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Conformance to OCP Hardware Management Profiles

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Conformance to OCP Hardware Management Profiles

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OCP GLOBAL SUMMIT
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Outline

HW MANAGEMENT

- The 2021 Design Specification Template contains a statement on manageability compliance
- The 2021 Supplier Checklist specify how conformance is determined for a contributed product
- Overview of OCP Baseline and Server Profiles
- Describes the execution and test results of each conformance tests

2021 Design Specification Template

19. Hardware Management

19.1 Compliance

All products seeking OCP Inspired™ or OCP Accepted ™ Product Recognition shall comply with the OCP Hardware Management Baseline Profile V1.0 and provide such evidence by completing the Hardware Management Tab in the 2021 Supplier Requirements Checklist.

2021 Supplier Checklist - HW Mgmt Tab

Please answer the following questions	Required	Answer	Action
Did you execute and pass the Redfish Service Validator v1.3.9?	Yes		Upload report[1]
Did you execute and pass the Redfish Protocol Validator v1.0.2?	Yes		Upload report[1]
Did you execute and pass the Redfish Interop Validator v1.1.7 with the baseline profile?	Yes		Upload report[1]
Did you execute and run the Redfish Usecase Checker v1.0.6	No		Upload report[1]

"Redfish Conformance Test Suite" - opencompute.org/wiki/Hardware_Management/SpecsAndDesigns

[1]To Conformance Portal entry

OCP Profiles

HW Mgmt Baseline Profile Usage Guide - https://www.opencompute.org/documents/usage-guide-for-baseline-hw-mgmt-api-v1-0-1-final-pdf

Hardware Management Baseline Profile

Use Case	Manageable Capabilities
Redfish Interface	• Get Redfish version & Unique identifier
Account Mgmt	• Get accounts
Session Mgmt	• Get sessions
Chassis inventory	• Get the FRU information • Get and Set the Asset Tag
Chassis location	• Get and Set of location LED
Status	• Get status of chassis
Power	• Get power state, power usage and power limit • Get version of PSU firmware
Temperature	• Get the temperature • Get temperature thresholds
Cooling	• Get fan speeds • Get fan redundancies
Log	• Get log entry • Clear the log
Management Controller	• Get version of firmware for MC • Get status of MC • Get network information for MC • Reset the MC

Server Profile

Use Case	Manageable Capabilities (in addition to baseline)
Systems	• Get list of systems • Get information on a system
System inventory	• Get the inventory data • Get and Set the Asset Tag
System location	• Get and Set the location LED
System	• Get the type of system • Get the power state of the system • Get status of computer system • Reset the system
System firmware	• Get version of system firmware
Processor	• Get summary of processor information
Memory	• Get summary of memory information
Ethernet	• Get list of Ethernet interfaces • Get an Ethernet interface • Get status of Ethernet interface • Get and set the IPv4 address
Boot Information	• Get boot information • Set boot device
System Log	• Get system log • Get list of system log entries • Get a system log entry • Clear the log

DMTF's Redfish Interoperability Lab

- After hosting annual plugfests, the Lab was established in early 2020 at the SNIA Technology Center in Colorado Springs, Colorado. Plugfests are run every 2-3 months.
- The Lab allows the Redfish Forum to see how different implementations may interpret the specification and to gain direct experience with the Redfish standard and tools. This helps the Forum address interoperability concerns before end users are affected.
- DMTF Redfish Forum members may provide equipment which are made available for interoperability testing

https://www.dmtf.org/content/dmtf-announces-redfish-interoperability-lab-drive-industry-collaboration

Test Execution Process

- Download and Install Test
  - Python 3.x environment
- Execute Test
  - Edit the config file
  - Test report generated in HTML and txt format
- Inspect results

[1]To Conformance Portal

Redfish Protocol Validator

Validates that the protocol behavior of a service conforms to the Redfish Spec

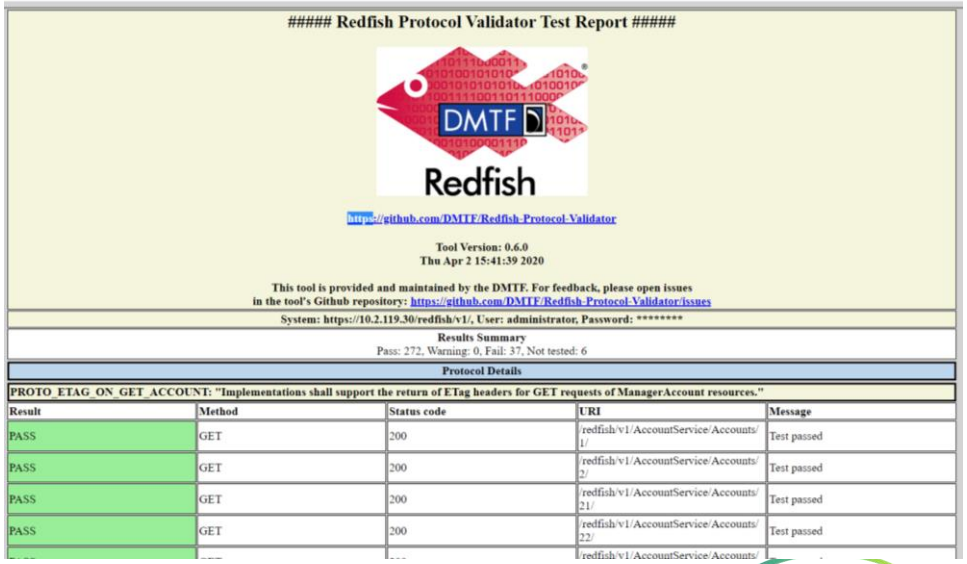
- Install

```
$> pip3 install -r requirements.txt
```

- Execute

```
$> python rf_protocol_validator.py -r
https://192.168.1.100 -u USERNAME -p
PASSWORD
```

- Inspect results



Redfish Protocol Validator Test Report

https://github.com/DMTF/Redfish-Protocol-Validator

Tool Version: 0.6.0
Thu Apr 2 15:41:39 2020

This tool is provided and maintained by the DMTF. For feedback, please open issues in the tool's Github repository: https://github.com/DMTF/Redfish-Protocol-Validator/issues

System: https://10.2.119.30/redfish/v1/, User: administrator, Password: ********

Results Summary
Pass: 272, Warning: 0, Fail: 37, Not tested: 6

Protocol Details

PROTO_ETAG_ON_GET_ACCOUNT: "Implementations shall support the return of ETag headers for GET requests of ManagerAccount resources."

Result	Method	Status code	URI	Message
PASS	GET	200	/redfish/v1/AccountService/Accounts/1/	Test passed
PASS	GET	200	/redfish/v1/AccountService/Accounts/2/	Test passed
PASS	GET	200	/redfish/v1/AccountService/Accounts/21/	Test passed
PASS	GET	200	/redfish/v1/AccountService/Accounts/22/	Test passed

Redfish Protocol Validator - Testing

Protocol Requirement

Test reult

Protocol Requirement

Test result

Pass: 328, Warning: 0, Fail: 9, Not tested: 40

Protocol Details

PROTO_ETAG_ON_GET_ACCOUNT: "Implementations shall support the return of ETag headers for GET requests of ManagerAccount resources."

Result	Method	Status code	URI	Message
PASS	GET	200	/redfish/v1/AccountService/Accounts/1	Test passed
PASS	GET	200	/redfish/v1/AccountService/Accounts/2	Test passed

PROTO_ETAG_RFC7232: "If a resource supports an ETag, it shall use the RFC7232-defined ETag."

Result	Method	Status code	URI	Message
PASS	GET	200	/redfish/v1/odata	Test passed
PASS	GET	200	/redfish/v1	Test passed
PASS	GET	200	/redfish/v1/$metadata	Test passed

PROTO_STD_URI_SERVICE_ROOT: "The root URI for this version of the Redfish protocol shall be /redfish/v1/."

Result	Method	Status code	URI	Message
PASS	GET	200	/redfish/v1/	Test passed

PROTO_STD_URI_SERVICE_ROOT_REDIRECT: "The service shall process the [/redfish/v1] URI without a trailing slash in one of these ways: Redirect it to the associated Redfish-defined URI, or treat it as the equivalent URI to the associated Redfish-defined URI (/redfish/v1/)."

Result	Method	Status code	URI	Message
PASS	GET	200	/redfish/v1	Test passed

PROTO_STD_URI_VERSION: "A GET operation on the /redfish resource shall return this response body: {"v1": "/redfish/v1/"}"

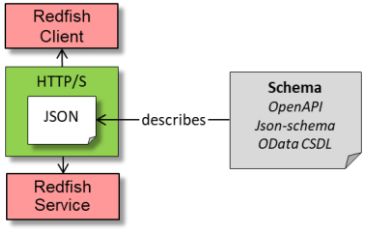
Result	Method	Status code	URI	Message
PASS	GET	200	/redfish	Test passed

PROTO_URI_NO_ENCODED_CHARS: "URIs shall not include any percent-encoding of characters."

Result	Method	Status code	URI	Message

Redfish Service Validator

Validates that the service conforms to *DMTF*'s *Redfish* schema



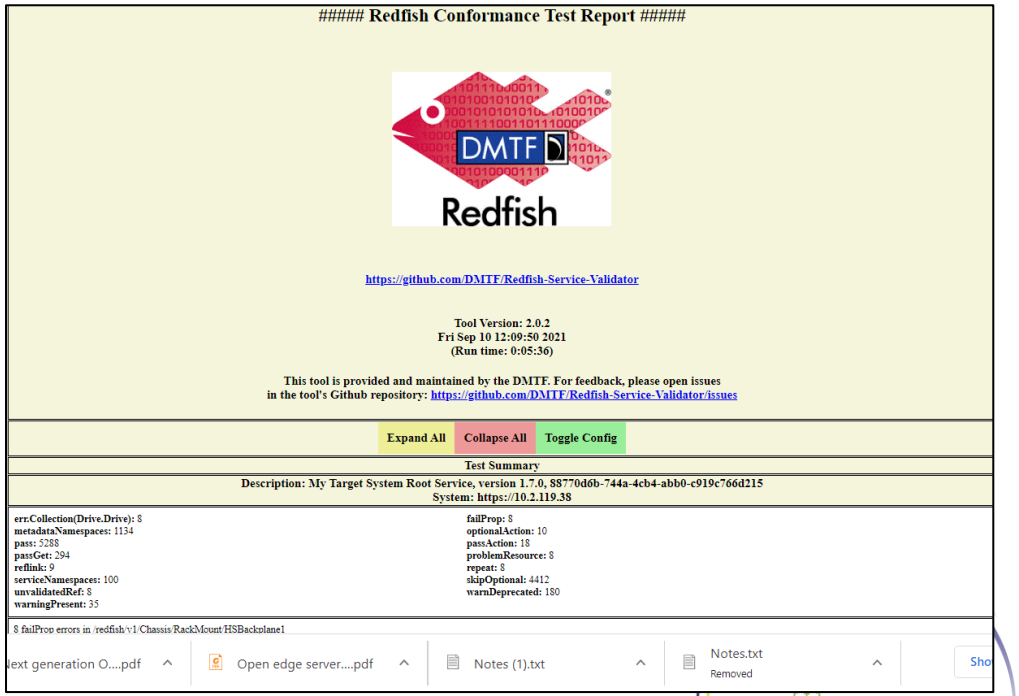
- Install

```
$> pip3 install -r requirements.txt
```

- Edit the config file
  - See README
- Execute

```
$> python RedfishServiceValidator
```

- Inspect results



Redfish Service Validator - Testing

Response Time

File Origin
Resource Type

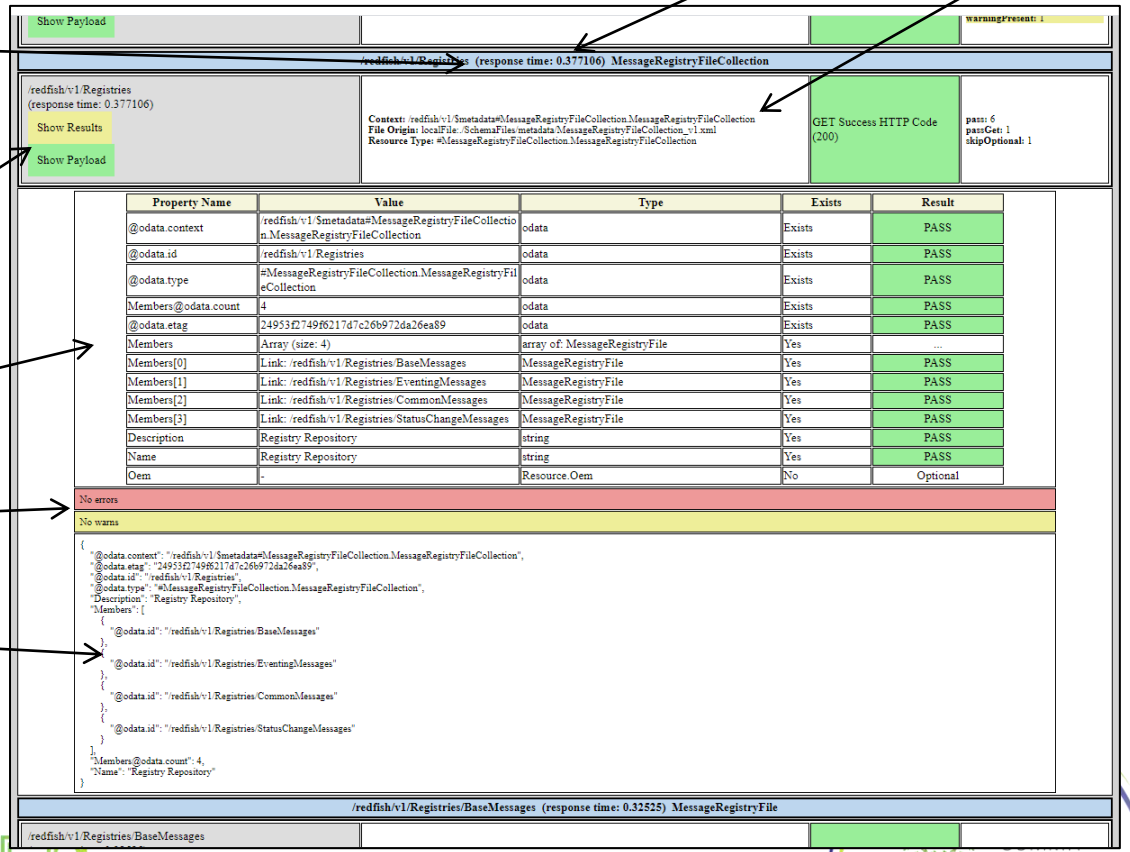
Resource URI (schema)

Payload display toggle

Payload tests results

Errors and warnings

Raw payload



Redfish Interop Validator

Validates that a service conforms to the requirements specified in a profile

- Install

```
$> pip3 install -r requirements.txt
```

- Edit the config file
  - See README
- Execute

```
$> python RedfishInteropValidator
```

- Inspect results

Redfish Interop Validator - Testing

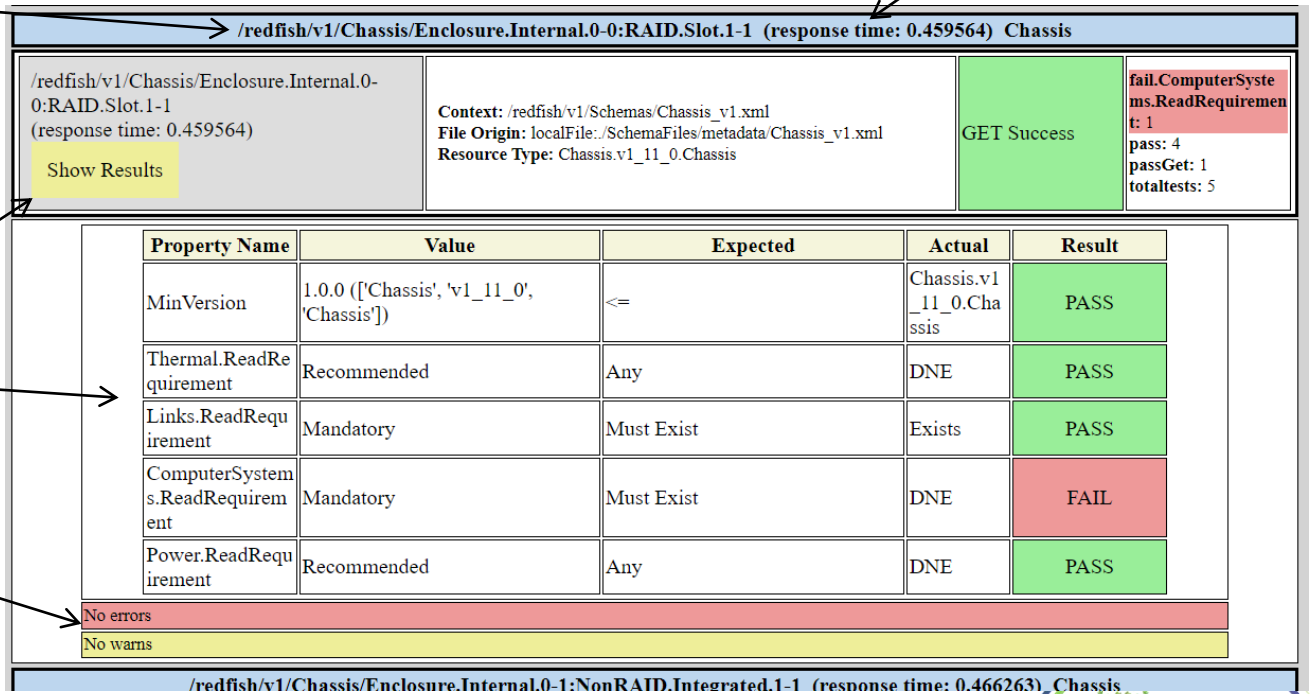
Response Time

Profile requirement resource

Payload display toggle

Payload test results

Errors and warnings



/redfish/v1/Chassis/Enclosure.Internal.0-0:RAID.Slot.1-1 (response time: 0.459564) Chassis

/redfish/v1/Chassis/Enclosure.Internal.0-0:RAID.Slot.1-1
(response time: 0.459564)
Show Results

Context: /redfish/v1/Schemas/Chassis_v1.xml
File Origin: localFile:./SchemaFiles/metadata/Chassis_v1.xml
Resource Type: Chassis.v1_11_0.Chassis

GET Success

fail.ComputerSystems.ReadRequirement: 1
pass: 4
passGet: 1
totaltests: 5

Property Name	Value	Expected	Actual	Result
MinVersion	1.0.0 (['Chassis', 'v1_11_0', 'Chassis'])	<=	Chassis.v1_11_0.Chassis	PASS
Thermal.ReadRequirement	Recommended	Any	DNE	PASS
Links.ReadRequirement	Mandatory	Must Exist	Exists	PASS
ComputerSystems.ReadRequirement	Mandatory	Must Exist	DNE	FAIL
Power.ReadRequirement	Recommended	Any	DNE	PASS

No errors

No warns

/redfish/v1/Chassis/Enclosure.Internal.0-1:NonRAID.Integrated.1-1 (response time: 0.466263) Chassis

Redfish Usecase Checkers

- A collection of tools to exercise and validate common use cases for DMTF Redfish.
  - One Time Boot Checker
  - Power/Thermal Info Checker
  - Power Control Checker
  - Account Management Checker
  - Query Parameter Checker
  - Manager Ethernet Interface Checker

Call to Action

- Visit the conformance test demo at the OCP Experience Center
- Become familiar with executing and reviewing the test results of the conformance tests
- Submit issues or asks questions on the repositories. Issues are reviewed weekly by the Redfish Forum.

OCP Profiles: https://github.com/opencomputeproject/OCP-Profiles

Redfish Conformance Tests: https://github.com/dmtf

Thank you!

NOVEMBER 9-10, 2021

Abstract

HW MANAGEMENT

OCP 2021 Supplier Requirements provide specific requirements for product contribution to OCP in the area of Hardware Management. Specifically, it specifies conformance to the OCP Baseline Hardware Management profile as part executing a conformance test suite. This presentation walks through the process to submit the conformance test reports for a contribution. This includes a description of the tools and resultant output.

Time = 15 minutes