Redfish API Schema Readme

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

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Foreword

The following files are part of the Redfish Scalable Platforms Management API ("Redfish") development effort:

- DSP0226 - Redfish Specification - This file is the main Redfish Scalable Platforms Management API Specification.
- DSP0270 - Redfish Host Interface Specification - This document specifies the "in-band" or "OS-based" Redfish Host Interface.
- DSP0272 - Redfish Interoperability Profile Specification - Specifies the structure and JSON document used to define and publish an interoperability profile used to check an implementation's conformance to a defined minimum set of functionality.
- DSP2044 - Redfish Whitepaper - This is intended to be a non-normative document helping those new to Redfish understand how to interact with the Redfish Service and understand common functions and tasks.
- DSP2043 - Redfish Mockup - This is a mockup that can be used as sample of output from GETs from a Redfish Service. Informative in nature, it was used to develop the schema. A person can set up an NGINX or similar server and configure it to output JSON format and then use this directory for demonstration purposes.
- DSP8010 - Redfish Schema - This contains the Redfish Schema definitions. These files are normative in nature and are normatively referenced by the Redfish Specification. There are three Schema formats - CSDL (OData Common Schema Definition Language format, which is in XML), JSON Schema, and OpenAPI schema. These Schema definitions should be functionally equivalent, thus specifying the schema in two different languages.
- DSP8011 - Redfish Standard Registries - This contains the Redfish Registry definitions. This bundle of Redfish registries includes Message registries used for Redfish-defined messages (including events) and Privilege maps.
- DSP8013 - Redfish Interoperability Profiles - A bundle of published Redfish Interoperability Profile documents as well as supporting schema and sample documents used for creating profiles.

1. Redfish Schema Bundle Contents

This bundles contains the set of Redfish schema files. The contents of the folder are put into several folders. Each folder contains a complete set of Redfish schema files for a given schema language. The folders are as follows:

- "csdl": Contains the OData Common Schema Definition Language format as XML files
    - The files "RedfishExtensions_v1.xml" and "Resource_v1.xml" contain core definitions of Redfish
- "json-schema": Contains the JSON Schema format as JSON files
    - The files named "redfish-schema.*.json" and "odata.*.json" contain supplementary information about the schema files
- "openapi": Contains the OpenAPI format as YAML files
    - The file "openapi.yaml" contains the OpenAPI service document that describes all of the standard paths

2. Redfish Schema Release History

2.1. Release 2018.2 (August 2018)

Schema Name	Version	Description
Job	1.0.0	Initial release. A resource to describe a Job within a Redfish implementation.
JobCollection	1.0.0	Initial release. A collection of Job resources.
JobService	1.0.0	Initial release. Entry point for managing Jobs within a Redfish implementation.
MetricDefinition	1.0.0	Initial release. Metadata that defines a metric (measurement point).
MetricDefinitionCollection	1.0.0	Initial release. A collection of MetricDefinition resources.
MetricReport	1.0.0	Initial release. A set of reported metric values.
MetricReportCollection	1.0.0	Initial release. A collection of MetricReport resources.

Schema Name	Version	Description
MetricReportDefinition	1.0.0	Initial release. Metadata that defines how metric reports are constructed.
MetricReportDefinitionCollection	1.0.0	Initial release. A collection of MetricReportDefinition resources.
PCIeSlots	1.0.0	Initial release. Contains details on PCIe Slots.
TelemetryService	1.0.0	Intiial release. Entry point for managing a Redfish Telemetry Service.
Triggers	1.0.0	Initial release. Specifies triggers which apply to metrics.
TriggersCollection	1.0.0	Initial release. A collection of Triggers resources.
ActionInfo	1.1.0	Added "MinimumValue" and "MaximumValue" properties.
Assembly	1.2.0	Added "SerialNumber" and "PhysicalContext" properties.
Chassis	1.8.0	Added "PCIeSlots" link.
CollectionCapabilities	1.1.0	Added "ComputerSystemConstrainedComposition" enum.
CompositionService	1.1.0	Added "AllowOverprovisioning" and "AllowZoneAffinity" properties.
Drive	1.5.0	Added "HotspareReplacementMode" property.
Endpoint	1.2.0	Deprecated "PciFunctionNumber" and "PciClassCode" inside "ConnectedEntity" in favor of "FunctionNumber" and "ClassCode" inside of "PciId".
Event	1.3.0	Deprecated "EventType" in favor of new subscription properties. Added "MetricReport" as an EventType. Added "EventGroupId" to "EventRecord".
EventDestination	1.4.0	Added "RegistryPrefixes", "ResourceTypes", "SubordinateResources", and "EventFormatType" properties.

Schema Name	Version	Description
EventService	1.2.0	Added "RegistryPrefixes", "ResourceTypes", "SubordinateResourcesSupported", and "EventFormatTypes" properties. Added "SSEFilterPropertiesSupported" object.
HostInterface	1.2.0	Added "AuthNoneRoleId" and "AuthNoneRole" properties.
LogEntry	1.4.0	Deprecated "EventType". Added "EventGroupId" property.
Manager	1.5.0	Added "RemoteRedfishServiceUri" and "RemoteAccountService" properties.
ManagerNetworkProtocol	1.3.0	Added "DHCPv6", "RDP", and "RFB" properties.
Memory	1.6.0	Added "OverwriteUnit" Action. Added "IntelOptane" to the "MemoryType" enum.
MessageRegistry	1.2.0	Added "ClearingLogic" property.
NetworkAdapter	1.2.0	Added "NPAR" property to control NIC Partitioning. Added "PCIeInterface" object.
NetworkDeviceFunction	1.3.0	Added "VLAN" and "VLANs" properties to the "Ethernet" object. Added "FibreChannelId" to "FibreChannel" object. Deprecated "PhysicalPortAssignment" at the root of the payload in favor of "PhysicalPortAssignment" inside "Links".
NetworkPort	1.2.0	Added properties to support Fibre Channel devices. Deprecated "LinkSpeedMbps" in favor of "CapableLinkSpeedMbps".
PCIeDevice	1.3.0	Added "PCIeInterface" object and definition for referencing from other schema.
Protocol	N/A	Added "I2C" protocol type.
Resource	1.7.0	Deprecated the "Location" string in "PostalAddress" in favor of "AdditionalInfo". Added "AdditionalInfo" in "Placement". Added "Contacts" array in "Location".

Schema Name	Version	Description
ResourceBlock	1.2.0	Added "Expansion" to the "ResourceBlockType" enum. Added "Unavailable" to the "CompositionState" enum.
Schedule	1.2.0	Initial transition from SNIA. Added "Every" enumeration to "DayOfWeek" and "MonthOfYear". Updated several properties to use Duration and DateTimeOffset types.
ServiceRoot	1.4.0	Added "ExcerptQuery" and "OnlyMemberQuery" to "ProtocolFeaturesSupported". Added "JobService" and "TelemetryService" properties.
Storage	1.5.0	Added "CacheSummary" and "PCIeInterface" objects to "StorageController".
Task	1.3.0	Added "Payload" and "HidePayload" properties.
Thermal	1.5.0	Added "SensorNumber" to "Fan".
UpdateService	1.3.0	Deprecated "NSF" TransferProtocolType in favor of "NFS".
Assembly	1.x.x	Errata release. Added clause about using "00:00:00Z" in the "ProductionDate" property as the time of day value if it's unknown.
AttributeRegistry	1.x.x	Errata release. Fixed typo in the description for "GrayOut". Relaxed patterns allowed for "ValueName", "MenuName", and "MenuPath" properties.
Bios	1.x.x	Errata release. Clarified behavior around the "ResetBios" action.
BootOption	1.x.x	Errata release. Clarified the description of the "Alias" property.
ComputerSystem	1.x.x	Errata release. Added missing Units annotation to "TotalSystemMemoryGiB". Corrected descriptions for the "Boot" properties since the scope of "Boot" has grown over time.
Drive	1.x.x	Errata release. Added missing Units annotation to

Schema Name	Version	Description
		"PredictedMediaLifeLeftPercent" and "PercentageComplete".
EthernetInterface	1.4.1	Errata release. Fixed type definition of "IPv6StaticDefaultGateways" to not require "PrefixLength".
EventService	1.x.x	Errata release. Added clarification to "OriginOfCondition" parameter for "SubmitTestEvent" to highlight that it's a string and not a reference object.
IPAddresses	1.0.7	Errata release. Fixed type definition of "IPv6GatewayStaticAddress" to not require "PrefixLength".
LogEntry	1.x.x	Errata release. Fixed typo in the description for "EntryType". Clarified Description and Long Description in several properties.
ManagerNetworkProtocol	1.x.x	Errata release. Clarified description of "DHCP" to show it's for DHCPv4.
Memory	1.x.x	Errata release. Added missing Units annotation to many properties in the schema. Added references to NIST standards for what each type of erase action follows.
MemoryChunks	1.x.x	Errata release. Added missing Units annotation to "MemoryChunkSizeMiB", "OffsetMiB", and "SizeMiB".
MemoryMetrics	1.x.x	Errata release. Added missing Units annotation to "HealthData" and "PredictedMediaLifeLeftPercent".
MessageRegistryFile	1.x.x	Errata release. Clarified "Registry" property to show that this is used for other types of registries.
NetworkPort	1.x.x	Errata release. Added missing Units annotation to "LinkSpeedMbps", "MinBWAllocPercent", and "MaxBWAllocPercent".
PrivilegeRegistry	1.x.x	Errata release. Fixed permissions term on "PrivilegesUsed", "OEMPrivilegesUsed", "Entity",

Schema Name	Version	Description
		"Targets", and "Privilege".
Processor	1.x.x	Errata release. Added missing Units annotation to "MaxSpeedMHz".
Protocol	N/A	Errata release. Removed "Vendor Proprietary" wording from PCIe description.
Resource	1.x.x	Errata release. Added missing Required term on "Name" in ResourceCollection. Fixed the description for the "PartLocation" property inside of "Location".
Resource	1.6.1	Errata release. Fixed permissions of "Longitude", "Latitude", and "AltitudeMeters" properties.
SessionService	1.x.x	Errata release. Clarified the Long Description of "ServiceEnabled".
SoftwareInventory	1.x.x	Errata release. Added clause about using "00:00:00Z" in the "ReleaseDate" property as the time of day value if it's unknown.
Storage	1.x.x	Errata release. Clarified the description for "SpeedGbps".
UpdateService	1.x.x	Errata release. Clarified the Long Descriptions for "Targets", "HttpPushUriTargets", and "HttpPushUriTargetsBusy".
(all files)	various	Errata release. Added missing Required annotation on "Members" properties in Resource Collections. Added missing "Members@odata.nextLink" property to Resource Collections. Corrected some cases in JSON Schema where the type "integer" should have been used instead of "number". Added "@odata.id", "@odata.type", and "@odata.context" as required properties in JSON Schema. Added Description and LongDescription terms to all schema elements where missing. Added "Capabilities" and "Uris" annotations on all resources.

2.2. Release 2018.1 (April 2018)

Schema Name	Version	Description
ExternalAccountProvider	1.0.0	Initial release. Contains additional external account provider information for Managers.
ExternalAccountProviderCollection	1.0.0	Initial release. Collection of external account providers.
AccountService	1.3.0	Added support for LDAP and Active Directory external account providers. Added "ExternalAccountProviders" collection to support additional providers or multiple LDAP/AD instances.
Assembly	1.1.0	Added "Status" to "AssemblyData".
AttributeRegistry	1.2.0	Added "ResetRequired", "UefiDevicePath", "UefiKeywordName", and "UefiNamespaceId" attributes.
Chassis	1.7.0	Added "UUID" property and "Switches" links.
Drive	1.4.0	Deprecated "Location" array in favor of singular "PhysicalLocation" property.
EventDestination	1.3.0	Added "SubscriptionType" to allow for SSE support.
EventService	1.1.0	Added "ServerSentEventUri" to support Server-Sent Eventing (SSE).
Manager	1.4.0	Added "AutoDSTEnabled" property and "Switches" links.
Memory	1.5.0	Deprecated poorly-named "PassphraseState" in "Regions" object and added "PassphraseEnabled" to replace it.
PCIeFunction	1.2.0	Added "NetworkDeviceFunctions" links.
Processor	1.3.0	Added "SubProcessors" collection; added "Core" and "Thread" processor types.
Protocol	N/A	Added "OEM" protocol type.

Schema Name	Version	Description
ResourceBlock	1.1.0	Added properties to support sharing capabilities.
Settings	1.2.0	Added "OperationApplyTimeSupport" and "MaintenanceWindow" objects to provide more deterministic behavior for the application of Settings-based data.
SoftwareInventory	1.2.0	Added "Manufacturer" and "ReleaseDate" properties.
Task	1.2.0	Added "TaskMonitor" property.
AttributeRegistry	1.x.x	Errata release. Fixed regex patterns for various properties.
EventService	1.0.7	Errata release. Fixed permissions on "DeliveryRetryAttempts" and "DeliveryRetryIntervalSeconds" properties.
HostInterface	1.x.x	Errata release. Description clarifications.
ManagerAccount	1.x.x	Errata release. Clarified the "RoleId" property description by stating its relation to "RoleId" in the Role resource.
MemoryChunks	1.2.1	Errata release. Description clarifications.
Memory	1.4.1	Errata release. Description clarifications.
UpdateService	1.x.x	Errata release. Regenerated JSON schema to pick up action parameters added in previous release.

2.3. Release 2017.3 (November 2017)

Schema Name	Version	Description
Assembly	1.0.0	Initial release. Contains manufacturing and assembly information for a piece of equipment.
BootOption	1.0.0	Initial release. Contains information about a Boot Option contained within a system.

Schema Name	Version	Description
BootOptionCollection	1.0.0	Initial release. A collection of Boot Options.
Protocol	1.0.0	Initial release. Supporting schema file to hold definition of the common "Protocol" property.
Chassis	1.6.0	Added link to Assembly resource. Added "StorageEnclosure" to "ChassisType".
ComputerSystem	1.5.0	Added support for managing the boot order (Boot Options). Added "SubModel" to describe product model variations. Added Action for "SetDefaultBootOrder". Added "LogicalProcessorCount" to "ProcessorSummary". Added links for "ConsumingComputerSystems" and "SupplyingComputerSystems".
Drive	1.3.0	Added link to Assembly resource.
Endpoint	1.1.0	Added "IPTransportDetails" object.
EthernetInterface	1.4.0	Added multiple objects to allow for full configuration of DHCPv4 and DHCPv6. Added "IPv4StaticAddresses" to provide mechanism for specifying static IP addresses regardless of DHCP settings. Added "StaticNameServers" and "StatelessAddressAutoConfig" objects to support their configuration.
LogEntry	1.3.0	Added "OemLogEntryCode" and "OemSensorType" properties to allow for legacy IPMI OEM definitions.
LogService	1.1.0	Added "LogEntryType" to describe the content type of a log.
Memory	1.4.0	Added "VolatileSizeMib", "NonVolatileSizeMiB", "CacheSizeMiB", "LogicalSizeMiB" properties. Added "Location" object.
MemoryChunks	1.2.0	Added "Status" object.
NetworkAdapter	1.1.0	Added "Assembly" link. Added "Location" object to "Controllers" object.
NetworkDeviceFunction	1.2.0	Added "Endpoints" to "Links" object.
PCIeDevice	1.2.0	Added "Assembly" link.
PhysicalContext	1.3.0	Added additional enumerations for "PhysicalContext".

Schema Name	Version	Description
Port	1.1.0	Added "Location" object.
Power	1.5.0	Added "PowerInputWatts", "PowerOutputWatts", and "EffciencyPercent" properties, "Location" object, and "Assembly" link to "PowerSupply" object.
Processor	1.2.0	Added "Assembly" link.
Redundancy	1.3.0	Added "NotRedundant" enumeration to "Mode". Changed "Mode" to be writable. Removed duplicate description text that appears in the enumeration definitions.
Resource	1.6.0	Added "Latitude", "Longitude" and "AltitudeMeters" to "Location" object. Added "NQN" and "NSID" to "DurableNameFormat".
ServiceRoot	1.3.0	Added "Product" property for general product identification. Added "ProtocolFeaturesSupported" object to allow for discovery of supported optional Redfish protocol features.
Storage	1.4.0	Added "Assembly" link.
Switch	1.1.0	Added "Location" object.
Thermal	1.4.0	Added "Assembly" links to "Fan" objects. Added "DeltaReadingCelsius", "DeltaPhysicalContext", "MaxAllowableOperatingValue", "MinAllowableOperatingValue", "AdjustedMaxAllowableOperatingValue", and "AdjustedMinAllowableOperatingValue" to "Temperatures" object.
VirtualMedia	1.2.0	Added "InsertMedia" and "EjectMedia" Actions to provide standardized means for using virtual media features. Changed "Image", "Inserted", and "WriteProtected" to be writable.
Zone	1.2.0	Added "Identifiers" property.
Bios	1.0.3	Errata release. Corrected parameter descriptions in Actions.
Chassis	1.x.x	Errata release. Corrected parameter descriptions in Actions.

Schema Name	Version	Description
ComputerSystem	1.x.x	Errata release. Corrected parameter descriptions in Actions. Added descriptions for SystemType enumerations.
Drive	1.x.x	Errata release. Migrated definition of "Operations" object to the Drive schema. Corrected parameter descriptions in Actions.
Endpoint	1.0.3	Errata release. Added schema annotations to prevent additional property definitions in "ConnectedEntity" and "PciId" definitions.
EthernetInterface	1.x.x	Errata release. Changed internal schema references to "IPAddresses" and "VLanNetworkInterface" to use abstract base types.
Event	1.x.x	Errata release. Changed internal schema location for "EventType" definitions.
EventDestination	1.x.x	Errata release. Changed internal schema location for "EventType" definitions.
EventService	1.0.6	Errata release. Corrected parameter descriptions in Actions.
Fabric	1.0.3	Errata release. Changed internal schema location for "FabricType" definitions.
IPAddresses	1.0.6	Errata release. Changed internal schema references for "IPAddresses" and "VLanNetworkInterface" to use abstract base types. Corrected "PrefixLength" in "IPv6StaticAddresses" to be a read-write property.
LogEntry	1.2.1	Errata release. Changed internal schema location for "EventType" definitions. Added descriptions to all enumerations.
LogService	1.0.5	Errata release. Corrected parameter descriptions in Actions.
Manager	1.x.x	Errata release. Corrected parameter descriptions in Actions.
Memory	1.x.x	Errata release. Corrected description of "OperatingSpeedMHz" to reflect changes in memory device

Schema Name	Version	Description
		reporting (value may be in MHz or MT/s, but will match published specifications in either case). Corrected parameters in Actions to show they are mandatory.
MemoryMetrics	1.x.x	Errata release. Corrected description of "AlarmTrips" regarding behavior upon system reset.
NetworkDeviceFunction	1.x.x	Errata release. Clarified descriptions "InitiatorName", "PrimaryTargetName", and "SecondaryTargetName" properties in the "iSCSIBoot" object.
PCIeFunction	1.x.x	Errata release. Changed internal schema references to "StorageController" to use abstract base types.
PhysicalContext	1.x.x	Errata release. Changed internal schema location for "PhysicalContext" definition.
Port	1.0.3	Errata release. Changed internal schema location for "PortProtocol" definitions. Corrected parameter descriptions in Actions.
Power	1.x.x	Errata release. Changed internal schema references to "PhysicalContext" and "IndicatorLED" definitions.
PrivilegeRegistry	1.x.x	Errata release. Changed internal schema references to "PrivilegeType" definitions.
Privileges	1.x.x	Errata release. Changed internal schema location for "PrivilegeType".
Resource	1.x.x	Errata release. Changed internal schema location for numerous definitions.
Role	1.x.x	Errata release. Changed internal schema references to "PrivilegeType" definitions.
SecureBoot	1.0.3	Errata release. Corrected parameters in Actions to show they are mandatory.
Storage	1.x.x	Errata release. Corrected parameters in Actions to show they are mandatory. Changed internal schema references to "Identifier" and "Protocol" definitions.
Switch	1.0.3	Errata release. Changed internal schema references to "IndicatorLED", "PowerState", and "Protocol" definitions.

Schema Name	Version	Description
		Corrected descriptions of Actions.
TaskService	1.x.x	Errata release. Updated description of "LifeCycleEventOnTaskStateChange" to remove obsolete terminology.
VLanNetworkInterface	1.x.x	Errata release. Changed internal schema definition for "VLAN".

2.4. Release 2017.2 (August 2017)

Schema Name	Version	Description
Memory	1.3.0	Deprecated "FunctionClasses". Added memory module-centric identification properties "ModuleManufacturerID", "ModuleProductID", "MemorySubsystemControllerManufacturerID", and "MemorySubsystemControllerProductID". Deprecated the PCIe-centric identification properties "VendorID", "DeviceID", "SubsystemVendorID", and "SubsystemDeviceID".
PhysicalContext	1.2.0	Added "Chassis" and "Fan" as enumerations to "PhysicalContext".
Power	1.4.0	Added "PhysicalContext" to the "PowerControl" object.
Resource	1.5.0	Added several objects and properties to "Location" to enable reporting of physical locations at the building, room and intra-chassis levels. Deprecated "Info" and "InfoFormat" in favor of the new, structured Location properties.
Role	1.2.0	Added "RoleId" property to enable references from ManagerAccount resources.
Settings	1.1.0	Added "SupportedApplyTimes" to allow control over the application of Settings to a resource. This includes support for specifying maintenance windows.
Storage	1.3.0	Added common "Name" property to "StorageController" object.
AccountService	1.x.x	Errata release. Added clarifications to "ServiceEnabled" usage.
Chassis	1.x.x	Errata release. Added clarifications to "IndicatorLED" usage.

Schema Name	Version	Description
ComputerSystem	1.x.x	Errata release. Added clarifications to "IndicatorLED" usage.
EventDestination	1.x.x	Errata release. Added clarifications to "OriginResources" and "MessageId" usage.
EventService	1.x.x	Errata release. Added clarifications to "DeliveryRetryAttempts" usage.
Manager	1.x.x	Errata release. Corrected enumeration descriptions for "CommandShell".
ManagerAccount	1.x.x	Errata release. Added clarifications to "RoleId" usage.
Power	1.x.x	Errata release. Removed the errant auto-expand annotation within "Redundancy".
Resource	1.x.x	Errata release. Added clarifications to "IndicatorLED" usage.
SerialInterface	1.x.x	Errata release. Removed errant periods in enumeration strings.
SessionService	1.x.x	Errata release. Added clarifications to "ServiceEnabled" usage.
Thermal	1.x.x	Errata release. Removed the errant auto-expand annotation within "Redundancy".

2.5. Release 2017.1 (April 2017)

Schema Name	Version	Description
CollectionCapabilities	1.0.0	Initial release. Describes the capabilities of a collection in terms of how a client is able to create new resources within the collection.
CompositionService	1.0.0	Initial release. Describes a Composition Service used to create systems from available resources or Resource Blocks. It includes the properties of the Service as well as links to the actual resources available for composition.
ResourceBlock	1.0.0	Initial release. Represents a Resource Block, its components, and any affinity to a composed device.
ResourceBlockCollection	1.0.0	Initial release. A collection of Resource Blocks.
Chassis	1.5.0	Added link to ResourceBlocks.

Schema Name	Version	Description
ComputerSystem	1.4.0	Added "TotalSystemPersistentMemoryGiB" to "MemorySummary". Added link to ResourceBlocks.
Drive	1.2.0	Added link to Chassis.
EthernetInterface	1.3.0	Added link to Chassis.
Memory	1.2.0	Added properties for describing and allocating memory regions.
PhysicalContext	1.1.0	Added "Memory" as an enumeration value.
Resource	1.4.0	Added "PowerCycle" as an enumeration value for "ResetType". Modified descriptions of "ResetType" to remove system-centric text. Corrected the validation pattern for properties using the UUID format (only JSON Schema versions).
ServiceRoot	1.2.0	Added link to CompositionService.
Storage	1.2.0	Added "FCP" and "FICON" as enumeration values for "Protocol".
UpdateService	1.2.0	Added "HttpPushUriTargets" and "HttpPushUriTargetsBusy" properties and "Targets" optional parameter (for "SimpleUpdate") to allow selection of a particular target device or devices.
Endpoint	1.0.2	Errata release. Corrected validation pattern on PCI ID-related properties. Removed unnecessary schema reference inclusions from CSDL schema.
EventDestination	1.x.x	Errata release. Marked "Context" property as Required instead of RequiredOnCreate. Service is required to provide the "Context" (may be NULL), but clients are not required to specify a context when creating a new Event Destination.
PCIeFunction	1.0.2	Errata release. Corrected validation pattern on PCI ID-related properties.
(many)	various	Minor release. Added Actions and OemActions objects to allow for OEM extensions.
(many)	various	Errata release. Corrected integer type properties in CSDL

Schema Name	Version	Description
		schemas to Int64 (from Int16 or Int32) for consistency. Added missing descriptions in Complex Type definitions. Added Actions and OemActions objects to allow for OEM extensions. Corrected Links and "Members" properties (Collection schemas) in all schemas to be non-nullable.

2.6. Release 2016.3 (December 2016)

Schema Name	Version	Description
HostInterface	1.0.0	Initial release. Contains properties for describing and configuring a Redfish Host Interface.
HostInterfaceCollection	1.0.0	Initial release. Collection of Redfish Host Interfaces.
NetworkAdapter	1.0.0	Initial release. Describes general-purpose network adapters.
NetworkAdapterCollection	1.0.0	Initial release. Collection of Network Adapters.
NetworkInterface	1.0.0	Initial release. Provides linkages between NetworkAdapter, NetworkPort, and NetworkDeviceFunction instances.
NetworkInterfaceCollection	1.0.0	Initial release. Collection of Network Interfaces.
NetworkDeviceFunction	1.0.0	Initial release. Describes a logical interface exposed by a Network Adapter.
NetworkDeviceFunctionCollection	1.0.0	Initial release. Collection of Network Device Functions.
NetworkPort	1.0.0	Initial release. Describes a discrete physical port capable of connecting to a network.
NetworkPortCollection	1.0.0	Initial release. Collection of Network Ports.
PrivilegeRegistry	1.0.0	Initial release. Schema for definition of HTTP Operation to Privilege mapping.
AccountService	1.1.0	Added link to "PrivilegeMap".

Schema Name	Version	Description
Chassis	1.4.0	Added "RackGroup" to "ChassisType" enumeration. Added link to "NetworkAdapters" resource collection. Added "HeightMm", "WidthMm", "DepthMm", and "WeightKg" properties. Added Link to "PCIeDevices".
ComputerSystem	1.3.0	Added link to "NetworkDevices" resource collection. Added "FirmwareVersion2" and "InterfaceTypeSelection" to "TrustedModules" object.
EthernetInterface	1.2.0	Added link to "HostInterface" to support Redfish Host Interface specification.
Manager	1.3.0	Added link to "HostInterfaces" resource collection.
ManagerNetworkProtocol	1.1.0	Added "DHCP" protocol object.
Memory	1.1.0	Added "Status" object.
MemoryDomain	1.1.0	Added "AllowsMirroring" and "AllowsSparing" properties.
Resource	1.3.0	Added "PostalAddress" and "Placement" objects to "Location", each contaning numerous properties for detailed location information.
SoftwareInventory	1.1.0	Added "SoftwareId", "LowestSupportedVersion", "UefiDevicePaths" and "RelatedItem" properties.
Thermal	1.2.0	Added "Manufacture", "Model", "SerialNumber", "PartNumber", "SparePartNumber" and "IndicatorLED" to "Fan" object.
UpdateService	1.1.0	Added "HttpPushUri" property.
(all files)	various	Errata release. Added explicit permissions annotations to all properties to clearly show which properties are read-write vs. read-only. Corrected Permission annotation with invalid enumeration references. Removed permissions annotation from embedded objects (permissions now on every property). Removed permission

Schema Name	Version	Description
		annotations from CSDL Type definitions to avoid conflicts with property definitions. Corrected all property descriptions to always end with a period.
ComputerSystem	1.0.4	Errata release. Corrected CSDL Type of "TotalSystemMemoryGiB" from 'Int64' to 'Decimal'.
ComputerSystem	1.1.2	Errata release. Corrected CSDL Type of "TotalSystemMemoryGiB" from 'Int64' to 'Decimal'.
ComputerSystem	1.2.1	Errata release. Corrected CSDL Type of "TotalSystemMemoryGiB" from 'Int64' to 'Decimal'.
Port	1.0.1	Corrected CSDL Type of "CurrentSpeedGbps" and "MaxSpeedGbps" from 'Int64' to 'Decimal'.
Power	1.2.1	Corrected descriptions for voltage-related properties and changed sensor descriptions to avoid use of term 'current', instead referring to 'present value'.
Power	1.1.1	Corrected descriptions for voltage-related properties and changed sensor descriptions to avoid use of term 'current', instead referring to 'present value'.
Power	1.0.3	Corrected descriptions for voltage-related properties and changed sensor descriptions to avoid use of term 'current', instead referring to 'present value'.
ServiceRoot	1.1.1	Added missing EntityContainer for "ServiceContainer" in CSDL schema.

2.7. Release 2016.2 (August 2016)

Schema Name	Version	Description
(all files)	various	Corrected Reference URI links to OData v4 (errata 3)

Schema Name	Version	Description
		and added Capabilities annotations to CSDL files.
ActionInfo	1.0.0	Initial release. ActionInfo describes the parameters and other information necessary to perform a Redfish Action to a particular Action target.
Endpoint	1.0.0	Initial release. An Endpoint is an entity that sends or receives protocol defined messages over a transport.
EndpointCollection	1.0.0	Initial release. Collection of Endpoints.
Fabric	1.0.0	Initial release. A Fabric consists of one or more Switches and may include Endpoints and Zones.
FabricCollection	1.0.0	Initial release. Collection of Fabric resources.
MemoryChunks	1.0.0	Initial release. Describes a Memory Chunk and memory Interleve Sets.
MemoryChunksCollection	1.0.0	Initial release. Collection of Memory Chunks.
MemoryDomain	1.0.0	Initial release. Memory Domains are used to indicate to the client which Memory (DIMMs) can be grouped together in Memory Chunks to form interleave sets or otherwise grouped together.
MemoryDomainCollection	1.0.0	Initial release. Collection of Memory Domains.
PCIeDevice	1.0.0	Initial release. Describes a PCIe Device attached to a system.
PCIeFunction	1.0.0	Initial release. Describes a PCIe Function.
Port	1.0.0	Initial release. Describes a Port of a Switch.
PortCollection	1.0.0	Initial release. Collection of Ports.
SoftwareInventory	1.0.0	Initial release. Describes an inventory of software components.
SoftwareInventoryCollection	1.0.0	Initial release. Collection of Software components.
Switch	1.0.0	Initial release. Describes a simple fabric Switch.
SwitchCollection	1.0.0	Initial release. Collection of Switches.

Schema Name	Version	Description
UpdateService	1.0.0	Initial release. Describes the Redfish Update Service.
VolumeCollection	1.0.0	Initial release. Collection of Volumes.
Zone	1.0.0	Initial release. Describes a simple fabric Zone.
ZoneCollection	1.0.0	Initial release. Collection of Zones.
Chassis	1.3.0	Added "IPBasedDrive" to "ChassisType" enumerations.
ComputerSystem	1.2.0	Added "HostedServices" and "HostingRoles" properties. Added "MemoryDomains", "PCIeDevices", "PCIFunctions", and "Endpoints" links. Added "RemoteDrive" enumeration to "BootSourceOverrideTarget".
Drive	1.1.0	Added "Operations" property and "Endpoints" link.
EthernetInterface	1.1.0	Added "LinkStatus" property and "Endpoints" link.
EventDestination	1.1.0	Added "OriginResources" and "MessageIds" properties.
LogEntry	1.1.0	Added "EventType", "EventId", and "EventTimeStamp" properties.
Manager	1.2.0	Added "PowerState" property.
MemoryMetrics	1.1.0	Added "PredictedMediaLifeLeftPercent" property to the "HealthData" object.
Power	1.2.0	Added "IndicatorLED" property to "PowerSupply" object.
Redundancy	1.1.0	Added "RedundancyEnabled" property.
Resource	1.2.0	Added "Deferring", "Quiesced", and "Updating" to "State" enumerations.
ServiceRoot	1.1.0	Added links to "Fabrics", "StorageSystems", "StorageServices" and "UpdateService".
SessionService	1.1.0	Added OEM Action capabilities.
Storage	1.1.0	Added "Links" object and "Endpoints" link.

Schema Name	Version	Description
ComputerSystem	1.1.1	Errata release. Clarified description of ComputerSystem and the "UUID" property.
ComputerSystem	1.0.3	Errata release. Clarified description of ComputerSystem and the "UUID" property.
Drive	1.0.1	Errata release. Added "Unencrypted" enumeration to EncryptionStatus and deprecated misspelled enumeration.
Event	1.1.1	Errata release. Deprecated "Context" property in favor of the Event-specific "Context" contained within each Event.
Event	1.0.3	Errata release. Deprecated "Context" property in favor of the Event-specific "Context" contained within each Event.
IPAddresses	1.0.3	Errata release. Corrected validation patterns for "IPv4Address" and "SubnetMask". Added validation pattern for "Gateway".
Message	1.0.3	Errata release. Corrected "MessageId" to mark it as a required property.
Resource	1.1.1	Errata release. Removed errant "ReferenceableMember" entity type.
ServiceRoot	1.0.3	Corrected validation pattern annotation for "RedfishVersion".
Storage	1.0.1	Corrected type definition of the "Volumes" link.
Volume	1.0.1	Corrected description of "VolumeType".

2.8. Release 2016.1 (March 2016)

Schema Name	Version	Description
AttributeRegistry	1.0.0	Initial release. An Attribute Registry is a set of key-value pairs that are specific to a particular implementation or product, such that creating standardized property names would be impractical. This schema describes the structure

Schema Name	Version	Description
		of a Registry, and also includes mechanisms for building user interfaces (menus) allowing consistent navigation of the contents.
Bios	1.0.0	Initial release. Bios contains properties surrounding a BIOS Attribute Registry (where the system-specific BIOS attributes are described) and the Actions needed to perform changes to BIOS settings, which typically require a system reset to apply.
Drive	1.0.0	Initial release. Drive contains properties describing a single physical disk drive for any system, along with links to associated Volumes.
Memory	1.0.0	Initial release. Memory describes a memory module or similar memory device as part of a system.
MemoryCollection	1.0.0	Initial release. A Collection of Memory resource instances.
MemoryMetrics	1.0.0	Initial release. MemoryMetrics contains usage and health statistics for a single Memory module or device instance.
SecureBoot	1.0.0	Initial release. This resource contains UEFI Secure Boot information. It represents properties for managing the UEFI Secure Boot functionality of a system.
Storage	1.0.0	Initial release. Storage defines a storage subsystem and its respective properties. A storage subsystem represents a set of storage controllers (physical or virtual) and the resources such as volumes that can be accessed from that subsystem.
StorageCollection	1.0.0	Initial release. A Collection of Storage resource instances.
Volume	1.0.0	Initial release. Volume contains properties used to describe a volume, virtual disk, LUN, or other logical storage entity for any system.
(all files)	1.0.2	Errata release of all schema files to adjust file naming conventions. CSDL schema files now have the major version appended to the end of the schema name (e.g., Chassis_v1), and json-schema files include the major/minor/errata version number (matching the namespace definitions in the schema as they did previously) in the

Schema Name	Version	Description
		filename, but are now prefaced with a 'v' and with underscore separators (e.g., Chassis.v1_0_2.json) to match the corrected namespace naming rules. Added LongDescriptions to 'Links' and 'Actions' objects throughout. Added 'Unit', 'Minimum', and 'Maximum' annotations throughout. Defined all unversioned resources in CSDL as 'abstract'. Corrected all string properties with enumerations to allow use of null (nullable). Marked all 'Links' and other NavigationProperties and embedded objects (ComplexTypes) as non-nullable. Improved schema description text, updated RFC references, and whitespace consistency throughout.
(all Collections)	n/a	Corrected URI of the schema locations to the /schemas/ v1 repository instead of the /schema location, which contains only the latest version of each schema. Corrected missing 'anyOf' structure to allow 'idref' references to collections.
(all files)	various	Copies of all previously-released Redfish json-schema files have been created to follow the corrected json-schema filename format (v1_n_n instead of 1.n.n). The internal schema name references were updated to match this style, but otherwise the files are identical to their originally released content.
Chassis	1.2.0	Added Links for ManagersInChassis, Drives, and Storage.
Chassis	1.1.2	Errata release (see 1.0.2 errata description above). Corrected description for ManagedBy link. Deprecated 'Unknown' enumeration value for 'IndicatorLED'.
ComputerSystem	1.1.0	Added Links for 'Bios', 'Memory', 'Storage', and 'SecureBoot'. Added 'MemoryMirroring' to the 'MemorySummary' object. Added 'TrustedModule' object. Added 'BootSourceOverrideMode' to 'Boot' object. Added 'SDCard' and 'UefiHttp' enumerations to 'BootSourceOverrideTarget' in 'Boot' object.
ComputerSystem	1.0.2	Errata release (see 1.0.2 errata description above). Deprecated 'Unknown' enumeration value for 'IndicatorLED'.

Schema Name	Version	Description
Event	1.1.0	Added 'Context' property.
EventService	1.0.2	Errata release (see 1.0.2 errata description above). Corrected Unit annotations to use UCUM unit definitions.
JsonSchemaFile	1.0.2	Errata release (see 1.0.2 errata description above). Corrected text in 'Schema' property descriptions to reference "@odata.type" instead of "Type".
Manager	1.1.0	Added Link for 'ManagerInChassis'.
Manager	1.0.2	Errata release (see 1.0.2 errata description above). Corrected descriptions for 'ServiceEntryPointUUID' to correctly match the intent of the property.
ManagerNetworkProtocol	1.0.2	Errata release (see 1.0.2 errata description above). Corrected read-write permissions on all embedded objects. Corrected Unit annotations to use UCUM unit definitions.
Power	1.1.0	Added 'InputRanges' array and 'Manufacturer' to 'PowerSupplies' object. Added enumerations to the 'LineInputVoltageType' property in 'PowerSupplies' that promote better interoperability and deprecated others whose terminology differs in meaning among vendors.
Power	1.0.2	Errata release (see 1.0.2 errata description above). Corrected read-write permissions on all embedded objects. Corrected Unit annotations to use UCUM unit definitions.
Resource	1.1.0	Added 'Identifier' object, 'Location' object and 'IndicatorLED' definitions for use throughout the Redfish data model. Added 'UnavailableOffline' enumeration to 'State' in 'Status' object.
Resource	1.0.2	Errata release (see 1.0.2 errata description above). Corrected missing Required annotation on 'Id' property. Added 'Pattern' Redfish annotation for 'Oem' property names.
SessionService	1.0.2	Errata release (see 1.0.2 errata description above). Added Unit annotations.

Schema Name	Version	Description
SimpleStorage	1.1.0	Added 'CapacityBytes' to 'Devices' object.
SimpleStorage	1.0.2	Errata release (see 1.0.2 errata description above). Corrected Unit annotations to use UCUM unit definitions.
Thermal	1.1.0	Added 'Name' to 'Fan' object. Deprecated inconsistent 'FanName' in 'Fan'.
Thermal	1.0.2	Errata release (see 1.0.2 errata description above). Corrected read-write permissions on all embedded objects. Corrected Unit annotations to use UCUM unit definitions.

2.9. Release 1.1 (November 2015)

Schema Name	Version	Description
Chassis	1.1.0	Added 'PhysicalSecurity' object for Intrusion Detection sensor support.

2.10. Release 1.0.1 (September 2015)

Schema Name	Version	Description
Thermal	1.0.1	Errata release. Renamed Fan 'ReadingRPM' property to 'Reading' as it was determined that the initial definition was too limiting. Added Fan property 'ReadingUnits' to allow for either RPM or percent-based fan readings. Corrected spelling errors throughout. Any future property name changes will result in a major version change to the schema file.
Chassis	1.0.1	Errata release. Added missing 'PowerState' property intended for inclusion in v1.0.0. Corrected longDescription text of 'CooledBy'. Clarified longDescription of 'Reset' action.
ComputerSystem	1.0.1	Errata release. Changed enumeration values of 'PowerState' to reflect a better set of real-world use cases. Corrected annotation name in longDescription of

Schema Name	Version	Description
		'UefiTargetBootSourceOverride'.
Manager	1.0.1	Errata release. Corrected longDescription text for both 'ManagerForChassis' and 'ManagerForSystem'.
Power	1.0.1	Errata release. Corrected longDescription text for 'IntervalInMin'.
VLanNetworkInterface	1.0.1	Errata release. Corrected maximum VLAN ID value.

2.11. Release 1.0 (August 2015)

Schema Name	Version	Description
(all files)	1.0.0	Initial release.