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Information technology — Open Connectivity Foundation (OCF) Specification —

Part 8: OCF resource to oneM2M resource mapping specification

Technologies de l'information — Specification de la Fondation pour la connectivité ouverte (Fondation OCF) —

Partie 8: Spécification du mapping entre ressources OCF et ressources oneM2M



Reference number
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Contents

Page

Foreword ix
Introduction x
1 Scope 1
2 Normative references 1
3 Terms and definitions 2
3.1 Terms and definitions 2
4 Document conventions and organization 2
4.1 Conventions 2
4.2 Notation 2
5 Theory of operation 3
5.1 Interworking approach 3
5.2 Mapping syntax 3
5.2.1 Introduction 3
5.2.2 General 3
5.2.3 Value assignment 3
5.2.4 Property naming 4
5.2.5 Arrays 4
5.2.6 Conditional mapping 4
6 oneM2M translation 4
6.1 Operational scenarios 4
6.2 Enabling oneM2M application access to OCF servers 4
6.3 Enabling OCF client access to oneM2M devices 4
6.4 On-the-fly translation 4
7 Device type mapping 5
7.1 Introduction 5
7.2 OneM2M device types to OCF device types 5
8 Resource to oneM2M module class equivalence 7
8.1 Introduction 7
8.2 OneM2M module classes to OCF resources 7
9 Detailed mapping APIs 9
9.1 Introduction 9
9.2 3D printer 9
9.2.1 Derived model 9
9.2.2 Property definition 9
9.2.3 Derived model definition 10
9.3 Acoustic sensor 11
9.3.1 Derived model 11
9.3.2 Property definition 12
9.3.3 Derived model definition 12
9.4 AirCon job mode 13
9.4.1 Derived model 13
9.4.2 Property definition 13
9.4.3 Derived model definition 16

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9.5 Airflow 17
9.5.1 Derived model 17
9.5.2 Property definition 17
9.5.3 Derived model definition 19
9.6 Air purifier job mode 21
9.6.1 Derived model 21
9.6.2 Property definition 21
9.6.3 Derived model definition 23
9.7 Air quality sensor 24
9.7.1 Derived model 24
9.7.2 Property definition 24
9.7.3 Derived model definition 27
9.8 Alarm speaker 29
9.8.1 Derived model 29
9.8.2 Property definition 29
9.8.3 Derived model definition 30
9.9 Audio volume 31
9.9.1 Derived model 31
9.9.2 Property definition 31
9.9.3 Derived model definition 32
9.10 Auto document feeder 33
9.10.1 Derived model 33
9.10.2 Property definition 33
9.10.3 Derived model definition 34
9.11 Battery 35
9.11.1 Derived model 35
9.11.2 Property definition 35
9.11.3 Derived model definition 37
9.12 Binary object 38
9.12.1 Derived model 38
9.12.2 Property definition 39
9.12.3 Derived model definition 40
9.13 Binary switch 41
9.13.1 Derived model 41
9.13.2 Property definition 41
9.13.3 Derived model definition 41
9.14 Boiler 42
9.14.1 Derived model 42
9.14.2 Property definition 42
9.14.3 Derived model definition 42
9.15 Brewing 43
9.15.1 Derived model 43
9.15.2 Property definition 43
9.15.3 Derived model definition 44
9.16 Brightness 45
9.16.1 Derived model 45
9.16.2 Property definition 45
9.16.3 Derived model definition 45

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9.17 Clock 46
9.17.1 Derived model 46
9.17.2 Property definition 46
9.17.3 Derived model definition 47
9.18 Clothes dryer job mode 48
9.18.1 Derived model 48
9.18.2 Property definition 48
9.18.3 Derived model definition 51
9.19 Colour 52
9.19.1 Derived model 52
9.19.2 Property definition 52
9.19.3 Derived model definition 53
9.20 Colour saturation 54
9.20.1 Derived model 54
9.20.2 Property definition 54
9.20.3 Derived model definition 54
9.21 Credentials 55
9.21.1 Derived model 55
9.21.2 Property definition 55
9.21.3 Derived model definition 56
9.22 Dehumidifer job mode 56
9.22.1 Derived model 56
9.22.2 Property definition 56
9.22.3 Derived model definition 58
9.23 Door status 59
9.23.1 Derived model 59
9.23.2 Property definition 60
9.23.3 Derived model definition 60
9.24 Electric vehicle connector 61
9.24.1 Derived model 61
9.24.2 Property definition 61
9.24.3 Derived model definition 62
9.25 Energy consumption 63
9.25.1 Derived model 63
9.25.2 Property definition 63
9.25.3 Derived model definition 65
9.26 Energy generation 67
9.26.1 Derived model 67
9.26.2 Property definition 67
9.26.3 Derived model definition 68
9.27 Filter info 69
9.27.1 Derived model 69
9.27.2 Property definition 69
9.27.3 Derived model definition 70
9.28 Foaming 71
9.28.1 Derived model 71
9.28.2 Property definition 71
9.28.3 Derived model definition 71

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9.29 Grinder 72
9.29.1 Derived model 72
9.29.2 Property definition 72
9.29.3 Derived model definition 73
9.30 Heating zone 74
9.30.1 Derived model 74
9.30.2 Property definition 74
9.30.3 Derived model definition 75
9.31 Height 76
9.31.1 Derived model 76
9.31.2 Property definition 76
9.31.3 Derived model definition 76
9.32 Hot water supply 77
9.32.1 Derived model 77
9.32.2 Property definition 77
9.32.3 Derived model definition 78
9.33 Impact sensor 78
9.33.1 Derived model 78
9.33.2 Property definition 79
9.33.3 Derived model definition 80
9.34 Keep warm 81
9.34.1 Derived model 81
9.34.2 Property definition 81
9.34.3 Derived model definition 82
9.35 Keypad 82
9.35.1 Derived model 82
9.35.2 Property definition 82
9.35.3 Derived model definition 83
9.36 Liquid level 84
9.36.1 Derived model 84
9.36.2 Property definition 84
9.36.3 Derived model definition 85
9.37 Liquid remaining 85
9.37.1 Derived model 85
9.37.2 Property definition 85
9.37.3 Derived model definition 86
9.38 Lock 87
9.38.1 Derived model 87
9.38.2 Property definition 87
9.38.3 Derived model definition 87
9.39 Motion sensor 88
9.39.1 Derived model 88
9.39.2 Property definition 88
9.39.3 Derived model definition 89
9.40 Open level 89
9.40.1 Derived model 89
9.40.2 Property definition 90
9.40.3 Derived model definition 91

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9.41 Operation mode 92
9.41.1 Derived model 92
9.41.2 Property definition 92
9.41.3 Derived model definition 92
9.42 Overcurrent sensor 93
9.42.1 Derived model 93
9.42.2 Property definition 93
9.42.3 Derived model definition 94
9.43 Power save 95
9.43.1 Derived model 95
9.43.2 Property definition 95
9.43.3 Derived model definition 95
9.44 Print queue 96
9.44.1 Derived model 96
9.44.2 Property definition 96
9.44.3 Derived model definition 97
9.45 Push button 98
9.45.1 Derived model 98
9.45.2 Property definition 98
9.45.3 Derived model definition 98
9.46 Refrigeration 99
9.46.1 Derived model 99
9.46.2 Property definition 99
9.46.3 Derived model definition 100
9.47 Relative humidity 100
9.47.1 Derived model 100
9.47.2 Property definition 101
9.47.3 Derived model definition 101
9.48 Robot cleaner job mode 102
9.48.1 Derived model 102
9.48.2 Property definition 102
9.48.3 Derived model definition 103
9.49 Steam closet job mode 104
9.49.1 Derived model 104
9.49.2 Property definition 105
9.49.3 Derived model definition 106
9.50 Temperature 108
9.50.1 Derived model 108
9.50.2 Property definition 108
9.50.3 Derived model definition 109
9.51 UV sensor 111
9.51.1 Derived model 111
9.51.2 Property definition 111
9.51.3 Derived model definition 112
9.52 Water Sensor 112
9.52.1 Derived model 112
9.52.2 Property definition 113
9.52.3 Derived model definition 113

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9.53 Weight 114
9.53.1 Derived model 114
9.53.2 Property definition 114
9.53.3 Derived model definition 114

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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.

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 or www.iec.ch/members_experts/refdocs).

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) or the IEC list of patent declarations received (see patents.iec.ch).

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

For an explanation of 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 www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

This document was prepared by the Open Connectivity Foundation (OCF) (as OCF Resource to OneM2M Module Class Mapping Specification, version 2.2.0) 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*.

A list of all parts in the ISO/IEC 30118 series can be found on the ISO and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

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Introduction

This document, and all the other parts associated with this document, were developed in response to worldwide demand for smart home focused Internet of Things (IoT) devices, such as appliances, door locks, security cameras, sensors, and actuators; these to be modelled and securely controlled, locally and remotely, over an IP network.

While some inter-device communication existed, no universal language had been developed for the IoT. Device makers instead had to choose between disparate frameworks, limiting their market share, or developing across multiple ecosystems, increasing their costs. The burden then falls on end users to determine whether the products they want are compatible with the ecosystem they bought into, or find ways to integrate their devices into their network, and try to solve interoperability issues on their own.

In addition to the smart home, IoT deployments in commercial environments are hampered by a lack of security. This issue can be avoided by having a secure IoT communication framework, which this standard solves.

The goal of these documents is then to connect the next 25 billion devices for the IoT, providing secure and reliable device discovery and connectivity across multiple OSs and platforms. There are multiple proposals and forums driving different approaches, but no single solution addresses the majority of key requirements. This document and the associated parts enable industry consolidation around a common, secure, interoperable approach.

ISO/IEC 30118 consists of eighteen parts, under the general title Information technology — Open Connectivity Foundation (OCF) Specification. The parts fall into logical groupings as described herein:

- Core framework
  - Part 1: Core Specification
  - Part 2: Security Specification
  - Part 13: Onboarding Tool Specification
- Bridging framework and bridges
  - Part 3: Bridging Specification
  - Part 6: Resource to Alljoyn Interface Mapping Specification
  - Part 8: OCF Resource to oneM2M Resource Mapping Specification
  - Part 14: OCF Resource to BLE Mapping Specification
  - Part 15: OCF Resource to EnOcean Mapping Specification
  - Part 16: OCF Resource to UPlus Mapping Specification
  - Part 17: OCF Resource to Zigbee Cluster Mapping Specification
  - Part 18: OCF Resource to Z-Wave Mapping Specification
- Resource and Device models
  - Part 4: Resource Type Specification
  - Part 5: Device Specification

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- Core framework extensions
  - Part 7: Wi-Fi Easy Setup Specification
  - Part 9: Core Optional Specification
- OCF Cloud
  - Part 10: Cloud API for Cloud Services Specification
  - Part 11: Device to Cloud Services Specification
  - Part 12: Cloud Security Specification

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Information technology — Open Connectivity Foundation (OCF) Specification —

Part 8:
OCF resource to oneM2M resource mapping specification

1 Scope

This document provides detailed mapping information to provide equivalency between oneM2M defined Module Classes and OCF defined Resources.

A oneM2M Bridge is Asymmetric Client Bridge, therefore this document provides unidirectional mapping for Device Types (oneM2M Devices to OCF Devices), identifies equivalent OCF Resources for specific oneM2M Module Classes, and defines the detailed Property by Property mapping using OCF defined extensions to JSON schema to programmatically define the mappings.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 30118-1 Information technology -- Open Connectivity Foundation (OCF) Specification -- Part 1: Core specification
https://www.iso.org/standard/53238.html
Latest version available at: https://openconnectivity.org/specs/OCF_Core_Specification.pdf

ISO/IEC 30118-2 Information technology – Open Connectivity Foundation (OCF) Specification – Part 2: Security specification
https://www.iso.org/standard/74239.html
Latest version available at: https://openconnectivity.org/specs/OCF_Security_Specification.pdf

ISO/IEC 30118-3 Information technology – Open Connectivity Foundation (OCF) Specification – Part 3: Bridging specification
https://www.iso.org/standard/74240.html
Latest version available at: https://openconnectivity.org/specs/OCF_Bridging_Specification.pdf

ISO/IEC 30118-4 Information technology – Open Connectivity Foundation (OCF) Specification – Part 4: Resource type specification
https://www.iso.org/standard/74241.html
Latest version available at: https://openconnectivity.org/specs/OCF_Resource_Type_Specification.pdf

ISO/IEC 30118-5 Information technology – Open Connectivity Foundation (OCF) Specification – Part 5: Smart home device specification
https://www.iso.org/standard/74242.html
Latest version available at: https://openconnectivity.org/specs/OCF_Device_Specification.pdf

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Derived Models for Interoperability between IoT Ecosystems, Stevens & Merriam, March 2016 https://www.iab.org/wp-content/IAB-uploads/2016/03/OCF-Derived-Models-for-Interoperability-Between-IoT-Ecosystems_v2-examples.pdf

3 Terms and definitions

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 30118-1, ISO/IEC 30118-2, and ISO/IEC 30118-3 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

– ISO Online browsing platform: available at https://www.iso.org/obp

– IEC Electropedia: available at http://www.electropedia.org/

3.1.1
oneM2M Application
the oneM2M control point (i.e. client) being mapped to a Virtual OCF Client.

4 Document conventions and organization

4.1 Conventions

In this document a number of terms, conditions, mechanisms, sequences, parameters, events, states, or similar terms are printed with the first letter of each word in uppercase and the rest lowercase (e.g., Network Architecture). Any lowercase uses of these words have the normal technical English meaning.

In this document, to be consistent with the IETF usages for RESTful operations, the RESTful operation words CRUDN, CREATE, RETRIVE, UPDATE, DELETE, and NOTIFY will have all letters capitalized. Any lowercase uses of these words have the normal technical English meaning.

4.2 Notation

In this document, features are described as required, recommended, allowed or DEPRECATED as follows:

Required (or shall or mandatory).

– These basic features shall be implemented to comply with OIC Core Architecture. The phrases "shall not", and "PROHIBITED" indicate behaviour that is prohibited, i.e. that if performed means the implementation is not in compliance.

Recommended (or should).

– These features add functionality supported by OIC Core Architecture and should be implemented. Recommended features take advantage of the capabilities OIC Core Architecture, usually without imposing major increase of complexity. Notice that for compliance testing, if a recommended feature is implemented, it shall meet the specified requirements to be in compliance with these guidelines. Some recommended features could become requirements in the future. The phrase "should not" indicates behaviour that is permitted but not recommended.

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