



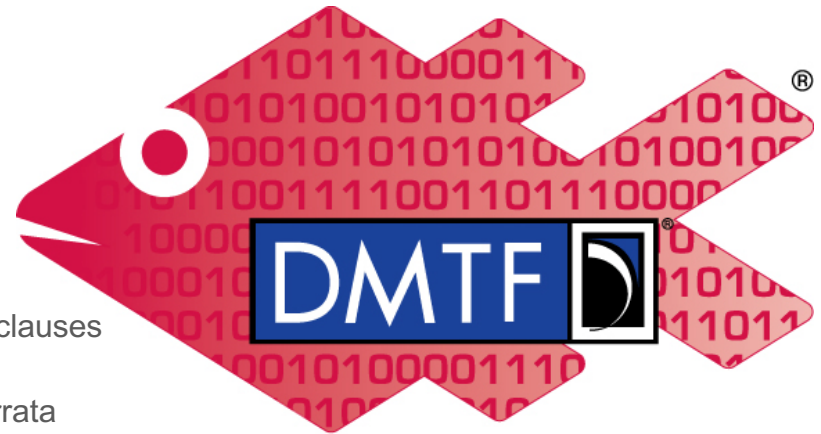
Redfish Release 2019.4 and Forum Update

DMTF Redfish Forum
December 2019



Redfish Release 2019.4

- **Redfish Specification v1.9.0**
 - Loosened requirements on @odata.type in arrays
 - HTTP “Server” response header no longer required
 - OEMs can add URIs to copies of schema
- **Redfish Specification v1.8.1**
 - Significant re-formatting of Service Details and Security clauses
 - Unless specifically mentioned, any change in normative language was unintentional and should be considered errata (please provide feedback)
- **Redfish Schema Bundle 2019.4**
 - Bundle (DSP8010) contains all released Redfish schemas
 - **NEW** bundle now includes schemas in RDE Dictionary format
 - Removed down-revision errata schemas from “un-versioned” JSON schema files to improve performance
- **Redfish Message Registry Bundle 2019.4**
 - Bundle contains all released Redfish message registries
 - Minor release of *Base* Registry adding *PropertyValueIncorrect* and *ResourceCreationConflict* messages
- **15 NEW Schemas (highlights), 23 updated schemas**
 - Addition of support for configuring and managing Gen-Z fabrics
 - Addition of support for Power Distribution equipment (PDU’s and Transfer switches)
- **Download all published material at:** <http://www.dmtf.org/standards/redfish>

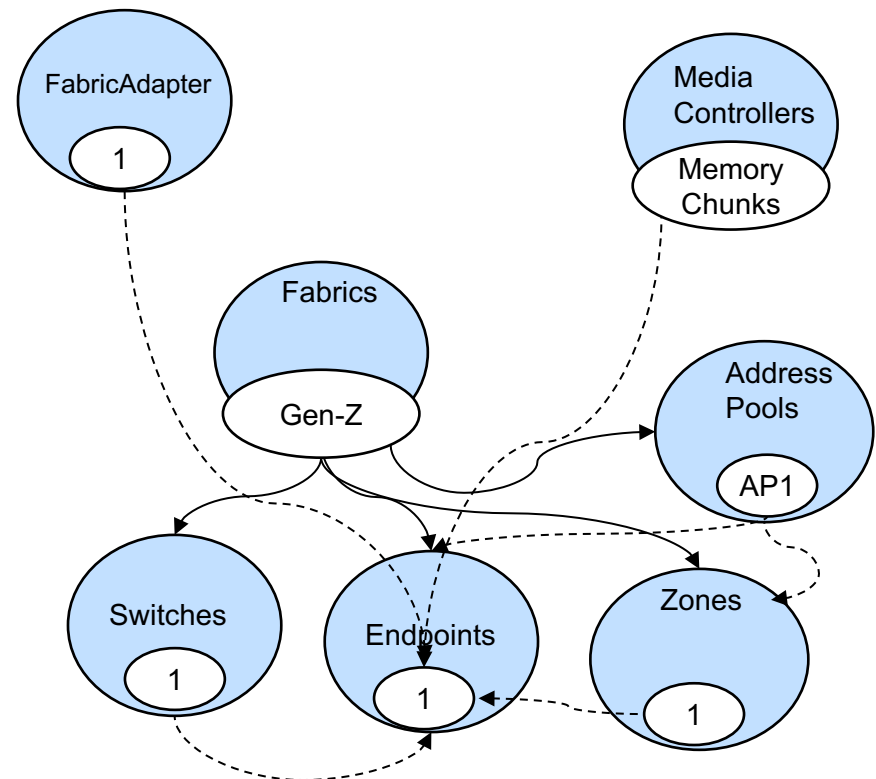


Redfish



NEW: Gen-Z Fabric support

- Supports management of port-based Gen-Z fabrics (Initiators/Targets)
- Supports fabric-attached resources (Targets)
- Extends *Endpoint*, *Fabric*, *Port*
- **NEW** schemas:
 - *AddressPool*
 - *FabricAdapter*
 - *MediaController*
 - *PortMetrics*
 - *RouteEntry*
 - *RouteSetEntry*
 - *VCATEntry*





NEW: Power Distribution equipment and Facilities

- Ability to monitor and control Power Distribution Units (PDUs) and Transfer Switches via Redfish
 - Rack-level PDUs, Floor-level PDUs, Transfer Switches and Switchgear all share a common *PowerDistribution* schema definition
 - All grouped in the resource tree under a new *PowerEquipment* resource
 - Expect this model to include UPS devices in future releases
 - PDU-level metrics reported in a *PowerDistributionMetrics* resource
- *Circuit, Outlet and OutletGroup*
 - Properties to monitor circuits, individual outlets, or groups of outlets
 - Ability to control power state and reset breakers
- *Facility*
 - New schema to describe rooms and other physical locations in order to show equipment relationships
 - Includes *PowerDomain* schema for grouping related power equipment



JSON schema file update

- Each Redfish schema version generates a JSON schema file
 - e.g. ComputerSystem.v1_9_0.json, ComputerSystem.v1_9_1.json
- The “un-versioned” JSON schema file is updated for each release
 - e.g. ComputerSystem.json
 - This file contains an “anyOf” array of references to every release
- **Problem:** As the “anyOf” array included every release, it created issues:
 - Large number of files referenced is a performance burden for tools
 - For example, ComputerSystem has 70 references
 - Schema errata corrected by later releases are still exposed to users
 - Errors in schema definitions (e.g. invalid URIs, etc.) break schema-based tools
 - To avoid known and fixed issues, those files must be removed from references
- **Solution:** Un-versioned JSON schema files now contains only the highest-numbered errata for each minor version
 - e.g. ComputerSystem version v1.10.0, v1.9.1, v1.8.1, v1.7.2, etc.
 - This significantly improves tool performance and avoids known issues
 - e.g. ComputerSystem schema drops from 70 references to 12 references



Redfish Schema Minor Revisions (1 of 4)

- AccountService v1.7.0
 - Added *PasswordSet* to *LDAP* and *ActiveDirectory*
- Chassis v1.11.0
 - Added *MediaControllers*, *Memory*, and *MemoryDomains* properties
 - Added *Facility* to *Links*
- ComputerSystem v1.10.0
 - Added *Appliance*, *BareMetalServer*, *VirtualMachineServer*, and *ContainerServer* values to *HostingRoles*
 - Added *FabricAdapters* property
- Drive v1.9.0
 - Added *Multipath* property
- Endpoint v1.4.0
 - Added *GenZ* property
 - Added *MediaController*, *MemoryChunk*, *Switch*, and *FabricBridge* values to *EntityType*



Redfish Schema Minor Revisions (2 of 4)

- Fabric v1.1.0
 - Added *AddressPools* property
- Manager v1.7.0
 - Added *Manufacturer*, *SerialNumber* and *PartNumber* properties
- ManagerAccount v1.5.0
 - Added *AuthenticationKeySet* and *EncryptionKeySet* properties to *SNMP*
- Memory v1.9.0
 - Deprecated *DeviceLocation* (Location should be used in its place)
- MemoryChunks v1.3.0
 - Added *AddressRangeOffsetMiB* and *Links* properties
- MemoryDomain v1.3.0
 - Added *Links* property
- MetricReport v1.3.0
 - Deprecated *ReportSequence* based on client feedback with usage of SSE “id”



Redfish Schema Minor Revisions (3 of 4)

- **PCleSlots v1.2.0**
 - Added *OCP3Small* and *OCP3Large* values to *SlotType*
- **Port v1.2.0**
 - Added *PortMedium*, *LinkNetworkTechnology*, *InterfaceEnabled*, *SignalDetected*, *LinkTransitionIndicator*, *ActiveWidth*, *LinkState*, *LinkStatus*, *GenZ*, and *Metrics* properties
- **Processor v1.7.0**
 - Added *Manufacturer*, *PartNumber*, *SerialNumber* and *Version* properties
- **Protocol**
 - Added *MultiProtocol* and *GenZ* protocols
- **Resource v1.9.0**
 - Added *Qualified* value to *State*
- **Sensor v1.1.0**
 - Added *CrestFactor*, *THDPercent*, *LifetimeReading*, *SensingInterval*, *ReadingTime*, and *Implementation* properties



Redfish Schema Minor Revisions (4 of 4)

- **ServiceRoot v1.6.0**
 - Added *PowerEquipment* and *Facilities* properties
- **Switch v1.3.0**
 - Added *SupportedProtocols* and *UUID* properties
 - Added *Endpoints* to *Links*
- **Telemetry v1.2.0**
 - Added *ServiceEnabled* property
- **Thermal v1.6.0**
 - Added *UpperThresholdUser* and *LowerThresholdUser* properties to *Temperatures*
- **UpdateService v1.8.0**
 - Added *Oem* to *UpdateParameters*
- **Zone v1.4.0**
 - Added *ZoneType* and *DefaultRoutingEnabled* properties
 - Added *AddressPools*, *ContainedByZones*, and *ContainsZones* to *Links*



Errata Schema Revisions (1 of 2)

- **Assembly v1.x.x**
 - Clarified *Version* property to state it refers to the version of hardware
- **ComputerSystem v1.x.x**
 - Corrected description for *UefiTargetBootSourceOverride* to remove erroneous mention of *@Redfish.AllowableValues*
- **IPAddress v1.x.x**
 - Corrected minimum term on *PrefixLength*
- **LogEntry v1.x.x**
 - Clarified several references to the IPMI Specification to show a specific version of the specification
- **ManagerAccount v1.x.x**
 - Removed incorrect clause that tied *Enabled* and *Locked* together



Errata Schema Revisions (2 of 2)

- PCIeSlots v1.x.x
 - Corrected typo in the description for *Location*
- Processor v1.x.x
 - Corrected typos in several property descriptions
- Resource
 - Extended *InTest* state to mention “capturing information”
- Sensor v1.0.4
 - Corrected action to reset metrics to be named *ResetMetrics*
- Task v1.x.x
 - Clarified the behavioral aspects of *HidePayload* and *Payload*



Schema Guide, Property Guide, and Schema Supplement

- Guide documents are updated for each schema (DSP8010) release
 - Description text for properties taken directly from schema files
 - DMTF documentation generator creates these guide documents
- **Redfish Resource and Schema Guide (DSP2046)**
 - Presents schema definition contents in a more human-readable format
 - Includes example payloads for each schema
- **Redfish Property Guide (DSP2053)**
 - Provides an alphabetical list of all properties defined in Redfish schema
 - Useful for schema writers to locate existing definitions or properties
 - Helps avoid re-defining property names already in use
- **Redfish Schema Supplement (DSP0268)**
 - Presents normative (“LongDescription”) schema definition contents
 - Useful for Redfish Service developers to ensure conformance



Redfish Forum Update



Ongoing discussions in the Redfish Forum

- Developing models for Aggregation of services
 - For example: “Rack Manager” products
- Extending Message Registry coverage
 - Network devices, Jobs, Firmware update, etc.
- SecureBoot certificate and key management
- Host Serial Console discovery
 - Specify capabilities and interoperable means to locate functionality
 - Differentiate between “OS console” and “BMC command line interface”
 - Support multi-host Manager implementations



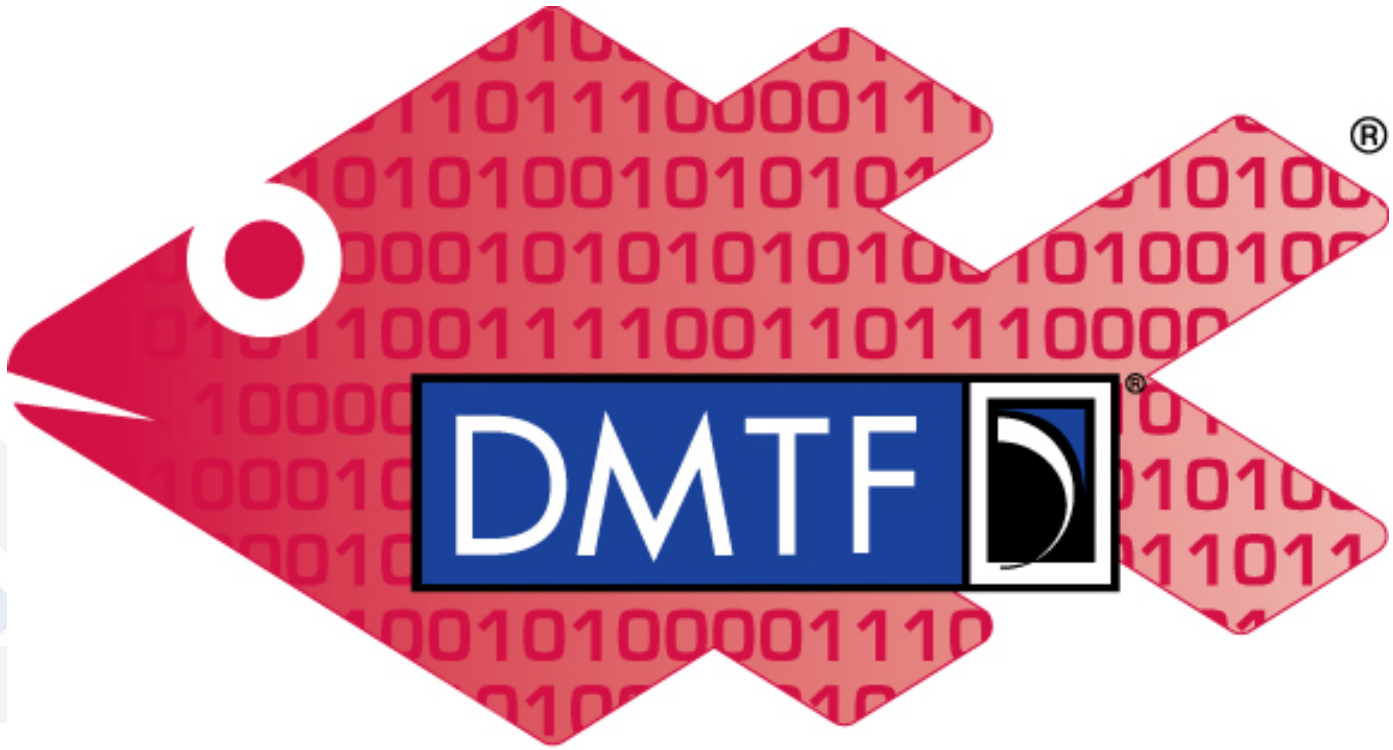
Active Redfish Forum Task Forces

- **Legacy Removal Task Force**
 - Creating Message Registries to enable migration from IPMI SEL usage
 - Working with OS vendors to understand data requirements
 - Seeking end user feedback on ongoing usage of legacy protocols
- **Host Interface Task Force**
 - Kernel / OS credential handshaking
 - Defining additional standard methods for authentication
- **Data Center Infrastructure (DCIM) Task Force**
 - Extending PDU schemas for defining UPS support
 - Working to align Alarm schema with ISA / ANSI 18.2 practices



Active Redfish Forum Task Forces, continued

- Tools Task Force
 - Weekly builds of popular validation and developer tools
 - **Redfish Tackle Box** – “Microtools” for common Redfish operations
 - Download at: <https://github.com/DMTF/Redfish-Tacklebox>
 - Firmware update, sensor, system inventory listings
 - Boot override, system power, and reset controls
 - Continued integration work with Ansible and OpenStack
 - Virtual media support, firmware update, RAID management
- Firmware Update Task Force
 - Creating message registry for reporting of firmware update process



Redfish