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Information technology — Open Connectivity Foundation (OCF) Specification —

Part 9:
Core optional specification

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

Partie 9: Spécification facultative du cœur

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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).

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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 Core Optional 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 9:
Core optional specification

1   Scope

The OCF Core specifications are divided into a series of documents:

– Core specification: The Core specification document specifies the Framework, i.e., the OCF core architecture, interfaces, protocols and services to enable OCF profiles implementation for Internet of Things (IoT) usages and ecosystems. This document is mandatory for all Devices to implement.
– Core optional specification (this document): The Core optional specification document specifies the Framework, i.e., the OCF core architecture, interfaces, protocols and services to enable OCF profiles implementation for Internet of Things (IoT) usages and ecosystems that can optionally be implemented by any Device.
– Core extension specification(s): The Core extension specification(s) document(s) specifies optional OCF Core functionality that are significant in scope (e.g., Wi-Fi easy setup, Cloud).

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 DIS 20924, *Information Technology – Internet of Things – Vocabulary*, June 2018
https://www.iso.org/standard/69470.html

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

IETF RFC 3339, *Date and Time on the Internet: Timestamps*, July 2002
https://www.rfc-editor.org/info/rfc3339

IETF RFC 5234, *Augmented BNF for Syntax Specifications: ABNF*, January 2008
https://www.rfc-editor.org/info/rfc5234

IETF RFC 5424, *The Syslog Protocol*, March 2009
https://tools.ietf.org/html/rfc5424

IETF RFC 5646, *Tags for Identifying Languages*, September 2009
https://www.rfc-editor.org/info/rfc5646

IANA ifType-MIB Definitions
https://www.iana.org/assignments/ianaiftype-mib/ianaiftype-mib

IANA Media Types Assignment, March 2017
http://www.iana.org/assignments/media-types/media-types.xhtml

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

3 Terms, definitions 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 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
Alert
information provided by the Device by means of a specialised Resource Type that provides details with regard to potential problems, issues, or Device status of interest on which action can be taken

3.1.2
Rule
Resource that implements autonomous decision logic according to a condition-action pattern

3.1.3
Rule Action
Resource that is actuated with a defined value when the *Rule Result* (3.1.6) holds "true"

3.1.4
Rule Expression
definition of the *Rule* (3.1.1) logic in terms of the defined *Rule Inputs* (3.1.5), and which evaluates to a boolean *Rule Result* (3.1.6), for which "true" means that the *Rule* (3.1.1) has been triggered

3.1.5
Rule Input
Resources that contain the Properties whose values are evaluated as part of the *Rule Expression* (3.1.4)

3.1.6
Rule Result
Property which reflects the result of the evaluation of the *Rule Expression* (3.1.4)

3.1.7
Scene
static entity that stores a set of defined Property values for a Collection of Resources

Note 1 to entry: A *Scene* (3.1.3) is a prescribed setting of a set of Resources with each having a predetermined value for the Property that has to change.

3.1.8
Scene Collection
Collection that contains an enumeration of possible *Scene Values* (3.1.10) and the current *Scene Value* (3.1.10)

Note 1 to entry: The member values of the *Scene Collection* (3.1.8) are *Scene Members* (3.1.9).