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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.

https://www.iso.org/standard/53238.html
Latest version available at: https://openconnectivity.org/specs/OCF_Core_Specification.pdf

https://www.iso.org/standard/74239.html

https://www.iso.org/standard/74240.html

https://www.iso.org/standard/74241.html
Latest version available at:
https://openconnectivity.org/specs/OCF_Resource_Type_Specification.pdf

https://www.iso.org/standard/74242.html

Derived Models for Interoperability between IoT Ecosystems, Stevens & Merriam, March 2016

3 Terms and definitions

3.1 Terms and definitions


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
3.1.1 oneM2M Application

In an OCF-oneM2M asymmetric bridge environment, the oneM2M application represents 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.

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.

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".
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.

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.

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 30118-5:2019.

<table>
<thead>
<tr>
<th>oneM2M Device Type</th>
<th>OCF Device Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>device3DPrinter</td>
<td>oic.d.3dprinter</td>
</tr>
<tr>
<td>deviceAirConditioner</td>
<td>oic.d.airconditioner</td>
</tr>
<tr>
<td>deviceAirPurifier</td>
<td>oic.d.airpurifier</td>
</tr>
<tr>
<td>deviceAirQualityMonitor</td>
<td>oic.d.airqualitymonitor</td>
</tr>
<tr>
<td>deviceAudioReceiver</td>
<td>oic.d.receiver</td>
</tr>
<tr>
<td>deviceBloodPressureMonitor</td>
<td>oic.d.bloodpressuremonitor</td>
</tr>
<tr>
<td>deviceCamera</td>
<td>oic.d.camera</td>
</tr>
<tr>
<td>deviceClothesDryer</td>
<td>oic.d.dryer</td>
</tr>
<tr>
<td>deviceClothesWasher</td>
<td>oic.d.washer</td>
</tr>
<tr>
<td>deviceCoffeeMachine</td>
<td>oic.d.coffeemachine</td>
</tr>
<tr>
<td>deviceCookerHood</td>
<td>oic.d.cookerhood</td>
</tr>
<tr>
<td>device</td>
<td>oic.d.device</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>deviceCooktop</td>
<td>oic.d.cooktop</td>
</tr>
<tr>
<td>deviceDehumidifier</td>
<td>oic.d.dehumidifier</td>
</tr>
<tr>
<td>deviceDishWasher</td>
<td>oic.d.dishwasher</td>
</tr>
<tr>
<td>deviceDoor</td>
<td>oic.d.door</td>
</tr>
<tr>
<td>deviceDoorLock</td>
<td>oic.d.smartlock</td>
</tr>
<tr>
<td>deviceElectricVehicleCharger</td>
<td>oic.d.electricvehiclecharger</td>
</tr>
<tr>
<td>deviceFan</td>
<td>oic.d.fan</td>
</tr>
<tr>
<td>deviceFoodProbe</td>
<td>oic.d.foodprobe</td>
</tr>
<tr>
<td>deviceFreezer</td>
<td>oic.d.freezer</td>
</tr>
<tr>
<td>deviceGlucosemeter</td>
<td>oic.d.glucosemeter</td>
</tr>
<tr>
<td>deviceHumidifier</td>
<td>oic.d.humidifier</td>
</tr>
<tr>
<td>deviceKettle</td>
<td>oic.d.kettle</td>
</tr>
<tr>
<td>deviceLight</td>
<td>oic.d.light</td>
</tr>
<tr>
<td>deviceMicrogeneration</td>
<td>oic.d.energygenerator</td>
</tr>
<tr>
<td>deviceMultiFunctionPrinter</td>
<td>oic.d.multifunctionprinter</td>
</tr>
<tr>
<td>deviceOutdoorLamp</td>
<td>oic.d.light</td>
</tr>
<tr>
<td>deviceOven</td>
<td>oic.d.oven</td>
</tr>
<tr>
<td>devicePrinter</td>
<td>oic.d.printer</td>
</tr>
<tr>
<td>deviceRefrigerator</td>
<td>oic.d.refrigerator</td>
</tr>
<tr>
<td>deviceRobotCleaner</td>
<td>oic.d.robotcleaner</td>
</tr>
<tr>
<td>deviceScanner</td>
<td>oic.d.scanner</td>
</tr>
<tr>
<td>deviceSecurityPanel</td>
<td>oic.d.securitypanel</td>
</tr>
<tr>
<td>deviceSetTopBox</td>
<td>oic.d.stb</td>
</tr>
</tbody>
</table>
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 30118-4:2019). Detailed Property by Property mappings are provided in clause 9.

<table>
<thead>
<tr>
<th>oneM2M Module Class</th>
<th>OCF Resource Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>deviceSmartElectricMeter</td>
<td>oic.d.electricmeter</td>
</tr>
<tr>
<td>deviceSmartPlug</td>
<td>oic.d.smartplug</td>
</tr>
<tr>
<td>deviceSteamCloset</td>
<td>oic.d.steamcloset</td>
</tr>
<tr>
<td>deviceStorageBattery</td>
<td>oic.d.battery</td>
</tr>
<tr>
<td>deviceSwitch</td>
<td>oic.d.switch</td>
</tr>
<tr>
<td>deviceTelevision</td>
<td>oic.d.tv</td>
</tr>
<tr>
<td>deviceThermostat</td>
<td>oic.d.thermostat</td>
</tr>
<tr>
<td>deviceWaterHeater</td>
<td>oic.d.waterheater</td>
</tr>
<tr>
<td>deviceWaterValve</td>
<td>oic.d.watervalve</td>
</tr>
<tr>
<td>deviceWeightScaleAndBodyCompositionAnalyzer</td>
<td>oic.d.bodyscale</td>
</tr>
<tr>
<td>deviceWindowShade</td>
<td>oic.d.blind</td>
</tr>
<tr>
<td>deviceThermometer</td>
<td>oic.d.bodythermometer</td>
</tr>
<tr>
<td>oic.r.operational.state</td>
<td>airpurifierjobmode</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>oic.r.airquality</td>
<td>airqualitysensor</td>
</tr>
<tr>
<td>oic.r.switch.binary</td>
<td>alarmspeaker</td>
</tr>
<tr>
<td>oic.r.humidity</td>
<td>audioVolume</td>
</tr>
<tr>
<td>oic.r.switch.binary</td>
<td>autodocumentfeeder</td>
</tr>
<tr>
<td>oic.r.light.dimming</td>
<td>battery</td>
</tr>
<tr>
<td>oic.r.switch.binary</td>
<td>binaryswitch</td>
</tr>
<tr>
<td>oic.r.sensor</td>
<td>boiler</td>
</tr>
<tr>
<td>oic.r.brewing</td>
<td>brewing</td>
</tr>
<tr>
<td>oic.r.light.brightness</td>
<td>brightness</td>
</tr>
<tr>
<td>oic.r.clock</td>
<td>clock</td>
</tr>
<tr>
<td>oic.r.operational.state</td>
<td>clothesdryerjobmode</td>
</tr>
<tr>
<td>oic.r.colour</td>
<td>colour</td>
</tr>
<tr>
<td>oic.r.colour.saturation</td>
<td>coloursaturation</td>
</tr>
<tr>
<td>oic.r.userinfo</td>
<td>credentials</td>
</tr>
<tr>
<td>oic.r.operational.state</td>
<td>dehumidiiferjobmode</td>
</tr>
<tr>
<td>oic.r.clock</td>
<td>doorStatus</td>
</tr>
<tr>
<td>oic.r.vehicle.connector</td>
<td>electricvehicleconnector</td>
</tr>
<tr>
<td>oic.r.energy.electrical</td>
<td>energyconsumption</td>
</tr>
<tr>
<td>oic.r.energy.consumption</td>
<td>energygeneration</td>
</tr>
<tr>
<td>oic.r.consumable</td>
<td>filterinfo</td>
</tr>
<tr>
<td>oic.r.sensor</td>
<td></td>
</tr>
<tr>
<td>Feature</td>
<td>URI</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>foaming</td>
<td>oic.r.foaming</td>
</tr>
<tr>
<td>grinder</td>
<td>oic.r.grinder</td>
</tr>
<tr>
<td></td>
<td>oic.r.switch.binary</td>
</tr>
<tr>
<td>heatingzone</td>
<td>oic.r.heatingzone</td>
</tr>
<tr>
<td>height</td>
<td>oic.r.height</td>
</tr>
<tr>
<td>hotwatersupply</td>
<td>oic.r.switch.binary</td>
</tr>
<tr>
<td></td>
<td>oic.r.sensor</td>
</tr>
<tr>
<td>impactsensor</td>
<td>oic.r.impactsensor</td>
</tr>
<tr>
<td>keepwarm</td>
<td>oic.r.time.period</td>
</tr>
<tr>
<td>Keypad</td>
<td>oic.r.keypadchar</td>
</tr>
<tr>
<td>liquidlevel</td>
<td>oic.r.liquid.level</td>
</tr>
<tr>
<td>liquidremaining</td>
<td>oic.r.liquid.level</td>
</tr>
<tr>
<td>lock</td>
<td>oic.r.lock</td>
</tr>
<tr>
<td>motionSensor</td>
<td>oic.r.sensor.motion</td>
</tr>
<tr>
<td></td>
<td>oic.r.sensor.props</td>
</tr>
<tr>
<td>openlevel</td>
<td>oic.r.openlevel</td>
</tr>
<tr>
<td>operationmode</td>
<td>oic.r.switch.binary</td>
</tr>
<tr>
<td>overcurrentsensor</td>
<td>oic.r.time.period</td>
</tr>
<tr>
<td></td>
<td>oic.r.sensor</td>
</tr>
<tr>
<td>powersave</td>
<td>oic.r.switch.binary</td>
</tr>
<tr>
<td>printqueue</td>
<td>oic.r.printer.queue</td>
</tr>
<tr>
<td>pushbutton</td>
<td>oic.r.button</td>
</tr>
<tr>
<td>refrigeration</td>
<td>oic.r.refrigeration</td>
</tr>
<tr>
<td>relativeHumidity</td>
<td>oic.r.humidity</td>
</tr>
<tr>
<td>robotcleanerjobmode</td>
<td>oic.r.operational.state</td>
</tr>
<tr>
<td>steamclosetjobmode</td>
<td>oic.r.operational.state</td>
</tr>
</tbody>
</table>
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>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>memorySize</td>
<td>oic.r.3dprinter</td>
<td>oic.r.3dprinter.memorySize = memorySize</td>
<td>memorySize = oic.r.3dprinter.memorySize</td>
</tr>
<tr>
<td>printType</td>
<td>oic.r.3dprinter</td>
<td>oic.r.3dprinter.3dprinttype = printType</td>
<td>printType = oic.r.3dprinter.3dprintype</td>
</tr>
<tr>
<td>printSizeX</td>
<td>oic.r.3dprinter</td>
<td>oic.r.3dprinter.printsizeX = printSizeX</td>
<td>printSizeX = oic.r.3dprinter.printsizeX</td>
</tr>
<tr>
<td>printSizeZ</td>
<td>oic.r.3dprinter</td>
<td>oic.r.3dprinter.printsizeZ = printSizeZ</td>
<td>printSizeZ = oic.r.3dprinter.printsizeZ</td>
</tr>
<tr>
<td>network</td>
<td>oic.r.3dprinter</td>
<td>oic.r.3dprinter.wanconnected = network</td>
<td>network = oic.r.3dprinter.wanconnected</td>
</tr>
<tr>
<td>printSizeY</td>
<td>oic.r.3dprinter</td>
<td>oic.r.3dprinter.printsizeY = printSizeY</td>
<td>printSizeY = oic.r.3dprinter.printsizey</td>
</tr>
</tbody>
</table>
Table 4 provides the details of the Properties that are part of "onem2m.m.3Dprinter".

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

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>memorySize</td>
<td>number</td>
<td>yes</td>
<td>Memory Size</td>
</tr>
<tr>
<td></td>
<td>printType</td>
<td>string</td>
<td>yes</td>
<td>3D Printer Type</td>
</tr>
<tr>
<td></td>
<td>printSizeX</td>
<td>number</td>
<td>yes</td>
<td>Print Size X</td>
</tr>
<tr>
<td></td>
<td>printSizeZ</td>
<td>number</td>
<td>yes</td>
<td>Print Size Z</td>
</tr>
<tr>
<td></td>
<td>network</td>
<td>boolean</td>
<td>yes</td>
<td>WAN Connected</td>
</tr>
<tr>
<td></td>
<td>printSizeY</td>
<td>number</td>
<td>yes</td>
<td>Print Size Y</td>
</tr>
</tbody>
</table>

9.2.3 Derived model definition

```json
{
  "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.3dprintype = 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"
            ],
            "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".

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".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>loudness</td>
<td>oic.r.soundpressure</td>
<td>oic.r.soundpressure.dba = loudness</td>
<td>loudness = oic.r.soundpressure.dba</td>
</tr>
<tr>
<td>acousticStatus</td>
<td>oic.r.soundpressure</td>
<td>oic.r.soundpressure.percent age = acousticStatus</td>
<td>acousticStatus = oic.r.soundpressure.percent age</td>
</tr>
</tbody>
</table>

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

Table 6 – The properties of "onem2m.acousticsensor".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>loudness</td>
<td>loudness</td>
<td>number</td>
<td>yes</td>
<td>The common unit of the sound pressure in dBa.</td>
</tr>
<tr>
<td>acousticStatus</td>
<td>acousticStatus</td>
<td>integer</td>
<td>no</td>
<td>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.</td>
</tr>
</tbody>
</table>

9.3.3 Derived model definition

```json
{
  "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."
        },
        "acousticStatus": {
          "type": "number",
          "description": "The common unit of the sound pressure in 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"
  ]
}
}

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".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>jobModes</td>
<td>oic.r.operation.al.state</td>
<td>This does not exist in OCF as all possible operational states are available.</td>
<td>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</td>
</tr>
</tbody>
</table>
| currentJobModeName   | oic.r.operation.al.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.operation.al.state.currentJobState == "cooling") {
  currentJobModeName = "cool";
})if
if (oic.r.operational.state.currentJobState == "airDry") {
    currentJobModeName = "airDry";
} else {
    currentJobModeName = "";
}

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 == "cooling") {
    currentJobModeName = "ACO";
}

if (oic.r.operational.state.currentJobState == "aroma") {
    currentJobModeName = "aroma";
} else {
    currentJobModeName = "";
}

Need to translate between the OCF operational state enumerated string and the oneM2M integer value:

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

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

9.4.3 Derived model definition

```json
{ "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": {
 "cooling": "cooling",
 "airDry": "airDry",
 "fan": "fan",
 "artificialIntelligence": "artificialIntelligence",
 "heating": "heating"
 }},
 "currentJobMode": 1
 }
 },
 "currentJobMode": 2
 },
 "currentJobMode": 3
 }
 "currentJobMode": 4
 },
 "currentJobMode": 5
 },
 "currentJobMode": 6
 }
```
"cleaning\"; }",
"auto\"; }
"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; }
"x-from-ocf": {
"Need to translate between the OCF operational state enumerated string and the oneM2M string value",
"if (oic.r.operational.state.currentJobState == \"cool\") { 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 = \"\"; }
"x-from-ocf": {
"Need to translate between the OCF operational state enumerated string and the oneM2M string value",
"if (oic.r.operational.state.currentJobState == \"cool\") { 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 = \"\"; }
"
"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:";
"coo
"jobModes[1] = 1",
"jobModes[2] = 2",
"jobModes[3] = 3",
"jobModes[4] = 4",
"jobModes[5] = 5",
"jobModes[6] = 6",
"jobModes[7] = 7",
"jobModes[8] = 8"
]
}

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>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>minSpeed</td>
<td>oic.r.airflow</td>
<td>range[0] = minSpeed</td>
<td>minSpeed = range[0] otherwise: minSpeed = 0</td>
</tr>
<tr>
<td>supportedVerticalDirection</td>
<td>oic.r.airflow</td>
<td>supportedVerticalDirection = supportedVerticalDirection</td>
<td></td>
</tr>
<tr>
<td>maxSpeed</td>
<td>oic.r.airflow</td>
<td>range[1] = maxSpeed</td>
<td>maxSpeed = range[1] otherwise: maxSpeed = 100</td>
</tr>
<tr>
<td>horizontalDirection</td>
<td>oic.r.airflow</td>
<td>direction = horizontalDirection</td>
<td>horizontalDirection = direction</td>
</tr>
<tr>
<td>autoMode</td>
<td>oic.r.airflow</td>
<td>if autoMode = true, ocf.automode = On if autoMode = false, ocf.automode = Off</td>
<td>if ocf.automode = On, autoMode = true if ocf.automode = Off, autoMode = false</td>
</tr>
<tr>
<td>oneM2M Property name</td>
<td>Type</td>
<td>Required</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>------------</td>
<td>----------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>minSpeed</td>
<td>integer</td>
<td>no</td>
<td>Min value for the speed level. If not present, the default is 0.</td>
</tr>
<tr>
<td>supportedVerticalDirection</td>
<td>array</td>
<td>no</td>
<td>List of supported vertical direction.</td>
</tr>
<tr>
<td>maxSpeed</td>
<td>integer</td>
<td>no</td>
<td>Max value for the speed level. If not present, the default is 100.</td>
</tr>
<tr>
<td>horizontalDirection</td>
<td></td>
<td>no</td>
<td>The horizontal directionality of the air flow.</td>
</tr>
<tr>
<td>autoMode</td>
<td>boolean</td>
<td>no</td>
<td>Status of the automode feature. If on speed is set by the device.</td>
</tr>
<tr>
<td>speed</td>
<td>integer</td>
<td>yes</td>
<td>current speed level in the range of [minSpeed, maxSpeed]</td>
</tr>
<tr>
<td>verticalDirection</td>
<td></td>
<td>no</td>
<td>The vertical directionality of the air flow.</td>
</tr>
</tbody>
</table>
9.5.3 Derived model definition

```json
{
  "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."
        },
        "maxSpeed": {
          "type": "integer",
          "description": "Max value for the speed level. If not present, the default is 100."
        },
        "verticalDirection": {
          "enum": ["auto", "center", "up", "down"],
          "description": "The vertical directionality of the air flow.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.airflow",
            "x-to-ocf": ["direction = verticalDirection"],
            "x-from-ocf": ["verticalDirection = direction"]
          }
        }
      }
    }
  }
}
```

List of supported horizontal direction.
"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 airflow.",
  "x-ocf-conversion": {
    "x-ocf-alias": "oic.r.airflow",
    "x-to-ocf": [
      "direction = horizontalDirection"
    ],
    "x-from-ocf": [
      "horizontalDirection = direction"
    ]
  }
},

"supportedhorizontalDirection": {
  "type": "array",
  "items": ["auto", "center", "left", "right"]
},

"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 = false, 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"
  ]
}
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.m.airpurifierjobmode".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
</table>
| currentJobMode       | oic.r.operational.state | Need to translate between the oneM2M integer value and the OCF operational state enumerated string if (currentJobMode == 1) {oic.r.operational.state.currentJobState == "normal";} else if (currentJobMode == 2) {oic.r.operational.state.currentJobState == "sleeping";} if (currentJobMode == 3) {oic.r.operational.state.currentJobState == "silent";} else if (currentJobMode == 4) {oic.r.operational.state.currentJobState == "wet";} if (currentJobMode == 5) {oic.r.operational.state.currentJobState == "circulating";} else if (currentJobMode == 6) {oic.r.operational.state.currentJobState == "dual";} else {oic.r.operational.state.currentJobState == "unknown";}
|                      |              |        | Need to translate between the OCF operational state enumerated string and the oneM2M integer value if (oic.r.operational.state.currentJobState == "normal") {currentJobMode = 1;} else if (oic.r.operational.state.currentJobState == "sleeping") {currentJobMode = 2;} else if (oic.r.operational.state.currentJobState == "silent") {currentJobMode = 3;} else if (oic.r.operational.state.currentJobState == "wet") {currentJobMode = 4;} else if (oic.r.operational.state.currentJobState == "circulating") {currentJobMode = 5;} else if (oic.r.operational.state.currentJobState == "dual") {currentJobMode = 6;} else {currentJobMode = 7;}
| 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] = 1; jobModes[2] = 2; jobModes[3] = 3; jobModes[4] = 4; jobModes[5] = 6; }

| 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 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 = ""; }

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

Table 12 – The properties of "onem2m.airpurifierjobmode".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>currentJobMode</td>
<td>currentJobMode</td>
<td>integer</td>
<td>yes</td>
<td>Currently active job mode.</td>
</tr>
<tr>
<td>jobModes</td>
<td>jobModes</td>
<td>array</td>
<td>yes</td>
<td>List of possible job states the device supports</td>
</tr>
</tbody>
</table>
9.6.3 Derived model definition

```json
{
  "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."
        },
        "currentJobModeName": {
          "type": "string",
          "description": "Name of current job mode in string. This can be used when currentJobMode is vendor-specific.
```
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": {
"x-from-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/beaconmode"}
],
"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".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>oneM2M Property name</td>
<td>OCF Resource</td>
<td>To OCF</td>
<td>From OCF</td>
</tr>
<tr>
<td>Variable</td>
<td>oic.r.airquality.contaminantvalue</td>
<td>sensorOdor</td>
<td>sensorOdor = oic.r.airquality.contaminantvalue</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------------------------</td>
<td>------------------------------------------------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>sensorOdor</td>
<td>oic.r.airquality.contaminantvalue</td>
<td>sensorOdoroic.r.airquality.contaminanttype = &quot;Odor&quot;oic.r.airquality.valuetype = &quot;Measured&quot;</td>
<td></td>
</tr>
<tr>
<td>VOC</td>
<td>oic.r.airquality.contaminantvalue</td>
<td>VOCoic.r.airquality.contaminanttype = &quot;VOC&quot;oic.r.airquality.valuetype = &quot;Measured&quot;</td>
<td></td>
</tr>
<tr>
<td>monitoringEnabled</td>
<td>oic.r.switch.binary</td>
<td>if monitoringEnabled == 0oic.r.switch.binary.value = falseif monitoringEnabled == 1oic.r.switch.binary.value = true</td>
<td></td>
</tr>
<tr>
<td>sensorHumidity</td>
<td>oic.r.humidity</td>
<td>sensorHumidity = oic.r.humidity.humidity</td>
<td></td>
</tr>
<tr>
<td>sensorPM2</td>
<td>oic.r.airquality.contaminantvalue</td>
<td>sensorPM2oic.r.airquality.contaminanttype = &quot;PM2.5&quot;oic.r.airquality.valuetype = &quot;Measured&quot;</td>
<td></td>
</tr>
<tr>
<td>sensorPM10</td>
<td>oic.r.airquality.contaminantvalue</td>
<td>sensorPM10oic.r.airquality.contaminanttype = &quot;PM10&quot;oic.r.airquality.valuetype = &quot;Measured&quot;</td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>oic.r.airquality.contaminantvalue</td>
<td>COoic.r.airquality.contaminanttype = &quot;CO&quot;oic.r.airquality.valuetype = &quot;Measured&quot;</td>
<td></td>
</tr>
<tr>
<td>CH2O</td>
<td>oic.r.airquality.contaminantvalue</td>
<td>CH2Ooic.r.airquality.contaminanttype = &quot;CH2O&quot;oic.r.airquality.valuetype = &quot;Measured&quot;</td>
<td></td>
</tr>
</tbody>
</table>
Table 14 provides the details of the Properties that are part of "onem2m.m.airqualitysensor".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>sensorOdor</td>
<td>integer</td>
<td>no</td>
<td></td>
<td>Concentration of odor that reflects air pollution. Minimum value is 0, and maximum is 1000.</td>
</tr>
<tr>
<td>VOC</td>
<td>integer</td>
<td>no</td>
<td></td>
<td>This value indicates VOC (Volatile Organic Compounds) in ppm (parts per million)</td>
</tr>
<tr>
<td>monitoringEnabled</td>
<td>boolean</td>
<td>no</td>
<td></td>
<td>1 allows monitoring this resource whereas 0 does not.</td>
</tr>
<tr>
<td>sensorHumidity</td>
<td>integer</td>
<td>no</td>
<td></td>
<td>Measured humidity. Minimum value is 0, and maximum is 100.</td>
</tr>
<tr>
<td>sensorPM2</td>
<td>integer</td>
<td>no</td>
<td></td>
<td>Concentration of Particle Matter under 2.5um. Minimum value is 0, and maximum is 1000.</td>
</tr>
<tr>
<td>sensorPM10</td>
<td>integer</td>
<td>no</td>
<td></td>
<td>Concentration of Particle Matter under 10um. Minimum value</td>
</tr>
<tr>
<td>Variable</td>
<td>Type</td>
<td>Required</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>------------</td>
<td>----------</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>integer</td>
<td>no</td>
<td>This value indicates CO in ppm (parts per million)</td>
<td></td>
</tr>
<tr>
<td>CH2O</td>
<td>integer</td>
<td>no</td>
<td>This value indicates CH2O in ppm (parts per million)</td>
<td></td>
</tr>
<tr>
<td>CO2</td>
<td>integer</td>
<td>no</td>
<td>This value indicates CO2 in ppm (parts per million)</td>
<td></td>
</tr>
<tr>
<td>sensorPM1</td>
<td>integer</td>
<td>no</td>
<td>Concentration of Particle Matter under 1um. Minimum value is 0, and maximum is 1000.</td>
<td></td>
</tr>
</tbody>
</table>

### 9.7.3 Derived model definition

```json
{
  "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."
        },
        "sensorPM2": {
          "type": "integer",
          "description": "Concentration of Particle Matter under 2.5um. Minimum value is 0, and maximum is 1000."
        }
      }
    }
  }
}
```
"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"",
      "oic.r.airquality.valuetype = "Measured""
    },
    "x-from-ocf": {
      "sensorPM10 = oic.r.airquality.contaminantvalue"
    }
  }
},
"sensorOdor": {
  "type": "integer",
  "description": "Concentration of odor that reflects air pollution. Minimum value is 0, and maximum is 1000.",
  "x-ocf-conversion": {
    "x-ocf-alias": "oic.r.airquality",
    "x-to-ocf": {
      "oic.r.airquality.contaminantvalue = sensorOdor",
      "oic.r.airquality.contaminanttype = "Odor"",
      "oic.r.airquality.valuetype = "Measured""
    },
    "x-from-ocf": {
      "sensorOdor = oic.r.airquality.contaminantvalue"
    }
  }
},
"sensorHumidity": {
  "type": "integer",
  "description": "Measured humidity. Minimum value is 0, and maximum is 100.",
  "x-ocf-conversion": {
    "x-ocf-alias": "oic.r.humidity",
    "x-to-ocf": {
      "oic.r.humidity.humidity = sensorHumidity"
    },
    "x-from-ocf": {
      "sensorHumidity = oic.r.humidity.humidity"
    }
  }
},
"monitoringEnabled": {
  "type": "boolean",
  "description": "1 allows monitoring this resource whereas 0 does not.",
  "x-ocf-conversion": {
    "x-ocf-alias": "oic.r.switch.binary",
    "x-to-ocf": {
      "if monitoringEnabled == 0",
      "oic.r.switch.binary.value = false",
      "if monitoringEnabled == 1",
      "oic.r.switch.binary.value = true"
    },
    "x-from-ocf": {
      "if oic.r.switch.binary.value == false",
      "monitoringEnabled = 0",
      "if oic.r.switch.binary.value == true",
      "monitoringEnabled = 1"
    }
  }
},
"CO2": {
  "type": "integer",
  "description": "This value indicates CO2 in ppm (parts per million)",
  "x-ocf-conversion": {
    "x-ocf-alias": "oic.r.airquality",
    "x-to-ocf": {
    }
"oic.r.airquality.contaminantvalue = CO2",
"oic.r.airquality.contaminanttype = "CO2"
"oic.r.airquality.valuetype = "Measured"
],
"x-from-ocf": [
  "CO2 = oic.r.airquality.contaminantvalue"
]
}
},
"CO": {
  "type": "integer",
  "description": "This value indicates CO in ppm (parts per million)",
  "x-ocf-conversion": {
    "x-ocf-alias": "oic.r.airquality",
    "x-to-ocf": [
      "oic.r.airquality.contaminantvalue = CO",
      "oic.r.airquality.contaminanttype = "CO"",
      "oic.r.airquality.valuetype = "Measured"
    ],
    "x-from-ocf": [
      "CO = oic.r.airquality.contaminantvalue"
    ]
  }
},
"CH2O": {
  "type": "integer",
  "description": "This value indicates CH2O in ppm (parts per million)",
  "x-ocf-conversion": {
    "x-ocf-alias": "oic.r.airquality",
    "x-to-ocf": [
      "oic.r.airquality.contaminantvalue = CH2O",
      "oic.r.airquality.contaminanttype = "CH2O"",
      "oic.r.airquality.valuetype = "Measured"
    ],
    "x-from-ocf": [
      "CH2O = oic.r.airquality.contaminantvalue"
    ]
  }
},
"VOC": {
  "type": "integer",
  "description": "This value indicates VOC (Volatile Organic Compounds) in ppm (parts per million)",
  "x-ocf-conversion": {
    "x-ocf-alias": "oic.r.airquality",
    "x-to-ocf": [
      "oic.r.airquality.contaminantvalue = VOC",
      "oic.r.airquality.contaminanttype = "VOC"",
      "oic.r.airquality.valuetype = "Measured"
    ],
    "x-from-ocf": [
      "VOC = oic.r.airquality.contaminantvalue"
    ]
  }
],
"type": "object",
"allOf": [
  {"$ref": "/definitions/onem2m.m.airqualitysensor"}],
"required": []
}

9.8 Alarm Speaker

9.8.1 Derived model

The derived model: "onem2m.m.alarmspeaker".
9.8.2 Property definition

Table 15 provides the detailed per Property mapping for "onem2m.m.alarmspeaker".

Table 15 – The property mapping for "onem2m.alarmspeaker".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>alarmStatus</td>
<td>oic.r.switch.binary</td>
<td>oic.r.switch.binary.value = alarmStatus</td>
<td>alarmStatus = oic.r.switch.binary.value</td>
</tr>
<tr>
<td>tone</td>
<td>oic.r.audiovolume</td>
<td>oic.r.audio.volume = tone * 20</td>
<td>tone = oic.r.audio.volume / 20</td>
</tr>
<tr>
<td>Light</td>
<td>oic.r.light.dimming</td>
<td>oic.r.light.dimming = Light</td>
<td>Light = oic.r.light.dimming</td>
</tr>
</tbody>
</table>

Table 16 provides the details of the Properties that are part of "onem2m.m.alarmspeaker".

Table 16 – The properties of "onem2m.alarmspeaker".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>alarmStatus</td>
<td>boolean</td>
<td>yes</td>
<td>true indicates the alarm start while false indicates the alarm stop.</td>
</tr>
<tr>
<td>tone</td>
<td>integer</td>
<td>no</td>
<td>Representing the tones of the alarm</td>
</tr>
<tr>
<td>Light</td>
<td>integer</td>
<td>no</td>
<td>Representing the lighting mode of the alarm</td>
</tr>
</tbody>
</table>

9.8.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.alarmspeaker.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Alarm Speaker",
  "definitions": {
    "onem2m.m.alarmspeaker": {
      "type": "object",
      "properties": {
        "tone": {
          "type": "integer",
          "description": "Representing the tones of the alarm",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.audiovolume",
            "x-to-ocf": "oic.r.audio.volume = tone * 20"
          },
          "x-from-ocf": {
            "tone = oic.r.audio.volume / 20"
          }
        }
      }
    }
  }
}
```
"Light": {
  "type": "integer",
  "description": "Representing the lighting mode of the alarm.",
  "x-ocf-conversion": {
    "x-ocf-alias": "oic.r.light.dimming",
    "x-to-ocf": {
      "oic.r.light.dimming = Light"
    },
    "x-from-ocf": {
      "Light = oic.r.light.dimming"
    }
  }
},
"alarmStatus": {
  "type": "boolean",
  "description": "true indicates the alarm start while false indicates the alarm stop.",
  "x-ocf-conversion": {
    "x-ocf-alias": "oic.r.switch.binary",
    "x-to-ocf": {
      "oic.r.switch.binary.value = alarmStatus"
    },
    "x-from-ocf": {
      "alarmStatus = oic.r.switch.binary.value"
    }
  }
}
},
"alarmStatus": {
  "type": "boolean",
  "description": "true indicates the alarm start while false indicates the alarm stop.",
  "x-ocf-conversion": {
    "x-ocf-alias": "oic.r.switch.binary",
    "x-to-ocf": {
      "oic.r.switch.binary.value = alarmStatus"
    },
    "x-from-ocf": {
      "alarmStatus = oic.r.switch.binary.value"
    }
  }
}
},
"type": "object",
"allOf": [
  {"$ref": "#/definitions/onem2m.m.airqualitysensor"}
]
"required": [ "alarmStatus" ]
}

## 9.9 Audio Volume
### 9.9.1 Derived model
The derived model: "onem2m.m.audioVolume".

### 9.9.2 Property definition
Table 17 provides the detailed per Property mapping for "onem2m.m.audioVolume".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>muteEnabled</td>
<td>oic.r.audio</td>
<td>oic.r.audio.mute = muteEnabled</td>
<td>oic.r.audio.mute = muteEnabled</td>
<td></td>
</tr>
<tr>
<td>stepValue</td>
<td>oic.r.audio</td>
<td>oic.r.audio.step = stepValue</td>
<td>stepValue = oic.r.audio.step</td>
<td></td>
</tr>
<tr>
<td>maxValue</td>
<td>oic.r.audio</td>
<td>oic.r.audio.range[0] = 0oic.r.audio.range[1] = maxValue</td>
<td>maxvalue = 100</td>
<td></td>
</tr>
</tbody>
</table>
Table 18 provides the details of the Properties that are part of “onem2m.m.audioVolume”.

Table 18 – The properties of “onem2m.audioVolume”.

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>muteEnabled</td>
<td>boolean</td>
<td>yes</td>
<td></td>
<td>The current status of the mute enablement</td>
</tr>
<tr>
<td>stepValue</td>
<td>integer</td>
<td>no</td>
<td></td>
<td>Step value used by the ‘UpVolume’ and ‘DownVolume’ actions</td>
</tr>
<tr>
<td>maxValue</td>
<td>integer</td>
<td>no</td>
<td></td>
<td>Maximum value allowed for Volume. maxValue is 100 by default if ‘maxValue’ is not provided</td>
</tr>
<tr>
<td>volumePercentage</td>
<td>number</td>
<td>yes</td>
<td></td>
<td>The rounded percentage of the current volume</td>
</tr>
</tbody>
</table>

9.9.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.audioVolume.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Audio Volume",
  "definitions": {
    "onem2m.m.audioVolume": {
      "type": "object",
      "properties": {
        "volumePercentage": {
          "type": "number",
          "description": "The rounded percentage of the current volume",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.audio",
            "x-to-ocf": ["oic.r.audio.volume = volumePercentage"],
            "x-from-ocf": ["volumePercentage = oic.r.audio.volume"],
          }
        },
        "muteEnabled": {
          "type": "boolean",
          "description": "The current status of the mute enablement",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.audio",
            "x-to-ocf": ["oic.r.audio.mute = muteEnabled"],
            "x-from-ocf": ["muteEnabled = oic.r.audio.mute"]
          }
        }
      }
    }
  }
}
```
"muteEnabled": oic.r.audio.mute
}
"stepValue": {
  "type": "integer",
  "description": "Step value used by the 'UpVolume' and 'DownVolume' actions",
  "x-ocf-conversion": {
    "x-ocf-alias": "oic.r.audio",
    "x-to-ocf": {
      "oic.r.audio.step = stepValue"
    },
    "x-from-ocf": {
      "stepValue = oic.r.audio.step"
    }
  }
},
"maxValue": {
  "type": "integer",
  "description": "Maximum value allowed for Volume. maxValue is 100 by default if 'maxValue' is not provided",
  "x-ocf-conversion": {
    "x-ocf-alias": "oic.r.audio",
    "x-to-ocf": {
      "oic.r.audio.range[0] = 0",
      "oic.r.audio.range[1] = maxValue"
    },
    "x-from-ocf": {
      "maxValue = oic.r.audio.range[1]",
      "otherwise: maxValue = 100"
    }
  }
}
}
}
}
}

9.10  Auto Document Feeder

9.10.1  Derived model
The derived model: "onem2m.m.autodocumentfeeder".

9.10.2  Property definition

Table 19 provides the detailed per Property mapping for "onem2m.m.autodocumentfeeder".

Table 19 – The property mapping for "onem2m.autodocumentfeeder".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>adfStates</td>
<td>oic.r.operational.state</td>
<td>This is an array of strings in OCF and an array of integers in oneM2M. For each element in the source array, do the assignment into the same position in the destination array.adfStates[i] =</td>
<td>This is an array of strings in OCF and an array of integers in oneM2M. For each element in the source array, do the assignment into the same position in the destination array.adfStates[i] =</td>
</tr>
</tbody>
</table>
Table 20 provides the details of the Properties that are part of "onem2m.m.autodocumentfeeder".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>adfStates</td>
<td>currentAdfState</td>
<td>integer</td>
<td>yes</td>
<td>Currently active adf(auto document feeder) state.</td>
</tr>
<tr>
<td></td>
<td>adfStates</td>
<td>array</td>
<td>yes</td>
<td>List of possible adf states the device supports</td>
</tr>
</tbody>
</table>

9.10.3 Derived model definition

```

```
9.11 Battery

9.11.1 Derived model

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

9.11.2 Property definition

Table 21 provides the detailed per Property mapping for "onem2m.m.battery".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource name</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>material</td>
<td>oic.r.energy.battery</td>
<td>oic.r.batterymaterial.material = material Direct translation is difficult as OCF has declared an enumeration of strings where oneM2M has a free-form string. Translation code will need to determine which oneM2M strings can be mapped to the OCF enumerated values in oic.r.batterymaterial</td>
<td>material = oic.r.batterymaterial.material[INDEX]</td>
</tr>
<tr>
<td>electricEnergy</td>
<td>oic.r.energy.battery</td>
<td>oic.r.energy.electrical.current = electricEnergy</td>
<td>electricEnergy = oic.r.energy.electrical.current</td>
</tr>
<tr>
<td>charging</td>
<td>oic.r.energy.battery</td>
<td>oic.r.energy.battery.charging = charging</td>
<td>charging = oic.r.energy.battery.charging</td>
</tr>
<tr>
<td>discharging</td>
<td>oic.r.energy.battery</td>
<td>oic.r.energy.battery.discharging = discharging</td>
<td>discharging = oic.r.energy.battery.discharging</td>
</tr>
<tr>
<td>capacity</td>
<td>oic.r.energy.battery</td>
<td>oic.r.energy.battery.capacity = capacity / 1000</td>
<td>capacity = oic.r.energy.battery.capacity * 1000</td>
</tr>
<tr>
<td>level</td>
<td>oic.r.energy.battery</td>
<td>oic.r.energy.battery.charge = level</td>
<td>level = oic.r.energy.battery.charge</td>
</tr>
<tr>
<td>oneM2M name</td>
<td>Property name</td>
<td>Type</td>
<td>Required</td>
</tr>
<tr>
<td>------------</td>
<td>--------------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>material</td>
<td>string</td>
<td>no</td>
<td></td>
</tr>
<tr>
<td>electricEnergy</td>
<td>integer</td>
<td>no</td>
<td></td>
</tr>
<tr>
<td>charging</td>
<td>boolean</td>
<td>no</td>
<td></td>
</tr>
<tr>
<td>discharging</td>
<td>boolean</td>
<td>no</td>
<td></td>
</tr>
<tr>
<td>capacity</td>
<td>integer</td>
<td>no</td>
<td></td>
</tr>
<tr>
<td>level</td>
<td>integer</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>batteryThreshold</td>
<td>integer</td>
<td>no</td>
<td></td>
</tr>
</tbody>
</table>

Table 22 – The properties of "onem2m.m.battery".
to 'True'. This datapoint can be used to raise an alarm, depending on the implementation

<table>
<thead>
<tr>
<th>voltage</th>
<th>integer</th>
<th>no</th>
<th>Rated voltage. The unit of measure is volts (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>lowBattery</td>
<td>boolean</td>
<td>no</td>
<td>To indicate that the battery is on a low charge level</td>
</tr>
</tbody>
</table>

9.11.3 Derived model definition

```json
{
    "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.battery.json#",
    "$schema": "http://json-schema.org/draft-04/schema#",
    "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
    "title": "Battery",
    "definitions": {
        "onem2m.battery": {
            "type": "object",
            "properties": {
                "level": {
                    "type": "integer",
                    "description": "The rounded percentage of the current charging level of a battery in the range of [0, 100)",
                    "x-ocf-conversion": {
                        "x-ocf-alias": "oic.r.energy.battery",
                        "x-to-ocf": [
                            "oic.r.energy.battery.charge = level"
                        ],
                        "x-from-ocf": [
                            "level = oic.r.energy.battery.charge"
                        ]
                    }
                },
                "capacity": {
                    "type": "integer",
                    "description": "The total capacity of battery in mAh",
                    "x-ocf-conversion": {
                        "x-ocf-alias": "oic.r.energy.battery",
                        "x-to-ocf": [
                            "oic.r.energy.battery.capacity = capacity / 1000"
                        ],
                        "x-from-ocf": [
                            "capacity = oic.r.energy.battery.capacity * 1000"
                        ]
                    }
                },
                "charging": {
                    "type": "boolean",
                    "description": "The status of charging. 'True' indicates enabled, and 'False' indicates not enabled",
                    "x-ocf-conversion": {
                        "x-ocf-alias": "oic.r.energy.battery",
                        "x-to-ocf": [
                            "oic.r.energy.battery.charging = charging"
                        ],
                        "x-from-ocf": [
                            "charging = oic.r.energy.battery.charging"
                        ]
                    }
                }
            }
        }
    }
}
```
"discharging": {  
  "type": "boolean",  
  "description": "The status of discharging. 'True' indicates charging, and 'False' indicates not charging",  
  "x-ocf-conversion": {  
    "x-ocf-alias": "oic.r.energy.battery",  
    "x-to-ocf": [  
      "oic.r.energy.battery.discharging = discharging"  
    ],  
    "x-from-ocf": [  
      "discharging = oic.r.energy.battery.discharging"  
    ]  
  }  
},  

"lowBattery": {  
  "type": "boolean",  
  "description": "To indicate that the battery is on a low charge level",  
  "x-ocf-conversion": {  
    "x-ocf-alias": "oic.r.energy.battery",  
    "x-to-ocf": [  
      "oic.r.energy.battery.lowbattery = lowBattery"  
    ],  
    "x-from-ocf": [  
      "lowBattery = oic.r.energy.battery.lowbattery"  
    ]  
  }  
},  

"batteryThreshold": {  
  "type": "integer",  
  "description": "When a battery's 'level' is less than 'batteryThreshold' then 'lowBattery' is set to 'True'. This datapoint can be used to raise an alarm, depending on the implementation",  
  "x-ocf-conversion": {  
    "x-ocf-alias": "oic.r.energy.battery",  
    "x-to-ocf": [  
      "oic.r.energy.battery.batterythreshold = batteryThreshold"  
    ],  
    "x-from-ocf": [  
      "batteryThreshold = oic.r.energy.battery.batterythreshold"  
    ]  
  }  
},  

"electricEnergy": {  
  "type": "integer",  
  "description": "Rated electric energy. The unit of measure is ampere (A)",  
  "x-ocf-conversion": {  
    "x-ocf-alias": "oic.r.energy.battery",  
    "x-to-ocf": [  
      "oic.r.energy.electrical.current = electricEnergy"  
    ],  
    "x-from-ocf": [  
      "electricEnergy = oic.r.energy.electrical.current"  
    ]  
  }  
},  

"voltage": {  
  "type": "integer",  
  "description": "Rated voltage. The unit of measure is volts (V)",  
  "x-ocf-conversion": {  
    "x-ocf-alias": "oic.r.energy.battery",  
    "x-to-ocf": [  
      "oic.r.energy.electrical.voltage = voltage"  
    ],  
    "x-from-ocf": [  
      "voltage = oic.r.energy.electrical.voltage"  
    ]  
  }  
},  

"material": {  
  "type": "string",  
  "description": "The material of the cell (for example lithium ion, nickel and lead",  

9.12 Binary Object

9.12.1 Derived model

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

9.12.2 Property definition

Table 23 provides the detailed per Property mapping for "onem2m.m.binaryobject".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>objectTyp e</td>
<td>oic.r.opaquedata</td>
<td>oic.r.opaquedata.payloadtype = objectType</td>
<td>objectTyp e = oic.r.opaquedata.payloadtype</td>
</tr>
<tr>
<td>object</td>
<td>oic.r.opaquedata</td>
<td>oic.r.opaquedata.payload = object.oic.r.opaquedata.encoding = &quot;base64&quot;oic.r.opaquedata.system = &quot;oneM2M&quot;</td>
<td>If the OCF encoding is not base64, then the payload would need to be converted to base64</td>
</tr>
<tr>
<td>size</td>
<td>oic.r.opaquedata</td>
<td>oic.r.opaquedata.size = size</td>
<td>size = oic.r.opaquedata.size</td>
</tr>
<tr>
<td>hash</td>
<td>oic.r.opaquedata</td>
<td>oic.r.opaquedata.hash = hash</td>
<td>hash = oic.r.opaquedata.hash</td>
</tr>
</tbody>
</table>

Table 24 provides the details of the Properties that are part of "onem2m.m.binaryobject".
Table 24 – The properties of "onem2m.m.binaryobject".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>objectType</td>
<td>string</td>
<td>yes</td>
<td></td>
<td>This data point contains the type and subtype of the binary object as a MIME type.</td>
</tr>
<tr>
<td>object</td>
<td>string</td>
<td>yes</td>
<td></td>
<td>This data point contains the base64 encoded binary object.</td>
</tr>
<tr>
<td>size</td>
<td>integer</td>
<td>no</td>
<td></td>
<td>The size of the decoded binary object.</td>
</tr>
<tr>
<td>hash</td>
<td>string</td>
<td>no</td>
<td></td>
<td>The hash code of the blob. If present, it is used to check the decoded content of the &quot;object&quot; data point for integrity. The algorithm used for generating the hash value is SHA-2 [15]. The data point contains the hash as a hex encoded value.</td>
</tr>
</tbody>
</table>

9.12.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.binaryobject.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Binary Object",
  "definitions": {
    "onem2m.m.binaryobject": {
      "type": "object",
      "properties": {
        "object": {
          "type": "string",
          "description": "This data point contains the base64 encoded binary object.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.opaquedata",
            "x-to-ocf": ["oic.r.opaquedata.payload = object",
                          "oic.r.opaquedata.encoding = \"base64\"",
                          "oic.r.opaquedata.system = \"oneM2M\""]
            },
            "x-from-ocf": ["If the OCF encoding is not base64, then the payload would need to be converted to base64", "object = oic.r.opaquedata.payload"],
          }]
      }
    }
  }
}```
"objectType": {
  "type": "string",
  "description": "This data point contains the type and subtype of the binary object as a MIME type."
},
"x-ocf-conversion": {
  "x-ocf-alias": "oic.r.opaquedata",
  "x-to-ocf": {
    "oic.r.opaquedata.payloadtype = objectType"
  },
  "x-from-ocf": {
    "objectType = oic.r.opaquedata.payloadtype"
  }
},
"size": {
  "type": "integer",
  "description": "The size of the decoded binary object."
},
"x-ocf-conversion": {
  "x-ocf-alias": "oic.r.opaquedata",
  "x-to-ocf": {
    "oic.r.opaquedata.size = size"
  },
  "x-from-ocf": {
    "size = oic.r.opaquedata.size"
  }
},
"hash": {
  "type": "string",
  "description": "The hash code of the blob. If present, it is used to check the decoded content of the "object" data point for integrity. The algorithm used for generating the hash value is SHA-2 [15]. The data point contains the hash as a hex encoded value."
},
"x-ocf-conversion": {
  "x-ocf-alias": "oic.r.opaquedata",
  "x-to-ocf": {
    "oic.r.opaquedata.hash = hash"
  },
  "x-from-ocf": {
    "hash = oic.r.opaquedata.hash"
  }
},
"type": "object",
"allOf": [
  "$ref": "#/definitions/onem2m.m.opaquedata"
],
"required": [ "object", "objectType" ]
}

9.13 Binary Switch

9.13.1 Derived model

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

9.13.2 Property definition

Table 25 provides the detailed per Property mapping for "onem2m.m.binaryswitch".

Table 25 – The property mapping for “onem2m.m.binaryswitch”.

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
</table>

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Table 26 provides the details of the Properties that are part of "onem2m.m.binaryswitch".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>powerState</td>
<td>boolean</td>
<td>yes</td>
<td>Status of the switch</td>
</tr>
</tbody>
</table>

Table 26 – The properties of "onem2m.m.binaryswitch".

9.13.3 Derived model definition

```
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.binaryswitch.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Binary Switch",
  "definitions": {
    "onem2m.m.binaryswitch": {
      "type": "object",
      "properties": {
        "powerState": {
          "type": "boolean",
          "description": "Status of the switch",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.swtich.binary",
            "x-to-ocf": ["oic.r.switch.binary.value = powerState"],
            "x-from-ocf": ["powerState = oic.r.switch.binary.value"
          ]
        }
      }
    },
    "type": "object",
    "allOf": ["$ref": "+/definitions/onem2m.m.binaryswitch"
    ],
    "required": ["powerState"
  ]
}
```

9.14 Boiler

9.14.1 Derived model

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

9.14.2 Property definition

Table 27 provides the detailed per Property mapping for "onem2m.m.boiler".

Table 27 – The property mapping for "onem2m.m.boiler".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>powerState</td>
<td>oic.r.switch.binary</td>
<td>powerState = oic.r.switch.binary.value</td>
<td></td>
</tr>
</tbody>
</table>
Table 28 provides the details of the Properties that are part of "onem2m.m.boiler".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>status</td>
<td>boolean</td>
<td>yes</td>
<td>The status of boiling.</td>
</tr>
</tbody>
</table>

### 9.14.3 Derived model definition

```json
{
   "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.boiler.json#",
   "$schema": "http://json-schema.org/draft-04/schema#",
   "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
   "title": "Boiler",
   "definitions": {
      "onem2m.m.boiler": {
         "type": "object",
         "properties": {
            "status": {
               "type": "boolean",
               "description": "The status of boiling."
            },
            "x-ocf-conversion": {
               "x-ocf-alias": "oic.r.sensor",
               "x-to-ocf": ["oic.r.sensor.value = status"],
               "x-from-ocf": ["status = oic.r.sensor.value"]
            }
         }
      }
   },
   "type": "object",
   "allOf": [{
      "$ref": "#/definitions/onem2m.m.boiler"
   }],
   "required": ["status"
```

### 9.15 Brewing

#### 9.15.1 Derived model

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

#### 9.15.2 Property definition

Table 29 provides the detailed per Property mapping for "onem2m.m.brewing".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
</table>

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Table 30 provides the details of the Properties that are part of "onem2m.m.brewing".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>cupsNumber</td>
<td>integer</td>
<td>yes</td>
<td>The current number of the cups requested to brew</td>
<td></td>
</tr>
<tr>
<td>strength</td>
<td>integer</td>
<td>no</td>
<td>The current strength of the drink taste. A higher value indicates a stronger taste</td>
<td></td>
</tr>
</tbody>
</table>

9.15.3 Derived model definition

```
{  
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.brewing.json#",  
  "$schema": "http://json-schema.org/draft-04/schema#",  
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",  
  "title": "Brewing",  
  "definitions": {  
    "onem2m.m.brewing": {  
      "type": "object",  
      "properties": {  
        "cupsNumber": {  
          "type": "integer",  
          "description": "The current number of the cups requested to brew",  
          "x-ocf-conversion": {  
            "x-ocf-alias": "oic.r.brewing",  
            "x-to-ocf": [  
              "oic.r.brewing.amountrequested = cupsNumber * 150"  
            ],  
            "x-from-ocf": [  
              "cupsNumber = floor(oic.r.brewing.amountrequested / 150)"
            ]
          },  
        },  
        "strength": {  
          "type": "integer",  
          "description": "The current strength of the drink taste. A higher value indicates a stronger taste",  
          "x-ocf-conversion": {  
            "x-ocf-alias": "oic.r.brewing",  
            "x-to-ocf": [  
              "oic.r.brewing.strengthrange[0] = 1",  
              "oic.r.brewing.strengthrange[1] = 5",  
              "oic.r.brewing.strength = strength"
            ]
          }
        }
      }
    }
  }
```
"x-from-ocf": [  
  "oic.r.brewing.strengthrange[0] = 1",
  "oic.r.brewing.strengthrange[1] = 5",
  "strength = oic.r.brewing.strength"
]}

9.16 Brightness

9.16.1 Derived model

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

9.16.2 Property definition

Table 31 provides the detailed per Property mapping for "onem2m.m.brightness".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>brightness</td>
<td>oic.r.light.brightness</td>
<td>oic.r.light.brightness.brightness = brightness</td>
<td>oic.r.light.brightness.brightness</td>
</tr>
</tbody>
</table>

Table 32 provides the details of the Properties that are part of "onem2m.m.brightness".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>brightness</td>
<td>brightness</td>
<td>integer</td>
<td>yes</td>
<td>The status of brightness level in percentage</td>
</tr>
</tbody>
</table>

9.16.3 Derived model definition

{  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.brightness.json#",  "$schema": "http://json-schema.org/draft-04/schema#",  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",  "title": "Brightness",  "definitions": {  "onem2m.m.brightness": {  "type": "object",  "properties": {  "brightness": {  "type": "integer",  "description": "The status of brightness level in percentage",  "x-from-ocf": [  
  "oic.r.brewing.strengthrange[0] = 1",
  "oic.r.brewing.strengthrange[1] = 5",
  "strength = oic.r.brewing.strength"
]}

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"x-ocf-alias": "oic.r.light.brightness",
"x-to-ocf": [
  "oic.r.light.brightness.brightness = brightness"
],
"x-from-ocf": [
  "brightness = oic.r.light.brightness.brightness"
]
}
}
}
}
}
}
}
}
}
}
}
}
}
}
}
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}
}
}
}
}
}
}
}
}
}
}
}
}
}
}
}
}
}
}
}
}

Table 34 – The properties of “onem2m.m.clock”.

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>currentTime</td>
<td>string</td>
<td>yes</td>
<td>Information of the current time.</td>
</tr>
<tr>
<td>currentDate</td>
<td>string</td>
<td>yes</td>
<td>Information of the current time.</td>
</tr>
<tr>
<td>currentTimeZone</td>
<td>string</td>
<td>no</td>
<td>Name of current time zone according to the IANA Timezone data format (TZ) (<a href="https://www.iana.org/time-zones">https://www.iana.org/time-zones</a>).</td>
</tr>
</tbody>
</table>

9.17.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.clock.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Clock",
  "definitions": {
    "onem2m.m.clock": {
      "type": "object",
      "properties": {
        "currentTime": {
          "type": "string",
          "description": "Information of the current time.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.clock",
            "x-to-ocf": [
              "bytecpy ( oic.r.clock.datetime + \"timepos\", currentTime, \"timelen\" );"
            ],
            "x-from-ocf": [
              "bytecpy ( currentTime, oic.r.clock.datetime + \"timepos\", \"timelen\" );"
            ]
          }
        },
        "currentDate": {
          "type": "string",
          "description": "Information of the current time.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.clock",
            "x-to-ocf": [
              "bytecpy ( oic.r.clock.datetime + \"datepos\", currentDate, \"datelen\" );"
            ],
            "x-from-ocf": [
              "bytecpy ( currentDate, oic.r.clock.datetime + \"datepos\", \"dateLen\" );"
            ]
          }
        },
        "currentTimeZone": {
          "type": "string",
          "description": "Name of current time zone according to the IANA Timezone data format (TZ) (https://www.iana.org/time-zones).",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.clock",
            "x-to-ocf": {
              "Convert IANA formatted currentTimeZone to oic.r.clock.datetime timezone offset location using library call",
              "tx_convert ( oic.r.clock.datetime + \"tzpos\", currentTimeZone );"
            }
          }
        }
      }
    }
  }
}
```
9.18 Clothes Dryer Job Mode

9.18.1 Derived model

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

9.18.2 Property definition

Table 35 provides the detailed per Property mapping for "onem2m.m.clothesdryerjobmode".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>currentJobModeName</td>
<td>oic.r.operation</td>
<td></td>
<td>This value does not exist in OCF as it is already accommodated in the</td>
</tr>
<tr>
<td></td>
<td>al.state</td>
<td></td>
<td>currentJobMode property. Need to translate between the OCF operational</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>state enumerated string and the oneM2M string value if</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(oic.r.operation.state.currentJobState == &quot;normal&quot;) { currentJobModeName =</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;normal&quot;; } if (oic.r.operation.state.currentJobState == &quot;quick&quot;) {</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>currentJobModeName = &quot;quickDry&quot;; } if (oic.r.operation.state.currentJobState ==</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;permapress&quot; { currentJobModeName &quot;permanentPress&quot;; } if (oic.r.operation.state.currentJobState ==</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;heavy&quot; ) { currentJobModeName = &quot;heavyDuty&quot;; } if (oic.r.operation.state.currentJobState ==</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;delicate&quot; ) { currentJobModeName = &quot;delicates&quot;; } if (oic.r.operation.state.currentJobState ==</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;airDry&quot; )</td>
</tr>
<tr>
<td>jobModes</td>
<td>oic.r.operation.al.state</td>
<td>This does not exist in OCF as all possible operational states are available.</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
</tr>
</tbody>
</table>

| currentJobMode | oic.r.operation.al.state | Need to translate between the oneM2M integer value and the OCF operational state enumerated stringif ( currentJobMode == 1 ) { oic.r.operation.al.state.currentJobState == "normal"; }if ( currentJobMode == 2 ) { oic.r.operation.al.state.currentJobState == "quick"; }if ( currentJobMode == 3 ) { oic.r.operation.al.state.currentJobState == "permapress"; }if ( currentJobMode == 4 ) { oic.r.operation.al.state.currentJobState == "heavy"; }if ( currentJobMode == 5 ) { oic.r.operation.al.state.currentJobState == "delicate"; }if ( currentJobMode == 6 ) { oic.r.operation.al.state.currentJobState == "airDry"; }if ( currentJobMode == 7 ) { oic.r.operation.al.state.currentJobState == "extended"; }else { oic.r.operation.al.state.currentJobState == "unknown"; } |

| currentJobMode | oic.r.operation.al.state | Need to translate between the OCF operational state enumerated string and the oneM2M integer valueif (oic.r.operation.al.state.currentJobState == "normal") { currentJobMode = 1; }if (oic.r.operation.al.state.currentJobState == "quick") { currentJobMode = 2; }if (oic.r.operation.al.state.currentJobState == "permapress") { currentJobMode = 3; }if (oic.r.operation.al.state.currentJobState == "heavy") { currentJobMode = 4; }if (oic.r.operation.al.state.currentJobState == "delicate") { currentJobMode = 5; }if (oic.r.operation.al.state.currentJobState == "airDry") { currentJobMode = 6; }if (oic.r.operation.al.state.currentJobState == "extended") { currentJobMode = 7; }else { currentJobMode = 0; } |

---

Table 36 provides the details of the Properties that are part of "onem2m.m.clothesdryerjobmode".
Table 36 – The properties of "onem2m.m.clothesdryerjobmode".

<table>
<thead>
<tr>
<th>Property</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>currentJobModeName</td>
<td>string</td>
<td>no</td>
<td>Name of current job mode in string. This can be used when currentJobMode is vendor-specific.</td>
</tr>
<tr>
<td>jobModes</td>
<td>array</td>
<td>yes</td>
<td>List of possible job states the device supports</td>
</tr>
<tr>
<td>currentJobMode</td>
<td>integer</td>
<td>yes</td>
<td>Currently active job mode.</td>
</tr>
</tbody>
</table>

9.18.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.clothesdryerjobmode.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Clothes Dryer Job Mode",
  "definitions": {
    "onem2m.m.clothesdryerjobmode": {
      "type": "object",
      "properties": {
        "currentJobMode": {
          "type": "integer",
          "description": "Currently active job mode."
        },
        "jobModes": {
          "type": "array",
          "description": "List of possible job states the device supports"
        }
      }
    },
    "currentJobModeName": {
      "type": "string",
      "description": "Name of current job mode in string. This can be used when currentJobMode is vendor-specific."
    }
  }
}
```
"if (oic.r.operational.state.currentJobState == "airDry") { currentJobMode = 6; }
"if (oic.r.operational.state.currentJobState == "extended") { 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",
  "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 = 
  "normal"; }
  "if (oic.r.operational.state.currentJobState == "quick") { currentJobModeName = 
  "quickDry"; }
  "if (oic.r.operational.state.currentJobState == "permapress" { currentJobModeName = 
  "permanentPress"; }
  "if (oic.r.operational.state.currentJobState == "heavy") { currentJobModeName = 
  "heavyDuty"; }
  "if (oic.r.operational.state.currentJobState == "delicate" ) { currentJobModeName = 
  "delicates"; }
  "if (oic.r.operational.state.currentJobState == "airDry") { currentJobModeName = 
  "airDry"; }
  "if (oic.r.operational.state.currentJobState == "extended") { currentJobModeName = 
  "extendedTumble"; }
  "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": [
  "#/definitions/onem2m.m.airconjobmode"
],
"required": [ "currentJobMode", "jobModes" ]
9.19 Colour

9.19.1 Derived model
The derived model: "onem2m.m.colour".

9.19.2 Property definition
Table 37 provides the detailed per Property mapping for "onem2m.m.colour".

<table>
<thead>
<tr>
<th>Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>red</td>
<td>oic.r.colour</td>
<td>oic.r.colour.rgb.rgbValue[0] = red</td>
<td>red oic.r.colour.rgb.rgbValue[0] = red</td>
</tr>
<tr>
<td>green</td>
<td>oic.r.colour</td>
<td>oic.r.colour.rgb.rgbValue[1] = green</td>
<td>green oic.r.colour.rgb.rgbValue[1] = green</td>
</tr>
</tbody>
</table>

Table 38 provides the details of the Properties that are part of "onem2m.m.colour".

<table>
<thead>
<tr>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>red</td>
<td>integer</td>
<td>yes</td>
<td>The value of the Red colour channel of RGB. The range is [0,255]</td>
</tr>
<tr>
<td>blue</td>
<td>integer</td>
<td>yes</td>
<td>The value of the Blue colour channel of RGB. The range is [0,255]</td>
</tr>
<tr>
<td>green</td>
<td>integer</td>
<td>yes</td>
<td>The value of the Green colour channel of RGB. The range is [0,255]</td>
</tr>
</tbody>
</table>

9.19.3 Derived model definition

```json
{  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.colour.json#",  "$schema": "http://json-schema.org/draft-04/schema#",  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",  "title": "Colour",  "definitions": {   "onem2m.m.colour": {      "type": "object",      "properties": {  
```
9.20 Colour Saturation

9.20.1 Derived model

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

9.20.2 Property definition

Table 39 provides the detailed per Property mapping for "onem2m.m.coloursaturation".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 40 provides the details of the Properties that are part of "onem2m.m.coloursaturation".

Table 40 – The properties of "onem2m.m.coloursaturation".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>colourSaturation</td>
<td>integer</td>
<td>yes</td>
<td>The status of colour saturation level. 'colourSaturation' has a range of [0,100].</td>
</tr>
</tbody>
</table>

9.20.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.coloursaturation.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Colour Saturation",
  "definitions": {
    "onem2m.m.coloursaturation": {
      "type": "object",
      "properties": {
        "colourSaturation": {
          "type": "integer",
          "description": "The status of colour saturation level. 'colourSaturation' has a range of [0,100].",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.colour.saturation",
            "x-to-ocf": ["oic.r.colour.saturation.colourSaturation = colourSaturation"],
            "x-from-ocf": ["colourSaturation = oic.r.colour.saturation.colourSaturation"]
          }
        }
      }
    }
  }
}
```

9.21 Credentials

9.21.1 Derived model

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

9.21.2 Property definition

Table 41 provides the detailed per Property mapping for "onem2m.m.credentials".
Table 41 – The property mapping for "onem2m.m.credentials".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>loginName</td>
<td>oic.r.userinfo</td>
<td>oic.r.userinfo.username</td>
<td>loginName = loginName</td>
</tr>
<tr>
<td></td>
<td></td>
<td>= oic.r.userinfo.username</td>
<td></td>
</tr>
<tr>
<td>token</td>
<td>oic.r.userinfo</td>
<td>oic.r.userinfo.token</td>
<td>token = oic.r.userinfo.token</td>
</tr>
<tr>
<td>password</td>
<td>oic.r.userinfo</td>
<td>oic.r.userinfo.password</td>
<td>password = oic.r.userinfo.password</td>
</tr>
</tbody>
</table>

Table 42 provides the details of the Properties that are part of "onem2m.m.credentials".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>loginName</td>
<td>string</td>
<td>no</td>
<td>User's login name.</td>
</tr>
<tr>
<td>token</td>
<td>string</td>
<td>no</td>
<td>Authentication token e.g. OAuth token.</td>
</tr>
<tr>
<td>password</td>
<td>string</td>
<td>no</td>
<td>User's password.</td>
</tr>
</tbody>
</table>

9.21.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.credentials.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Credentials",
  "definitions": {
    "onem2m.m.credentials": {
      "type": "object",
      "properties": {
        "loginName": {
          "type": "string",
          "description": "User's login name."
        },
        "token": {
          "type": "string",
          "description": "Authentication token e.g. OAuth token."
        },
        "password": {
          "type": "string",
          "description": "User's password."
        }
      }
    }
  }
}
```
The derived model: "onem2m.m.dehumidiiferjobmode".

9.22.2 Property definition

Table 43 provides the detailed per Property mapping for "onem2m.m.dehumidiiferjobmode".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>currentJobMode</td>
<td>oic.r.operation.al.state</td>
<td>Need to translate between the oneM2M integer value and the OCF operational state enumerated string: if (currentJobMode == 1) { oic.r.operation.al.state.currentJobState == &quot;smart&quot;; }if (currentJobMode == 2) { oic.r.operation.al.state.currentJobState == &quot;fast&quot;; }if (currentJobMode == 3) { oic.r.operation.al.state.currentJobState == &quot;silent&quot;; }if (currentJobMode == 4) { oic.r.operation.al.state.currentJobState == &quot;focused&quot;; }if (currentJobMode == 5) { oic.r.operation.al.state.currentJobState == &quot;clothes&quot;; }</td>
<td>Need to translate between the OCF operational state enumerated string and the oneM2M integer value: if (oic.r.operation.al.state.currentJobState == &quot;smart&quot;) { currentJobMode = 1; }if (oic.r.operation.al.state.currentJobState == &quot;fast&quot;) { currentJobMode = 2; }if (oic.r.operation.al.state.currentJobState == &quot;silent&quot;) { currentJobMode = 3; }if (oic.r.operation.al.state.currentJobState == &quot;focused&quot;) { currentJobMode = 4; }if (oic.r.operation.al.state.currentJobState == &quot;clothes&quot;);</td>
</tr>
</tbody>
</table>
"clothes"; } else {
    oic.r.operational.state.currentJobState == "unknown";
    })
} else {
    currentJobMode = 0;
}

currentJobModeName

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 value if (oic.r.operational.state.currentJobState == "smart") {
    currentJobModeName = "smart";
} if (oic.r.operational.state.currentJobState == "fast") {
    currentJobModeName = "fast";
} if (oic.r.operational.state.currentJobState == "silent") {
    currentJobModeName = "silent";
} if (oic.r.operational.state.currentJobState == "focused") {
    currentJobModeName = "focus";
} if (oic.r.operational.state.currentJobState == "clothes") {
    currentJobModeName = "clothes";
} else {
    currentJobModeName = "";
}

jobModes

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] = 1; jobModes[2] = 2; jobModes[3] = 3; jobModes[4] = 4; jobModes[5] = 5;

Table 44 provides the details of the Properties that are part of "onem2m.m.dehumidiiferjobmode".

Table 44 – The properties of "onem2m.m.dehumidiiferjobmode".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>currentJobMode</td>
<td>currentJobMode</td>
<td>integer</td>
<td>yes</td>
<td>Currently active job mode.</td>
</tr>
<tr>
<td>currentJobModeName</td>
<td>currentJobModeName</td>
<td>string</td>
<td>no</td>
<td>Name of current job mode in string. This can be used when</td>
</tr>
</tbody>
</table>
9.22.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.dehumidiiferjobmode.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Dehumidifier Job Mode",
  "definitions": {
    "onem2m.m.dehumidiiferjobmode": {
      "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 = \"smart\"; }",
            "if ( currentJobMode == 2 ) { oic.r.operational.state.currentJobState = \"fast\"; }",
            "if ( currentJobMode == 3 ) { oic.r.operational.state.currentJobState = \"silent\"; }",
            "if ( currentJobMode == 4 ) { oic.r.operational.state.currentJobState = \"focused\"; }",
            "if ( currentJobMode == 5 ) { oic.r.operational.state.currentJobState = \"clothes\"; }",
            "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 == \"smart\" ) { currentJobMode = 1; }",
            "if (oic.r.operational.state.currentJobState == \"fast\" ) { currentJobMode = 2; }",
            "if (oic.r.operational.state.currentJobState == \"silent\" ) { currentJobMode = 3; }",
            "if (oic.r.operational.state.currentJobState == \"focused\" ) { currentJobMode = 4; }",
            "if (oic.r.operational.state.currentJobState == \"clothes\" ) { currentJobMode = 5; }",
            "else { currentJobMode = 0; }"
          }
        },
        "currentJobModeName": {
          "type": "string",
          "description": "Name of current job mode in string. This can be used when currentJobMode is vendor-specific."
        }
      } // properties
    } // doc
  } // definitions
} // schema
```

<table>
<thead>
<tr>
<th>currentJobMode</th>
<th>array</th>
<th>yes</th>
<th>List of possible job states the device supports</th>
</tr>
</thead>
<tbody>
<tr>
<td>jobModes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
"fast"; }
if (oic.r.operational.state.currentJobState == "silent" { currentJobModeName = "silent"; }
if (oic.r.operational.state.currentJobState == "focused" ) { currentJobModeName = "focus"; }
if (oic.r.operational.state.currentJobState == "clothes" ) { currentJobModeName = "clothes"; }
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"
]}
}
}
}
"type": "object",
"allOf": [
{"$ref": "/definitions/onem2m.m.airconjobmode"}
],
"required": ["currentJobMode", "jobModes" ]
}
}
}

### 9.23 Door Status

#### 9.23.1 Derived model

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

#### 9.23.2 Property definition

Table 45 provides the detailed per Property mapping for "onem2m.m.doorStatus".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>openDuration</td>
<td>oic.r.door</td>
<td>Conversion from oneM2M timestamp is not yet defined. oic.r.door.openDuration = openDuration</td>
<td>Conversion from oneM2M timestamp is not yet defined. openDuration = oic.r.door.openDuration</td>
</tr>
<tr>
<td>doorState</td>
<td>oic.r.door</td>
<td>if doorState == 1: oic.r.door.openState = &quot;Closed&quot; if doorState == 2: oic.r.door.openState = &quot;Open&quot;</td>
<td>if oic.r.door.openState = &quot;Closed&quot; doorState == 1 if oic.r.door.openState = &quot;Open&quot; doorState == 2</td>
</tr>
</tbody>
</table>
Table 46 provides the details of the Properties that are part of "onem2m.m.doorStatus".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>openDuration</td>
<td>string</td>
<td>no</td>
<td>The time duration the door has been open.</td>
</tr>
<tr>
<td></td>
<td>doorState</td>
<td>integer</td>
<td>yes</td>
<td>Current state of the door.</td>
</tr>
<tr>
<td></td>
<td>openAlarm</td>
<td>boolean</td>
<td>no</td>
<td>The state of the door open alarm. 'True' indicates that the open alarm is active. 'False' indicates that the open alarm is not active.</td>
</tr>
</tbody>
</table>

9.23.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.doorStatus.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved."
}
```

"definitions": {
  "onem2m.m.doorStatus": {
    "type": "object",
    "properties": {
      "doorState": {
        "type": "integer",
        "description": "Current state of the door."
      },
      "x-ocf-conversion": {
        "x-ocf-alias": "oic.r.door",
        "x-to-ocf": [{
          "if doorState == 1",
          "oic.r.door.openState = \"Closed\"
        }, {
          "if doorState == 2",
          "oic.r.door.openState = \"Open\"
        }],
        "x-from-ocf": [{
          "if oic.r.door.openState = \"Closed\"
        }, {
          "if oic.r.door.openState = \"Open\"
        }]
      },
      "openDuration": {
        "type": "string",
        "description": "The time duration the door has been open."
      },
      "x-ocf-conversion": {
        "x-ocf-alias": "oic.r.door",
        "x-to-ocf": [{
          "Conversion from oneM2M timestamp is not yet defined",
          "oic.r.door.openDuration = openDuration"
        }]
      }
    }
  }
}
9.24 Electric Vehicle Connector

9.24.1 Derived model

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

9.24.2 Property definition

Table 47 provides the detailed per Property mapping for "onem2m.m.electricvehicleconnector".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>propDischargingCapacity</td>
<td>oic.r.vehicle.connector</td>
<td>oic.r.vehicle.connector.rated dischargingcapacity = propDischargingCapacity * 1000</td>
<td>propDischargingCapacity = oic.r.vehicle.connector.rated dischargingcapacity / 1000</td>
</tr>
<tr>
<td>propChargingCapacity</td>
<td>oic.r.vehicle.connector</td>
<td>oic.r.vehicle.connector.rated chargingcapacity = propChargingCapacity * 1000</td>
<td>propChargingCapacity = oic.r.vehicle.connector.rated chargingcapacity / 1000</td>
</tr>
<tr>
<td>status</td>
<td>oic.r.vehicle.connector</td>
<td>oic.r.vehicle.connector.status = status;</td>
<td>status = oic.r.vehicle.connector.status</td>
</tr>
</tbody>
</table>

Table 48 provides the details of the Properties that are part of "onem2m.m.electricvehicleconnector".
Table 48 – The properties of "onem2m.m.electricvehicleconnector".

<table>
<thead>
<tr>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>propDischargingCapacity</td>
<td>integer</td>
<td>no</td>
<td>Rated discharging capacity in milli-Amps.</td>
</tr>
<tr>
<td>propChargingCapacity</td>
<td>integer</td>
<td>no</td>
<td>Rated charging capacity in milli-Amps.</td>
</tr>
<tr>
<td>status</td>
<td>boolean</td>
<td>yes</td>
<td>The status of connection.</td>
</tr>
</tbody>
</table>

9.24.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.electricvehicleconnector#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Electric Vehicle Connector",
  "definitions": {
    "onem2m.m.electricvehicleconnector": {
      "type": "object",
      "properties": {
        "status": {
          "type": "boolean",
          "description": "The status of connection."
        },
        "propChargingCapacity": {
          "type": "integer",
          "description": "Rated charging capacity in milli-Amps."
        },
        "propDischargingCapacity": {
          "type": "integer",
          "description": "Rated discharging capacity in milli-Amps."
        }
      }
    }
  }
}
```
9.25 Energy Consumption

9.25.1 Derived model

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

9.25.2 Property definition

Table 49 provides the detailed per Property mapping for "onem2m.m.energyconsumption".

Table 49 – The property mapping for "onem2m.m.energyconsumption".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>significantDigits</td>
<td>oic.r.energy.consumption</td>
<td>This is not needed in OCF as only the absolute energy consumption is tracked.</td>
<td>significantDigits = 0</td>
<td></td>
</tr>
<tr>
<td>roundingEnergyConsumption</td>
<td>oic.r.energy.consumption</td>
<td>This is not needed in OCF as only the absolute energy consumption is tracked.</td>
<td>roundingEnergyConsumption = oic.r.energy.consumption.energy</td>
<td></td>
</tr>
<tr>
<td>voltage</td>
<td>oic.r.energy.electrical</td>
<td>oic.r.energy.electrical.voltage = voltage</td>
<td>voltage = oic.r.energy.electrical.voltage</td>
<td></td>
</tr>
<tr>
<td>frequency</td>
<td>oic.r.energy.electrical</td>
<td>oic.r.energy.electrical.frequency = frequency</td>
<td>frequency = oic.r.energy.electrical.frequency</td>
<td></td>
</tr>
<tr>
<td>multiplyingFactors</td>
<td>oic.r.energy.consumption</td>
<td>This is not needed in OCF as only the absolute energy consumption is tracked.</td>
<td>multiplyingFactors = 1</td>
<td></td>
</tr>
<tr>
<td>absoluteEnergyConsumption</td>
<td>oic.r.energy.consumption</td>
<td>oic.r.energy.consumption.energy = absoluteEnergyConsumption</td>
<td>absoluteEnergyConsumption = oic.r.energy.consumption.energy</td>
<td></td>
</tr>
<tr>
<td>current</td>
<td>oic.r.energy.electrical</td>
<td>oic.r.energy.electrical.current = current</td>
<td>current = oic.r.energy.electrical.current</td>
<td></td>
</tr>
</tbody>
</table>
Table 50 provides the details of the Properties that are part of "onem2m.m.energyconsumption".

### Table 50 – The properties of "onem2m.m.energyconsumption"

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>significantDigits</td>
<td>integer</td>
<td>no</td>
<td>The number of effective digits for data.</td>
</tr>
<tr>
<td>roundingEnergyConsumption</td>
<td>number</td>
<td>no</td>
<td>This energy consumption data can be calculated by using significantDigits and multiplyingFactors.</td>
</tr>
<tr>
<td>voltage</td>
<td>number</td>
<td>no</td>
<td>The voltage of the device. The common unit is volts (V).</td>
</tr>
<tr>
<td>frequency</td>
<td>number</td>
<td>no</td>
<td>The frequency of the device. The common unit is hertz (H).</td>
</tr>
<tr>
<td>multiplyingFactors</td>
<td>integer</td>
<td>no</td>
<td>The unit for data (multiplying factors), e.g. 1 kWh, 0.1 kWh, 0.01 kWh etc.</td>
</tr>
<tr>
<td>absoluteEnergyConsumption</td>
<td>number</td>
<td>no</td>
<td>The absolute energy consumption, reflecting the real measurement of accumulative energy. The common unit is Watt-hour (Wh).</td>
</tr>
<tr>
<td>current</td>
<td>number</td>
<td>no</td>
<td>The current of the device. The common unit is ampere (A).</td>
</tr>
<tr>
<td>Power</td>
<td>number</td>
<td>yes</td>
<td>The power of the device. The common unit is Watt (W).</td>
</tr>
</tbody>
</table>
9.25.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.energyconsumption#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Energy Consumption",
  "definitions": {
    "onem2m.m.energyconsumption": {
      "type": "object",
      "properties": {
        "Power": {
          "type": "number",
          "description": "The power of the device. The common unit is Watt (W).",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.energy.consumption",
            "x-to-ocf": [
              "oic.r.energy.consumption.power = Power;"
            ],
            "x-from-ocf": [
              "Power = oic.r.energy.consumption.power"
            ]
          }
        },
        "absoluteEnergyConsumption": {
          "type": "number",
          "description": "The absolute energy consumption, reflecting the real measurement of accumulative energy. The common unit is Watt-hour (Wh).",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.energy.consumption",
            "x-to-ocf": [
              "oic.r.energy.consumption.energy = absoluteEnergyConsumption"
            ],
            "x-from-ocf": [
              "absoluteEnergyConsumption = oic.r.energy.consumption.energy"
            ]
          }
        },
        "roundingEnergyConsumption": {
          "type": "number",
          "description": "This energy consumption data can be calculated by using significantDigits and multiplyingFactors.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.energy.consumption",
            "x-to-ocf": [
              "This is not needed in OCF as only the absolute energy consumption is tracked."
            ],
            "x-from-ocf": [
              "roundingEnergyConsumption = oic.r.energy.consumption.energy"
            ]
          }
        },
        "significantDigits": {
          "type": "integer",
          "description": "The number of effective digits for data.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.energy.consumption",
            "x-to-ocf": [
              "This is not needed in OCF as only the absolute energy consumption is tracked."
            ],
            "x-from-ocf": [
              "significantDigits = 0"
            ]
          }
        },
        "multiplyingFactors": {
          "type": "integer",
          "description": "The unit for data (multiplying factors), e.g. 1 kWh, 0,1 kWh, 0,01 kWh etc.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.energy.consumption",
            "x-to-ocf": [
              "multiplyingFactors = 0"
            ]
          }
        }
      }
    }
  }
}
```
"x-to-ocf": [ 
  "This is not needed in OCF as only the absolute energy consumption is tracked."
],
"x-from-ocf": [ 
  "multiplyingFactors = 1"
]
},
"voltage": { 
  "type": "number",
  "description": "The voltage of the device. The common unit is volts (V).",
  "x-ocf-conversion": { 
    "x-ocf-alias": "oic.r.energy.electrical",
    "x-to-ocf": [ 
      "oic.r.energy.electrical.voltage = voltage"
    ],
    "x-from-ocf": [ 
      "voltage = oic.r.energy.electrical.voltage"
    ]
  }
}, 
"current": { 
  "type": "number",
  "description": "The current of the device. The common unit is ampere (A).",
  "x-ocf-conversion": { 
    "x-ocf-alias": "oic.r.energy.electrical",
    "x-to-ocf": [ 
      "oic.r.energy.electrical.current = current"
    ],
    "x-from-ocf": [ 
      "current = oic.r.energy.electrical.current"
    ]
  }
}, 
"frequency": { 
  "type": "number",
  "description": "The frequency of the device. The common unit is hertz (Hz).",
  "x-ocf-conversion": { 
    "x-ocf-alias": "oic.r.energy.electrical",
    "x-to-ocf": [ 
      "oic.r.energy.electrical.frequency = frequency"
    ],
    "x-from-ocf": [ 
      "frequency = oic.r.energy.electrical.frequency"
    ]
  }
}, 
"type": "object",
"allOf": [ 
  {"$ref": "/definitions/onem2m.m.energyconsumption"}
],
"required": [ "Power" ]
}

9.26 Energy Generation

9.26.1 Derived model

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

9.26.2 Property definition

Table 51 provides the detailed per Property mapping for "onem2m.m.energygeneration".
### Table 51 – The property mapping for “onem2m.m.energygeneration”.

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>multiplyingFactors s</td>
<td>oic.r.energy.generation</td>
<td>This is not needed in OCF as only the absolute energy consumption is tracked.</td>
<td>multiplyingFactors = 1</td>
</tr>
<tr>
<td>roundingEnergy Generation</td>
<td>oic.r.energy.generation</td>
<td>This is not needed in OCF as only the absolute energy consumption is tracked.</td>
<td>roundingEnergyConsumption = oic.r.energy.consumption.powerGenerationData</td>
</tr>
<tr>
<td>powerGenerationData</td>
<td>oic.r.energy.generation</td>
<td>oic.r.energygeneration.energ ygenerated = powerGenerationData;</td>
<td>powerGenerationData = oic.r.energy.generation.energ ygenerated</td>
</tr>
<tr>
<td>significantDigits</td>
<td>oic.r.energy.generation</td>
<td>This is not needed in OCF as only the absolute energy consumption is tracked.</td>
<td>significantDigits = 0</td>
</tr>
</tbody>
</table>

### Table 52 – The properties of “onem2m.m.energygeneration”.

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>multiplyingFactors</td>
<td>number</td>
<td>no</td>
<td>The unit for data (multiplying factors), e.g. 1 kWh, 0,1 kWh, 0,01 kWh etc.</td>
</tr>
<tr>
<td>roundingEnergyGeneration</td>
<td>integer</td>
<td>no</td>
<td>This energy generation data can be calculated by using significantFigures and multiplyingFactors.</td>
</tr>
<tr>
<td>powerGenerationData</td>
<td>number</td>
<td>no</td>
<td>Amount of instantaneous generation data.</td>
</tr>
<tr>
<td>significantDigits</td>
<td>integer</td>
<td>no</td>
<td>The number of effective digits for data.</td>
</tr>
</tbody>
</table>
9.26.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.energygeneration#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Energy Generation",
  "definitions": {
    "onem2m.m.energygeneration": {
      "type": "object",
      "properties": {
        "powerGenerationData": {
          "type": "number",
          "description": "Amount of instantaneous generation data.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.energy.generation",
            "x-to-ocf": ["oic.r.energy.generation.energygenerated = powerGenerationData;"],
            "x-from-ocf": ["powerGenerationData = oic.r.energy.generation.energygenerated"]
          }
        },
        "roundingEnergyGeneration": {
          "type": "integer",
          "description": "This energy generation data can be calculated by using significantFigures and multiplyingFactors.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.energy.generation",
            "x-to-ocf": ["This is not needed in OCF as only the absolute energy consumption is tracked."],
            "x-from-ocf": ["roundingEnergyConsumption = oic.r.energy.consumption.powerGenerationData"
          ]
        },
        "significantDigits": {
          "type": "integer",
          "description": "The number of effective digits for data.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.energy.generation",
            "x-to-ocf": ["This is not needed in OCF as only the absolute energy consumption is tracked."],
            "x-from-ocf": ["significantDigits = 0"
          ]
        },
        "multiplyingFactors": {
          "type": "number",
          "description": "The unit for data (multiplying factors)., e.g. 1 kWh, 0,1 kWh, 0,01 kWh etc.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.energy.generation",
            "x-to-ocf": ["This is not needed in OCF as only the absolute energy consumption is tracked."],
            "x-from-ocf": ["multiplyingFactors = 1"
          ]
        }
      },
      "allOf": ["#/definitions/onem2m.m.energygeneration"]
    }
  }
}
```
9.27 Filter Info

9.27.1 Derived model
The derived model: "onem2m.m.filterinfo".

9.27.2 Property definition
Table 53 provides the detailed per Property mapping for "onem2m.m.filterinfo".

Table 53 – The property mapping for "onem2m.m.filterinfo".

<table>
<thead>
<tr>
<th>Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>needsReplacement</td>
<td>oic.r.sensor</td>
<td>oic.r.sensor.value</td>
<td>needsReplacement = oic.r.sensor.value</td>
</tr>
<tr>
<td></td>
<td></td>
<td>needsReplacement = oic.r.sensor.value</td>
<td></td>
</tr>
<tr>
<td>usedTime</td>
<td>oic.r.consumable</td>
<td>oic.r.consumable.typeofconsumable = &quot;water filter&quot;oic.r.consumable.usedtime = usedTime</td>
<td>usedTime = oic.r.consumable.usedtime</td>
</tr>
<tr>
<td>filterLifetime</td>
<td>oic.r.consumable</td>
<td>oic.r.consumable.remaining = filterLifetime</td>
<td>filterLifetime = oic.r.consumable.remaining</td>
</tr>
</tbody>
</table>

Table 54 provides the details of the Properties that are part of "onem2m.m.filterinfo".

Table 54 – The properties of "onem2m.m.filterinfo".

<table>
<thead>
<tr>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>needsReplacement</td>
<td>boolean</td>
<td>no</td>
<td>This value indicates that the filter needs to be replaced.</td>
</tr>
<tr>
<td>usedTime</td>
<td>integer</td>
<td>yes</td>
<td>Cumulative used time in second of a filter.</td>
</tr>
<tr>
<td>filterLifetime</td>
<td>integer</td>
<td>no</td>
<td>Percentage life time remaining for the water filter.</td>
</tr>
</tbody>
</table>

9.27.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.filterinfo.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Filter Info",
  "definitions": {
```
"onem2m.m.filterinfo": {
  "type": "object",
  "properties": {
    "usedTime": {
      "type": "integer",
      "description": "Cumulative used time in second of a filter."
    },
    "x-ocf-conversion": {
      "x-ocf-alias": "oci.r.consumable",
      "x-to-ocf": {
        "oci.r.consumable.typeofconsumable = "water filter"
      },
      "x-from-ocf": {
        "usedTime = oci.r.consumable.usedtime"
      }
    },
    "needsReplacement": {
      "type": "boolean",
      "description": "This value indicates that the filter needs to be replaced."
    },
    "x-ocf-conversion": {
      "x-ocf-alias": "oci.r.sensor",
      "x-to-ocf": {
        "oci.r.sensor.value = needsReplacement"
      },
      "x-from-ocf": {
        "needsReplacement = oic.r.sensor.value"
      }
    },
    "filterLifetime": {
      "type": "integer",
      "description": "Percentage life time remaining for the water filter."
    },
    "x-ocf-conversion": {
      "x-ocf-alias": "oci.r.consumable",
      "x-to-ocf": {
        "oci.r.consumable.remaining = filterLifetime"
      },
      "x-from-ocf": {
        "filterLifetime =oci.r.consumable.remaining"
      }
    }
  }
},
"type": "object",
"allOf": [
  {"$ref": "#/definitions/onem2m.m.filterinfo"}
],
"required": [ "usedTime" ]
}

9.28 Foaming

9.28.1 Derived model

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

9.28.2 Property definition

Table 55 provides the detailed per Property mapping for "onem2m.m.foaming".

Table 55 – The property mapping for "onem2m.m.foaming".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>oneM2M</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
foamingStrength | oic.r.foaming | oic.r.foaming.foamstrength | foamingStrength = foamingStrength

Table 56 provides the details of the Properties that are part of "onem2m.m.foaming".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>foamingStrength</td>
<td>integer</td>
<td>yes</td>
<td>The current strength of foamed milk. A higher value indicates a milk which is more foamed.</td>
<td></td>
</tr>
</tbody>
</table>

### 9.28.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.foaming.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Foaming",
  "definitions": {
    "onem2m.m.foaming": {
      "type": "object",
      "properties": {
        "foamingStrength": {
          "type": "integer",
          "description": "The current strength of foamed milk. A higher value indicates a milk which is more foamed."
        }
      }
    }
  },
  "type": "object",
  "allOf": [
    {"$ref": "#/definitions/onem2m.m.foaming"}
  ],
  "required": [ "foamingStrength" ]
}
```

### 9.29 Grinder

#### 9.29.1 Derived model

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

#### 9.29.2 Property definition

Table 57 provides the detailed per Property mapping for "onem2m.m.grinder".
### Table 57 – The property mapping for "onem2m.m.grinder".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>useGrinder</td>
<td>oic.r.switch.binary</td>
<td>oic.r.switch.binary.value =</td>
<td>foamingStrength = oic.r.switch.binary.value</td>
</tr>
<tr>
<td></td>
<td></td>
<td>remaining / 20 =</td>
<td></td>
</tr>
<tr>
<td>grainsRemaining</td>
<td>oic.r.grinder</td>
<td>oic.r.grinder.remaining =</td>
<td>remaining = oic.r.grinder.remaining * 20</td>
</tr>
<tr>
<td>coarseness</td>
<td>oic.r.grinder</td>
<td>oic.r.grinder.coarseness =</td>
<td>coarseness = oic.r.grinder.coarseness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>coarseness</td>
<td></td>
</tr>
</tbody>
</table>

Table 58 provides the details of the Properties that are part of "onem2m.m.grinder".

### Table 58 – The properties of "onem2m.m.grinder".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>useGrinder</td>
<td>boolean</td>
<td>yes</td>
<td>The current status of the grinder enablement. True indicates enabled, and False indicates not enabled.</td>
</tr>
<tr>
<td>grainsRemaining</td>
<td>integer</td>
<td>no</td>
<td>The level of remaining grains in a machine having a grinder e.g. remaining coffee beans in the coffee machine grinder.</td>
</tr>
<tr>
<td>coarseness</td>
<td>integer</td>
<td>no</td>
<td>The wished coarseness of the solid supplies e.g. coffee beans, after grinding.</td>
</tr>
</tbody>
</table>

### 9.29.3 Derived model definition

```json
{
    "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.grinder.json#",
    "$schema": "http://json-schema.org/draft-04/schema#",
    "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
    "title": "Grinder",
    "definitions": {
        "onem2m.m.grinder": {
            "type": "object",
            "properties": {
                "useGrinder": {
                    "type": "boolean",
                    "description": "The current status of the grinder enablement. True indicates enabled, and False indicates not enabled."
                },
                "grainsRemaining": {
                    "type": "integer",
                    "description": "The level of remaining grains in a machine having a grinder e.g. remaining coffee beans in the coffee machine grinder."
                },
                "coarseness": {
                    "type": "integer",
                    "description": "The wished coarseness of the solid supplies e.g. coffee beans, after grinding."
                }
            }
        }
    }
}
```
9.30 Heating Zone

9.30.1 Derived model

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

9.30.2 Property definition

Table 59 provides the detailed per Property mapping for "onem2m.m.heatingzone".

Table 59 – The property mapping for "onem2m.m.heatingzone".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
maxHeatingLevel  | oic.r.heatingzone.maxheatinglevel = maxHeatingLevel | maxHeatingLevel = oic.r.heatingzone.maxheatinglevel
heatingLevel    | oic.r.heatingzone.heatinglevel = heatingLevel    | heatingLevel = oic.r.heatingzone.heatinglevel

Table 60 provides the details of the Properties that are part of "onem2m.m.heatingzone".

Table 60 – The properties of "onem2m.m.heatingzone".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>maxHeatingLevel</td>
<td>integer</td>
<td>yes</td>
<td>The maximum value allowed for the heating level of the zone</td>
<td></td>
</tr>
<tr>
<td>heatingLevel</td>
<td>integer</td>
<td>yes</td>
<td>The current heating level of the zone. The value range is from 0 (indicating that the zone is not heating) up to the maxHeatingLevel</td>
<td></td>
</tr>
</tbody>
</table>

### 9.30.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.heatingzone.json",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Heating Zone",
  "definitions": {
    "onem2m.m.heatingzone": {
      "type": "object",
      "properties": {
        "heatingLevel": {
          "type": "integer",
          "description": "The current heating level of the zone. The value range is from 0 (indicating that the zone is not heating) up to the maxHeatingLevel",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.heatingzone",
            "x-to-ocf": ["oic.r.heatingzone.heatinglevel = heatingLevel"],
            "x-from-ocf": ["heatingLevel = oic.r.heatingzone.heatinglevel"
          ]
        },
        "maxHeatingLevel": {
          "type": "integer",
          "description": "The maximum value allowed for the heating level of the zone",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.heatingzone",
            "x-to-ocf": ["oic.r.heatingzone.maxheatinglevel = maxHeatingLevel"],
          }
        }
      }
    }
  }
}
```
"x-from-ocf": [  
  "maxHeatingLevel = oic.r.heatingzone.maxheatinglevel"
]  
}
)

9.31 Height

9.31.1 Derived model

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

9.31.2 Property definition

Table 61 provides the detailed per Property mapping for "onem2m.m.height".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>height</td>
<td>oic.r.height</td>
<td>oic.r.height.height = height</td>
<td>oneOf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>oic.r.height.units = cm</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 62 provides the details of the Properties that are part of "onem2m.m.height".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>height</td>
<td></td>
<td>number</td>
<td>yes</td>
<td>Measurement of height</td>
</tr>
</tbody>
</table>

9.31.3 Derived model definition

{  
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.height.json#",  
  "schema": "http://json-schema.org/draft-04/schema#",  
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",  
  "title": "Height",  
  "definitions": {  
    "onem2m.m.height": {  
      "type": "object",  
      "properties": {  
        "height": {  
          "type": "number",  
          "description": "Measurement of height",  
          "x-ocf-conversion": {  
            "x-ocf-alias": "oic.r.height",  
            "x-to-ocf": [  
              "oic.r.height.height = height",  
              "oic.r.height.units = cm"
            ]
          }
        }
      }
    }
  }
}
9.32 Hot Water Supply

9.32.1 Derived model

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

9.32.2 Property definition

Table 63 provides the detailed per Property mapping for "onem2m.m.hotwatersupply".

Table 63 – The property mapping for "onem2m.m.hotwatersupply".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
</table>

Copyright Open Connectivity Foundation, Inc. © 2019. All rights Reserved
### Table 64 – The properties of "onem2m.m.hotwatersupply".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bath</td>
<td>oic.r.switch.binary</td>
<td>boolean</td>
<td>no</td>
<td>The status of filling bath tub.</td>
</tr>
<tr>
<td>status</td>
<td>oic.r.sensor</td>
<td>boolean</td>
<td>yes</td>
<td>The status of watering operation.</td>
</tr>
</tbody>
</table>

9.32.3 Derived model definition

```
{
    "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.hotwatersupply.json#",
    "schema": "http://json-schema.org/draft-04/schema#",
    "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
    "title": "Hot Water Supply",
    "definitions": {
        "onem2m.m.hotwatersupply": {
            "type": "object",
            "properties": {
                "status": {
                    "type": "boolean",
                    "description": "The status of watering operation."
                },
                "x-ocf-alias": "oic.r.sensor",
                "x-to-ocf": ["oic.r.sensor.value = status"],
                "x-from-ocf": ["status = oic.r.sensor.value"]
            },
            "bath": {
                "type": "boolean",
                "description": "The status of filling bath tub."
            },
            "x-ocf-alias": "oic.r.switch.binary",
            "x-to-ocf": ["oic.r.switch.binary.value = bath"],
            "x-from-ocf": ["bath = oic.r.switch.binary.value"]
        }
    },
    "type": "object",
    "allOf": ["$ref": "/#/definitions/onem2m.m.hotwatersupply"
```
9.33 Impact Sensor

9.33.1 Derived model

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

9.33.2 Property definition

Table 65 provides the detailed per Property mapping for "onem2m.m.impactsensor".

<table>
<thead>
<tr>
<th>Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>impactStatus</td>
<td>oic.r.impact sensor</td>
<td>oic.r.impactsensor.impactstatus = impactStatus</td>
<td>impactStatus = oic.r.impactsensor.impactstatus</td>
</tr>
<tr>
<td>impactDirectionVertical</td>
<td>oic.r.impact sensor</td>
<td>oic.r.impactsensor.impactdirectionvertical = impactDirectionVertical</td>
<td>impactDirectionVertical = oic.r.impactsensor.impactdirectionvertical</td>
</tr>
<tr>
<td>impactDirectionHorizontal</td>
<td>oic.r.impact sensor</td>
<td>oic.r.impactsensor.impactdirectionhorizontal = impactDirectionHorizontal</td>
<td>impactDirectionHorizontal = oic.r.impactsensor.impactdirectionhorizontal</td>
</tr>
<tr>
<td>impactLevel</td>
<td>oic.r.impact sensor</td>
<td>oic.r.impactsensor.impactlevel = impactLevel</td>
<td>impactLevel = oic.r.impactsensor.impactlevel</td>
</tr>
</tbody>
</table>

Table 66 provides the details of the Properties that are part of "onem2m.m.impactsensor".

<table>
<thead>
<tr>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>impactStatus</td>
<td>boolean</td>
<td>no</td>
<td>The impactStatus indicates as follows: (True) A physical impact is detected / (False) Normal status, an impact is not detected</td>
</tr>
<tr>
<td>impactDirectionVertical</td>
<td>number</td>
<td>no</td>
<td>The impactDirectionVertical shows a vertical direction where the impact comes from. The value is 0 to 360 degrees. 0 is the front</td>
</tr>
<tr>
<td>Impact Property</td>
<td>Type</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>----------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>impactDirectionHorizontal</td>
<td>number</td>
<td>The impactDirectionHorizontal shows a horizontal direction where the impact comes from. The value is 0 to 360 degrees. 0 is the front of the sensor and clockwise increment.</td>
<td></td>
</tr>
<tr>
<td>impactLevel</td>
<td>number</td>
<td>The impactLevel provides the level of impact which unit is &quot;G&quot; (G-force).</td>
<td></td>
</tr>
</tbody>
</table>

### 9.33.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.impactsensor.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Impact Sensor",
  "definitions": {
    "onem2m.impactsensor": {
      "type": "object",
      "properties": {
        "impactStatus": {
          "type": "boolean",
          "description": "The impactStatus indicates as follows: (True) A physical impact is detected / (False) Normal status, an impact is not detected",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.impactsensor",
            "x-to-ocf": ["oic.r.impactsensor.impactstatus = impactStatus"],
            "x-from-ocf": ["impactStatus = oic.r.impactsensor.impactstatus"]
          }
        },
        "impactLevel": {
          "type": "number",
          "description": "The impactLevel provides the level of impact which unit is "G" (G-force).",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.impactsensor",
            "x-to-ocf": ["oic.r.impactsensor.impactlevel = impactLevel"],
            "x-from-ocf": ["impactLevel= oic.r.impactsensor.impactlevel"]
          }
        },
        "impactDirectionHorizontal": {
          "type": "number",
          "description": "The impactDirectionHorizontal shows a horizontal direction where the impact comes from. The value is 0 to 360 degrees. 0 is the front of the sensor and clockwise increment.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.impactsensor",
            "x-to-ocf": ["oic.r.impactsensor.impactdirectionhorizontal = impactDirectionHorizontal"],
            "x-from-ocf": ["impactDirectionHorizontal= oic.r.impactsensor.impactdirectionhorizontal"]
          }
        }
      }
    }
  }
}
```
"impactDirectionHorizontal = oic.r.impactsensor.impactdirectionhorizontal"

"impactDirectionVertical": {
    "type": "number",
    "description": "The impactDirectionVertical shows a vertical direction where the impact comes from. The value is 0 to 360 degrees. 0 is the front of the sensor and upward increment. ",
    "x-ocf-conversion": {
        "x-ocf-alias": "oic.r.impactsensor",
        "x-to-ocf": [
            "oic.r.impactsensor.impactdirectionvertical = impactDirectionVertical"
        ],
        "x-from-ocf": [
            "impactDirectionVertical = oic.r.impactsensor.impactdirectionvertical"
        ]
    }
}
}
]

9.34 Keep Warm

9.34.1 Derived model

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

9.34.2 Property definition

Table 67 provides the detailed per Property mapping for "onem2m.m.keepwarm".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>time</td>
<td>oic.r.time.period</td>
<td>oic.r.time.period.interval = timeoic.r.time.period.starttime = 0</td>
<td>time = oic.r.time.period.interval</td>
</tr>
</tbody>
</table>

Table 68 provides the details of the Properties that are part of "onem2m.m.keepwarm".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>time</td>
<td>integer</td>
<td>no</td>
<td>The desired duration of 'keep water warm' function. It indicates how long water shall be kept warm e.g. after the boiling in the case of a kettle. The</td>
</tr>
</tbody>
</table>
9.34.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.keepwarm.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved."
}
```

```json
"title": "Keep Warm",
"definitions": {
  "onem2m.m.keepwarm": {
    "type": "object",
    "properties": {
      "time": {
        "type": "integer",
        "description": "The desired duration of 'keep water warm' function. It indicates how long water shall be kept warm e.g. after the boiling in the case of a kettle. The value indicates a time expressed in minutes."
      },
      "x-ocf-conversion": {
        "x-ocf-alias": "oic.r.time.period",
        "x-to-ocf": [
          "oic.r.time.period.interval = time",
          "oic.r.time.period.starttime = 0"
        ],
        "x-from-ocf": [
          "time = oic.r.time.period.interval"
        ]
      }
    }
  }
}
```

9.35 Keypad

9.35.1 Derived model

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

9.35.2 Property definition

Table 69 provides the detailed per Property mapping for "onem2m.m.keypad".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
</table>
| keyNumber            | oic.r.keypadchar  | Need to translate between the oneM2M integer value and the OCF enumerated stringif (keyNumber == 0) {
  oic.r.keypadchar.keyvalue == "0"; 
}if (keyNumber == 1) {
  oic.r.keypadchar.keyvalue |
|                       |                   | Need to translate between the OCF enumerated string and the oneM2M integer valueif (oic.r.keypadchar.keyvalue == "0") {
  keyNumber = 0; 
}if (oic.r.keypadchar.keyvalue == 1) {
  keyNumber = 1; 
```
Table 70 provides the details of the Properties that are part of "onem2m.m.keypad".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>keyNumber</td>
<td></td>
<td>integer</td>
<td>yes</td>
<td>The number of key.</td>
</tr>
</tbody>
</table>

9.35.3 Derived model definition

```json
{
"id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.keypad.json#",
"Schema": "http://json-schema.org/draft-04/schema#",
"description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
"title": "Keypad",
"definitions": {
"onem2m.m.keypad": {
"type": "object",
"properties": {
"keyNumber": {
"type": "integer",
"description": "The number of key."
"x-ocf-conversion": {
"x-ocf-alias": "oic.r.keypadchar",
"x-to-ocf": ["if ( keyNumber == 0 ) { oic.r.keypadchar.keyvalue == "0"; }",
"if ( keyNumber == 1 ) { oic.r.keypadchar.keyvalue == "1"; }",
"if ( keyNumber == 2 ) { oic.r.keypadchar.keyvalue == "2"; }",
"if ( keyNumber == 3 ) { oic.r.keypadchar.keyvalue == "3"; }",
"if ( keyNumber == 4 ) { oic.r.keypadchar.keyvalue == "4"; }",
"if ( keyNumber == 5 ) { oic.r.keypadchar.keyvalue == "5"; }",
"if ( keyNumber == 6 ) { oic.r.keypadchar.keyvalue == "6"; }",
"if ( keyNumber == 7 ) { oic.r.keypadchar.keyvalue == "7"; }",
"if ( keyNumber == 8 ) { oic.r.keypadchar.keyvalue == "8"; }",
"if ( keyNumber == 9 ) { oic.r.keypadchar.keyvalue == "9"; }"]
}
```
"if ( keyNumber == 7 ) { oic.r.keypadchar.keyvalue == "7"; },
"if ( keyNumber == 8 ) { oic.r.keypadchar.keyvalue == "8"; },
"if ( keyNumber == 9 ) { oic.r.keypadchar.keyvalue == "9"; }"
},
"x-from-ocf": [  
  "Need to translate between the OCF enumerated string and the oneM2M integer value",
  "if (oic.r.keypadchar.keyvalue == "0" ) { keyNumber = 0; }",
  "if (oic.r.keypadchar.keyvalue == "1" ) { keyNumber = 1; }",
  "if (oic.r.keypadchar.keyvalue == "2" ) { keyNumber = 2; }",
  "if (oic.r.keypadchar.keyvalue == "3" ) { keyNumber = 3; }",
  "if (oic.r.keypadchar.keyvalue == "4" ) { keyNumber = 4; }",
  "if (oic.r.keypadchar.keyvalue == "5" ) { keyNumber = 5; }",
  "if (oic.r.keypadchar.keyvalue == "6" ) { keyNumber = 6; }",
  "if (oic.r.keypadchar.keyvalue == "7" ) { keyNumber = 7; }",
  "if (oic.r.keypadchar.keyvalue == "8" ) { keyNumber = 8; }",
  "if (oic.r.keypadchar.keyvalue == "9" ) { keyNumber = 9; }"
]
},

9.36 Liquid Level
9.36.1 Derived model
The derived model: "onem2m.m.liquidlevel".
9.36.2 Property definition
Table 71 provides the detailed per Property mapping for "onem2m.m.liquidlevel".

Table 71 – The property mapping for "onem2m.m.liquidlevel".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>liquidLevel</td>
<td>oic.r.liquid.level</td>
<td>oic.r.liquid.level.desiredlevel = liquidLevel * 20</td>
<td>liquidLevel = oic.r.liquid.level.desiredlevel / 20</td>
</tr>
</tbody>
</table>

Table 72 provides the details of the Properties that are part of "onem2m.m.liquidlevel".

Table 72 – The properties of "onem2m.m.liquidlevel".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>liquidLevel</td>
<td>integer</td>
<td>no</td>
<td>The desired level of liquid</td>
</tr>
</tbody>
</table>

9.36.3 Derived model definition
{"id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.liquidlevel.json#",
"$schema": "http://json-schema.org/draft-04/schema#",
"description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
"title": "Liquid Level",
"definitions": {
  "onem2m.m.liquidlevel": {
    "type": "object",
    "properties": {
      "liquidLevel": {
        "type": "integer",
        "description": "The desired level of liquid",
        "x-ocf-conversion": {
          "x-oct-alias": "oic.r.liquid.level",
          "x-to-ocf": ["oic.r.liquid.level.desiredlevel = liquidLevel * 20"],
          "x-from-ocf": ["liquidLevel = oic.r.liquid.level.desiredlevel / 20"]
        }
      }
    },
    "type": "object",
    "allOf": [{"$ref": "#/definitions/onem2m.m.liquidlevel"}],
    "required": ["liquidlevel"]
  }
},
"type": "object",
"allOf": [],
"required": []
}

9.37 Liquid Remaining

9.37.1 Derived model

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

9.37.2 Property definition

Table 73 provides the detailed per Property mapping for "onem2m.m.liquidremaining".

Table 73 – The property mapping for "onem2m.m.liquidremaining".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>liquidRemaining</td>
<td>oic.r.liquid.level</td>
<td>This value is 0-5 in oneM2M and 0-100 in OCF, so do the arithmetic conversion: oic.r.liquid.level.current level = liquidRemaining * 20</td>
<td>This value is 0-5 in oneM2M and 0-100 in OCF, so do the arithmetic conversion: liquidRemaining = oic.r.liquid.level.currentlevel / 20</td>
</tr>
</tbody>
</table>

Table 74 provides the details of the Properties that are part of "onem2m.m.liquidremaining".

Table 74 – The properties of "onem2m.m.liquidremaining".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
</table>
### 9.37.3 Derived model definition

```json
{
    "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.liquidremaining.json#",
    "$schema": "http://json-schema.org/draft-04/schema#",
    "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
    "title": "Liquid Remaining",
    "definitions": {
        "onem2m.m.liquidremaining": {
            "type": "object",
            "properties": {
                "liquidRemaining": {
                    "type": "integer",
                    "description": "The remaining level of liquid",
                    "x-ocf-conversion": {
                        "x-ocf-alias": "oic.r.liquid.level",
                        "x-to-ocf": [
                            "This value is 0-5 in oneM2M and 0-100 in OCF, so do the arithmetic conversion",
                            "oic.r.liquid.level.currentlevel = liquidRemaining * 20"
                        ],
                        "x-from-ocf": [
                            "This value is 0-5 in oneM2M and 0-100 in OCF, so do the arithmetic conversion",
                            "liquidRemaining = oic.r.liquid.level.currentlevel / 20"
                        ]
                    }
                }
            }
        }
    },
    "type": "object",
    "allOf": [{
        "$ref": "#/definitions/onem2m.m.liquidremaining"
    }]
}
```

### 9.38 Lock

#### 9.38.1 Derived model

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

#### 9.38.2 Property definition

Table 75 provides the detailed per Property mapping for "onem2m.m.lock".

# Table 75 – The property mapping for "onem2m.m.lock"

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>lock</td>
<td>oic.r.lock</td>
<td>if</td>
<td>lock (oic.r.lock.status.lockState == &quot;Locked&quot;)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>oic.r.lock.status.lockState = &quot;Locked&quot; if lock</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>oic.r.lock.status.lockState = &quot;Unlocked&quot;</td>
<td></td>
</tr>
</tbody>
</table>

Table 76 provides the details of the Properties that are part of "onem2m.m.lock".
Table 76 – The properties of "onem2m.m.lock".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>lock</td>
<td>lock</td>
<td>boolean</td>
<td>yes</td>
<td>'True' indicates the object is locked, while 'False' indicates the object is not locked.</td>
</tr>
</tbody>
</table>

9.38.3 Derived model definition

```json
{
    "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.lock.json#",
    "$schema": "http://json-schema.org/draft-04/schema#",
    "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
    "title": "Lock",
    "definitions": {
        "onem2m.m.lock": {
            "type": "object",
            "properties": {
                "lock": {
                    "type": "boolean",
                    "description": "'True' indicates the object is locked, while 'False' indicates the object is not locked.",
                    "x-ocf-conversion": {
                        "x-ocf-alias": "oic.r.lock",
                        "x-to-ocf": ["if lock oic.r.lock.status.lockState = "Locked"", "if !lock oic.r.lock.status.lockState = "Unlocked""],
                        "x-from-ocf": ["lock = (oic.r.lock.status.lockState == "Locked")"]
                    }
                }
            }
        }
    },
    "type": "object",
    "allOf": [{"$ref": "#/definitions/onem2m.m.lock"}],
    "required": ["lock"]
}
```

9.39 Motion Sensor

9.39.1 Derived model

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

9.39.2 Property definition

Table 77 provides the detailed per Property mapping for "onem2m.m.motionSensor".

Table 77 – The property mapping for "onem2m.m.motionSensor".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
</table>

| motionSensor | oic.r.sensor.motion | oic.r.sensor.motion.value = alarm | alarm = oic.r.sensor.motion.value |
| silentTime | oic.r.sensor.props | oic.r.sensor.props.silenttime = silentTime | silentTime = oic.r.sensor.props.silenttime |
| sensitivity | oic.r.sensor.props | oic.r.sensor.props.sensitivity = sensitivityOCF sensitivity is a number and oneM2M sensitivity is an integer, so this arithmetic assignment works, but an arithmetic conversion may be necessary depending on how the value is interpreted | sensitivity = oic.r.sensor.props.sensitivityOCF sensitivity is a number and the oneM2M is an integer, so arithmetic conversion may be necessary depending on how the value is interpreted |

Table 78 provides the details of the Properties that are part of "onem2m.m.motionSensor".

Table 78 – The properties of "onem2m.m.motionSensor".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>motionSensor</td>
<td>boolean</td>
<td>no</td>
<td>Alarm State</td>
<td></td>
</tr>
<tr>
<td>silentTime</td>
<td>integer</td>
<td>no</td>
<td>Silent Time</td>
<td></td>
</tr>
<tr>
<td>sensitivity</td>
<td>number</td>
<td>no</td>
<td>Sensitivity</td>
<td></td>
</tr>
</tbody>
</table>

9.39.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.motionsensor.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Motion Sensor",
  "definitions": {
    "onem2m.m.motionSensor": {
      "type": "object",
      "properties": {
        "motionSensor": {
          "type": "boolean",
          "description": "Alarm State",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.sensor.motion",
            "x-to-ocf": [oic.r.sensor.motion.value = alarm]
          },
          "x-from-ocf": [
            "alarm = oic.r.sensor.motion.value"
          ]
        },
        "silentTime": {
          "type": "integer",
          "description": "Silent Time",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.sensor.props",
            "x-to-ocf": {
              "oic.r.sensor.props.silenttime = silentTime"
            }
          },
          "x-from-ocf": [
            "silentTime = oic.r.sensor.props.silenttime"
          ]
        },
        "sensitivity": {
          "type": "number",
          "description": "Sensitivity",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.sensor.props",
            "x-to-ocf": {
              "oic.r.sensor.props.sensitivity = sensitivityOCF sensitivity is a number and oneM2M sensitivity is an integer, so this arithmetic assignment works, but an arithmetic conversion may be necessary depending on how the value is interpreted"
            },
            "x-from-ocf": [
              "sensitivity = oic.r.sensor.props.sensitivityOCF sensitivity is a number and the oneM2M is an integer, so arithmetic conversion may be necessary depending on how the value is interpreted"
            ]
          }
        }
      }
    }
  }
}
```
"x-to-ocf": [  
  "oic.r.sensor.props.silenttime = silentTime"
],
"x-from-ocf": [  
  "silentTime = oic.r.sensor.props.silenttime"
]
}
}
,"sensitivity": {
  "type": "number",
  "description": "Sensitivity",
  "x-ocf-conversion": {  
    "x-ocf-alias": "oic.r.sensor.props",
    "x-to-ocf": [  
      "oic.r.sensor.props.sensitivity = sensitivity",
      "OCF sensitivity is a number and oneM2M sensitivity is an integer, so this arithmetic assignment works, but an arithmetic conversion may be necessary depending on how the value is interpreted"
    ],
    "x-from-ocf": [  
      "sensitivity = oic.r.sensor.props.sensitivity",
      "OCF sensitivity is a number and the oneM2M is an integer, so arithmetic conversion may be necessary depending on how the value is interpreted"
    ]
  }
},
],
"type": "object",
"allOf": [  
  {"$ref": "#/definitions/onem2m.m.motionsensor"}
],
"required": [ "alarm" ]
}

9.40  Open Level

9.40.1  Derived model

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

9.40.2  Property definition

Table 79 provides the detailed per Property mapping for "onem2m.m.openlevel".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>openLevel</td>
<td>oic.r.openlevel</td>
<td>oic.r.openlevel.openLevel = openLevel</td>
<td>openLevel = oic.r.openlevel.openLevel</td>
</tr>
<tr>
<td>maxLevel</td>
<td>oic.r.openlevel</td>
<td>oic.r.openlevel.range[1] = maxLevel</td>
<td>maxLevel = oic.r.openlevel.range[1]</td>
</tr>
<tr>
<td>stepValue</td>
<td>oic.r.openlevel</td>
<td>oic.r.openlevel.increment = stepValue</td>
<td>stepValue = oic.r.openlevel.increment</td>
</tr>
<tr>
<td>minLevel</td>
<td>oic.r.openlevel</td>
<td>oic.r.openlevel.range[0] = minLevel</td>
<td>minLevel = oic.r.openlevel.range[0]</td>
</tr>
</tbody>
</table>
Table 80 provides the details of the Properties that are part of "onem2m.m.openlevel".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>openLevel</td>
<td>integer</td>
<td>yes</td>
<td>The rounded percentage of the current open level of entity in the range of [0, 100]. 0 percentage shall mean the entity is closed.</td>
</tr>
<tr>
<td></td>
<td>maxLevel</td>
<td>integer</td>
<td>no</td>
<td>The maximum value allowed for the &quot;openLevel&quot; status. The default value is 100, which means fully opened.</td>
</tr>
<tr>
<td></td>
<td>stepValue</td>
<td>integer</td>
<td>no</td>
<td>The step value used by the &quot;open&quot; and &quot;close&quot; actions.</td>
</tr>
<tr>
<td></td>
<td>minLevel</td>
<td>integer</td>
<td>no</td>
<td>The minimum value allowed for the &quot;openLevel&quot; status. The default value is 0, which means fully closed.</td>
</tr>
</tbody>
</table>

9.40.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.openlevel.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Open Level",
  "definitions": {
    "onem2m.m.openlevel": {
      "type": "object",
      "properties": {
        "openLevel": {
          "type": "integer",
          "description": "The rounded percentage of the current open level of entity in the range of [0, 100]. 0 percentage shall mean the entity is closed."
        },
        "stepValue": {
          "type": "integer",
          "description": "The step value used by the "open" and "close" actions."
        }
      }
    }
  }
}``
```
"description": "The step value used by the "open" and "close" actions."
"x-ocf-conversion": {
  "x-ocf-alias": "oic.r.openlevel",
  "x-to-ocf": {
    "oic.r.openlevel.increment = stepValue"
  },
  "x-from-ocf": {
    "stepValue = oic.r.openlevel.increment"
  }
},
"minLevel": {
  "type": "integer",
  "description": "The minimum value allowed for the "openLevel" status. The default value is 0, which means fully closed."
  "x-ocf-conversion": {
    "x-ocf-alias": "oic.r.openlevel",
    "x-to-ocf": {
      "oic.r.openlevel.range[0] = minLevel"
    },
    "x-from-ocf": {
      "minLevel = oic.r.openlevel.range[0]"
    }
  }
},
"maxLevel": {
  "type": "integer",
  "description": "The maximum value allowed for the "openLevel" status. The default value is 100, which means fully opened."
  "x-ocf-conversion": {
    "x-ocf-alias": "oic.r.openlevel",
    "x-to-ocf": {
      "oic.r.openlevel.range[1] = maxLevel"
    },
  "x-from-ocf": {
      "maxLevel = oic.r.openlevel.range[1]"
    }
  }
},
"type": "object",
"allOf": [{
  "$ref": "#/definitions/onem2m.m.openlevel"
}],

"required": [ "openLevel" ]
}

9.41 Operation Mode
9.41.1 Derived model
The derived model: "onem2m.m.operationmode".
9.41.2 Property definition
Table 81 provides the detailed per Property mapping for "onem2m.m.operationmode".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>startPause</td>
<td>oic.r.switch.binary</td>
<td>oic.r.switch.binary.value = startPause</td>
<td>startPause = oic.r.switch.binary.value</td>
</tr>
</tbody>
</table>
Table 82 provides the details of the Properties that are part of "onem2m.m.operationmode".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>startPause</td>
<td>boolean</td>
<td>yes</td>
<td></td>
<td>True triggers an operation, and False pauses the operation.</td>
</tr>
</tbody>
</table>

### 9.4.1.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.operationmode.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Operation Mode",
  "definitions": {
    "onem2m.m.operationmode": {
      "type": "object",
      "properties": {
        "startPause": {
          "type": "boolean",
          "description": "True triggers an operation, and False pauses the operation.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.switch.binary",
            "x-to-ocf": ["oic.r.switch.binary.value = startPause"],
            "x-from-ocf": ["startPause = oic.r.switch.binary.value"]
          }
        }
      }
    }
  }
}
```

### 9.42 Overcurrent Sensor

#### 9.42.1 Derived model

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

#### 9.42.2 Property definition

Table 83 provides the detailed per Property mapping for "onem2m.m.overcurrentsensor".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>overcurrentStatus</td>
<td>oic.r.sensor</td>
<td>oic.r.sensor.value</td>
<td>overcurrentStatus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>overcurrentStatus</td>
<td>=</td>
</tr>
<tr>
<td></td>
<td></td>
<td>oic.r.sensor.value</td>
<td>=</td>
</tr>
</tbody>
</table>
Table 84 provides the details of the Properties that are part of "onem2m.m.overcurrentsensor".

Table 84 – The properties of "onem2m.m.overcurrentsensor".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>overcurrentStatus</td>
<td>boolean</td>
<td>yes</td>
<td>The overcurrentStatus indicates as follows: (True) An over-current is detected / (False) Normal status, an over-current is not detected</td>
</tr>
<tr>
<td>duration</td>
<td>integer</td>
<td>no</td>
<td>The duration the over-current is detected. The unit of duration is ms.</td>
</tr>
<tr>
<td>detectedTime</td>
<td>string</td>
<td>no</td>
<td>The time the over-current is detected.</td>
</tr>
</tbody>
</table>

9.42.3 Derived model definition

```json
{ "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.overcurrentsensor.json#", "$schema": "http://json-schema.org/draft-04/schema#", "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.", "title": "Overcurrent Sensor", "definitions": { "onem2m.m.overcurrentsensor": { "type": "object", "properties": { "overcurrentStatus": { "type": "boolean", "description": "The overcurrentStatus indicates as follows: (True) An over-current is detected / (False) Normal status, an over-current is not detected", "x-ocf-conversion": { "x-ocf-alias": "oic.r.sensor", "x-to-ocf": [ "oic.r.sensor.value = overcurrentStatus" ], "x-from-ocf": [ "overcurrentStatus = oic.r.sensor.value" ] } } } } } ```
9.43 Power Save

9.43.1 Derived model

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

9.43.2 Property definition

Table 85 provides the detailed per Property mapping for "onem2m.m.powersave".

Table 85 – The property mapping for "onem2m.m.powersave".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>powerSaveEnabled</td>
<td>oic.r.switch.binary</td>
<td>oic.r.switch.binary.value = powerSaveEnabled</td>
<td>powerSaveEnabled = oic.r.switch.binary.value</td>
</tr>
</tbody>
</table>

Table 86 provides the details of the Properties that are part of "onem2m.m.powersave".

Table 86 – The properties of "onem2m.m.powersave".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
</table>

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The current status of the Power Saving Mode. True indicates enabled, and false indicates not enabled.

| powerSaveEnabled | boolean | yes | The current status of the Power Saving Mode. True indicates enabled, and false indicates not enabled. |

### 9.43.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.powersave.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Power Save",
  "definitions": {
    "onem2m.m.powersave": {
      "type": "object",
      "properties": {
        "powerSaveEnabled": {
          "type": "boolean",
          "description": "The current status of the Power Saving Mode. True indicates enabled, and false indicates not enabled.",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.switch.binary",
            "x-to-ocf": [
              "oic.r.switch.binary.value = powerSaveEnabled"
            ],
            "x-from-ocf": [
              "powerSaveEnabled = oic.r.switch.binary.value"
            ]
          }
        }
      }
    }
  }
}
```

### 9.44 Print Queue

#### 9.44.1 Derived model

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

#### 9.44.2 Property definition

Table 87 provides the detailed per Property mapping for "onem2m.m.printqueue".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>uri</td>
<td>oic.r.printer.queue</td>
<td>For each item in the array of queue items from onem2m.m.printqueue</td>
<td>For each item in the array of queue items from oic.r.printer.queueuri[i] = oic.r.print.queueitem[i].uri</td>
</tr>
</tbody>
</table>
Table 88 – The properties of "onem2m.m.printqueue".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>uri</td>
<td>string</td>
<td>yes</td>
<td></td>
<td>The URI of the printing file.</td>
</tr>
<tr>
<td>printingState</td>
<td>string</td>
<td>yes</td>
<td></td>
<td>The printingState is indicating the status of the printing file.</td>
</tr>
</tbody>
</table>

9.44.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.printqueue.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "definitions": {
    "onem2m.m.printqueue": {
      "type": "object",
      "properties": {
        "uri": {
          "type": "string",
          "description": "The URI of the printing file.",
          "x-ocf-conversion": { "x-ocf-alias": "oic.r.printer.queue",
            "x-to-ocf": [ "For each item in the array of queue items from onem2m.m.printqueue",
              "oic.r.print.queueitem[i].uri = uri[i]" ]
          },
          "x-from-ocf": [ "For each item in the array of queue items from oic.r.printer.queue",
            "uri[i] = oic.r.print.queueitem[i].uri" ]
        },
        "printingState": {
          "type": "string",
          "description": "The printingState is indicating the status of the printing file.",
          "x-ocf-conversion": { "x-ocf-alias": "oic.r.printer.queue",
            "x-to-ocf": [ "For each item in the array of queue items from onem2m.m.printqueue",
              "oic.r.print.queueitem[i].status = printingStatus[i]" ]
          },
          "x-from-ocf": [ "For each item in the array of queue items from oic.r.printer.queue",
            "printingStatus[i] = oic.r.print.queueitem[i].status" ]
        }
      }
    }
  }
}```
9.45 Push Button

9.45.1 Derived model

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

9.45.2 Property definition

Table 89 provides the detailed per Property mapping for "onem2m.m.pushbutton".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>pushed</td>
<td>oic.r.button</td>
<td>oic.r.button.value = pushed</td>
<td>pushed = oic.r.button.value</td>
</tr>
</tbody>
</table>

Table 90 provides the details of the Properties that are part of "onem2m.m.pushbutton".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>pushed</td>
<td>boolean</td>
<td>yes</td>
<td>This data point indicates the press of the button.</td>
</tr>
</tbody>
</table>

9.45.3 Derived model definition

```json
{
"id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.pushbutton.json#",
"$schema": "http://json-schema.org/draft-04/schema#",
"description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
"title": "Push Button",
"definitions": {
"onem2m.m.pushbutton": {
"type": "object",
"properties": {
"pushed": {
"type": "boolean",
"description": "This data point indicates the press of the button."
"x-ocf-conversion": {
"x-ocf-alias": "oic.r.button",
"x-to-ocf": [{
"oic.r.button.value = pushed"
"x-from-ocf": [{
"pushed = oic.r.button.value"

```
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9.46 Refrigeration

9.46.1 Derived model
The derived model: "onem2m.m.refrigeration".

9.46.2 Property definition
Table 91 provides the detailed per Property mapping for "onem2m.m.refrigeration".

Table 91 – The property mapping for "onem2m.m.refrigeration".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>defrost</td>
<td>oic.r.refrigeration</td>
<td>oic.r.refrigeration.defrost = defrost</td>
<td>defrost = oic.r.refrigeration.defrost</td>
</tr>
<tr>
<td>rapidCool</td>
<td>oic.r.refrigeration</td>
<td>oic.r.refrigeration.rapidCool = rapidCool</td>
<td>rapidCool = oic.r.refrigeration.rapidCool</td>
</tr>
<tr>
<td>rapidFreeze</td>
<td>oic.r.refrigeration</td>
<td>oic.r.refrigeration.rapidFreeze = rapidFreeze</td>
<td>rapidFreeze = oic.r.refrigeration.rapidFreeze</td>
</tr>
</tbody>
</table>

Table 92 provides the details of the Properties that are part of "onem2m.m.refrigeration".

Table 92 – The properties of "onem2m.m.refrigeration".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>defrost</td>
<td></td>
<td>boolean</td>
<td>no</td>
<td>Controls the defrost cycle. &quot;True&quot; indicates active, &quot;False&quot; indicates inactive.</td>
</tr>
<tr>
<td>rapidCool</td>
<td></td>
<td>boolean</td>
<td>no</td>
<td>Controls the rapid cool capability. &quot;True&quot; indicates active, &quot;False&quot; indicates inactive.</td>
</tr>
<tr>
<td>rapidFreeze</td>
<td></td>
<td>boolean</td>
<td>no</td>
<td>Controls the rapid freeze capability. &quot;True&quot; indicates</td>
</tr>
</tbody>
</table>

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9.46.3 Derived model definition

```json
{
    "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.refrigeration.json",
    "$schema": "http://json-schema.org/draft-04/schema#",
    "description": "Copyright  (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
    "title": "Refrigeration",
    "definitions": {
        "onem2m.m.refrigeration": {
            "type": "object",
            "properties": {
                "rapidFreeze": {
                    "type": "boolean",
                    "description": "Controls the rapid freeze capability. \"True\" indicates active, \"False\" indicates inactive.\",
                    "x-ocf-conversion": {
                        "x-ocf-alias": "oic.r.refrigeration",
                        "x-to-ocf": ["oic.r.refrigeration.rapidFreeze = rapidFreeze"],
                        "x-from-ocf": ["rapidFreeze = oic.r.refrigeration.rapidFreeze"
                    ]
                },
                "rapidCool": {
                    "type": "boolean",
                    "description": "Controls the rapid cool capability. \"True\" indicates active, \"False\" indicates inactive.\",
                    "x-ocf-conversion": {
                        "x-ocf-alias": "oic.r.refrigeration",
                        "x-to-ocf": ["oic.r.refrigeration.rapidCool = rapidCool"],
                        "x-from-ocf": ["rapidCool = oic.r.refrigeration.rapidCool"
                    ]
                },
                "defrost": {
                    "type": "boolean",
                    "description": "Controls the defrost cycle. \"True\" indicates active, \"False\" indicates inactive.\",
                    "x-ocf-conversion": {
                        "x-ocf-alias": "oic.r.refrigeration",
                        "x-to-ocf": ["oic.r.refrigeration.defrost = defrost"],
                        "x-from-ocf": ["defrost = oic.r.refrigeration.defrost"
                    ]
                }
            }
        }
    },
    "type": "object",
    "allOf": ["#/definitions/onem2m.m.refrigeration"]
}
```

"active, "False" indicates inactive."
9.47 Relative Humidity

9.47.1 Derived model

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

9.47.2 Property definition

Table 93 provides the detailed per Property mapping for "onem2m.m.relativeHumidity".

Table 93 – The property mapping for "onem2m.m.relativeHumidity".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>relativeHumidity</td>
<td>oic.r.humidity</td>
<td>oic.r.humidity.humidity = int(relativeHumidity)</td>
<td>relativeHumidity = float(oic.r.humidity.humidity)</td>
</tr>
<tr>
<td>desiredHumidity</td>
<td>oic.r.humidity</td>
<td>oic.r.humidity.desiredHumidity = int(desiredHumidity)</td>
<td>desiredHumidity = float(oic.r.humidity.desiredHumidity)</td>
</tr>
</tbody>
</table>

Table 94 provides the details of the Properties that are part of "onem2m.m.relativeHumidity".

Table 94 – The properties of "onem2m.m.relativeHumidity".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>relativeHumidity</td>
<td>number</td>
<td>yes</td>
<td>The measurement of the relative humidity value; the unit of measure is percentage</td>
</tr>
<tr>
<td>desiredHumidity</td>
<td>number</td>
<td>no</td>
<td>Desired value for humidity. This data point indicates the desired humidity</td>
</tr>
</tbody>
</table>

9.47.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.relativeHumidity.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Relative Humidity",
  "definitions": {
    "onem2m.m.relativeHumidity": {
      "type": "object",
      "properties": {
        "relativeHumidity": {
          "type": "number",
          "description": "The measurement of the relative humidity value; the unit of measure is percentage",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.humidity",
            "x-to-ocf": [
              "int(relativeHumidity)"
            ],
            "x-from-ocf": [
              "float(oic.r.humidity.humidity)"
            ]
          }
        },
        "desiredHumidity": {
          "type": "number",
          "description": "Desired value for humidity. This data point indicates the desired humidity",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.humidity",
            "x-to-ocf": [
              "int(desiredHumidity)"
            ],
            "x-from-ocf": [
              "float(oic.r.humidity.desiredHumidity)"
            ]
          }
        }
      }
    }
  }
}
```
"oic.r.humidity.humidity = int(relativeHumidity)"
]
    "relativeHumidity = float(oic.r.humidity.humidity)"
}
"
desiredHumidity": {
    "type": "number",
    "description": "Desired value for humidity. This data point indicates the desired
humidity",
    "x-ocf-conversion": {
        "x-ocf-alias": "oic.r.humidity",
        "x-to-ocf": [
            "oic.r.humidity.desiredhumidity = int(desiredHumidity)"
        ],
        "x-from-ocf": [
            "desiredHumidity = float(oic.r.humidity.desiredhumidity)"
        ]
    }
}]
"type": "object",
"allOf": [
    {"$ref": "/definitions/onem2m.m.relativeHumidity"}
],
"required": [ "relativeHumidity" ]
"
9.48 Robot Cleaner Job Mode
9.48.1 Derived model
The derived model: "onem2m.m.robotcleanerjobmode".
9.48.2 Property definition
Table 95 provides the detailed per Property mapping for "onem2m.m.robotcleanerjobmode".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>jobModes</td>
<td>oic.r.operation.al.state</td>
<td>This does not exist in OCF as all possible operational states are available.</td>
<td>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</td>
</tr>
<tr>
<td>currentJobMode</td>
<td>oic.r.operation.al.state</td>
<td>Need to translate between the oneM2M integer value and the OCF operational state enumerated string</td>
<td>Need to translate between the OCF operational state enumerated string and the oneM2M integer value</td>
</tr>
</tbody>
</table>

Table 95 – The property mapping for "onem2m.m.robotcleanerjobmode".
currentJobModeName

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 value.

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

9.48.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.robotcleanerjobmode.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Robot Cleaner Job Mode",
  "definitions": {
    "onem2m.m.robotcleanerjobmode": {
      "type": "object",
      "properties": {
        "jobModes": {
          "type": "array",
          "items": {
            "type": "string"
          }
        },
        "currentJobMode": {
          "type": "integer"
        },
        "currentJobModeName": {
          "type": "string"
        }
      }
    }
  }
}
```
"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 == \"zigzag\"; }",
        "if ( currentJobMode == 2 ) { oic.r.operational.state.currentJobState == \"sectored\"; }",
        "if ( currentJobMode == 3 ) { oic.r.operational.state.currentJobState == \"spot\"; }",
        "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 == \"zigzag\" ) { currentJobMode = 1; }",
        "if ( oic.r.operational.state.currentJobState == \"sectored\" ) { currentJobMode = 2; }",
        "if ( oic.r.operational.state.currentJobState == \"spot\" ) { currentJobMode = 3; }",
        "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 == \"zigzag\" ) { currentJobModeName = \"zigzag\"; }",
        "if ( oic.r.operational.state.currentJobState == \"sectored\" ) { currentJobModeName = \"sectorBase\"; }",
        "if ( oic.r.operational.state.currentJobState == \"spot\" ) { currentJobModeName = \"spot\"; }",
        "else { currentJobModeName = \"\"; }"
      ]
    },
    "x-from-ocf": [ "This is an array of integers in oneM2M defined by the current version of the specification as follows:\n      \"jobModes\[1\] = 1\",
      \"jobModes\[2\] = 2\",
      \"jobModes\[3\] = 3\"
    ]
  },
  "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:\n          \"jobModes\[1\] = 1\",
          \"jobModes\[2\] = 2\",
          \"jobModes\[3\] = 3\"
        ]
      ]
    },
    "x-from-ocf": [ "This is an array of integers in oneM2M defined by the current version of the specification as follows:\n      \"jobModes\[1\] = 1\",
      \"jobModes\[2\] = 2\",
      \"jobModes\[3\] = 3\"
    ]
  }
}
9.49 Steam Closet Job Mode

9.49.1 Derived model

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

9.49.2 Property definition

Table 97 provides the detailed per Property mapping for "onem2m.m.steamclosetjobmode".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>currentJobMode</td>
<td>oic.r.operation.al.state</td>
<td>Need to translate between the oneM2M integer value and the OCF operational state enumerated string. if (currentJobMode == 1) { oic.r.operation.al.state.currentJobState = &quot;aroma&quot;; } if (currentJobMode == 2) { oic.r.operation.al.state.currentJobState = &quot;steam&quot;; } if (currentJobMode == 3) { oic.r.operation.al.state.currentJobState = &quot;pure&quot;; } if (currentJobMode == 4) { oic.r.operation.al.state.currentJobState = &quot;delicate&quot;; } else { oic.r.operation.al.state.currentJobState = &quot;unknown&quot;; }</td>
<td>Need to translate between the OCF operational state enumerated string and the oneM2M integer value. if (oic.r.operation.al.state.currentJobState == &quot;aroma&quot;) { currentJobMode = 1; } if (oic.r.operation.al.state.currentJobState == &quot;steam&quot;) { currentJobMode = 2; } if (oic.r.operation.al.state.currentJobState == &quot;pure&quot;) { currentJobMode = 3; } if (oic.r.operation.al.state.currentJobState == &quot;delicate&quot;) { currentJobMode = 4; } else { currentJobMode = 0; }</td>
</tr>
<tr>
<td>jobModes</td>
<td>oic.r.operation.al.state</td>
<td>This does not exist in OCF as all possible operational states are available.</td>
<td>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</td>
</tr>
<tr>
<td>currentJobModeName</td>
<td>oic.r.operation.al.state</td>
<td>This value does not exist in OCF as it is already accommodated in the currentJobMode property.</td>
<td>Need to translate between the OCF operational state enumerated string and the oneM2M string value if (oic.r.operation.al.state.currentJobState == &quot;aroma&quot;)</td>
</tr>
</tbody>
</table>
Table 98 provides the details of the Properties that are part of "onem2m.m.steamclosetjobmode".

<table>
<thead>
<tr>
<th>oneM2M Name</th>
<th>Property Name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>currentJobMode</td>
<td>currentJobMode</td>
<td>integer</td>
<td>yes</td>
<td>Currently active job mode.</td>
</tr>
<tr>
<td>jobModes</td>
<td>jobModes</td>
<td>array</td>
<td>yes</td>
<td>List of possible job states the device supports</td>
</tr>
<tr>
<td>currentJobModeName</td>
<td>currentJobModeName</td>
<td>string</td>
<td>no</td>
<td>Name of current job mode in string. This can be used when currentJobMode is vendor-specific.</td>
</tr>
</tbody>
</table>

9.49.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.steamclosetjobmode.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Steam Closet Job Mode",
  "definitions": {
    "onem2m.m.steamclosetjobmode": {
      "type": "object",
      "properties": {
        "currentJobMode": {
          "type": "integer",
          "description": "Currently active job mode."
        },
        "jobModes": {
          "type": "array",
          "description": "List of possible job states the device supports"
        },
        "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": {
          "need-to-translate": "between the oneM2M integer value and the OCF operational state enum",
          "if ( currentJobMode == 1 ) { oic.r.operational.state.currentJobState == "aroma"; }",
          "if ( currentJobMode == 2 ) { oic.r.operational.state.currentJobState == "steam"; }
        }
      }
    }
  }
}
```
"steam"; }",
4073 "pure"; }",
4074 "if ( currentJobMode == 3 ) { oic.r.operational.state.currentJobState = "pure"; }",
4075 "if ( currentJobMode == 4 ) { oic.r.operational.state.currentJobState = "delicate"; }",
4076 "else { oic.r.operational.state.currentJobState = "unknown"; }"
4077 ]
4078 },
4079 "x-from-ocf": {
4080 "Need to translate between the OCF operational state enumerated string and the oneM2M integer value",
4081 "if (oic.r.operational.state.currentJobState == "aroma" ) { currentJobMode = 1; }",
4082 "if (oic.r.operational.state.currentJobState == \"steam\" ) { currentJobMode = 2; }",
4083 "if (oic.r.operational.state.currentJobState == \"pure\" ) { currentJobMode = 3; }",
4084 "if (oic.r.operational.state.currentJobState == \"delicate\" ) { currentJobMode = 4; }",
4085 "else { currentJobMode = 0; }
4086 }
4087 }"
4088 }
4089 }
4090 }
4091 },
4092 "currentJobModeName": {
4093 "type": "string",
4094 "description": "Name of current job mode in string. This can be used when currentJobMode is vendor-specific."
4095 },
4096 "x-ocf-conversion": {
4097 "x-ocf-alias": "oic.r.operational.state",
4098 "x-to-ocf": {
4099 "This value does not exist in OCF as it is already accommodated in the currentJobMode property."
4100 },
4101 "x-from-ocf": {
4102 "Need to translate between the OCF operational state enumerated string and the oneM2M string value",
4103 "if (oic.r.operational.state.currentJobState == \"aroma\" ) { currentJobModeName = \"reduceOdor\"; }",
4104 "if (oic.r.operational.state.currentJobState == \"steam\" ) { currentJobModeName = \"steamWrinkle\"; }",
4105 "if (oic.r.operational.state.currentJobState == \"pure\" ) { currentJobModeName = \"helpClean\"; }",
4106 "if (oic.r.operational.state.currentJobState == \"delicate\" ) { currentJobModeName = \"gentleDry\"; }",
4107 "else { currentJobModeName = \"\"; }
4108 }
4109 }
4110 }
4111 },
4112 "jobModes": {
4113 "type": "array",
4114 "description": "List of possible job states the device supports",
4115 "x-ocf-conversion": {
4116 "x-ocf-alias": "oic.r.operational.state",
4117 "x-to-ocf": {
4118 "This value does not exist in OCF as all possible operational states are available."
4119 },
4120 "x-from-ocf": {
4121 "This is an array of integers in oneM2M defined by the current version of the specification as follows."
4122 "jobModes[1] = 1",
4123 "jobModes[2] = 2",
4124 "jobModes[3] = 3",
4125 "jobModes[4] = 4"
4126 }
4127 }
4128 }
4129 }
4130 }
4131 },
4132 "type": "object",
4133 "allOf": [{
4134 "$ref": "/definitions/onem2m.m.airconjobmode"
4135 },
4136 "required": [ "currentJobMode", "jobModes" ]
4137 )
4138 )
9.50 Temperature

9.50.1 Derived model

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

9.50.2 Property definition

Table 99 provides the detailed per Property mapping for "onem2m.m.temperature".

Table 99 – The property mapping for "onem2m.m.temperature".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>stepValue</td>
<td>oic.r.temperature</td>
<td>oic.r.temperature.step = stepValue</td>
<td>stepValue = oic.r.temperature.step otherwise: stepValue = 1</td>
</tr>
<tr>
<td>minValue</td>
<td>oic.r.temperature</td>
<td>oic.r.temperature.range[0] = minValue</td>
<td>minValue = oic.r.temperature.range[0] otherwise: minValue = -MAXINT</td>
</tr>
<tr>
<td>maxValue</td>
<td>oic.r.temperature</td>
<td>oic.r.temperature.range[1] = maxValue</td>
<td>maxValue = oic.r.temperature.range[1] otherwise: maxValue = MAXINT</td>
</tr>
<tr>
<td>targetTemperature</td>
<td>oic.r.temperature</td>
<td>oic.r.temperature.temperature = targetTemperature</td>
<td>oneOf</td>
</tr>
<tr>
<td>currentTemperature</td>
<td>oic.r.temperature</td>
<td>oic.r.temperature.temperature = currentTemperature</td>
<td>oneOf</td>
</tr>
</tbody>
</table>

Table 100 provides the details of the Properties that are part of "onem2m.m.temperature".
Table 100 – The properties of "onem2m.m.temperature".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>stepValue</td>
<td>number</td>
<td>no</td>
<td></td>
<td>Step value allowed for 'targetTemperature'</td>
</tr>
<tr>
<td>minValue</td>
<td>number</td>
<td>no</td>
<td></td>
<td>Minimum value of 'targetTemperature'</td>
</tr>
<tr>
<td>maxValue</td>
<td>number</td>
<td>no</td>
<td></td>
<td>Maximum value of 'targetTemperature'</td>
</tr>
<tr>
<td>targetTemperature</td>
<td>number</td>
<td>no</td>
<td></td>
<td>The desired temperature to reach</td>
</tr>
<tr>
<td>currentTemperature</td>
<td>number</td>
<td>yes</td>
<td></td>
<td>The current temperature</td>
</tr>
</tbody>
</table>

9.50.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.temperature.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Temperature",
  "definitions": {
    "onem2m.m.temperature": {
      "type": "object",
      "properties": {
        "currentTemperature": {
          "type": "number",
          "description": "The current temperature",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.temperature",
            "x-to-ocf": [
              "oic.r.temperature.temperature = currentTemperature",
              "units = C",
              "During translation, need to set the description of the multi-instance temperature resource to indicate whether this is the current or target temperature being translated"
            ],
            "x-from-ocf": {
              "oneOf": [
                {
                  "properties": {
                    "units": "string",
                    "enum": ["C"]
                  },
                  "x-from-ocf": [
                    "currentTemperature = oic.r.temperature.temperature"
                  ]
                },
                {
                  "properties": {
                    "units": "string",
                    "enum": ["F"]
                  },
                  "x-from-ocf": [
                    "currentTemperature = (oic.r.temperature.temperature-32)*5/9"
                  ]
                }
              ]
            }
          }
        }
      }
    }
  }
}
```
"properties": {
  "units": "string",
  "enum": ["K"]
},
"x-from-ocf": {
  "currentTemperature = oic.r.temperature.temperature-273.15"
}
}
}
"targetTemperature": {
  "type": "number",
  "description": "The desired temperature to reach",
  "x-ocf-conversion": {
    "x-ocf-alias": "oic.r.temperature",
    "x-to-ocf": {
      "oic.r.temperature.temperature = targetTemperature",
      "units = C",
      "During translation, need to set the description of the multi-instance temperature resource to indicate whether this is the current or target temperature being translated"
    }
  },
  "x-from-ocf": {
    "oneOf": [
      {
        "properties": {
          "units": "string",
          "enum": ["C"]
        },
        "x-from-ocf": {
          "targetTemperature = oic.r.temperature.temperature"
        }
      },
      {
        "properties": {
          "units": "string",
          "enum": ["F"]
        },
        "x-from-ocf": {
          "targetTemperature = (oic.r.temperature.temperature-32)*5/9"
        }
      },
      {
        "properties": {
          "units": "string",
          "enum": ["K"]
        },
        "x-from-ocf": {
          "targetTemperature = oic.r.temperature.temperature-273.15"
        }
      }
    ]
  }
},
"minValue": {
  "type": "number",
  "description": "Minimum value of 'targetTemperature'",
  "x-ocf-conversion": {
    "x-ocf-alias": "oic.r.temperature",
    "x-to-ocf": {
      "oic.r.temperature.range[0] = minValue"
    },
    "x-from-ocf": {
      "minValue = oic.r.temperature.range[0]",
      "otherwise: minValue = -MAXINT"
    }
  }
},
"maxValue": {
  "type": "number",
  "description": "Maximum value of 'targetTemperature'",
  "x-ocf-conversion": {
    "x-ocf-alias": "oic.r.temperature",
    "x-to-ocf": {
      "oic.r.temperature.range[0] = maxValue"
    },
    "x-from-ocf": {
      "maxValue = oic.r.temperature.range[0]",
      "otherwise: maxValue = MAXINT"
    }
  }
}
9.51 UV Sensor

9.51.1 Derived model

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

9.51.2 Property definition

Table 101 provides the detailed per Property mapping for "onem2m.m.uvsensor".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>uvstatus</td>
<td>oic.r.sensor.radiation.uv</td>
<td>oic.r.sensor.radiation.uv.step = uvstatus</td>
<td>uvstatus = oic.r.sensor.radiation.uv.step</td>
</tr>
<tr>
<td>uvvalue</td>
<td>oic.r.sensor.radiation.uv</td>
<td>oic.r.sensor.radiation.uv.measurement = uvvalue</td>
<td>uvvalue = oic.r.sensor.radiation.uv.measurement</td>
</tr>
</tbody>
</table>

Table 102 provides the details of the Properties that are part of "onem2m.m.uvsensor".
Table 102 – The properties of "onem2m.m.uvsensor".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>uvstatus</td>
<td>integer</td>
<td>no</td>
<td></td>
<td>The &quot;uvStatus&quot; indicates the level of the UV radiation status.</td>
</tr>
<tr>
<td>uvvalue</td>
<td>number</td>
<td>yes</td>
<td></td>
<td>The unit of measurement of the UV intensity of radiation is &quot;mW/cm²&quot;.</td>
</tr>
</tbody>
</table>

9.51.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.uvsensor.json#",
  "schema": "http://json-schema.org/draft-04/schema#",
  "title": "UV Sensor",
  "definitions": {
    "onem2m.m.uvsensor": {
      "type": "object",
      "properties": {
        "uvvalue": {
          "type": "number",
          "description": "The unit of measurement of the UV intensity of radiation is \"mW/cm²\".\",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.sensor.radiation.uv",
            "x-to-ocf": [
              "oic.r.sensor.radiation.uv.measurement = uvvalue"
            ],
            "x-from-ocf": [
              "uvvalue = oic.r.sensor.radiation.uv.measurement"
            ]
          }
        },
        "uvstatus": {
          "type": "integer",
          "description": "The \"uvStatus\" indicates the level of the UV radiation status.\",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.sensor.radiation.uv",
            "x-to-ocf": [
              "oic.r.sensor.radiation.uv.step = uvstatus"
            ],
            "x-from-ocf": {
              "uvstatus = oic.r.sensor.radiation.uv.step"
            }
          }
        }
      }
    }
  }
}
```

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9.52 Water Sensor

9.52.1 Derived model

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

9.52.2 Property definition

Table 103 provides the detailed per Property mapping for "onem2m.m.watersensor".

Table 103 – The property mapping for "onem2m.m.watersensor".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>alarm</td>
<td>oic.r.sensor.water</td>
<td>oic.r.sensor.water.value = alarm</td>
<td>alarm = oic.r.sensor.water.value</td>
</tr>
</tbody>
</table>

Table 104 provides the details of the Properties that are part of "onem2m.m.watersensor".

Table 104 – The properties of "onem2m.m.watersensor".

<table>
<thead>
<tr>
<th>oneM2M name</th>
<th>Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>alarm</td>
<td>alarm</td>
<td>boolean</td>
<td>yes</td>
<td>The detection of water. The alarm is indicated as follows: &quot;True&quot; indicates that water has been detected, &quot;False&quot; indicates a normal status, that means that water is not detected.</td>
</tr>
</tbody>
</table>

9.52.3 Derived model definition

```
{  
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.watersensor.json#",  
  "schema": "http://json-schema.org/draft-04/schema#",  
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",  
  "title": "Water Sensor",  
  "definitions": {  
    "onem2m.m.watersensor": {  
      "type": "object",  
      "properties": {  
        "alarm": {  
          "type": "boolean",  
          "description": "The detection of water. The alarm is indicated as follows: "True" indicates that water has been detected, "False" indicates a normal status, that means that water is not detected.",  
          "x-ocf-conversion": {  
            "x-ocf-alias": "oic.r.sensor.water",  
            "x-to-ocf": [  
              "oic.r.sensor.water.value = alarm"  
            ],  
            "x-from-ocf": [  
              "alarm = oic.r.sensor.water.value"  
            ]  
          }  
        }  
      }  
    }  
  }  
}
```
9.53 Weight

9.53.1 Derived model
The derived model: "onem2m.m.weight".

9.53.2 Property definition
Table 105 provides the detailed per Property mapping for "onem2m.m.weight".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>OCF Resource</th>
<th>To OCF</th>
<th>From OCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>weight</td>
<td>oic.r.weight</td>
<td>oic.r.weight.weight = weight, oic.r.weight.units = kg</td>
<td>oneOf</td>
</tr>
</tbody>
</table>

Table 106 provides the details of the Properties that are part of "onem2m.m.weight".

<table>
<thead>
<tr>
<th>oneM2M Property name</th>
<th>Type</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>weight</td>
<td>number</td>
<td>yes</td>
<td>Measurement of weight</td>
</tr>
</tbody>
</table>

9.53.3 Derived model definition

```json
{
  "id": "http://openinterconnect.org/onem2mmapping/schemas/onem2m.m.weight.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "Copyright (c) 2019 Open Connectivity Foundation, Inc. All rights reserved.",
  "title": "Weight",
  "definitions": {
    "onem2m.m.weight": {
      "type": "object",
      "properties": {
        "weight": {
          "type": "number",
          "description": "Measurement of weight",
          "x-ocf-conversion": {
            "x-ocf-alias": "oic.r.weight",
            "x-to-ocf": [
              "oic.r.weight.weight = weight",
              "oic.r.weight.units = kg"
            ],
            "x-from-ocf": {
              "oneOf": [
                "properties": {
```
"oic.r.weight.units": "string",
"enum": ["kg"]
},
"x-from-ocf": {
  "weight = oic.r.weight.weight"
},
"properties": {
  "oic.r.weight.units": "string",
  "enum": ["g"]
},
"x-from-ocf": {
  "weight = oic.r.weight.weight/1000"
}
"properties": {
  "oic.r.weight.units": "string",
  "enum": ["lb"]
},
"x-from-ocf": {
  "weight = oic.r.weight.weight*0.45"
}
"properties": {
  "oic.r.weight.units": "string",
  "enum": ["oz"]
},
"x-from-ocf": {
  "weight = oic.r.weight.weight*0.028"
}
},
"type": "object",
"allOf": {
  "$ref": "#/definitions/onem2m.m.weight"
},
"required": [ "weight" ]
}