



BSI Standards Publication

Information technology — Open Connectivity Foundation (OCF) Specification

Part 15: OCF resource to EnOcean mapping specification

National foreword

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**Information technology — Open
Connectivity Foundation (OCF)
Specification —**

**Part 15:
OCF resource to EnOcean mapping
specification**

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

*Partie 15: Spécification du mapping entre les ressources OCF et
EnOcean*





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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.

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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 EnOcean Mapping, 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 15: OCF resource to EnOcean mapping specification

1 Scope

This document provides detailed mapping information between EnOcean defined EEPs and OCF defined Devices and 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: Device specification

<https://www.iso.org/standard/79389.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

IETF RFC 4122, *A Universally Unique IDentifier (UUID) URN Namespace*, July 2005
<https://www.rfc-editor.org/info/rfc4122>

3 Terms, definitions, symbols and abbreviated terms

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

EnOcean Device

Device with Sensors and/or Actuators which communicates over ERP and uses a well-defined EEP.

3.1.2

EnOcean Shadow Device

virtual copy of an *EnOcean Device* (3.1.1) which contains the last values that have been sent over ERP from the actual *EnOcean Device* (3.1.1).

3.1.3

EnOcean Bridge Platform

Platform which contains an ERP transceiver and can communicate over various OCF relevant protocols. It implements the EnOcean bridging function and the *EnOcean Shadow Device* (3.1.2) list which translates well-defined *EnOcean Devices* (3.1.1) to Virtual OCF Servers.

3.1.4

EnOcean Telegram

telegram which can be sent over ERP and contains different Parameters. It contains the byte-representation of actual values, a RORG and an Identifier. It may contain Teach-In Information.

3.1.5

EnOcean Teach-In Information

EEP of a real device to identify the type.

3.1.6

EnOcean Transceiver

Hardware to communicate bi-directional in the ERP.

3.2 Symbols and abbreviated terms

ERP	EnOcean Radio Protocol
EEP	EnOcean Equipment Profile
RORG	Radio-Telegram types grouped Organizationally

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 EnOcean Devices and OCF defined Devices and Resources is modelled using the derived model syntax described in Derived Models for Interoperability between IoT Ecosystems.

5.2 General

All statements are terminated with a carriage return.

5.2.1 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.

5.2.2 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")

5.2.3 Range

The range on the OCF side is fixed.

5.2.4 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.

5.2.5 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")

5.2.6 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

5.2.7 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.

6 EnOcean translation

6.1 Operational scenarios

The overall goal is to make EnOcean Devices appear as OCF Servers in a local network. Like in Figure 1 every EnOcean Device is represented as an EnOcean Shadow Device on the EnOcean Bridge Platform. An EnOcean Shadow Device contains the last values that have been sent over ERP from the real EnOcean device. Over the EnOcean Bridging Function each EnOcean Shadow Device shall be represented as a Virtual OCF Server. The EnOcean Bridging Function supports Asymmetric Server Bridging only since an EnOcean Device always will be represented as an OCF Server and not as an OCF Client.

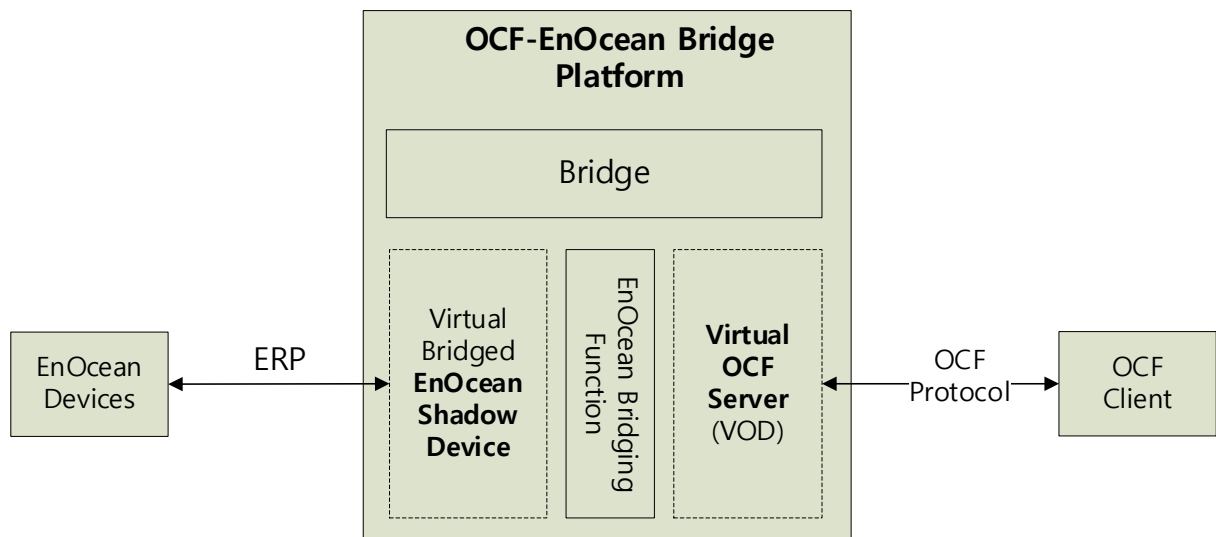


Figure 1 – OCF EnOcean Bridge Platform and Components

6.1.1 Use case for enocean bridging

In Figure 2 a use-case for EnOcean Bridging is shown. An EnOcean Bridge Platform which provides an EnOcean Device as an EnOcean Shadow Device can be retrieved by an OCF Client and used to trigger other OCF Devices over rules or just show the actual value of the EnOcean Shadow Device. The connection between the OCF Client and the EnOcean Bridge Platform could be every protocol OCF supports. For the communication between an actual EnOcean Device and the EnOcean Bridge Platform the ERP shall be used.

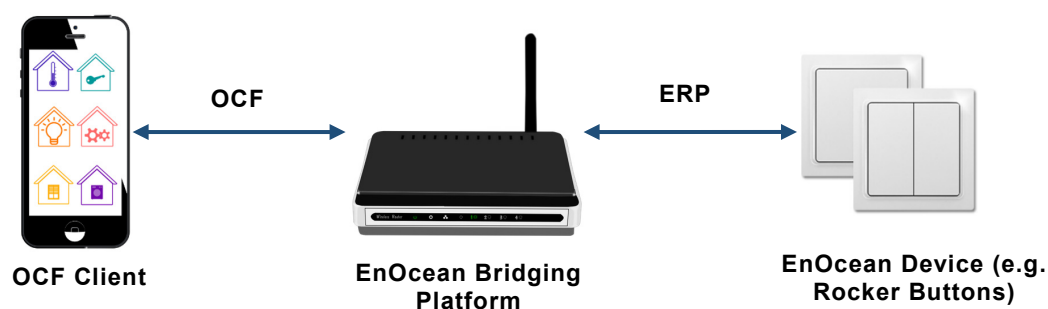


Figure 2 – Case for EnOcean Bridging

6.2 Requirements specific to enocean bridging function

6.2.1 Introduction

Each EnOcean Device specified in this document follows the EEP Specification 2.6.8 or higher and uses one telegram type to transmit data over the ERP. To identify a new EnOcean Device the EnOcean Teach-In information is required in the first EnOcean Telegram sent by the EnOcean Device to the EnOcean Bridge Platform.

The EnOcean Bridge Platform acts as an EnOcean Gateway/Transceiver in the ERP. It is responsible for Teaching-In new devices and keeping the EnOcean Shadow Devices updated with the real values from the EnOcean Devices. Through the EnOcean Bridging Function each EnOcean Shadow Device will be translated, not the real devices directly, since they are commonly Energy Harvesting devices and can't communicate bi-directly.

6.2.2 Exposing enocean devices to OCF clients

6.2.2.1 General requirements

Because the information structure of EnOcean Devices is different from OCF Devices and Resources a structure mapping is given by Table 1. An EnOcean Device will always be mapped as one OCF Device with one or multiple Resources.

Table 1 - Translation Rule between EnOcean Devices and OCF Data Models

From EnOcean	Mapping count	To OCF	Mapping count
EnOcean Device	1	OCF Device	1
		OCF Resource	1..n
EnOcean Telegram Parameter	1	OCF Resource Property	1..n

The Telegram Parameters of a Telegram sent by an EnOcean Device are mapped on Resource(s) and/or Resource Properties. The mapping count of Telegram Parameters on Resources and Resource Properties depends strongly on the individual EnOcean Device.

Table 2 - EnOcean to OCF Mapping Example

From EnOcean		To OCF	
EnOcean Device	A5-02-01	OCF Device	oic.d.sensor
	(Temperature Sensor)	OCF Resource	oic.r.temperature
EnOcean Telegram	Temperature value	OCF Resource Properties	temperature.value
Meta Information from EEP Spec	Unit (C)		temperature.unit
	Range (-40°C to 0°C)		temperature.range

In Table 2 a mapping example for a simple temperature sensor can be found. The type is identified by the EEP and the EnOcean Device is represented by a single OCF Device and one or more OCF Resources. The temperature value of the EnOcean Device is mapped into a temperature Resource and into the matching OCF Resource property “value”. Meta Information provided by the EEP Spec can also be used as OCF Resource Properties. In this example the unit of the value and the range will be mapped into suitable Properties.

The EnOcean Bridging Function shall always follow the requirements in clause 8 to translate all EnOcean Devices and Telegram Parameters in OCF Devices, OCF Resources and Properties. It contains well-defined translation rules for each EnOcean Device. This kind of deep translation is the only way to represent EnOcean Devices as OCF Devices. On the fly translation is technically not possible and shall not be supported.

A Resource URI can be chosen freely since the Bridging Function knows all semantic information of the EnOcean Devices and the OCF Data Model. Maintaining the EnOcean Shadow Devices and how the translation rules will be realised is also implementation specific.

If received Telegrams on the EnOcean Bridge Platform are not readable because they are not following any well-defined EEP they shall be dropped and the EnOcean Bridge Platform may throw a warning message.

6.2.2.2 Translation for well-defined EEPs

If an EnOcean Device uses an EEP which is well-defined in clause 8 the EnOcean Bridging Function shall follow it to translate the Device and it's Telegram Parameters to an OCF Device, one or more OCF Resources and OCF Resource Properties.

EnOcean Device Name (EEP)	EnOcean Telegram Parameters	OCF Resource Type(s)	OCF Device Type	OCF Device Name
Push Button (F6-01-01)	Push Button Released Push Button Pressed	oic.r.button	oic.d.sensor	Generic Sensor
Rocker Switch, 2 Rocker (F6-02-XX)	Rocker 1 st Action AI Rocker 1 st Action AO Rocker 1 st Action BI Rocker 1 st Action BO	oic.r.button oic.r.button	oic.d.sensor	Generic Sensor
Rocker Switch, 4 Rocker (F6-03-XX)	Rocker 1 st Action AI Rocker 1 st Action AO Rocker 1 st Action BI Rocker 1 st Action BO Rocker 1 st Action CI Rocker 1 st Action CO Rocker 1 st Action DI Rocker 1 st Action DO	oic.r.button oic.r.button oic.r.button oic.r.button	oic.d.sensor	Generic Sensor

EnOcean Device Name (EEP)	EnOcean Telegram Parameters	OCF Resource Type(s)	OCF Device Type	OCF Device Name
Position Switch (F6-04-01)	Key Card activated Key Card taken out	oic.r.keycardswitch	oic.d.sensor	Generic Sensor
Position Switch (F6-04-02)	Key Card inserted Key Card taken out	oic.r.keycardswitch	oic.d.sensor	Generic Sensor
Liquid Leakage Detector (Water) (F6-05-01)	Alert Signal	oic.r.sensor.water	oic.d.sensor	Generic Sensor
Smoke Detector (F6-05-02)	Smoke Alarm ON Smoke Alarm OFF	oic.r.sensor.smoke	oic.d.sensor	Generic Sensor
Single Input Contact (D5-00-01)	Open Closed	oic.r.sensor.contact	oic.d.sensor	Generic Sensor
Temperature Sensor (A5-02-XX)	Temperature value Unit (defined by spec) Range (by type spec)	oic.r.temperature	oic.d.sensor	Generic Sensor
Temperature and Humidity Sensor (A5-04-XX)	Temperature value Temperature unit (by spec) Temperature range (by type spec) Humidity (%)	oic.r.temperature oic.r.humidity	oic.d.sensor	Generic Sensor
Barometric Sensor (A5-05-01)	Barometer value	oic.r.sensor. atmosphericpressure	oic.d.sensor	Generic Sensor
Light Sensor (A5-06-XX)	Illumination value (linear, lx) range (by type Spec)	oic.r.sensor.illuminance	oic.d.sensor	Generic Sensor
Occupancy Sensor (A5-07-XX)	PIR Status Uncertain PIR Status Motion detected	oic.r.sensor.presence	oic.d.sensor	Generic Sensor
Light, Temperature and Occupancy Sensor (A5-08-XX)	Temperature value Temp Unit (by spec) Temp Range (by TYPE spec) Illumination value Illumination range (by type spec) Occupancy	oic.r.temperature oic.r.sensor.illuminance oic.r.sensor.presence	oic.d.sensor	Generic Sensor

6.2.2.3 Exposing an enocean device as a virtual OCF device

Table 3 – "oic.wk.p" Resource Type definition

To OCF Property title	OCF Property name	OCF Description	OCF Mandatory	From EnOcean Device or EEP Spec	EnOcean Description	EnOcean 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)	N
Manufacturer Name	mnmn	Name of manufacturer (not to exceed 16 characters)	Y	ManID	The ID of the EnOcean Device contains the Manufacturer ID of it, which shall be used by Bridging Function to resolve it to the corresponding name. If the name exceeds 16 Characters a Manufacturer Short name shall be used.	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	(none)	(none)	N
Date of Manufacture	mndt	Manufacturing date of device	N	(none)	(none)	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	(none)	(none)	N
Firmware version	mnfv	Version of device firmware	N	(none)	(none)	N

To OCF Property title	OCF Property name	OCF Description	OCF Mandatory	From EnOcean Device or EEP Spec	EnOcean Description	EnOcean Mandatory
Support link	mnsi	URI that points to support information from manufacturer	N	(none)	(none)	N
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 4 – "oic.wk.d" Resource Type definition

To OCF Property title	OCF Property name	OCF Description	OCF Mandatory	From EnOcean Device or EEP Spec	EnOcean Description	EnOcean Mandatory
(Device) Name	n	Human friendly name For example, "Bob's Thermostat"	Y	(none)	Should be set by the user in the EnOcean Bridge Platform configuration or on Onboarding.	N
Spec Version	icv	Spec version of ISO/IEC 30118-1 this device is implemented to, The syntax is "core.major.minor"]	Y	(none)	Spec version of ISO/IEC 30118-1 that the Bridging Platform implements should return its own value	N
Device UUID	di	Unique identifier for Device. This value shall be as defined in ISO/IEC 30118-2 for Device UUID.	Y	(none)	Use as defined in ISO/IEC 30118-2	N
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)	N
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.	N

To OCF Property title	OCF Property name	OCF Description	OCF Mandatory	From EnOcean Device or EEP Spec	EnOcean Description	EnOcean Mandatory
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)	(none)	
Software Version	sv	Version of the device software.	N	(none)	(none)	N
Manufacturer Name	dmn	Name of manufacturer 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 manufacturer name in the indicated language.	N	ManID	The ID of the EnOcean Device contains the Manufacturer ID of it, which shall be used by Bridging Function to resolve it to the corresponding name.	Y
Model Number	dmno	Model number as designated by manufacturer.	N	(none)	(none)	N

Table 5 – "oic.wk.con" Resource Type definition

To OCF Property title	OCF Property name	OCF Description	OCF Mandatory	From EnOcean Device or EEP Spec	EnOcean Description	EnOcean Mandatory
(Device) Name	n	Human friendly name For example, "Bob's Thermostat"	Y	(none)	Should be set by the user in the EnOcean Bridge Platform configuration or on Onboarding.	N
Location	loc	Provides location information where available.	N	(none)	(none)	N
Location Name	locn	Human friendly name for location For example, "Living Room".	N	(none)	(none)	N

To OCF Property title	OCF Property name	OCF Description	OCF Mandatory	From EnOcean Device or EEP Spec	EnOcean Description	EnOcean Mandatory
Currency	c	Indicates the currency that is used for any monetary transactions	N	(none)	(none)	N
Region	r	Free form text Indicating the current region in which the device is located geographically. The free form text shall not start with a quote (").	N	(none)	(none)	N
Localized Names	ln	Human-friendly name 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 name in the indicated language. If this property and the Device Name (n) property are both supported, the Device Name (n) value shall be included in this array.	N	(none)	(none)	N
Default Language	dl	The default language supported by the Device, specified as an RFC 5646 language tag. By default, clients can treat any string property as being in this language unless the property specifies otherwise.	N	(none)	(none)	N

6.2.3 Protocol translation between enocean and OCF

6.2.3.1 EnOcean behavior translated to OCF actions

On the EnOcean side of the EnOcean Bridge Platform there are overall three different behaviours. A Translation from it to OCF Actions is given by Table 6.

Table 6 - EnOcean Behaviour translated to OCF

EnOcean Behaviour	OCF Action
Teach-In (EEP) new device	Create VOD and proper resources
Receiving Telegram of a Teached-In Device	Update Resource(s), notify observers
Deleting Device (by User)	Remove VOD and Resource(s)

Teaching-In a new device over a proper telegram results in a new virtual OCF Server and corresponding Resources. Depending on the EnOcean Device there may be already one or more real values from the EnOcean Device in the telegram which shall be used to initiate the Resource Properties. The new EnOcean Device will be saved as an EnOcean Shadow Device in a suitable data representation. If the Teach-In telegram contains an invalid EEP or an EEP which isn't specified yet it shall not be translated. If the EEP is vendor specific but may be mapped on existing specified EEPs a translation could be possible.

If a telegram of an EnOcean Device is received by the EnOcean Bridge Platform which is already Teached-In and maintained in the EnOcean Shadow Device List, the associated OCF Resources will be updated. If there are existing observers on the Resource a notify to each observer will be executed. If the Device ID of the Telegram doesn't fit on any already Teached-In EnOcean device, it will be ignored.

Users have the possibility to delete Teached-In Devices. If an EnOcean Device will be deleted all corresponding Resources and the VOD shall be deleted as well.

6.2.3.2 OCF actions and enocean bridge results

In Table 7 the OCF actions are displayed with the corresponding EnOcean translation results. Each action has different effects on the Bridging Function.

Table 7 - OCF Actions translated to EnOcean

OCF Action	EnOcean Bridge Behaviour
Discovery	Answering with OCF Representation of all EnOcean Shadow Devices
Retrieve	Answering with OCF Representation of a Device or Resources of the EnOcean Shadow devices, not the actual EnOcean Device
Observe	Register on a resource of an EnOcean Shadow Device
Update	(Not supported yet)

Answering to an OCF Discovery will result in a representation of all EnOcean Shadow Devices which are Teached-In in the EnOcean Bridge Platform. The Bridging Function is following the proper translation rules for each individual device. This operation has no impact on the EnOcean Device directly.

A retrieve operation also will be processed through the Bridging Function with an EnOcean Shadow Device. It will deliver the last known value of the actual EnOcean Device, since these Devices mostly can't communicate bi-directly.

Observe Requests will be attached to the respective EnOcean Shadow Device. Each EnOcean Shadow Device contains a list of registered observers and will notify them if a new value from the proper EnOcean Device is received.

Since the EnOcean Device mapping list doesn't contain actuators yet update requests are not supported by the EnOcean Bridge Platform.

7 Device type mapping

7.1 Introduction

This clause contains the mappings from EnOcean EEPs to OCF Device Types and OCF Resource Types. Additionally, all different Telegram Parameters with corresponding OCF Resource(s) will be presented.

7.2 EnOcean equipment profiles to OCF device types and OCF resource types

All supported EEPs are represented as "oic.d.sensor" Devices. Actuators are currently not supported.

Table 8 - EnOcean to OCF Mapping Table

EnOcean Device Name (EEP)	EnOcean Telegram Parameters	OCF Resource Type(s)	OCF Device Type	OCF Device Name
Push Button (F6-01-01)	Push Button Released Push Button Pressed	oic.r.button	oic.d.sensor	Generic Sensor
Rocker Switch, 2 Rocker (F6-02-XX)	Rocker 1 st Action AI Rocker 1 st Action AO Rocker 1 st Action BI Rocker 1 st Action BO	oic.r.button oic.r.button	oic.d.sensor	Generic Sensor
Rocker Switch, 4 Rocker (F6-03-XX)	Rocker 1 st Action AI Rocker 1 st Action AO Rocker 1 st Action BI Rocker 1 st Action BO Rocker 1 st Action CI Rocker 1 st Action CO Rocker 1 st Action DI Rocker 1 st Action DO	oic.r.button oic.r.button oic.r.button oic.r.button	oic.d.sensor	Generic Sensor
Position Switch (F6-04-01)	Key Card activated Key Card taken out	oic.r.keycardswitch	oic.d.sensor	Generic Sensor
Position Switch (F6-04-02)	Key Card inserted Key Card taken out	oic.r.keycardswitch	oic.d.sensor	Generic Sensor
Liquid Leakage Detector (Water) (F6-05-01)	Alert Signal	oic.r.sensor.water	oic.d.sensor	Generic Sensor
Smoke Detector (F6-05-02)	Smoke Alarm ON Smoke Alarm OFF	oic.r.sensor.smoke	oic.d.sensor	Generic Sensor
Single Input Contact (D5-00-01)	Open Closed	oic.r.sensor.contact	oic.d.sensor	Generic Sensor
Temperature Sensor (A5-02-XX)	Temperature value Unit (defined by spec) Range (by type spec)	oic.r.temperature	oic.d.sensor	Generic Sensor