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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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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 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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Allowed (or allowed).

– These features are neither required nor recommended by OIC Core Architecture, 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 oneM2M defined Module Classes and OCF defined Resource Types is modelled using the derived model syntax described in Derived Models for Interoperability.

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 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 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.

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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.

5.2.5 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. If an entire array is being referenced, then no index is included.

5.2.6 Conditional mapping

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

if "condition", "mapping".

is applied.

6 oneM2M translation

6.1 Operational scenarios

The purpose of the oneM2M Bridge Platform is to enable access by the oneM2M ecosystem to select OCF Servers. This is accomplished by creating Virtual OCF Clients to represent the necessary access levels to the OCF servers that are exposed to the oneM2M ecosystem. The oneM2M Bridge Platform then exposes native oneM2M entities that map to those Virtual OCF Clients.

The oneM2M Bridge Platform is an Asymmetric Client Bridge.

The mapping between the OCF data models and the oneM2M data models is specified in 9. Programmatic (i.e. On-the-fly) data model translation is not supported.

6.2 Enabling oneM2M application access to OCF servers

Each level of oneM2M application access for OCF servers is modelled as a Virtual OCF Client. In this way, oneM2M application access can be appropriately restricted and enforced by the OCF security capabilities.

6.3 Enabling OCF client access to oneM2M devices

This capability is not supported.

6.4 On-the-fly translation

All devices and resources have been aligned between the OCF and oneM2M ecosystems, so on-the-fly translation is not required.

If new OCF devices are not reflected into the oneM2M ecosystem by updates to the oneM2M specifications, the Bridge Platform will not provide a successful translation of those devices.

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7 Device type mapping

7.1 Introduction

This clause contains the mappings to/from Device Types.

7.2 OneM2M device types to OCF device types

Table 1 captures the equivalency mapping between oneM2M defined Device Types and OCF defined Device Types. The minimum Resource sets for each OCF Device is provided in ISO/IEC 30118-5.

Table 1 – oneM2M Device Type to OCF Device Type Mapping

oneM2M Device Type	OCF Device Type
device3DPrinter	oic.d.3dprinter
deviceAirConditioner	oic.d.airconditioner
deviceAirPurifier	oic.d.airpurifier
deviceAirQualityMonitor	oic.d.airqualitymonitor
deviceAudioReceiver	oic.d.receiver
deviceBloodPressureMonitor	oic.d.bloodpressuremonitor
deviceCamera	oic.d.camera
deviceClothesDryer	oic.d.dryer
deviceClothesWasher	oic.d.washer
deviceCoffeeMachine	oic.d.coffeemachine
deviceCookerHood	oic.d.cookerhood
deviceCooktop	oic.d.cooktop
deviceDehumidifier	oic.d.dehumidifier
deviceDishWasher	oic.d.dishwasher
deviceDoor	oic.d.door
deviceDoorLock	oic.d.smartlock
deviceElectricVehicleCharger	oic.d.electricvehiclecharger
deviceFan	oic.d.fan
deviceFoodProbe	oic.d.foodprobe
deviceFreezer	oic.d.freezer
deviceGlucosemeter	oic.d.glucosemeter

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oneM2M Device Type	OCF Device Type
deviceHumidifier	oic.d.humidifier
deviceKettle	oic.d.kettle
deviceLight	oic.d.light
deviceMicrogeneration	oic.d.energygenerator
deviceMultiFunctionPrinter	oic.d.multifunctionprinter
deviceOutdoorLamp	oic.d.light
deviceOven	oic.d.oven
devicePrinter	oic.d.printer
deviceRefrigerator	oic.d.refrigerator
deviceRobotCleaner	oic.d.robotcleaner
deviceScanner	oic.d.scanner
deviceSecurityPanel	oic.d.securitypanel
deviceSetTopBox	oic.d.stb
deviceSmartElectricMeter	oic.d.electricmeter
deviceSmartPlug	oic.d.smartplug
deviceSteamCloset	oic.d.steamcloset
deviceStorageBattery	oic.d.battery
deviceSwitch	oic.d.switch
deviceTelevision	oic.d.tv
deviceThermostat	oic.d.thermostat
deviceWaterHeater	oic.d.waterheater
deviceWaterValve	oic.d.watervalve
deviceWeightScaleAndBodyCompositionAnalyzer	oic.d.bodyscale
deviceWindowShade	oic.d.blind
deviceThermometer	oic.d.bodythermometer

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8 Resource to oneM2M module class equivalence

8.1 Introduction

This clause lists the complete set of applicable oneM2M Module Classes and provides the equivalent OCF Resource Type(s) to which the Module Classes map.

8.2 OneM2M module classes to OCF resources

Table 2 captures the equivalency mapping between oneM2M defined Module Classes and OCF defined Resource Types (see ISO/IEC 30118-4). Detailed Property by Property mappings are provided in clause 9.

Table 2 – oneM2M Module Classes to OCF Resource Type Mapping

oneM2M Module Class	OCF Resource Type
3Dprinter	oic.r.3dprinter
acousticsensor	oic.r.soundpressure
airconjobmode	oic.r.operational.state
airflow	oic.r.airflow
airpurifierjobmode	oic.r.operational.state
airqualitysensor	oic.r.airquality oic.r.switch.binary oic.r.humidity
alarmspeaker	oic.r.audiovolume oic.r.switch.binary oic.r.light.dimming
audioVolume	oic.r.audio
autodocumentfeeder	oic.r.operational.state
battery	oic.r.energy.battery
binaryswitch	oic.r.swtich.binary
boiler	oic.r.sensor
brewing	oic.r.brewing
brightness	oic.r.light.brightness
clock	oic.r.clock
clothesdryerjobmode	oic.r.operational.state
colour	oic.r.colour
coloursaturation	oic.r.colour.saturation

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oneM2M Module Class	OCF Resource Type
credentials	oic.r.userinfo
dehumidiiferjobmode	oic.r.operational.state
doorStatus	oic.r.door
electricvehicleconnector	oic.r.vehicle.connector
energyconsumption	oic.r.energy.electrical oic.r.energy.consumption
energygeneration	oic.r.energy.generation
filterinfo	oic.r.consumable oic.r.sensor
foaming	oic.r.foaming
grinder	oic.r.grinder oic.r.switch.binary
heatingzone	oic.r.heatingzone
height	oic.r.height
hotwatersupply	oic.r.switch.binary oic.r.sensor
impactsensor	oic.r.impactsensor
keepwarm	oic.r.time.period
Keypad	oic.r.keypadchar
liquidlevel	oic.r.liquid.level
liquidremaining	oic.r.liquid.level
lock	oic.r.lock
motionSensor	oic.r.sensor.motion oic.r.sensor.props
openlevel	oic.r.openlevel
operationmode	oic.r.switch.binary
overcurrentsensor	oic.r.time.period oic.r.sensor
powersave	oic.r.switch.binary
printqueue	oic.r.printer.queue
pushbutton	oic.r.button

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oneM2M Module Class	OCF Resource Type
refrigeration	oic.r.refrigeration
relativeHumidity	oic.r.humidity
robotcleanerjobmode	oic.r.operational.state
steamclosetjobmode	oic.r.operational.state
temperature	oic.r.temperature
uvsensor	oic.r.sensor.radiation.uv
watersensor	oic.r.sensor.water
weight	oic.r.weight

9 Detailed mapping APIs

9.1 Introduction

This clause provides an API and mapping description that aligns with the Derived Modelling syntax described in Derived Models for Interoperability for all Module Classes and Resources that are within scope.

The derived model definitions presented in clause 9 are formatted for readability, and so may appear to have extra line breaks.

9.2 3D printer

9.2.1 Derived model

The derived model: "onem2m.m.3Dprinter".

9.2.2 Property definition

Table 3 provides the detailed per Property mapping for "onem2m.m.3Dprinter".

Table 3 – The property mapping for "onem2m.3Dprinter"

oneM2M Property name	OCF Resource	To OCF	From OCF
memorySize	oic.r.3dprinter	oic.r.3dprinter.memorysize = memorySize	memorySize = oic.r.3dprinter.memorysize
printType	oic.r.3dprinter	oic.r.3dprinter.3dprinttype = printType	printType = oic.r.3dprinter.3dprintype
printSizeX	oic.r.3dprinter	oic.r.3dprinter.printsizex = printSizeX	printSizeX = oic.r.3dprinter.printsizex

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oneM2M Property name	OCF Resource	To OCF	From OCF
printSizeZ	oic.r.3dprinter	oic.r.3dprinter.printsizez = printSizeZ	printSizeZ = oic.r.3dprinter.printsizez
network	oic.r.3dprinter	oic.r.3dprinter.wanconnected = network	network = oic.r.3dprinter.wanconnected
printSizeY	oic.r.3dprinter	oic.r.3dprinter.printsizey = printSizeY	printSizeY = oic.r.3dprinter.printsizey

Table 4 provides the details of the Properties that are part of "onem2m.m.3Dprinter".

Table 4 – The properties of "onem2m.3Dprinter"

oneM2M Property name	Type	Required	Description
memorySize	number	yes	Memory Size
printType	string	yes	3D Printer Type
printSizeX	number	yes	Print Size X
printSizeZ	number	yes	Print Size Z
network	boolean	yes	WAN Connected
printSizeY	number	yes	Print Size Y

9.2.3 Derived model definition

```
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.3Dprinter.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description" : "Copyright  (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "3D Printer",
  "definitions": {
    "onem2m.m.3Dprinter": {
      "type": "object",
      "properties": {
        "printType": {
          "type": "string",
          "description": "3D Printer Type",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.3dprinter",
            "x-to-ocf": [
              "oic.r.3dprinter.3dprinttype = printType"
            ],
            "x-from-ocf": [
              "printType = oic.r.3dprinter.3dprintype"
            ]
          }
        },
        "printSizeX": {
          "type": "number",
          "description": "Print Size X",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.3dprinter",
            "x-to-ocf": [
              "oic.r.3dprinter.printsizex = printSizeX"
```


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```
            ],
            "x-from-ocf": [
              "printSizeX = oic.r.3dprinter.printsizex"
            ]
          }
        },
        "printSizeY": {
          "type": "number",
          "description": "Print Size Y",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.3dprinter",
            "x-to-ocf": [
              "oic.r.3dprinter.printsizey = printSizeY"
            ],
            "x-from-ocf": [
              "printSizeY = oic.r.3dprinter.printsizey"
            ]
          }
        },
        "printSizeZ": {
          "type": "number",
          "description": "Print Size Z",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.3dprinter",
            "x-to-ocf": [
              "oic.r.3dprinter.printsizez = printSizeZ"
            ],
            "x-from-ocf": [
              "printSizeZ = oic.r.3dprinter.printsizez"
            ]
          }
        },
        "network": {
          "type": "boolean",
          "description": "WAN Connected",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.3dprinter",
            "x-to-ocf": [
              "oic.r.3dprinter.wanconnected = network"
            ],
            "x-from-ocf": [
              "network = oic.r.3dprinter.wanconnected"
            ]
          }
        },
        "memorySize": {
          "type": "number",
          "description": "Memory Size",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.3dprinter",
            "x-to-ocf": [
              "oic.r.3dprinter.memorysize = memorySize"
            ],
            "x-from-ocf": [
              "memorySize = oic.r.3dprinter.memorysize"
            ]
          }
        }
      }
    }
  },
  "type": "object",
  "allOf": [
    {"$ref": "#/definitions/onem2m.m.3Dprinter"}
  ],
  "required": [ "printType", "printSizeX", "printSizeY", "printSizeZ", "network", "memorySize" ]
}
```

9.3 Acoustic sensor

9.3.1 Derived model

The derived model: "onem2m.m.acousticsensor".

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9.3.2 Property definition

Table 5 provides the detailed per Property mapping for "onem2m.m.acousticsensor".

Table 5 – The property mapping for "onem2m.acousticsensor"

oneM2M Property name	OCF Resource	To OCF	From OCF
loudness	oic.r.soundpressure	oic.r.soundpressure.dba = loudness	loudness = oic.r.soundpressure.dba
acousticStatus	oic.r.soundpressure	oic.r.soundpressure.percentage = acousticStatus	acousticStatus = oic.r.soundpressure.percentage

Table 6 provides the details of the Properties that are part of "onem2m.m.acousticsensor".

Table 6 – The properties of "onem2m.acousticsensor"

oneM2M Property name	Type	Required	Description
loudness	number	yes	The common unit of the sound pressure in dBa.
acousticStatus	integer	no	The rounded percentage of the current sound pressure as compared to the sensitivity range of the sensor. The acousticStatus indicates as follows: (0) No sound ~ (100) Most noisy.

9.3.3 Derived model definition

```
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.acousticsensor.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description" : "Copyright  (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Acoustic Sensor",
  "definitions": {
    "onem2m.m.acousticsensor": {
      "type": "object",
      "properties": {
        "loudness": {
          "type": "number",
          "description": "The common unit of the sound pressure in dBa.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.soundpressure",
            "x-to-ocf": [
              "oic.r.soundpressure.dba = loudness"
            ],
            "x-from-ocf": [
```


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```
              "loudness = oic.r.soundpressure.dba"
            ]
          }
        },
        "acousticStatus": {
          "type": "integer",
          "description": "The rounded percentage of the current sound pressure as compared to the
sensitivity range of the sensor. The acousticStatus indicates as follows: (0) No sound ~ (100) Most
noisy.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.soundpressure",
            "x-to-ocf": [
              "oic.r.soundpressure.percentage = acousticStatus"
            ],
            "x-from-ocf": [
              "acousticStatus = oic.r.soundpressure.percentage"
           ]
          }
        }
      }
    }
  },
  "type": "object",
  "allOf": [
    {"$ref": "#/definitions/onem2m.m.acousticsensor"}
  ],
  "required": [ "loudness" ]
}
```

9.4 AirCon job mode

9.4.1 Derived model

The derived model: "onem2m.m.airconjobmode".

9.4.2 Property definition

Table 7 provides the detailed per Property mapping for "onem2m.m.airconjobmode".

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Table 7 – The property mapping for "onem2m.airconjobmode"

oneM2M Property name	OCF Resource	To OCF	From OCF
jobModes	oic.r.operational.state	This does not exist in OCF as all possible operational states are available.	This is an array of integers in oneM2M defined by the current version of the specification as follows:jobModes[1] = 1jobModes[2] = 2jobModes[3] = 3jobModes[4] = 4jobModes[5] = 5jobModes[6] = 6jobModes[7] = 7jobModes[8] = 8
currentJobModeName	oic.r.operational.state	This value does not exist in OCF as it is already accommodated in the currentJobMode property.	Need to translate between the OCF operational state enumerated string and the oneM2M string valueif (oic.r.operational.state.currentJobState == "cooling") { currentJobModeName = "cool"; }if (oic.r.operational.state.currentJobState == "airDry") { currentJobModeName = "airDry"; }if (oic.r.operational.state.currentJobState == "fan" { currentJobModeName = "fan"; }if (oic.r.operational.state.currentJobState == "artificialintelligence") { currentJobModeName = "AI"; }if (oic.r.operational.state.currentJobState == "heating") { currentJobModeName = "heat"; }if (oic.r.operational.state.currentJobState == "cleaning") { currentJobModeName = "airClean"; }if (oic.r.operational.state.currentJobState == "auto") { currentJobModeName = "ACO"; }if (oic.r.operational.state.currentJobState == "aroma") { currentJobModeName = "aroma"; }else { currentJobModeName = ""; }

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oneM2M Property name	OCF Resource	To OCF	From OCF
currentJobMode	oic.r.operational.state	Need to translate between the oneM2M integer value and the OCF operational state enumerated stringif (currentJobMode == 1) { oic.r.operational.state.currentJobState == "cooling"; }if (currentJobMode == 2) { oic.r.operational.state.currentJobState == "airDry"; }if (currentJobMode == 3) { oic.r.operational.state.currentJobState == "fan"; }if (currentJobMode == 4) { oic.r.operational.state.currentJobState == "artificialintelligence"; }if (currentJobMode == 5) { oic.r.operational.state.currentJobState == "heating"; }if (currentJobMode == 6) { oic.r.operational.state.currentJobState == "cleaning"; }if (currentJobMode == 7) { oic.r.operational.state.currentJobState == "auto"; }if (currentJobMode == 8) { oic.r.operational.state.currentJobState == "aroma"; }else { oic.r.operational.state.currentJobState == "unknown"; }	Need to translate between the OCF operational state enumerated string and the oneM2M integer valueif (oic.r.operational.state.currentJobState == "cooling") { currentJobMode = 1; }if (oic.r.operational.state.currentJobState == "airDry") { currentJobMode = 2; }if (oic.r.operational.state.currentJobState == "fan" { currentJobMode = 3; }if (oic.r.operational.state.currentJobState == "artificialintelligence") { currentJobMode = 4; }if (oic.r.operational.state.currentJobState == "heating") { currentJobMode = 5; }if (oic.r.operational.state.currentJobState == "cleaning") { currentJobMode = 6; }if (oic.r.operational.state.currentJobState == "auto") { currentJobMode = 7; }if (oic.r.operational.state.currentJobState == "aroma") { currentJobMode = 8; }else { currentJobMode = 0; }

Table 8 provides the details of the Properties that are part of "onem2m.m.airconjobmode".

Table 8 – The properties of "onem2m.airconjobmode"

oneM2M Property name	Type	Required	Description
jobModes	array	yes	List of possible job states the device supports
currentJobModeName	string	no	Name of current job mode in string. This can be used when currentJobMode is vendor-specific.
currentJobMode	integer	yes	Currently active job mode.

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9.4.3 Derived model definition

```
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.airconjobmode.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description" : "Copyright  (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "AirCon Job Mode",
  "definitions": {
    "onem2m.m.airconjobmode": {
      "type": "object",
      "properties": {
        "currentJobMode": {
          "type": "integer",
          "description": "Currently active job mode.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.operational.state",
            "x-to-ocf": [
              "Need to translate between the oneM2M integer value and the OCF operational state
enumerated string",
              "if ( currentJobMode == 1 ) { oic.r.operational.state.currentJobState == \"cooling\"; }",
              "if ( currentJobMode == 2 ) { oic.r.operational.state.currentJobState == \"airDry\"; }",
              "if ( currentJobMode == 3 ) { oic.r.operational.state.currentJobState == \"fan\"; }",
              "if ( currentJobMode == 4 ) { oic.r.operational.state.currentJobState ==
\"artificialintelligence\"; }",
              "if ( currentJobMode == 5 ) { oic.r.operational.state.currentJobState == \"heating\"; }",
              "if ( currentJobMode == 6 ) { oic.r.operational.state.currentJobState ==
\"cleaning\"; }",
              "if ( currentJobMode == 7 ) { oic.r.operational.state.currentJobState == \"auto\"; }",
              "if ( currentJobMode == 8 ) { oic.r.operational.state.currentJobState == \"aroma\"; }",
              "else { oic.r.operational.state.currentJobState == \"unknown\"; }"
            ],
            "x-from-ocf": [
              "Need to translate between the OCF operational state enumerated string and the oneM2M
integer value",
              "if (oic.r.operational.state.currentJobState == \"cooling\" ) { currentJobMode = 1; }",
              "if (oic.r.operational.state.currentJobState == \"airDry\" ) { currentJobMode = 2; }",
              "if (oic.r.operational.state.currentJobState == \"fan\" { currentJobMode = 3; }",
              "if (oic.r.operational.state.currentJobState == \"artificialintelligence\" )
{ currentJobMode = 4; }",
              "if (oic.r.operational.state.currentJobState == \"heating\" ) { currentJobMode = 5; }",
              "if (oic.r.operational.state.currentJobState == \"cleaning\" ) { currentJobMode = 6; }",
              "if (oic.r.operational.state.currentJobState == \"auto\" ) { currentJobMode = 7; }",
              "if (oic.r.operational.state.currentJobState == \"aroma\" ) { currentJobMode = 8; }",
              "else { currentJobMode = 0; }"
            ]
          }
        },
        "currentJobModeName": {
          "type": "string",
          "description": "Name of current job mode in string. This can be used when currentJobMode is
vendor-specific.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.operational.state",
            "x-to-ocf": [
              "This value does not exist in OCF as it is already accommodated in the currentJobMode
property."
            ],
            "x-from-ocf": [
              "Need to translate between the OCF operational state enumerated string and the oneM2M
string value",
              "if (oic.r.operational.state.currentJobState == \"cooling\" ) { currentJobModeName =
\"cool\"; }",
              "if (oic.r.operational.state.currentJobState == \"airDry\" ) { currentJobModeName =
\"airDry\"; }",
              "if (oic.r.operational.state.currentJobState == \"fan\" { currentJobModeName =
\"fan\"; }",
              "if (oic.r.operational.state.currentJobState == \"artificialintelligence\" )
{ currentJobModeName = \"AI\"; }",
              "if (oic.r.operational.state.currentJobState == \"heating\" ) { currentJobModeName =
\"heat\"; }",
              "if (oic.r.operational.state.currentJobState == \"cleaning\" ) { currentJobModeName =
\"airClean\"; }",
              "if (oic.r.operational.state.currentJobState == \"auto\" ) { currentJobModeName =
\"ACO\"; }",
              "if (oic.r.operational.state.currentJobState == \"aroma\" ) { currentJobModeName =
\"aroma\"; }",
              "else { currentJobModeName = \"\"; }"
```


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```
            ]
          }
        },
        "jobModes": {
          "type": "array",
          "description": "List of possible job states the device supports",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.operational.state",
            "x-to-ocf": [
              "This does not exist in OCF as all possible operational states are available."
            ],
            "x-from-ocf": [
              "This is an array of integers in oneM2M defined by the current version of the
specification as follows:",
              "jobModes[1] = 1",
              "jobModes[2] = 2",
              "jobModes[3] = 3",
              "jobModes[4] = 4",
              "jobModes[5] = 5",
              "jobModes[6] = 6",
              "jobModes[7] = 7",
              "jobModes[8] = 8"
           ]
          }
        }
      }
    }
  },
  "type": "object",
  "allOf": [
    {"$ref": "#/definitions/onem2m.m.airconjobmode"}
  ],
  "required": [ "currentJobMode", "jobModes" ]
}
```

9.5 Airflow

9.5.1 Derived model

The derived model: "onem2m.m.airflow".

9.5.2 Property definition

Table 9 provides the detailed per Property mapping for "onem2m.m.airflow".

Table 9 – The property mapping for "onem2m.airflow"

oneM2M Property name	OCF Resource	To OCF	From OCF
minSpeed	oic.r.airflow	range[0] = minSpeed	minSpeed = range[0]otherwise: minSpeed = 0
supportedVerticalDirection	oic.r.airflow	supporteddirections = supportedVerticalDirection	supportedVerticalDirection = supporteddirections
maxSpeed	oic.r.airflow	range[1] = maxSpeed	maxSpeed = range[1]otherwise: maxSpeed = 100
horizontalDirection	oic.r.airflow	direction = horizontalDirection	horizontalDirection = direction

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oneM2M Property name	OCF Resource	To OCF	From OCF
autoMode	oic.r.airflow	if autoMode = true, ocf.automode = Onif autoMode = fals, ocf.automode = Off_comment: is is correct way to map boolean to enum?	if ocf.automode = On, autoMode = trueif ocf.automode = Off, autoMode = false
speed	oic.r.airflow	ocf.speed = speed	speed = ocf.speed
verticalDirection	oic.r.airflow	direction = verticalDirection	verticalDirection = direction_comment: Is 1-to-1 mapping possible from string to enum? what if enum doesn't contain the converted string from OCF?
supportedhorizontalDirection	oic.r.airflow	supporteddirections = supportedhorizontalDirection	supportedhorizontalDirection = supporteddirections

Table 10 provides the details of the Properties that are part of "onem2m.m.airflow".

Table 10 – The properties of "onem2m.airflow"

oneM2M Property name	Type	Required	Description
minSpeed	integer	no	Min value for the speed level. If not present, the default is 0.
supportedVerticalDirection	array	no	List of supported vertical direction.
maxSpeed	integer	no	Max value for the speed level. If not present, the default is 100.
horizontalDirection		no	The horizontal directionality of the air flow.
autoMode	boolean	no	Status of the automode feature. If on speed is set by the device.

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oneM2M Property name	Type	Required	Description
speed	integer	yes	current speed level in the range of [minSpeed, maxSpeed]
verticalDirection		no	The vertical directionality of the air flow.
supportedhorizontalDirection	array	no	List of supported horizontal direction.

9.5.3 Derived model definition

```
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.airflow.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description" : "Copyright  (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Airflow",
  "definitions": {
    "onem2m.m.airflow": {
      "type": "object",
      "properties": {
        "speed": {
          "type": "integer",
          "description": "current speed level in the range of [minSpeed, maxSpeed]",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.airflow",
            "x-to-ocf": [
              "ocf.speed = speed"
            ],
            "x-from-ocf": [
              "speed = ocf.speed"
            ]
          }
        },
                "minSpeed": {
          "type": "integer",
          "description": "Min value for the speed level. If not present, the default is 0.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.airflow",
            "x-to-ocf": [
              "range[0] = minSpeed"
            ],
            "x-from-ocf": [
              "minSpeed = range[0]",
              "otherwise: minSpeed = 0"
            ]
          }
        },
                "maxSpeed": {
          "type": "integer",
          "description": "Max value for the speed level. If not present, the default is 100.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.airflow",
            "x-to-ocf": [
              "range[1] = maxSpeed"
            ],
            "x-from-ocf": [
              "maxSpeed = range[1]",
              "otherwise: maxSpeed = 100"
            ]
          }
        },
                "verticalDirection": {
          "enum": ["auto", "center", "up", "down"],
          "description": "The vertical directionality of the air flow.",
          "x-ocf-conversion": {
```

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```
            "x-ocf-alias": "oic.r.airflow",
            "x-to-ocf": [
              "direction = verticalDirection"
            ],
            "x-from-ocf": [
              "verticalDirection = direction",
                                "_comment: Is 1-to-1 mapping possible from string to enum? what if enum
doesn't contain the converted string from OCF?"
            ]
          }
        },
                "supportedVerticalDirection": {
          "type": "array",
          "items": {
                        "enum": ["auto", "center", "up", "down"]
                  },
                  "description": "List of supported vertical direction.",
          "readOnly": true,
                  "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.airflow",
            "x-to-ocf": [
              "supporteddirections = supportedVerticalDirection"
            ],
            "x-from-ocf": [
              "supportedVerticalDirection = supporteddirections"
            ]
          }
        },
                "horizontalDirection": {
          "enum": ["auto", "center", "left", "right"],
          "description": "The horizontal directionality of the air flow.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.airflow",
            "x-to-ocf": [
              "direction = horizontalDirection"
            ],
            "x-from-ocf": [
              "horizontalDirection = direction"
            ]
          }
        },
                "supportedhorizontalDirection": {
          "type": "array",
          "items": {
                        "enum": ["auto", "center", "left", "right"]
                  },
                  "description": "List of supported horizontal direction.",
          "readOnly": true,
                  "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.airflow",
            "x-to-ocf": [
              "supporteddirections = supportedhorizontalDirection"
            ],
            "x-from-ocf": [
              "supportedhorizontalDirection = supporteddirections"
            ]
          }
        },
                "autoMode": {
          "type": "boolean",
          "description": "Status of the automode feature. If on speed is set by the device.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.airflow",
            "x-to-ocf": [
              "if autoMode = true, ocf.automode = On",
                                "if autoMode = fals, ocf.automode = Off",
                                "_comment: is is correct way to map boolean to enum?"
            ],
            "x-from-ocf": [
              "if ocf.automode = On, autoMode = true",
                          "if ocf.automode = Off, autoMode = false"
            ]
          }
        }
      }
    }
  },
```


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```
  "type": "object",
  "allOf": [
    {"$ref": "#/definitions/onem2m.m.airflow"}
  ],
  "required": [ "speed" ]
}
```

9.6 Air purifier job mode

9.6.1 Derived model

The derived model: "onem2m.m.airpurifierjobmode".

9.6.2 Property definition

Table 11 provides the detailed per Property mapping for "onem2m.m.airpurifierjobmode".

Table 11 – The property mapping for "onem2m.airpurifierjobmode"

oneM2M Property name	OCF Resource	To OCF	From OCF
currentJobMode	oic.r.operational.state	Need to translate between the oneM2M integer value and the OCF operational state enumerated stringif (currentJobMode == 1) { oic.r.operational.state.currentJobState == "normal"; }if (currentJobMode == 2) { oic.r.operational.state.currentJobState == "sleeping"; }if (currentJobMode == 3) { oic.r.operational.state.currentJobState == "silent"; }if (currentJobMode == 4) { oic.r.operational.state.currentJobState == "wet"; }if (currentJobMode == 5) { oic.r.operational.state.currentJobState == "circulating"; }if (currentJobMode == 6) { oic.r.operational.state.currentJobState == "dual"; }if (currentJobMode == 7) { oic.r.operational.state.currentJobState == "auto"; }else { oic.r.operational.state.currentJobState == "unknown"; }	Need to translate between the OCF operational state enumerated string and the oneM2M integer valueif (oic.r.operational.state.currentJobState == "normal") { currentJobMode = 1; }if (oic.r.operational.state.currentJobState == "sleeping") { currentJobMode = 2; }if (oic.r.operational.state.currentJobState == "silent" { currentJobMode = 3; }if (oic.r.operational.state.currentJobState == "wet") { currentJobMode = 4; }if (oic.r.operational.state.currentJobState == "circulating") { currentJobMode = 5; }if (oic.r.operational.state.currentJobState == "dual") { currentJobMode = 6; }if (oic.r.operational.state.currentJobState == "auto") { currentJobMode = 7; }else { currentJobMode = 0; }

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oneM2M Property name	OCF Resource	To OCF	From OCF
jobModes	oic.r.operational.state	This does not exist in OCF as all possible operational states are available.	This is an array of integers in oneM2M defined by the current version of the specification as follows:jobModes[1] = 1jobModes[2] = 2jobModes[3] = 3jobModes[4] = 4jobModes[5] = 5jobModes[6] = 6jobModes[7] = 7
currentJobModeName	oic.r.operational.state	This value does not exist in OCF as it is already accommodated in the currentJobMode property.	Need to translate between the OCF operational state enumerated string and the oneM2M string valueif (oic.r.operational.state.currentJobState == "normal") { currentJobModeName = "normalClean"; }if (oic.r.operational.state.currentJobState == "sleeping") { currentJobModeName = "sleep"; }if (oic.r.operational.state.currentJobState == "silent" { currentJobModeName = "silent"; }if (oic.r.operational.state.currentJobState == "wet") { currentJobModeName = "wet"; }if (oic.r.operational.state.currentJobState == "circulating") { currentJobModeName = "circulate"; }if (oic.r.operational.state.currentJobState == "dual") { currentJobModeName = "dual"; }if (oic.r.operational.state.currentJobState == "auto") { currentJobModeName = "auto"; }else { currentJobModeName = ""; }

Table 12 provides the details of the Properties that are part of "onem2m.m.airpurifierjobmode".

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Table 12 – The properties of "onem2m.airpurifierjobmode"

oneM2M Property name	Type	Required	Description
currentJobMode	integer	yes	Currently active job mode.
jobModes	array	yes	List of possible job states the device supports
currentJobModeName	string	no	Name of current job mode in string. This can be used when currentJobMode is vendor-specific.

9.6.3 Derived model definition

```
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.airpurifierjobmode.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description" : "Copyright  (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Air Purifier Job Mode",
  "definitions": {
    "onem2m.m.airpurifierjobmode": {
      "type": "object",
      "properties": {
        "currentJobMode": {
          "type": "integer",
          "description": "Currently active job mode.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.operational.state",
            "x-to-ocf": [
              "Need to translate between the oneM2M integer value and the OCF operational state
enumerated string",
              "if ( currentJobMode == 1 ) { oic.r.operational.state.currentJobState == \"normal\"; }",
              "if ( currentJobMode == 2 ) { oic.r.operational.state.currentJobState ==
\"sleeping\"; }",
              "if ( currentJobMode == 3 ) { oic.r.operational.state.currentJobState == \"silent\"; }",
              "if ( currentJobMode == 4 ) { oic.r.operational.state.currentJobState == \"wet\"; }",
              "if ( currentJobMode == 5 ) { oic.r.operational.state.currentJobState ==
\"circulating\"; }",
              "if ( currentJobMode == 6 ) { oic.r.operational.state.currentJobState == \"dual\"; }",
              "if ( currentJobMode == 7 ) { oic.r.operational.state.currentJobState == \"auto\"; }",
              "else { oic.r.operational.state.currentJobState == \"unknown\"; }"
            ],
            "x-from-ocf": [
              "Need to translate between the OCF operational state enumerated string and the oneM2M
integer value",
              "if (oic.r.operational.state.currentJobState == \"normal\" ) { currentJobMode = 1; }",
              "if (oic.r.operational.state.currentJobState == \"sleeping\" ) { currentJobMode = 2; }",
              "if (oic.r.operational.state.currentJobState == \"silent\" { currentJobMode = 3; }",
              "if (oic.r.operational.state.currentJobState == \"wet\" ) { currentJobMode = 4; }",
              "if (oic.r.operational.state.currentJobState == \"circulating\" ) { currentJobMode =
5; }",
              "if (oic.r.operational.state.currentJobState == \"dual\" ) { currentJobMode = 6; }",
              "if (oic.r.operational.state.currentJobState == \"auto\" ) { currentJobMode = 7; }",
              "else { currentJobMode = 0; }"
            ]
          }
        },
        "currentJobModeName": {
          "type": "string",
          "description": "Name of current job mode in string. This can be used when currentJobMode is
vendor-specific.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.operational.state",
```

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```
            "x-to-ocf": [
              "This value does not exist in OCF as it is already accommodated in the currentJobMode
property."
            ],
            "x-from-ocf": [
              "Need to translate between the OCF operational state enumerated string and the oneM2M
string value",
              "if (oic.r.operational.state.currentJobState == \"normal\" ) { currentJobModeName =
\"normalClean\"; }",
              "if (oic.r.operational.state.currentJobState == \"sleeping\" ) { currentJobModeName =
\"sleep\"; }",
              "if (oic.r.operational.state.currentJobState == \"silent\" { currentJobModeName =
\"silent\"; }",
              "if (oic.r.operational.state.currentJobState == \"wet\" ) { currentJobModeName =
\"wet\"; }",
              "if (oic.r.operational.state.currentJobState == \"circulating\" ) { currentJobModeName =
\"circulate\"; }",
              "if (oic.r.operational.state.currentJobState == \"dual\" ) { currentJobModeName =
\"dual\"; }",
              "if (oic.r.operational.state.currentJobState == \"auto\" ) { currentJobModeName =
\"auto\"; }",
              "else { currentJobModeName = \"\"; }"
            ]
          }
        },
        "jobModes": {
          "type": "array",
          "description": "List of possible job states the device supports",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.operational.state",
            "x-to-ocf": [
              "This does not exist in OCF as all possible operational states are available."
            ],
            "x-from-ocf": [
              "This is an array of integers in oneM2M defined by the current version of the
specification as follows:",
              "jobModes[1] = 1",
              "jobModes[2] = 2",
              "jobModes[3] = 3",
              "jobModes[4] = 4",
              "jobModes[5] = 5",
              "jobModes[6] = 6",
              "jobModes[7] = 7"
           ]
          }
        }
      }
    }
  },
  "type": "object",
  "allOf": [
    {"$ref": "#/definitions/onem2m.m.airconjobmode"}
  ],
  "required": [ "currentJobMode", "jobModes" ]
}
```

9.7 Air quality sensor

9.7.1 Derived model

The derived model: "onem2m.m.airqualitysensor".

9.7.2 Property definition

Table 13 provides the detailed per Property mapping for "onem2m.m.airqualitysensor".

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Table 13 – The property mapping for "onem2m.airqualitysensor"

oneM2M Property name	OCF Resource	To OCF	From OCF
sensorOdor	oic.r.airquality	oic.r.airquality.contaminantvalue = sensorOdoroic.r.airquality.contaminanttype = "Odor"oic.r.airquality.valuetype = "Measured"	sensorOdor = oic.r.airquality.contaminantvalue
VOC	oic.r.airquality	oic.r.airquality.contaminantvalue = VOCoic.r.airquality.contaminanttype = "VOC"oic.r.airquality.valuetype = "Measured"	VOC = oic.r.airquality.contaminantvalue
monitoringEnabled	oic.r.switch.binary	if monitoringEnabled == 0oic.r.switch.binary.value = falseif monitoringEnabled == 1oic.r.switch.binary.value = true	if oic.r.switch.binary.value == falsemonitoringEnabled = 0if oic.r.switch.binary.value == truemonitoringEnabled = 1
sensorHumidity	oic.r.humidity	oic.r.humidity.humidity = sensorHumidity	sensorHumidity = oic.r.humidity.humidity
sensorPM2	oic.r.airquality	oic.r.airquality.contaminantvalue = sensorPM2oic.r.airquality.contaminanttype = "PM2.5"oic.r.airquality.valuetype = "Measured"	sensorPM2 = oic.r.airquality.contaminantvalue
sensorPM10	oic.r.airquality	oic.r.airquality.contaminantvalue = sensorPM10oic.r.airquality.contaminanttype = "PM10"oic.r.airquality.valuetype = "Measured"	sensorPM10 = oic.r.airquality.contaminantvalue
CO	oic.r.airquality	oic.r.airquality.contaminantvalue = COoic.r.airquality.contaminanttype = "CO"oic.r.airquality.valuetype = "Measured"	CO = oic.r.airquality.contaminantvalue
CH2O	oic.r.airquality	oic.r.airquality.contaminantvalue = CH2Ooic.r.airquality.contaminanttype = "CH2O"oic.r.airquality.valuetype = "Measured"	CH2O = oic.r.airquality.contaminantvalue

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oneM2M Property name	OCF Resource	To OCF	From OCF
CO2	oic.r.airquality	oic.r.airquality.contaminantvalue = CO2oic.r.airquality.contaminanttype = "CO2"oic.r.airquality.valuetype = "Measured"	CO2 = oic.r.airquality.contaminantvalue
sensorPM1	oic.r.airquality	oic.r.airquality.contaminantvalue = sensorPM1oic.r.airquality.contaminanttype = "PM1"oic.r.airquality.valuetype = "Measured"	sensorPM1 = oic.r.airquality.contaminantvalue

Table 14 provides the details of the Properties that are part of "onem2m.m.airqualitysensor".

Table 14 – The properties of "onem2m.airqualitysensor"

oneM2M Property name	Type	Required	Description
sensorOdor	integer	no	Concentration of odor that reflects air pollution. Minimum value is 0, and maximum is 1000.
VOC	integer	no	This value indicates VOC (Volatile Organic Compounds) in ppm (parts per million)
monitoringEnabled	boolean	no	1 allows monitoring this resource whereas 0 does not.
sensorHumidity	integer	no	Measured humidity. Minimum value is 0, and maximum is 100.
sensorPM2	integer	no	Concentration of Particle Matter under 2.5um. Minimum value is 0, and maximum is 1000.
sensorPM10	integer	no	Concentration of Particle Matter under 10um. Minimum value is 0, and maximum is 1000.
CO	integer	no	This value indicates CO in ppm (parts per million)

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oneM2M Property name	Type	Required	Description
CH2O	integer	no	This value indicates CH2O in ppm (parts per million)
CO2	integer	no	This value indicates CO2 in ppm (parts per million)
sensorPM1	integer	no	Concentration of Particle Matter under 1um. Minimum value is 0, and maximum is 1000.

9.7.3 Derived model definition

```
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.airqualitysensor.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description" : "Copyright  (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Air Quality Sensor",
  "definitions": {
    "onem2m.m.airqualitysensor": {
      "type": "object",
      "properties": {
        "sensorPM1": {
          "type": "integer",
          "description": "Concentration of Particle Matter under 1um. Minimum value is 0, and maximum
is 1000.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.airquality",
            "x-to-ocf": [
              "oic.r.airquality.contaminantvalue = sensorPM1",
              "oic.r.airquality.contaminanttype = \"PM1\"",
              "oic.r.airquality.valuetype = \"Measured\""
            ],
            "x-from-ocf": [
              "sensorPM1 = oic.r.airquality.contaminantvalue"
            ]
          }
        },
        "sensorPM2": {
          "type": "integer",
          "description": "Concentration of Particle Matter under 2.5um. Minimum value is 0, and maximum
is 1000.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.airquality",
            "x-to-ocf": [
              "oic.r.airquality.contaminantvalue = sensorPM2",
              "oic.r.airquality.contaminanttype = \"PM2.5\"",
              "oic.r.airquality.valuetype = \"Measured\""
            ],
            "x-from-ocf": [
              "sensorPM2 = oic.r.airquality.contaminantvalue"
            ]
          }
        },
        "sensorPM10": {
          "type": "integer",
          "description": "Concentration of Particle Matter under 10um. Minimum value is 0, and maximum
is 1000.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.airquality",
            "x-to-ocf": [
              "oic.r.airquality.contaminantvalue = sensorPM10",
              "oic.r.airquality.contaminanttype = \"PM10\"",
```

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