



BSI Standards Publication

Information technology — Open Connectivity Foundation (OCF) Specification

Part 17: OCF resource to Zigbee cluster mapping specification

National foreword

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Specification —**

**Part 17:
OCF resource to Zigbee cluster
mapping specification**

*Technologies de l'information — Specification de la Fondation pour la
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*Partie 17: Spécification du mapping entre ressources OCF et grappe
Zigbee*



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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 Zigbee Cluster 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.

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

- 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

Information technology — Open Connectivity Foundation (OCF) Specification —

Part 17:

OCF resource to Zigbee cluster mapping specification

1 Scope

This document provides detailed mapping information between Zigbee defined Clusters and OCF defined Resources.

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

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

Zigbee, *Zigbee Specification*, August 2015

<http://www.zigbee.org/zigbee-for-developers/zigbee-3-0/>

Zigbee Cluster Library Specification, Version 1.0
<http://www.zigbee.org/zigbee-for-developers/zigbee-3-0/>

ZigBee Lighting & Occupancy Device, Version 1.0
<http://www.zigbee.org/zigbee-for-developers/zigbee-3-0/>

3 Terms, definitions symbols and abbreviations

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

Zigbee Attribute

data entity which represents a physical quantity or state within Zigbee.

3.1.2

Zigbee Cluster

one or more *Zigbee Attributes* (3.1.1), commands, behaviours, and dependencies, which supports an independent utility or application function.

3.1.3

Zigbee Server

cluster interface which is listed in the input cluster list of the simple descriptor on an endpoint.

3.1.4

Zigbee 3.0 Server

Zigbee Server (3.1.3) which is built on Zigbee 3.0 stack

3.1.5

Zigbee Client

cluster interface which is listed in the output cluster list of the simple descriptor on an endpoint.

3.1.6

Zigbee 3.0 Client

Zigbee Client (3.1.5) which is built on Zigbee 3.0 stack

3.1.7

Zigbee Device

unique device identifier and a set of mandatory and optional clusters to be implemented on a single Zigbee endpoint.

3.1.8

Zigbee 3.0 Device

Zigbee Device (3.1.7) which is built on Zigbee 3.0 stack

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 the Mapping Specification. The phrases “shall not”, and “PROHIBITED” indicate behavior that is prohibited, i.e. that if performed means the implementation is not in compliance.

Recommended (or should).

These features add functionality supported by the Mapping Specification and should be implemented. Recommended features take advantage of the capabilities the Mapping Specification, 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 behavior that is permitted but not recommended.

Allowed (or allowed).

These features are neither required nor recommended by the Mapping Specification, but if the feature is implemented, it shall meet the specified requirements to be in compliance with these guidelines.

Conditionally allowed (CA)

The definition or behaviour depends on a condition. If the specified condition is met, then the definition or behaviour is allowed, otherwise it is not allowed.

Conditionally required (CR)

The definition or behaviour depends on a condition. If the specified condition is met, then the definition or behaviour is required. Otherwise the definition or behaviour is allowed as default unless specifically defined as not allowed.

DEPRECATED

Although these features are still described in this document, they should not be implemented except for backward compatibility. The occurrence of a deprecated feature during operation of an implementation compliant with the current document has no effect on the implementation's operation and does not produce any error conditions. Backward compatibility may require that a feature is implemented and functions as specified but it shall never be used by implementations compliant with this document.

Strings that are to be taken literally are enclosed in "double quotes".

Words that are emphasized are printed in *italic*.

5 Theory of operation

5.1 Interworking approach

The interworking between ZigBee Clusters and OCF defined Resources is modelled using the derived model syntax described in Derived Models for Interoperability between IoT Ecosystems.

5.2 Mapping syntax

5.2.1 Introduction

Within the defined syntax for derived modelling used by this document there are two blocks that define the actual Property-Property equivalence or mapping. These blocks are identified by the keywords "x-to-ocf" and "x-from-ocf". Derived Models for Interoperability between IoT Ecosystems does not define a rigid syntax for these blocks; they are free form string arrays that contain pseudo-coded mapping logic.

Within this document we apply the rules in defined in clause 5.2 to these blocks to ensure consistency and re-usability and extensibility of the mapping logic that is defined.

5.2.2 General

All statements are terminated with a carriage return.

5.2.3 Value assignment

The equals sign (=) is used to assign one value to another. The assignee is on the left of the operator; the value being assigned on the right.

5.2.4 Property naming

All Property names are identical to the name used by the original model; for example, from the OCF Temperature Resource the Property name "temperature" is used whereas when referred to the derived ecosystem then the semantically equivalent Property name is used.

The name of the OCF defined Property is prepended by the ecosystem designator "ocf" to avoid ambiguity (e.g. "ocf.step")

5.2.5 Range

The range on the OCF side is fixed.

5.2.6 Arrays

An array element is indicated by the use of square brackets "[]" with the index of the element contained therein, e.g. range [1]. All arrays start at an index of 0.

5.2.7 Default mapping

There are cases where the specified mapping is not possible as one or more of the Properties being mapped is optional in the source model. In all such instances a default mapping is provided. (e.g. "transitiontime = 1")

5.2.8 Conditional mapping

When a mapping is dependent on the meeting of other conditions then the syntax:

If "condition", then "mapping".

is applied.

E.g. if onoff = false, then ocf.value = false

5.2.9 Method invocation

The invocation of a command from the derived ecosystem as part of the mapping from an OCF Resource is indicated by the use of a double colon "::" delimiter between the applicable resource, service, interface or other construct identifier and the command name. The command name always includes trailing parentheses which would include any parameters should they be passed.

For example, when dealing with the "on()" command for Zigbee On/off Cluster this gives a complete command invocation as: "zb.command.onoff::on()".

6 Zigbee translation

6.1 Operational scenarios

The overall goal is to make Bridged Zigbee 3.0 Servers appear to OCF Clients as if they were native OCF Servers in the local network or cloud environment

The mapping between the OCF data models and Zigbee Clusters is specified in 9. Programmatic (i.e. On-the-fly) data model translation is not supported.

Figure 1 shows an overview of a Zigbee 3.0 Bridge Platform and its general topology. It exposes Zigbee 3.0 Servers to OCF Clients. Each Bridged Zigbee 3.0 Server is represented as a Virtual OCF Server. The Zigbee 3.0 Bridging Function supports Asymmetric bridging. The scope of this document is the asymmetric bridging to expose the Zigbee Server to OCF. The asymmetric bridging to expose an OCF Server to a Zigbee Client is out of scope.

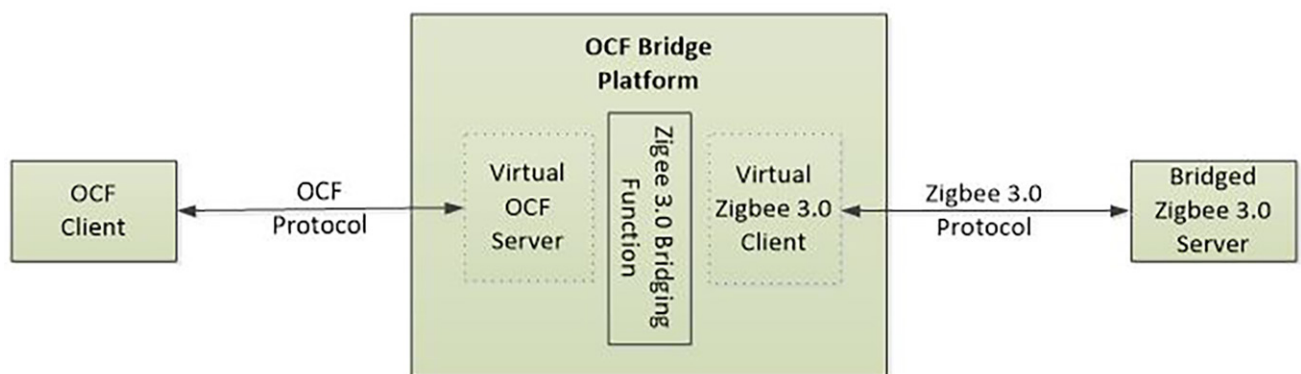


Figure 1 – OCF Zigbee Bridge Platform and Components

6.2 Requirements specific to Zigbee bridging function

6.2.1 Requirements specific to Zigbee

This document refers to Zigbee 3.0 or higher. Zigbee 3.0 is built on Zigbee Pro 2015 or newer, which enhances the IEEE 802.15.4 standard by adding a mesh network and security layers along with an application framework. Low power support is not the scope of this document.

An OCF Zigbee Bridging Function shall act as a Zigbee Coordinator in network layer. A Zigbee Coordinator is responsible for initiating and maintaining the devices on the network. An OCF Zigbee Bridge Platform will act as Zigbee Client towards the Zigbee 3.0 Devices in the application layer. Users can expect that a certified OCF Bridge Platform will be able to talk to Zigbee 3.0 Devices, without the user having to buy some other device.

6.2.2 Exposing Zigbee 3.0 servers to OCF clients

The nature of how Zigbee Devices are structured may be different than how an OCF Device is structured. The mapping of the structure of a Zigbee device on an OCF Device is given by Table 1.

A Zigbee Server cluster may map to one or more OCF Resources. If a specific Zigbee Server cluster has specific commands, one or more OCF Resources corresponding to the specific command attributes may be additionally needed.

A Zigbee Attribute of a Zigbee Server cluster typically maps to an OCF Resource Property. However, in some special cases, multiple attributes are mapped to a single OCF Resource Property e.g., "CurrentX" and "CurrentY" of the Zigbee color control cluster map to the "csc" Property in the "oic.r.colour.csc" (Colour Space Coordinates) Resource because of the difference in the data types, i.e., "csc" is an array, but "CurrentX" and "CurrentY" map to a number.

Table 2 is a mapping example of this rule.

Table 1 – Translation Rule between Zigbee and OCF Data Models

From Zigbee	mapping count	To OCF	mapping count
Zigbee Device	1	OCF Device	1
Zigbee Cluster	1	OCF Resource	n
Zigbee Attribute	1	OCF Resource Property	1

Table 2 – Zigbee to OCF Mapping Example (Color Temperature Light)

From Zigbee		To OCF	
Zigbee 3.0 Device	0x010c (Color Temperature Light)	OCF Device	oic.d.light (Light)
Zigbee Server Cluster	0x0006 (On/Off)	OCF Resource(s)	oic.r.switch.binary (Binary Switch)
	0x0300 (Color Control Cluster)		oic.r.colour.hs (Colour Hue and Saturation)
			oic.r.colour.csc (Colour Space Coordinates)
			oic.r.colour.colourtemperature (Colour Temperature)
Zigbee Attribute	0x0000 (OnOff of On/Off Cluster)	OCF Resource Property	value (of Binary Switch Resource)
	0x0003 (CurrentX of Color Control Cluster)		csc (of Colour Space Coordinates)
	0x0004 (CurrentY of Color Control Cluster)		

If a Zigbee 3.0 Device, Zigbee Server Cluster, Zigbee Attribute are enlisted in the well-defined set, the Bridging Function shall follow the requirements for translating it to an OCF Device, OCF Resource, or OCF Resource Property (i.e. "deep translation").

A Zigbee 3.0 Server Device maps to a single OCF Device Type. The OCF Device Type is provided by using the Device ID of the Zigbee 3.0 Server Device (The Device ID is allocated by the Zigbee Alliance and has the same meaning of the OCF Device Type). The Zigbee 3.0 Bridging Function has a table which includes the mapping information between the Zigbee Device ID and the OCF Device Type. Based on the table, the Zigbee 3.0 Bridging Function finds the OCF Device Type according to the Zigbee Device ID.

A Zigbee Device includes one or more Zigbee Server Clusters. If a Zigbee Cluster maps to multiple OCF Resources, the Zigbee Cluster may be translated as a Resource with a Collection Resource Type. The resource mapping between Zigbee Server Cluster and OCF Resources is defined in 9 for deep translation. The Zigbee 3.0 Bridging Function has a table which includes the mapping information between the identifier of Zigbee Cluster and OCF Resource Type(s). The Zigbee 3.0 Bridging Function obtains the list of cluster identifiers after the Virtual Zigbee 3.0 Client and Zigbee 3.0 Server Device are bound. Based on the table, the Zigbee 3.0 Bridging Function finds the OCF Resource Type(s) according to the identifier of Zigbee Cluster.

Since a Bridging Function knows all relationships between OCF Resources and Zigbee Server Clusters, the path component of URI can be free to choose. Maintaining relationship information and URI definition is implementation specific.

If a Zigbee operation fails, the Bridging Function send an appropriate OCF error response to the OCF Client. it constructs an appropriate OCF error message (e.g., diagnostic payload if using CoAP) from the Zigbee enumerated status value and Zigbee enumerated status (if any), using the form "<error name>: <error message>", with the <error name> taken from the Zigbee Status Code field and the <error message> taken from the Zigbee enumerated status, and the error code for the OCF network set to an appropriate value.

6.2.3 Translation for well-defined set

If a Zigbee 3.0 Device, Zigbee Server Cluster, Zigbee Attribute are enlisted in the well-defined set, the Bridging Function shall follow the requirements for translating it to an OCF Device, OCF Resource, or OCF Resource Property (i.e., "deep translation"). Table 3 is the list of Zigbee 3.0 devices and mandatory Zigbee Server Clusters with corresponding OCF devices and mandatory OCF Resources. Optional OCF Resources mapped with the specific Zigbee Server Clusters are enlisted in the well-defined set.

Table 3 – Zigbee 3.0 Device & Cluster – OCF Device & Resource mapping

Zigbee 3.0 Device Name (Device ID)	Zigbee 3.0 Mandatory Cluster	OCF Mandatory Resource Type	OCF Device Type ("rt")	OCF Device Name
On/off light (0x0100)	On/off	oic.r.switch.binary,	oic.d.light	Light
Color Temperature Light (0x010c)	On/off, Level Control, Color Control	oic.r.switch.binary,	oic.d.light	Light
Extended Color Light (0x010d)	On/off, Level Control, Color Control	oic.r.switch.binary,	oic.d.light	Light
Dimmable Light (0x0101)	On/off, Level Control	oic.r.switch.binary,	oic.d.light	Light
Color Dimmable Light (0x0102)	On/off Level Control, Color Control	oic.r.switch.binary,	oic.d.light	Light
Temperature Sensor (0x0302)	Temperature Measurement	oic.r.temperature	oic.d.sensor	Generic Sensor
Thermostat (0x0301)	Thermostat	oic.r.temperature(2)	oic.d.thermostat	Thermostat
Window Covering Device (0x0202)	Window Covering	oic.r.openlevel	oic.d.blind	Blind
Smart Plug (0x0051)	On/off, Metering	oic.r.switch.binary,	oic.d.smartplug	Smart Plug
Mains Power Outlet (0x0009)	On/off	oic.r.switch.binary,	oic.d.smartplug	Smart Plug
On/off output (0x0002)	On/off	oic.r.switch.binary,	oic.d.smartplug	Smart Plug
IAS Zone (0x0402)	IAS Zone	oic.r.ias.zone	oic.d.sensor	Generic Sensor
Occupancy Sensor (0x0107)	Occupancy Sensing	oic.r.sensor.presence	oic.d.sensor	Generic Sensor

6.2.4 Exposing a Zigbee 3.0 server as a virtual OCF server

Table 4 shows how OCF Platform properties, as specified in ISO/IEC 30118-1, shall be derived, typically from fields of Descriptor specified in Zigbee.

Table 4 – "oic.wk.p" Resource Type mapping

To OCF Property title	OCF Property name	OCF Description	OCF Mandatory	From Zigbee 3.0 Field name	Zigbee 3.0 Description	Zigbee 3.0 Mandatory
Platform ID	pi	Unique identifier for the physical platform (UIUID); this shall be a UUID in accordance with IETF RFC 4122. It is recommended that the UUID be created using the random generation scheme (version 4 UUID) specific in the RFC.	Y	(none)	Bridging Function should return a randomly-generated UUID (Please see section 4.4 of IETF RFC 4122 for randomly-generated UUID)	
Manufacturer Name	mnmn	Name of manufacturer (not to exceed 16 characters)	Y	Manufacturer name (in DefaultLanguage, truncated to 16 characters)	Name of the manufacturer as a ZigBee character string Defined in Basic Cluster	Y
Manufacturer Details Link (URL)	mnml	URL to manufacturer (not to exceed 32 characters)	N	(none)	(none)	N
Model Number	mnmo	Model number as designated by manufacturer	N	Model Identifier	Model number (or other identifier) assigned by the manufacturer as a ZigBee character string Defined in Basic Cluster	Y
Date of Manufacture	mndt	Manufacturing date of device	N	DateCode	Date of manufacturer of the device in international date notation according to ISO 8601, i.e., YYYYMMDD, Defined in Basic Cluster	N
Platform Version	mnpv	Version of platform – string (defined by manufacturer)	N	(none)	(none)	N
OS Version	mnos	Version of platform resident OS – string (defined by manufacturer)	N	(none)	(none)	N
Hardware Version	mnhw	Version of platform hardware	N	HWVersion	Version number of the hardware of the device. Defined in Basic Cluster	N
Firmware version	mnfv	Version of device firmware	N	(none)	(none)	N
Support link	mnsi	URI that points to support information from manufacturer	N	ProductURL	Link to a web page containing specific product information Defined in Basic Cluster	N

To OCF Property title	OCF Property name	OCF Description	OCF Mandatory	From Zigbee 3.0 Field name	Zigbee 3.0 Description	Zigbee 3.0 Mandatory
SystemTime	st	Reference time for the device	N	(none)	(none)	N
Vendor ID	vid	Vendor defined string for the platform. The string is freeform and up to the vendor on what text to populate it.	N	(none)	(none)	N

Table 5 shows how OCF Device Properties, as specified in Table 20 in ISO/IEC 30118-1, shall be derived, typically from fields of Descriptor or Attributes of Basic cluster specified in Zigbee and Zigbee Cluster Library Specification, respectively.

As specified in ISO/IEC 30118-2, the value of the “di” Property of OCF Devices (including Virtual OCF Devices) shall be established as part of Onboarding of that Virtual OCF Device.

Table 5 – “oic.wk.d” Resource Type mapping

To OCF Property title	OCF Property name	OCF Description	OCF Mandatory	From Zigbee 3.0 Field name	Zigbee 3.0 Description	Zigbee 3.0 Mandatory
(Device) Name	n	Human friendly name For example, “Bob’s Thermostat”	Y	User description if it exists, else Model Name if it exists, else translate Application Device Identifier (=Device ID) to Human friendly name by using Application Device Identifier value/description table	User description : Information that allows the user to identify the device using a user-friendly character string, such as “Bedroom TV” Defined in User Descriptor Model Name : character string representing the name of the manufacturer’s model of the device Defined in Complex Descriptor Application Device Identifier: device description supported on this endpoint Cluster Defined in Simple Descriptor	User description: N Model Name: N Application Device Identifier: Y
Spec Version	icv	Spec version of the core specification this device is implemented to, The syntax is “core.major.minor”]	Y	(none)	Spec version of the core specification that the Bridging Platform implements should return its own value	

To OCF Property title	OCF Property name	OCF Description	OCF Mandatory	From Zigbee 3.0 Field name	Zigbee 3.0 Description	Zigbee 3.0 Mandatory
Device UUID	di	Unique identifier for Device. This value shall be as defined in OCF Security Specification for Device UUID.	Y	(none)	Use as defined in the ISO/IEC 30118-2	
Protocol-Independent ID	piid	Unique identifier for OCF Device (UUID)	Y	(none)	Bridging Function should return a randomly-generated UUID (Please see section 4.4 of IETF RFC 4122 for randomly-generated UUID)	
Data Model Version	dmv	Spec version(s) of the vertical specifications this device data model is implemented to. The syntax is a comma separated list of "<vertical>.major.minor"]. <vertical> is the name of the vertical (i.e. sh for Smart Home)	Y	(none)	Bridging Function should return its own value.	
Localized Descriptions	ld	Detailed description of the Device, in one or more languages. This property is an array of objects where each object has a "language" field (containing an RFC 5646 language tag) and a "value" field containing the device description in the indicated language.	N	(none)	Zigbee provides Language and Character Set field only which specifies the language and character set used by the character strings by using ISO 639-1 language code	
Software Version	sv	Version of the device software.	N	ApplicationVersion	Version number of the application software contained in the device. Defined in Basic Cluster	Y