



# Intel® Rack Scale Design (Intel® RSD) Conformance Test Suite

Release Notes  
Software Version 2.5

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*July 2019*

*Revision 001*



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## Revision History

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Revision	Description	Date
001	Initial Release of Intel® RSD Software v2.5	July 2019

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## 1.0 Introduction

These release notes are intended for the Intel® Rack Scale Design (Intel® RSD) Conformance Test Suite (CTS) software release v2.5.

### 1.1 Intended Audience

The intended audience for this document includes designers and engineers working with the Intel® RSD Software v2.5 release, such as:

- Independent software vendors (ISVs) of CTS software, who make use of the storage service API to discover, compose, and manage Rack Scale drawers, regardless of the hardware vendor and/or manage drawers in a multivendor environment.
- Software vendors (OxMs) for who create solutions based on the Intel® RSD and who want to verify the correctness and conformance.

### 1.2 Software Package Contents

Table 1 lists the contents of the release package.

**Table 1. Software Package for Intel® RSD v2.5**

Title	Description
Intel® Rack Scale Design v2.5 CTS Release Notes	This document
Intel® Rack Scale Design 2.5.0.31 CTS Readme	User Guide

Customers should check <https://github.com/01org/intelRSD> to download the latest available onboard device drivers, system firmware, and system software. For further assistance, please contact the Intel Field Representative.

### 1.3 Revision Numbers of Package Components

**Table 2. Revision Numbers of Beta Release Components**

Subproject (component)	Revision
Intel® Rack Scale Design CTS	2.5.0.31

### 1.4 Terminology

**Table 3. Terminology**

Term	Definition
Intel® RSD	Intel® Rack Scale Design
CTS	Conformance Test Suite
ISVs	Independent software vendors
OCP	Open Compute Project
OxMs	Software vendors

### 1.5 References and Resources

**Table 4. References and Resources**

Doc ID	Title	Location
613314	<i>Intel® Rack Scale Design (Intel® RSD) Pooled System Management Engine (PSME) User Guide Software v2.5</i>	Note: <a href="https://www.intel.com/content/www/us/en/architecture-and-technology/rack-scale-design/rack-scale-design-resources.html">https://www.intel.com/content/www/us/en/architecture-and-technology/rack-scale-design/rack-scale-design-resources.html</a>
613315	<i>Intel® Rack Scale Design (Intel® RSD) Conformance and Software Reference Kit Getting Started Guide v2.5</i>	



Doc ID	Title	Location
613316	Intel® Rack Scale Design (Intel® RSD) POD Manager (PODM) Release Notes Software v2.5	
613317	Intel® Rack Scale Design (Intel® RSD) POD Manager (PODM) User Guide Software v2.5	
613318	Intel® Rack Scale Design (Intel® RSD) Pooled System Management (PSME) Release Notes Software v2.5	
613319	Intel® Rack Scale Design (Intel® RSD) Architecture Specification Software v2.5	
613320	Intel® Rack Scale Design (Intel® RSD) Pod Manager (PODM) Representational State Transfer (REST) API Specification Software v2.5	
613321	Intel® Rack Scale Design (Intel® RSD) Rack Management Module (RMM) Representational State Transfer (REST) API Specification Software v2.5	
613325	Intel® Rack Scale Design (Intel® RSD) Pooled System Management Engine (PSME) REST API Specification Software v2.5	
613329	Intel® Rack Scale Design Storage Services API Specification Software v2.5	
613326	Intel® Rack Scale Design (Intel® RSD) Conformance Test Suite (CTS) Release Notes	See note
608298	Field Programmable Gate Array (FPGA) over Fabric Protocol Architecture Specification	<a href="https://cdrdv2.intel.com/v1/dl/getContent/608298">https://cdrdv2.intel.com/v1/dl/getContent/608298</a>
596167	Intel® Rack Scale Design (Intel® RSD) for Cascade Lake Platform Firmware Extension Specification	<a href="https://cdrdv2.intel.com/v1/dl/getContent/596167">https://cdrdv2.intel.com/v1/dl/getContent/596167</a>
DSP0263	Cloud Infrastructure Management Interface (CIMI) Model and RESTful HTTP-based Protocol An Interface for Managing Cloud Infrastructure	<a href="https://www.scc.ca/en/standards/notices-of-intent/csa/cloud-infrastructure-management-interface-cimi-model-and-restful-http-based-protocol-interface-for">https://www.scc.ca/en/standards/notices-of-intent/csa/cloud-infrastructure-management-interface-cimi-model-and-restful-http-based-protocol-interface-for</a>
DSP266	Redfish Scalable Platforms Management API Specification	<a href="https://www.dmtf.org/sites/default/files/standards/documents/DSP0266_1.0.0.pdf">https://www.dmtf.org/sites/default/files/standards/documents/DSP0266_1.0.0.pdf</a>
DSP8010	Redfish* API Schema Readme v2018.1	<a href="https://www.dmtf.org/sites/default/files/standards/documents/DSP8010_2018.1.zip">https://www.dmtf.org/sites/default/files/standards/documents/DSP8010_2018.1.zip</a>
DSP8010	Redfish* API Schema Readme v2018.2	<a href="https://redfish.dmtf.org/schemas/v1/README8010.pdf">https://redfish.dmtf.org/schemas/v1/README8010.pdf</a>
DSP8010	Redfish* API Schema Readme V2018.3	<a href="https://www.dmtf.org/sites/default/files/Redfish_2018_Release_3_Overview.pdf">https://www.dmtf.org/sites/default/files/Redfish_2018_Release_3_Overview.pdf</a>
N/A	Storage Networking Industry Association (SNIA) Swordfish* Scalable Storage Management Schema bundle v1.0.7a	<a href="https://www.snia.org/sites/default/files/technical_work/Swordfish/Swordfish_v1.0.7a_Specification.pdf">https://www.snia.org/sites/default/files/technical_work/Swordfish/Swordfish_v1.0.7a_Specification.pdf</a>
RFC 2119	Key words for use in RFCs to Indicate Requirement Levels, March 1997	<a href="https://www.rfc-editor.org/info/rfc2119">https://www.rfc-editor.org/info/rfc2119</a>

**Note:** Documents referenced in this table which have a Doc ID, but cannot be accessed, can be obtained by calling 1-800-548-4725 or by visiting [www.intel.com/design/literature.htm](http://www.intel.com/design/literature.htm) obtain a copy.



## 2.0 New Features

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This section provides an overview of Intel® RSD software release packages and their features.

### 2.1 New Features for v2.5 Release

The Intel® RSD v2.5 (CTS\_2.5.0.31.0) release introduces the following features:

1. New test category “[Profiles](#)”. In the new CTS v2.5, the tool can verify profiles (Open Compute Project (OCP) Compute profile, and two Intel® RSD specific profiles were implemented).
2. New test category “[Architecture\\_test](#)”. More automation was added to check the compatibility of the tested service with the Architecture Specification document, refer to [Table 4](#).
3. CTS v2.5 brings extended mechanisms for ignoring (“[IgnoreType](#)” and “[IgnoredElements](#)”) specific elements presented in REST APIs.  
  
IgnoreType can be used in both [GET/PATCH](#) test cases. [IgnoredElements](#) is used in [PATCH](#) test case only..
4. Support for Redfish URI's during the [GET](#) Test Case, CTS verifies that URI format for specific odata.type is suitable for requirements described in the metadata for this property in section Redfish.Uri.
5. Rack Scale Metadata and Tests Packages were updated for v2.5
6. The CTS includes a new version of the Redfish metadata (v2018.3a and 2019.1) refer to [Table 4](#).) and Swordfish in version 1.0.7a.
7. Improved representation of the test case report as well as the interoperability report (in HTML format).Stability improvements.
8. Minor bug fixes.

### 2.2 New Features for v2.4 Release

The Intel® RSD v2.4 (CTS\_2.4.0.172) release introduces the following features:

1. Rack Scale Metadata and Tests Packages were updated for v2.4.
2. CTS includes a Redfish metadata v2018.1, v2018.2, and v2018.3 with Swordfish extension in v1.0.6 (it can be used with all [GET/PATCH](#) test cases), refer to [Table 4](#).
3. The user can feed the Test Suite with custom metadata.
4. The configuration file parameters ‘[IgnoreTypes](#)’ support [REGEX](#), which is used for ignoring more complex types.
5. The tool can continue a Discovery process if it finds an unknown element that is on the Ignore Type list.
6. In all [PATCH](#) tests, the user can ignore elements (entire endpoints or just some keys listed on the specific endpoint).
7. Performance measuring in tests ([GET/PATCH](#)).
8. The tool can measure response time from the server.
9. CTS can produce an Interoperability report between the Rack Scale Metadata and Redfish v2018.1, and v2018.2 (with Swordfish v1.0.6).
10. The tool includes a new test framework called “[Scenario](#)” (this functionality is in preview – more functionality and improvements are targeted for future updates.).
11. Stability improvements.
12. Minor bug fixes.



## 2.3 New Features v2.3

Intel® RSD v2.3 release introduces the following features:

1. New CRUD test for Storage Service (``crud_operations.py``) has been introduced.
2. Stability improvements
3. Minor bug fixes

**Limitations:**

The following list describes all the limitations for this release. Described limitations are targeted for future releases:

- The CTS package does not contain test and metadata packages for older versions of Intel® RSD.
- The CRUD for Storage Services does not support NVMe\* operations. The CRUD test case for Storage Services is based on a previous software version (Refer to Intel® RSD v2.1).

**Note:** Intel® RSD v2.3 introduces support for Non-volatile Memory Express (NVMe\*) technology, but our CRUD test case for Storage Services does not support NVMe\* operations. The CRUD test case for Storage Services is based on a previous software version (Refer to Intel® RSD v2.1).

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## 3.0 *Known Issues*

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There are no known issues for Intel® RSD software v2.5 release.



## 4.0 Error Message Examples

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This section can help with interpretation of some error messages that appear in the CTS logs.

### 4.1 Example #1: False Negative Error Messages

**Note:** Patching `AuthFailureLoggingThreshold` failure is expected, but reported as a failure.

#### **PROBLEM:**

During a CTS `PATCH` test case, is trying to perform the correct operation according to the metadata, but the service returns a custom message.

Subsequent verification performed by the tool shows, this operation failed because a new value for `AuthFailureLoggingThreshold` was not set.

#### **Request:**

```
MESSAGE    2019-05-28 18:03:06    -Patch https://example-
service:8443/redfish/v1/AccountService

request:
{
  "headers": {
    "Content-Type": "application/json",
    "Accept": "application/json"
  },
  "cert": [
    null,
    null
  ],
  "verify": false,
  "data": "{\"AuthFailureLoggingThreshold\": 1}",
  "auth": [
    "admin",
    "cmb9.admin"
  ]
}

response [405]:
{
  "error": {
    "code": "Base.1.0.GeneralError",
    "message": "A general error has occurred. See ExtendedInfo for more
information.",
    "@Message.ExtendedInfo": [
      {
        "@odata.type": "#Message.v1_0_0.Message",
        "MessageId": "Base.1.0.GeneralError",
        "Message": "PATCH AuthFailureLoggingThreshold is not supported,
could not get lock time by switch cli",
        "RelatedProperties": [],
        "MessageArgs": [],
        "Resolution": null,
        "Severity": "Critical"
      }
    ]
  }
}
```



When can users expect such a message?

This kind of message can also show up when the service (of the device):

- **Does not support such a field** – Hardware limitations are prevalent cases in which you can receive a message of this type. The field is described on the REST API, but the OEM does not support the handling of these type fields.
- **Does not support such a format** – Most often found when setting new MAC fields on network devices. The fields in the metadata have a defined format. Unfortunately, the equipment supplier requires different formatting.

## 4.2 Example #2: Wrong Format of MAC Value

### PROBLEM:

- Metadata is allowed to send a new MAC value with format (all letters are capital) `AA:BB:CC:DD:EE:FF:GG:HH`, but the device *only* accepts a lower format of `aa:bb:cc:dd:ee:ff:gg:hh`.
- `PATCH` operation fails, but the payload was correct:

Metadata has no information about atypical fields or which change of values requires a simultaneous setting of two fields or more for a positive effect.

**Note:** CTS supports only one `PATCH` for one property, and *it is not* possible to change a more significant number of resources (or parallel change in value for non-trivial changes).

## 4.3 Example #3: OEM Extensions in Responses

### PROBLEM:

Default Intel® Rack Scale Metadata does not contain information about additional types added by the OEM's.

If CTS uses a default version of the metadata, an ERROR "`@odata.type was not found`" – message appears in the test log.

### RESOLUTION:

This fault can be resolved by providing the tool, a custom version of metadata with OEM extras. For information on this tool and how to setup custom metadata contact your Intel representative for a copy of the *CTS README* document.

```
MESSAGE 2019-05-10 15:42:48 -Get https://example-
service:8443/redfish/v1/EthernetSwitches/1
request: {}
response: {} <Response 200 OK>
Request and Response was cut off.
Errors
ERROR 2019-05-10 15:42:48
url=https://10.3.3.249:8443/redfish/v1/EthernetSwitches/1#Oem.XYZ_RackScale.Lldp:
@odata.type not found in complex additional property;
[#Id=ec2]
ERROR 2019-05-10 15:42:48
url=https://10.3.3.249:8443/redfish/v1/EthernetSwitches/1#Oem.XYZ_RackScale.SpanningTr
ee:
@odata.type not found in complex additional property;
[#Id=ec4]
```