageRegulator	A voltage regulator device.

PhysicalSubContext:

The usage or location within a device to which this sensor measurement applies.

string	Description
Input	The input.
Output	The output.

ReadingType:

The type of sensor.

string	Description
AirFlow	Airflow.
Altitude	Altitude.
Barometric	Barometric pressure.
Current	Current.
EnergyJoules	Energy (Joules).
EnergykWh	Energy (kWh).
Frequency	Frequency.
Humidity	Relative Humidity.
LiquidFlow	Liquid flow.
LiquidLevel	Liquid level.
Percent (v1.1+)	Percent.
Power	Power.
Pressure	Pressure.
Rotational	Rotational.
Temperature	Temperature.
Voltage	Voltage (AC or DC).

VoltageType:

The voltage type for this sensor.

string	Description
AC	Alternating current.

DC	Direct current.
----	-----------------

Example response

```
{
  "@odata.type": "#Sensor.v1_1_0.Sensor",
  "Id": "CabinetTemp",
  "Name": "Rack Temperature",
  "ReadingType": "Temperature",
  "ReadingTime": "2019-12-25T04:14:33+06:00",
  "Status": {
    "State": "Enabled",
    "Health": "OK"
  },
  "Reading": 31.6,
  "ReadingUnits": "C",
  "ReadingRangeMin": 0,
  "ReadingRangeMax": 70,
  "Accuracy": 0.25,
  "Precision": 1,
  "SensingInterval": "PT3S",
  "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"
}
```

ThermalMetrics 1.0.0

v1.0
TBD

This is the schema definition for thermal metrics of a chassis.

URIs:

/redfish/v1/Chassis/[/ChassisId](#)/ThermalSubsystem/ThermalMetrics

TemperatureArrayCelsius [{	array (excerpt)		The summary and subsystem temperatures readings for this device. PROPOSAL 2: All temperature sensor readings provided for a device. This proposal covers all implementations, but is more difficult for software to parse and maintain. A client attempting to obtain a specific sensor must iterate through the array to match the name or physical context to match values in an interoperable fashion. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
PhysicalContext	string (enum)	read-only (null)	The area or device to which this sensor measurement applies. <i>For the possible property values, see PhysicalContext in Property details.</i>

PhysicalSubContext	string (enum)	read-only (null)	The usage or location within a device to which this sensor measurement applies. <i>For the possible property values, see PhysicalSubContext in Property details.</i>
Reading }]	number	read-only (null)	The sensor value.
TemperatureSensorsCelsius {	object	(null)	The summary and subsystem temperatures readings for this device. PROPOSAL 1: A set of possible sensor readings provided for a device. This proposal covers more cases than a single sensor, while attempting to maintain easy access to the reading(s) for client software. The <code>Internal</code> (or similar name) sensor would be populated first to ensure an interoperable sensor is always available. Additional sensors can be populated using schema-defined physical context names (this list is preliminary). Sensor readings not covered by this proposal would still be available in the Sensor collection, and could be surfaced in this resource using OEM extensions if necessary.
Ambient {	object (excerpt)		The ambient temperature measured by the chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading }	number	read-only (null)	The sensor value.
CPU {	object (excerpt)		The CPU subsystem temperature measured by the chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading }	number	read-only (null)	The sensor value.
Exhaust {	object (excerpt)		The exhaust temperature of the chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading }	number	read-only (null)	The sensor value.
GPU {	object (excerpt)		The GPU subsystem temperature measured by the chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading	number	read-only	The sensor value.

}		(null)	
Intake {	object (excerpt)		The intake temperature of the chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading }	number	read-only (null)	The sensor value.
Internal {	object (excerpt)		The internal temperature of the chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading }	number	read-only (null)	The sensor value.
Memory {	object (excerpt)		The memory subsystem temperature measured by the chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading }	number	read-only (null)	The sensor value.
Storage {	object (excerpt)		The storage subsystem temperature measured by the chassis. <i>This object is an excerpt of the Sensor resource located at the URI shown in DataSourceUri.</i>
DataSourceUri	string (URI)	read-only (null)	The link to the resource that provides the data for this sensor.
Reading }	number	read-only (null)	The sensor value.

Actions

ResetMetrics

This action resets the summary metrics related to this equipment.

Action URI: {Base URI of target resource}/Actions/ThermalMetrics.ResetMetrics

Perform the action using a POST to the specific Action URI for this resource. This action takes no parameters.

Property details

PhysicalContext:

The area or device to which this sensor measurement applies.

string	Description
Accelerator	An accelerator.

ACInput	An AC input.
ACMaintenanceBypassInput	An AC maintenance bypass input.
ACOutput	An AC output.
ACStaticBypassInput	An AC static bypass input.
ACUtilityInput	An AC utility input.
ASIC	An ASIC device, such as 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.

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

PhysicalSubContext:

The usage or location within a device to which this sensor measurement applies.

string	Description
Input	The input.
Output	The output.

Example response

```
{
  "@odata.id": "/redfish/v1/Chassis/1U/ThermalMetrics",
  "@odata.type": "#ThermalMetrics.v1_0_0.ThermalMetrics",
  "Id": "ThermalMetrics",
  "Name": "Chassis Thermal Metrics",
  "Status": {
    "State": "Enabled",
    "Health": "OK"
  },
  "TemperatureSensorsCelsius": {
    "Internal": {
      "Reading": 39,
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/CPU1Temp"
    },
    "Intake": {
      "Reading": 23,
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/IntakeTemp"
    },
    "ProcessorSubsystem": {
      "Reading": 39,
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/CPUTemps"
    },
    "SystemBoard": {
      "Reading": 40,
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/SysBrdTemp"
    },
    "MemorySubsystem": {
      "Reading": 42,
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/MemoryTemp"
    },
    "PowerSubsystem": {
      "Reading": 33,
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PSTemp"
    },
    "Exhaust": {
      "Reading": 44,
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/ExhaustTemp"
    }
  },
  "TemperatureArrayCelsius": [{
    "Reading": 40,
    "PhysicalContext": "SystemBoard",
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/SysBrdTemp"
  }, {
    "Reading": 23,
    "PhysicalContext": "Intake",
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/IntakeTemp"
  }, {
    "Reading": 39,
    "PhysicalContext": "CPUSubsystem",
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/CPUTemps"
  }, {
    "Reading": 42,
    "PhysicalContext": "MemorySubsystem",
    "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/MemoryTemp"
  }
}]
```

```

    }, {
      "Reading": 33,
      "PhysicalContext": "PowerSupply",
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/PSTemp"
    }, {
      "Reading": 44,
      "PhysicalContext": "Exhaust",
      "DataSourceUri": "/redfish/v1/Chassis/1U/Sensors/ExhaustTemp"
    }
  ],
  "Links": {
    "Oem": {}
  },
  "Oem": {},
  "@Redfish.Copyright": "Copyright 2020 DMTF. All rights reserved."
}

```

ThermalSubsystem 1.0.0

v1.0

TBD

This is the schema definition for the thermal subsystem of a chassis.

URIs:

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

CoolingMetrics {	object		Link to the cooling metrics for this chassis. <i>See the CoolingMetrics schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a CoolingMetrics resource. See the Links section and the CoolingMetrics schema for details.</i>
FanRedundancy [{	array		The redundancy information for the set of fans in this chassis.
@odata.id }]	string (URI)	read-only	The unique identifier for a resource.
Fans {	object		Link to the fans in this chassis.
@odata.id }	string (URI)	read-only	The unique identifier for a resource.
Status { }	object		This property describes the status and health of the resource and its children. <i>See the Resource schema for details on this property.</i>
ThermalMetrics {	object		Link to the thermal summary metrics for this subsystem. <i>See the ThermalMetrics schema for details on this property.</i>
@odata.id }	string	read-only	<i>Link to a ThermalMetrics resource. See the Links section and the ThermalMetrics schema for details.</i>

Example response

```

{
  "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem",
  "@odata.type": "#ThermalSubsystem.v1_0_0.ThermalSubsystem",
  "Name": "Thermal Subsystem for Chassis",
  "FanRedundancy": [{
    "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/#FanRedundancy/0",
    "Name": "Fan Group 1",
    "MemberId": "0",
    "RedundancyEnabled": true,
    "Mode": "N+1",
    "MaxNumSupported": 2,
    "MinNumNeeded": 1,
    "RedundancySet": [{
      "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/Fans/Bay1"
    }],
  }],
}

```



```

        "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/Fans/Bay2"
    },
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    }
},
{
    "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/#FanRedundancy/1",
    "Name": "Fan Group 2",
    "MemberId": "1",
    "RedundancyEnabled": false,
    "Mode": "N+1",
    "MaxNumSupported": 2,
    "MinNumNeeded": 1,
    "RedundancySet": [{
        "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/Fans/Bay3"
    },
    {
        "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/Fans/Bay4"
    }
    ],
    "Status": {
        "State": "Disabled"
    }
},
{
    "Fans": {
        "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/Fans"
    },
    "ThermalMetrics": {
        "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/ThermalMetrics"
    },
    "CoolingMetrics": {
        "@odata.id": "/redfish/v1/Chassis/1U/ThermalSubsystem/CoolingMetrics"
    },
    "Status": {
        "State": "Enabled",
        "Health": "OK"
    },
    "Oem": {}
}
}

```

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>.