This is a preview - click here to buy the full publication

INTERNATIONAL STANDARD

ISO/IEC 30115

First edition
2018-03

Information technology — Redfish scalable platforms management API specification

Technologies de l'information — Spécification API (interface de programmation d'applications) relative à la gestion des plates-formes évolutives Redfish

Withdrawn

Reference number
ISO/IEC 30115:2018(E)

© ISO/IEC 2018

This is a preview - click here to buy the full publication

withdrawn

COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2018

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Published in Switzerland

© ISO/IEC 2018 – All rights reserved

This is a preview - click here to buy the full publication

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.s

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by the Distributed Management Task Force, Inc. (DMTF) (as DSP0266) and drafted in accordance with its editorial rules. It was adopted, under the JTC 1 PAS procedure, by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.

Withdrawn

© ISO/IEC 2018 – All rights reserved

This is a preview - click here to buy the full publication

CONTENTS

1. Abstract 8
2. Normative references 8
3. Terms and definitions 9
4. Symbols and abbreviated terms 12
5. Overview 12
5.1. Scope 13
5.2. Goals 13
5.3. Design tenets 14
5.4. Limitations 14
5.5. Additional design background and rationale 15
5.5.1. REST-based 15
5.5.2. Follow OData conventions 15
5.5.3. Model-oriented 16
5.5.4. Separation of protocol from data model 16
5.5.5. Hypermedia API service endpoint 16
5.6. Service elements 16
5.6.1. Synchronous and asynchronous operation support 16
5.6.2. Eventing mechanism 17
5.6.3. Actions 17
5.6.4. Service entry point discovery 17
5.6.5. Remote access support 18
5.7. Security 18
6. Protocol details 18
6.1. Use of HTTP 19
6.1.1. URIs 19
6.1.2. HTTP methods 20
6.1.3. HTTP redirect 21
6.1.4. Media types 21
6.1.5. ETags 21
6.2. Protocol version 22
6.3. Redfish-defined URIs and relative URI rules 23
6.4. Requests 24
6.4.1. Request headers 24
6.4.2. Read requests (GET) 26
6.4.3. HEAD 28
6.4.4. Data modification requests 29
6.5. Responses 32
6.5.1. Response headers 33
6.5.2. Status codes 35
6.5.3. Metadata responses 38
6.5.4. Resource responses 41

Withdrawn

© ISO/IEC 2018 – All rights reserved

This is a preview - click here to buy the full publication

6.5.5. Resource Collection responses 49
6.5.6. Error responses 50
7. Data model and Schema 53
7.1. Schema repository 53
7.1.1. Programmatic access to schema files 53
7.2. Type identifiers 54
7.2.1. Type identifiers in JSON 54
7.3. Common naming conventions 54
7.4. Localization considerations 55
7.5. Schema definition 55
7.5.1. Common annotations 55
7.5.2. Schema documents 56
7.5.3. Resource type definitions 58
7.5.4. Resource properties 58
7.5.5. Reference properties 62
7.5.6. Resource actions 64
7.5.7. Resource extensibility 65
7.5.8. Oem property examples 67
7.6. Common Redfish resource properties 69
7.6.1. Id 69
7.6.2. Name 69
7.6.3. Description 55
7.6.4. Status 70
7.6.5. Links 70
7.6.6. Members 70
7.6.7. RelatedItem 70
7.6.8. Actions 17
7.6.9. OEM 70
7.7. Redfish resources 71
7.7.1. Current configuration 71
7.7.2. Settings 71
7.7.3. Services 71
7.7.4. Registry 72
7.8. Special resource situations 72
7.8.1. Absent resources 72
7.8.2. Schema variations 72
8. Service details 73
8.1. Eventing 73
8.1.1. Event message subscription 74
8.1.2. Event message objects 74
8.1.3. Subscription cleanup 75
8.2. Asynchronous operations 75
8.3. Resource tree stability 76

Withdrawn

© ISO/IEC 2018 – All rights reserved

This is a preview - click here to buy the full publication

8.4. Discovery 77
8.4.1. UPnP compatibility 77
8.4.2. USN format 77
8.4.3. M-SEARCH response 77
8.4.4. Notify, alive, and shutdown messages 78
9. Security 18
9.1. Protocols 78
9.1.1. TLS 78
9.1.2. Cipher suites 78
9.1.3. Certificates 79
9.2. Authentication 79
9.2.1. HTTP header security 79
9.2.2. Extended error handling 80
9.2.3. HTTP header authentication 80
9.2.4. Session Management 80
9.2.5. AccountService 83
9.2.6. Async tasks 83
9.2.7. Event subscriptions 83
9.2.8. Privilege model/Authorization 83
9.2.9. Redfish Service Operation to Privilege Mapping 84
10. Redfish Host Interface 92
11. Redfish Composability 92
11.1. Composition Requests 92
11.1.1. Specific Composition 92
12. ANNEX A (informative) 93
12.1. Change log 93

Withdrawn

© ISO/IEC 2018 – All rights reserved

This is a preview - click here to buy the full publication

Foreword

The Redfish Scalable Platforms Management API ("Redfish") was prepared by the Scalable Platforms Management Forum of the DMTF.

DMTF is a not-for-profit association of industry members dedicated to promoting enterprise and systems management and interoperability. For information about the DMTF, see http://www.dmtf.org.

withdrawn

© ISO/IEC 2018 – All rights reserved

This is a preview - click here to buy the full publication

Acknowledgments

The DMTF acknowledges the following individuals for their contributions to this document:

- Jeff Autor - Hewlett Packard Enterprise
- Patrick Boyd - Dell Inc.
- David Brockhaus - Emerson Network Power
- Richard Brunner - VMware Inc.
- Lee Calcote - Seagate Technology
- P Chandrasekhar - Dell Inc.
- Chris Davenport - Hewlett Packard Enterprise
- Gamma Dean - Emerson Network Power
- Daniel Dufresne - EMC
- Samer El-Haj-Mahmoud - Lenovo, Hewlett Packard Enterprise
- George Ericson - EMC
- Wassim Fayed - Microsoft Corporation
- Mike Garrett - Hewlett Packard Enterprise
- Steve Geffin - Emerson Network Power
- Joe Handzik - Hewlett Packard Enterprise
- Jon Hass - Dell Inc.
- Jeff Hilland - Hewlett Packard Enterprise
- Chris Hoffman - Emerson Network Power
- Steven Krig - Intel Corporation
- John Leung - Intel Corporation
- Jagan Molleti - Dell Inc.
- Milena Natanov - Microsoft Corporation
- Michael Pizzo - Microsoft Corporation
- Chris Poblete - Dell Inc.
- Michael Raineri - EMC
- Irina Salvan - Microsoft Corporation
- Hemal Shah - Broadcom Limited
- Jim Shelton - Emerson Network Power
- Tom Slaight - Intel Corporation
- Donnie Sturgeon - Emerson Network Power
- Pawel Szymanski - Intel Corporation
- Paul Vancil - Dell Inc.
- Linda Wu - Super Micro Computer, Inc.

Withdrawn

© ISO/IEC 2018 – All rights reserved

This is a preview - click here to buy the full publication

1. Abstract

The Redfish Scalable Platforms Management API ("Redfish") is a new specification that uses RESTful interface semantics to access data defined in model format to perform out-of-band systems management. It is suitable for a wide range of servers, from stand-alone servers to rack mount and bladed environments but scales equally well for large scale cloud environments.

There are several out-of-band systems management standards (defacto and de jour) available in the industry. They all either vary widely in implementation, were developed for single server embedded environments or have their roots in antiquated software modeling constructs. There is no single industry standard that is simple to use, based on emerging programming standards, embedded friendly and capable of meeting large scale data center & cloud needs.

2. Normative references

The following referenced documents are indispensable for the application of this document. For dated or versioned references, only the edition cited (including any corrigenda or DMTF update versions) applies. For references without a date or version, the latest published edition of the referenced document (including any corrigenda or DMTF update versions) applies.

- IETF RFC 3986 T. Berners-Lee et al, Uniform Resource Identifier (URI): Generic Syntax, http://www.ietf.org/rfc/rfc3986.txt
- IETF RFC 4627, D. Crockford, The application/json Media Type for JavaScript Object Notation (JSON), http://www.ietf.org/rfc/rfc4627.txt
- IETF RFC 5789, L. Dusseault et al, PATCH method for HTTP, http://www.ietf.org/rfc/rfc5789.txt
- IETF RFC 5280, D. Cooper et al, Web linking, http://www.ietf.org/rfc/rfc5280.txt
- IETF RFC 5988, M. Nottingham, Web linking, http://www.ietf.org/rfc/rfc5988.txt
- IETF RFC 6901, P. Bryan, Ed. et al, JavaScript Object Notation (JSON) Pointer, http://www.ietf.org/rfc/rfc6901.txt
- IETF RFC 6906, E. Wilde, The 'profile' Link Relation Type, http://www.ietf.org/rfc/rfc6906.txt
- IETF RFC 7230, R. Fielding et al., Hypertext Transfer Protocol (HTTP/1.1): Message Syntax and Routing, http://www.ietf.org/rfc/rfc7230.txt
- IETF RFC 7231, R. Fielding et al., Hypertext Transfer Protocol (HTTP/1.1): Semantics and Content, http://www.ietf.org/rfc/rfc7231.txt
- IETF RFC 7232, R. Fielding et al., Hypertext Transfer Protocol (HTTP/1.1): Conditional Requests, http://www.ietf.org/rfc/rfc7232.txt
- IETF RFC 7234, R. Fielding et al., Hypertext Transfer Protocol (HTTP/1.1): Caching, http://www.ietf.org/rfc/rfc7234.txt
- IETF RFC 7235, R. Fielding et al., Hypertext Transfer Protocol (HTTP/1.1): Authentication, http://www.ietf.org/rfc/rfc7235.txt

© ISO/IEC 2018 – All rights reserved

This is a preview - click here to buy the full publication

- ISO/IEC Directives, Part 2, Rules for the structure and drafting of International Standards, http://isotc.iso.org/livelink/livelink.exe?func=ll&objId=4230456&objAction=browse&sort=subtypeH
- JSON Schema, Core Definitions and Terminology, Draft 4 http://tools.ietf.org/html/draft-zyp-json-schema-04.txt
- JSON Schema, Interactive and Non-Interactive Validation, Draft 4 http://tools.ietf.org/html/draft-fge-json-schema-validation-00.txt
- OData Version 4.0 Part 1: Protocol. 24 February 2014. http://docs.oasis-open.org/odata/odata/v4.0/os/part1-protocol/odata-v4.0-os-part1-protocol.html
- OData Version 4.0 Part 2: URL Conventions. 24 February 2014. http://docs.oasis-open.org/odata/odata/v4.0/os/part2-url-conventions/odata-v4.0-os-part2-url-conventions.html
- OData Version 4.0 Part 3: Common Schema Definition Language (CSDL). 24 February 2014. http://docs.oasis-open.org/odata/odata/v4.0/os/part3-csdl/odata-v4.0-os-part3-csdl.html
- OData Version 4.0: Core Vocabulary. 24 February 2014. http://docs.oasis-open.org/odata/odata/v4.0/os/vocabularies/Org.OData.Core.V1.xml
- OData Version 4.0 JSON Format. 24 February 2014. http://docs.oasis-open.org/odata/odata-json-format/v4.0/os/odata-json-format-v4.0-os.html
- OData Version 4.0: Units of Measure Vocabulary. 24 February 2014. http://docs.oasis-open.org/odata/odata/v4.0/os/vocabularies/Org.OData.Measures.V1.xml
- Simple Service Discovery Protocol/1.0. 28 October 1999. http://tools.ietf.org/html/draft-cai-ssdp-v1-03
- The Unified Code for Units of Measure. http://www.unitsofmeasure.org/ucum.html
- W3C Recommendation of Cross-Origin Resource Sharing. 16 January 2014. http://www.w3.org/TR/cors/
- SNIA TLS Specification for Storage Systems. 20 November 2014. http://www.snia.org/tls/
- DMTF DSP0270 Redfish Host Interface Specification, http://www.dmtf.org/sites/default/files/standards/documents/DSP0270_1.0.pdf

Withdrawn

 © ISO/IEC 2018 – All rights reserved