
# Redfish Update for EE HPC

**DMTF Scalable Platforms Management Forum**

**May 2016**

# Disclaimer

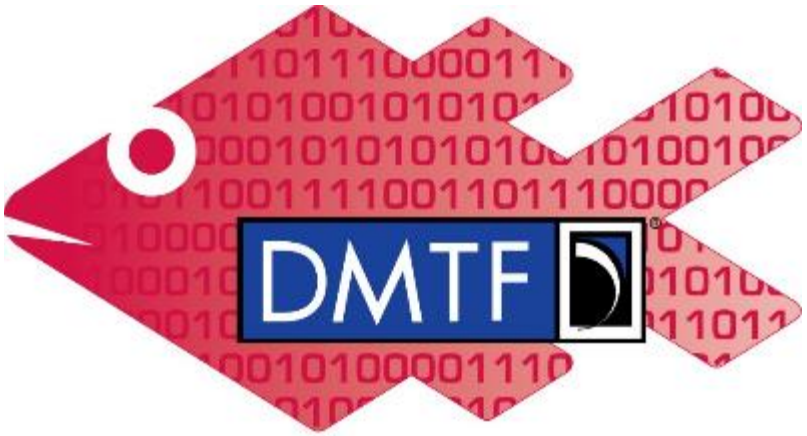
- The information in this presentation represents a snapshot of work in progress within the DMTF.
- This information is subject to change without notice. The standard specifications remain the normative reference for all information.
- For additional information, see the Distributed Management Task Force (DMTF) website.

# Scalable Platforms Management Forum

- Created in September 2014 – now 27 member companies
- Co-Chairs: Jeff Autor (HPE), Paul Vancil (Dell)
- Promoters: Broadcom Limited, Cisco, Dell, EMC, Emerson Network Power, Ericsson AB, Hewlett Packard Enterprise, Inspur, Intel, Lenovo, Microsoft, Supermicro, VMWare
- Supporters: AMI, Fujitsu, Huawei, IBM, Insyde Software, Mellanox, Microsemi, NetApp, Oracle, OSIsoft, Qualcomm, Quanta, Seagate, Western Digital
- Charter: *Create and publish an open industry-standard specification and schema that meets the expectations of Cloud and Web-based IT professionals for scalable platform hardware management utilizing existing tool chains as well as being usable by personnel with minimal experience.*
- Alliance Partnerships
  - OpenCompute Project
  - UEFI - Collaborating on Firmware Update and Host Interface work
  - SNIA – Collaborating on Storage modeling / alignment between SSM and Redfish

# Redfish Specification

- RESTful interface over HTTPS in JSON format based on OData v4
- Usable by client applications and browser-based GUIs
- A secure, multi-node capable replacement for previous interfaces
- Schema-backed human-readable output
- Covers popular use cases and customer requirements
- Intended to meet OCP Remote Machine Management requirements




Redfish

# Redfish v1.0 Specification & Schema

**Retrieve “IPMI class” data**

- Basic server identification and asset info
- Health state
- Temperature sensors and fans
- Power supply, power consumption and thresholds

**Discovery**

- Service endpoint (network-based discovery)
- System topology (rack/chassis/server/node)

**Basic I/O infrastructure data**

- Host NIC MAC address(es) for LOM devices
- Simple hard drive status / fault reporting

**Security**

- Session-based, leverages HTTPS

**Perform Common Actions**

- Reboot / power cycle server
- Change boot order / device
- Set power thresholds

**Access and Notification**

- Serial console access via SSH
- Event notification method(s)
- Logging method(s)

**BMC infrastructure**

- View / configure BMC network settings
- Manage local BMC user accounts

# Redfish releases

- v1.00 Released August 2015
  - Specification and Schema files
- v1.01 Errata Release November 2015
  - Clarifications to specification, corrected errors in schemas
- v1.10 Schema release November 2015
  - Additions to ComputerSystem, Chassis
- **2016.1 Release – NEW (April / May 2016)**
  - New schemas for BIOS, Memory, Storage
  - Will correct schema naming issues (all schemas will be revised)
  - Clarifications to specification – errata release v1.0.2
- **Releases planned for Schema and Specification**
  - **2016.2 - Summer 2016 (July/August)**
  - **2016.3 - Fall 2016 (November)**

# SPMF Work in Progress

- Significant expansion to data model coverage
  - PCIe devices
  - Storage subsystems
  - Network Adapters / Controllers
  - DIMM / NV-DIMM inventory
- “Task Force” sub-groups created to tackle specific topics
  - Host (OS) Interface to Redfish – working with DMTF PMCI
  - Firmware Update – working with UEFI and DMTF PMCI
  - Storage – working with SNIA
  - Privilege Mapping
- “Integration recipe” target for Redfish implementations
  - Strong desire for an OCP HW Management conforming property list
  - Other groups welcome to suggest target recipes

# Redfish Ecosystem – Tool Development underway

## Github public repository

- **Coming soon!**

## Client Library

- Common utility support functions
  - Discovery, Enumeration, etc.
  - Event subscription
- Typical tasks
  - Power on/off/reboot
  - Gather thermal data
- Languages under consideration
  - Python
  - Java
  - PowerShell
  - Other possibilities…

## Command Line Utility

- Similar to IPMItool
- Designed for end users
- Calls Client library

## Conformance Test Suite

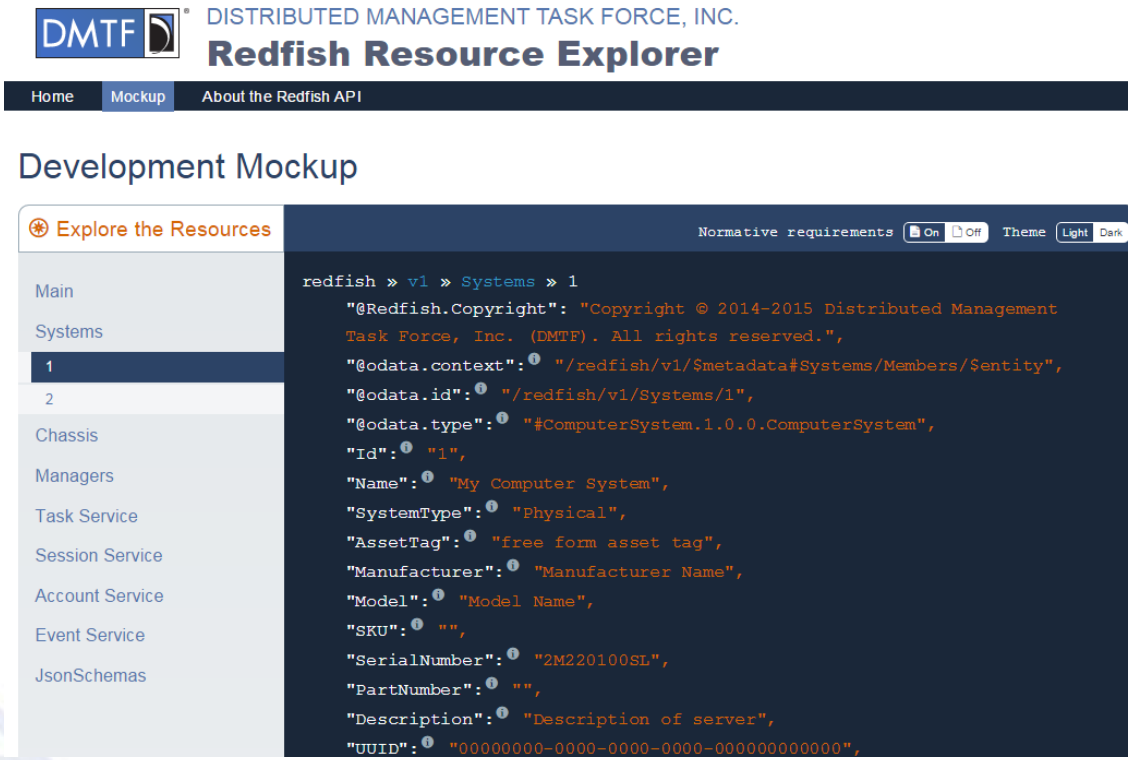
- Schema-aware tool for testing
- Checklist for vendors and customers
- Avoid spec interpretation conflicts

## Schema Dev Tools

- CSDL Validator
- CSDL to JSON-Schema converter

# Redfish Resource Explorer

- Browser-based Educational tool part of the DMTF web site for Redfish
- Explore “mockups” of the Redfish data model
- Navigate via links through the model to various resources
- Text descriptions are taken directly from the schema files for consistency

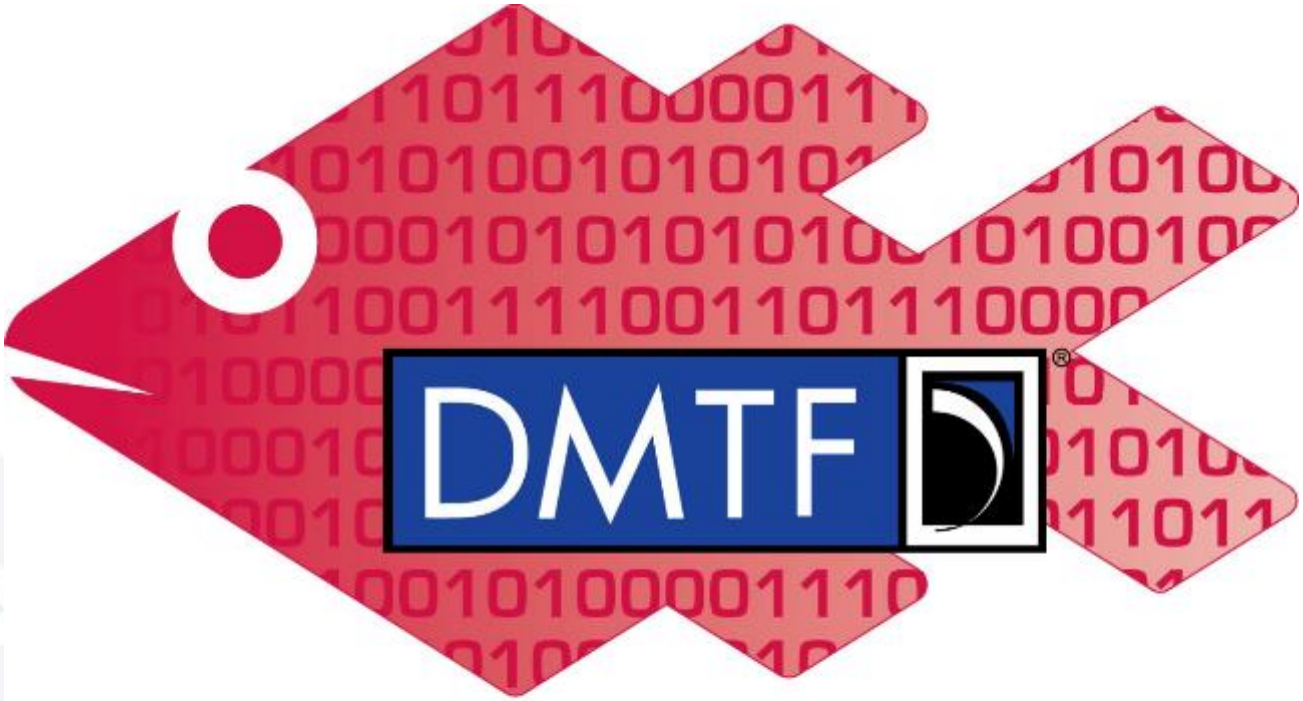



http://redfish.dmtf.org

# More information and Providing Feedback

- Download Specification and Schema: http://www.dmtf.org/redfish
- Redfish Developer Information Site: http://redfish.dmtf.org
- BrightTalk webinars: https://www.dmtf.org/education/webinars
  - Introduction to Redfish (25min)
  - Redfish Data Model Deep Dive (55min)
  - Modeling the Redfish Way (60min)
- Provide feedback through the DMTF feedback portal, on both published specification and “Work in Progress”: http://www.dmtf.org/standards/feedback
- **Coming Soon – public User Group / Forum**
- Join the SPMF
  - By Joining the DMTF and SPMF, you can shape the standard
  - http://www.dmtf.org/join/spmf

# Q&A & Discussion




Redfish

# Introduction to the Redfish data model

- All resources linked from a Service Entry point (root)
  - Always located at URL: /redfish/v1/
- Major resource types structured in ‘collections’ to allow for standalone, multi-node, or aggregated rack-level systems
  - Additional related resources fan out from members within these collections

- **ComputerSystem**: properties expected from an OS console
  - Items needed to run the “computer”
  - Roughly a logical view of a computer system as seen from the OS
- **Chassis**: properties needed to locate the unit with your hands
  - Items needed to identify, install or service the “computer”
  - Roughly a physical view of a computer system as seen by a human
- **Managers**: properties needed to perform administrative functions
  - aka: the systems management subsystem (BMC)

# Resource map (highlights)