

---

---

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

**Part 5:  
OCF device specification**

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

*Partie 5: Spécification des appareils OCF*





**COPYRIGHT PROTECTED DOCUMENT**

© ISO/IEC 2021

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  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

Foreword .....	v
Introduction .....	vi
1 Scope .....	1
2 Normative references .....	1
3 Terms, definitions and abbreviated terms.....	2
3.1 Terms and definitions .....	2
3.2 Symbols and abbreviated terms .....	2
4 Document conventions and organization.....	2
4.1 Conventions .....	2
4.2 Notation .....	3
4.3 Data types .....	3
4.4 Document structure .....	3
5 Operational scenarios .....	4
5.1 Document version .....	4
6 Core Resource model .....	5
6.1 Introduction.....	5
6.2 Device Type.....	5
6.3 Profile of ISO/IEC 30118-1 .....	5
6.4 Third (3 <sup>rd</sup> ) party specified extensions.....	6
6.5 Semantic Tags.....	7
6.5.1 Introduction.....	7
6.5.2 "tag-pos-desc" or position description Semantic Tag .....	7
6.5.3 "tag-func-desc" or function description Semantic Tag.....	7
7 Modelling of multiple logical Devices .....	7
7.1 Introduction.....	7
7.2 Single platform model .....	7
7.3 Multi-platform model .....	8
7.4 Composite Device model .....	8
8 Discovery.....	10
8.1 Endpoint discovery .....	10
8.2 Resource discovery .....	10
9 Security.....	10
Annex A (normative) Device categories and device types .....	12
A.1 Device categories.....	12
A.2 Device Types .....	12
Annex B (normative) Smart home Device Types .....	18
B.1 Smart home required Resources per Device Type .....	18
B.2 Standardized enumeration values.....	21
B.2.1 Introduction.....	21
B.2.2 Alphabetical list of standardized enumeration types .....	21
B.2.3 Standardized list of supported values for mode Resource Type (oic.r.mode).....	27
B.2.4 Standardized list of supported values for operational state Resource Type (oic.r.operational.state).....	30

B.2.5	Standardized list of supported values for consumable and consumable collection Resource Types (oic.r.consumable, oic.r.consumablecollection) .....	36
B.3	Camera media format (oic.r.media) .....	37
B.4	Additional requirements per Device Type .....	38
B.4.1	Additional requirements for Television Devices ("oic.d.tv").....	38
Annex C (normative)	Healthcare Device Types.....	39
C.1	Scope .....	39
C.2	Introduction to OCF healthcare Devices .....	39
C.3	Operational scenarios.....	39
C.4	Standardized Device Types .....	40
C.4.1	Introduction .....	40
C.4.2	Blood pressure monitor.....	42
C.4.3	Glucose meter.....	42
C.4.4	Body scale .....	43
C.4.5	Body thermometer .....	44
C.4.6	Heart rate monitor.....	45
C.4.7	Pulse oximeter .....	46
C.4.8	Sleep monitor.....	47
C.4.9	Activity tracker .....	48
C.4.10	CGM (Continuous Glucose Meter) .....	48
C.4.11	Cycling power meter .....	50
C.4.12	Cycling speed sensor .....	50
C.4.13	Cycling cadence sensor .....	51
C.4.14	Muscle oxygen monitor .....	51
C.4.15	Body composition analyser .....	52
Annex D (normative)	Industrial Device Types.....	54
D.1	Operational scenarios.....	54
D.2	Industrial required Resources per Device Type .....	57
Annex E (normative)	PV (Photovoltaic) system Device Types.....	58
E.1	Scope .....	58
E.2	Operational scenarios.....	58
E.3	Standard Device Types .....	60

## 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](http://www.iso.org/directives) or [www.iec.ch/members\\_experts/refdocs](http://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](http://www.iso.org/patents)) or the IEC list of patent declarations received (see [patents.iec.ch](http://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](http://www.iso.org/iso/foreword.html). In the IEC, see [www.iec.ch/understanding-standards](http://www.iec.ch/understanding-standards).

This document was prepared by the Open Connectivity Foundation (OCF) (as OCF Device 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*.

This second edition cancels and replaces the first edition (ISO/IEC 30118-5:2018), which has been technically revised.

The main changes compared to the previous edition are as follows:

- renaming of smarthome to generic applicable device specification;
- addition of new device types and classification of devices;
- addition of clarifications throughout.

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](http://www.iso.org/members.html) and [www.iec.ch/national-committees](http://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 5: OCF device specification

### 1 Scope

The Device definitions use Resource definitions from ISO/IEC 30118-4.

This document is built on top of ISO/IEC 30118-1. ISO/IEC 30118-1 specifies the core architecture, interfaces protocols and services to enable the implementation of profiles for IoT usages and ecosystems. ISO/IEC 30118-1 also defines the main architectural components of network connectivity, discovery, data transmission, device & service management and ID & security. The core architecture is scalable to support simple devices (constrained devices) and more capable devices (smart devices).

### 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>

ISO/IEC 30118-2, *Information technology -- Open Connectivity Foundation (OCF) Specification -- Part 2: Security specification*  
<https://www.iso.org/standard/74239.html>

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:

ISO/IEC 61850-7-1, *Communication networks and systems for power utility automation -- Part 7-1: Basic communication structure -- Principles and models*  
<https://webstore.iec.ch/publication/6014>

OpenAPI specification, fka *Swagger RESTful API Documentation Specification*, Version 2.0  
<https://github.com/OAI/OpenAPI-Specification/blob/master/versions/2.0.md>

IETF RFC 4566, SDP: Session Description Protocol, July 2006  
<https://tools.ietf.org/html/rfc4566>

Draft Report: A Basic Classification System for Energy-Using Products--Universal Device Classification, December 2013  
<https://eta-intranet.lbl.gov/sites/default/files/lbni-classification-v1.pdf>