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 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](http://www.dmtf.org/redfish)
- Redfish Developer Information Site: [http://redfish.dmtf.org](http://redfish.dmtf.org)
- BrightTalk webinars: [https://www.dmtf.org/education/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](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](http://www.dmtf.org/join/spmf)
Q&A & Discussion
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)

www.dmtf.org