

# OCF Resource to AllJoyn Interface Mapping Specification

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## 165 **1 Scope**

166 This document provides detailed mapping information to provide equivalency between AllJoyn  
167 defined Interfaces and OCF defined Resources.

168 This document provides mapping for Device Types (AllJoyn to/from OCF), identifies equivalent  
169 OCF Resources for both mandatory and optional AllJoyn interfaces and for each interface defines  
170 the detailed Property by Property mapping using OCF defined extensions to JSON schema to  
171 programmatically define the mappings.

## 172 **1 Normative references**

173 The following documents are referred to in the text in such a way that some or all of their content  
174 constitutes requirements of this document. For dated references, only the edition cited applies. For  
175 undated references, the latest edition of the referenced document (including any amendments)  
176 applies.

177 ISO/IEC 30118-1:2018 Information technology -- Open Connectivity Foundation (OCF)  
178 Specification -- Part 1: Core specification  
179 <https://www.iso.org/standard/53238.html>  
180 Latest version available at: [https://openconnectivity.org/specs/OCF\\_Core\\_Specification.pdf](https://openconnectivity.org/specs/OCF_Core_Specification.pdf)

181 ISO/IEC 30118-4:2018 Information technology -- Open Connectivity Foundation (OCF)  
182 Specification -- Part 4: Resource type specification  
183 <https://www.iso.org/standard/74241.html>  
184 Latest version available at:  
185 [https://openconnectivity.org/specs/OCF\\_Resource\\_Type\\_Specification.pdf](https://openconnectivity.org/specs/OCF_Resource_Type_Specification.pdf)

186 ISO/IEC 30118-5:2019, Information technology – Open Connectivity Foundation (OCF)  
187 Specification – Part 5: Smart home device specification  
188 <https://www.iso.org/standard/74242.html>  
189 Latest version available at: [https://openconnectivity.org/specs/OCF\\_Device\\_Specification.pdf](https://openconnectivity.org/specs/OCF_Device_Specification.pdf)

190 Derived Models for Interoperability between IoT Ecosystems, Stevens & Merriam, March 2016  
191 [https://www.iab.org/wp-content/IAB-uploads/2016/03/OCF-Derived-Models-for-Interoperability-](https://www.iab.org/wp-content/IAB-uploads/2016/03/OCF-Derived-Models-for-Interoperability-Between-IoT-Ecosystems_v2-examples.pdf)  
192 [Between-IoT-Ecosystems\\_v2-examples.pdf](https://www.iab.org/wp-content/IAB-uploads/2016/03/OCF-Derived-Models-for-Interoperability-Between-IoT-Ecosystems_v2-examples.pdf)

193 AllJoyn Common Data Model Interface Definitions  
194 <https://wiki.alljoyn.org/cdm>

## 195 **2 Terms and definitions**

196 For the purposes of this document, the terms and definitions given in ISO/IEC 30118-1:2018 and  
197 the following apply.

198 ISO and IEC maintain terminological databases for use in standardization at the following  
199 addresses:

200 – ISO Online browsing platform: available at <https://www.iso.org/obp>

201 – IEC Electropedia: available at <http://www.electropedia.org/>

## 202 **3 Document conventions and organization**

### 203 **3.1 Conventions**

204 In this document a number of terms, conditions, mechanisms, sequences, parameters, events,  
205 states, or similar terms are printed with the first letter of each word in uppercase and the rest

206 lowercase (e.g., Network Architecture). Any lowercase uses of these words have the normal  
207 technical English meaning.

## 208 **3.2 Notation**

209 In this document, features are described as required, recommended, allowed or DEPRECATED as  
210 follows:

211 Required (or shall or mandatory).

212 These basic features shall be implemented to comply with the Mapping Specification. The  
213 phrases "shall not", and "PROHIBITED" indicate behaviour that is prohibited, i.e. that if  
214 performed means the implementation is not in compliance.

215 Recommended (or should).

216 These features add functionality supported by the Mapping Specification and should be  
217 implemented. Recommended features take advantage of the capabilities the Mapping  
218 Specification, usually without imposing major increase of complexity. Notice that for compliance  
219 testing, if a recommended feature is implemented, it shall meet the specified requirements to  
220 be in compliance with these guidelines. Some recommended features could become  
221 requirements in the future. The phrase "should not" indicates behaviour that is permitted but  
222 not recommended.

223 Allowed (or allowed).

224 These features are neither required nor recommended by the Mapping Specification, but if the  
225 feature is implemented, it shall meet the specified requirements to be in compliance with these  
226 guidelines.

227 Conditionally allowed (CA)

228 The definition or behaviour depends on a condition. If the specified condition is met, then the  
229 definition or behaviour is allowed, otherwise it is not allowed.

230 Conditionally required (CR)

231 The definition or behaviour depends on a condition. If the specified condition is met, then the  
232 definition or behaviour is required. Otherwise the definition or behaviour is allowed as default  
233 unless specifically defined as not allowed.

234 DEPRECATED

235 Although these features are still described in this document, they should not be implemented  
236 except for backward compatibility. The occurrence of a deprecated feature during operation of  
237 an implementation compliant with the current document has no effect on the implementation's  
238 operation and does not produce any error conditions. Backward compatibility may require that  
239 a feature is implemented and functions as specified but it shall never be used by  
240 implementations compliant with this document.

241 Strings that are to be taken literally are enclosed in "double quotes".

242 Words that are emphasized are printed in *italic*.

## 243 **4 Theory of operation**

### 244 **4.1 Interworking approach**

245 The interworking between AllJoyn defined interfaces and OCF defined Resource Types is modelled  
246 using the derived model syntax described in Derived Models for Interoperability between IoT  
247 Ecosystems. Determination of the minimum set of AllJoyn interfaces for which equivalency is  
248 required within the OCF data model was done by listing the set of interfaces required for each of

249 the device types defined by the CDM Project inside of AllJoyn. Where the AllJoyn interface  
250 supports methods then an actuation design pattern is applied.

## 251 **4.2 Mapping syntax**

### 252 **4.2.1 Introduction**

253 Within the defined syntax for derived modelling used by this document there are two blocks that  
254 define the actual Property-Property equivalence or mapping. These blocks are identified by the  
255 keywords "x-to-ocf" and "x-from-ocf". Derived Models for Interoperability between IoT Ecosystems  
256 does not define a rigid syntax for these blocks; they are free form string arrays that contain pseudo-  
257 coded mapping logic.

258 Within this document we apply the rules defined in clause 5.2 to these blocks to ensure consistency  
259 and re-usability and extensibility of the mapping logic that is defined.

### 260 **4.2.2 General**

261 All statements are terminated with a carriage return.

### 262 **4.2.3 Value assignment**

263 The equals sign (=) is used to assign one value to another. The assignee is on the left of the  
264 operator; the value being assigned on the right.

### 265 **4.2.4 Property naming**

266 All Property names are identical to the name used by the original model; for example, from the  
267 OCF Temperature Resource the Property name "temperature" is used whereas when referred to  
268 the derived ecosystem then the semantically equivalent Property name is used.

269 When the same name is used by both OCF and the derived ecosystem for semantically equivalent  
270 values then the name of the OCF defined Property is prepended by the ecosystem designator "ocf"  
271 to avoid ambiguity (e.g. "ocf.step").

### 272 **4.2.5 Arrays**

273 An array element is indicated by the use of square brackets "[]" with the index of the element  
274 contained therein, e.g. range[1]. All arrays start at an index of 0. If an entire array is being  
275 referenced then no index is included, e.g. selectablehumiditylevels[].

### 276 **4.2.6 Default mapping**

277 There are cases where the specified mapping is not possible as one or more of the Properties  
278 being mapped is optional in the source model. In all such instances a default mapping is provided.  
279 The default map is indicated by the prepending of an "otherwise:" modifier to the assignment. (e.g.  
280 "otherwise: step = 1").

### 281 **4.2.7 Conditional mapping**

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

283 if "condition", "mapping".

284 Is applied.

285 E.g. if step >0, ocf.step = step.

### 286 **4.2.8 Loops**

287 When a mapping can be represented by a repeated loop governed by some condition then the  
288 syntax:

289 for "initialize", "condition", "increment": "mapping"

290 Where:

291 "initialize" is an initial local loop control variable setting.

292 "condition" is the loop controller, the loop repeats until the condition evaluates to "false".

293 "increment" allows for update of the control variable, if omitted an increment of "1" is assumed.

294 Is applied.

295 E.g. for  $x=0, x < \text{sizeof}(\text{supportedmodes})$ : `ocf.supportedmodes[x] = modearray[supportedmodes[x]]`

#### 296 **4.2.9 Method invocation**

297 The invocation of a method or remote procedure call (RPC) from the derived ecosystem as part of  
298 the mapping from an OCF Resource is indicated by the use of a double colon "::" delimiter between  
299 the applicable resource, service, interface or other construct identifier and the method or RPC  
300 name. The method name always includes trailing parentheses which would include any parameters  
301 should they be passed.

302 For example, when dealing with the `switchon()` method from AllJoyn this gives a complete method  
303 invocation as: `operation.oncontrol::switchon()`.

### 304 **5 Device type mapping**

#### 305 **5.1 AllJoyn device types to OCF device types**

306 Table 1 captures the equivalency mapping between AllJoyn defined Device Types (see AllJoyn  
307 Common Data Model Interface Definitions) and OCF defined Device Types (see Table 10-1 in  
308 ISO/IEC 30118-5:2019). The minimum interface set for the AllJoyn definitions is provided in the  
309 HAE Theory of Operation; the minimum Resource sets for each OCF Device is provided in  
310 ISO/IEC 30118-5:2019.

311 **Table 1 – AllJoyn to OCF device type mapping**

| Classification    | AllJoyn Device Type  | AllJoyn ID | OCF Device Type                   |
|-------------------|----------------------|------------|-----------------------------------|
| Air Care          | Air Conditioner      | 5          | oic.d.airconditioner              |
|                   | Air Purifier         | 9          | oic.d.airpurifier                 |
|                   | Air Quality Monitor  | 11         | oic.d.airqualitymonitor           |
|                   | Dehumidifier         | 8          | oic.d.dehumidifier                |
|                   | Humidifier           | 7          | oic.d.humidifier                  |
|                   | Electric Fan         | 10         | oic.d.fan                         |
|                   | Thermostat           | 6          | oic.d.thermostat                  |
| Fabric Care       | Clothes Washer       | 12         | oic.d.washer                      |
|                   | Clothes Dryer        | 13         | oic.d.dryer                       |
|                   | Clothes Washer-Dryer | 14         | oic.d.washerdryer                 |
| Food Preservation | Refrigerator         | 2          | oic.d.refrigerator                |
|                   | Ice-Maker            | 4          | oic.r.icemaker (maps to Resource) |
|                   | Freezer              | 3          | oic.d.freezer                     |
| Food Preparation  | Oven                 | 17         | oic.d.oven                        |

|               |                   |    |                    |
|---------------|-------------------|----|--------------------|
|               | Cooktop           | 18 | oic.d.cooktop      |
|               | Cookerhood        | 19 | oic.d.cookerhood   |
|               | Food probe        | 20 | oic.d.foodprobe    |
| Dish Care     | Dishwasher        | 15 | oic.d.dishwasher   |
| Floor Care    | Robot Cleaner     | 16 | oic.d.robotcleaner |
| Entertainment | Television        | 21 | oic.d.tv           |
|               | Set Top Box (STB) | 22 | oic.d.stb          |

312 **5.2 OCF device types with no AllJoyn equivalent**

313 Table 2 captures the Device Types defined by OCF have no direct equivalent in AllJoyn, they shall  
314 all be mapped to an AllJoyn Device Type of "Other" (Id of "1").

315 **Table 2 – OCF device types with no AllJoyn equivalent**

| OCF Device Name        | OCF Device Type            |
|------------------------|----------------------------|
| Receiver               | oic.d.receiver             |
| Blind                  | oic.d.blind                |
| Door                   | oic.d.door                 |
| Garage Door            | oic.d.garagedoor           |
| Generic Sensor         | oic.d.sensor               |
| Light                  | oic.d.light                |
| Smart Plug             | oic.d.smartplug            |
| Switch                 | oic.d.switch               |
| Water Valve            | oic.d.watervalve           |
| Printer                | oic.d.printer              |
| Multi-Function Printer | oic.d.multifunctionprinter |
| Scanner                | oic.r.scanner              |
| Camera                 | oic.d.camera               |
| Security Panel         | oic.d.securitypanel        |
| Smart Lock             | oic.d.smartlock            |

316 **6 Resource to interface equivalence**

317 **6.1 Introduction**

318 Clause 7 captures the equivalency mapping between AllJoyn defined Interfaces (see AllJoyn  
319 Common Data Model Interface Definitions) and OCF defined Resource Types (see ISO/IEC 30118-  
320 4:2018). Detailed Property by Property mappings are provided in clause 8.

321 Table 3 captures the mappings for Interfaces that are part of the minimum set for an AllJoyn Device.

322 Table 4 captures the mappings for Interfaces that are optional for an AllJoyn Device; deep  
323 translation for these interfaces via derived modelling is not within the scope of this release of the  
324 document.

**Table 3 – AllJoyn interface to OCF resource type mapping – minimum interface set**

| AllJoyn Interface                  | OCF Resource Type Name  | OCF Resource Type ID                      | OCF Interface(s) |
|------------------------------------|-------------------------|---|------------------|
| Environment.CurrentAirQuality      | Air Quality Collection  | oic.r.airqualitycollection                | oic.if.s         |
| Environment.CurrentAirQualityLevel | Air Quality Collection  | oic.r.airqualitycollection                | oic.if.s         |
| Environment.CurrentHumidity        | Humidity                | oic.r.humidity                            | oic.if.s         |
| Environment.CurrentTemperature     | Temperature             | oic.r.temperature                         | oic.if.s         |
| Environment.TargetHumidity         | Humidity                | oic.r.humidity,<br>oic.r.selectablelevels | oic.if.a         |
| Environment.TargetTemperature      | Temperature             | oic.r.temperature                         | oic.if.a         |
| Operation.AudioVolume              | Audio Controls          | oic.r.audio                               | oic.if.a         |
| Operation.Channel                  | Not mapped              |   |                  |
| Operation.ClimateControlMode       | Mode                    | oic.r.mode                                | oic.if.a         |
|                                    | Operational State       | oic.r.operational.state                   | oic.if.s         |
| Operation.ClosedStatus             | Door                    | oic.r.door                                | oic.if.s         |
| Operation.CycleControl             | Operational State       | oic.r.operational.state                   | oic.if.s         |
| Operation.FanSpeedLevel            | Air Flow                | oic.r.airflow                             | oic.if.a         |
| Operation.HeatingZone              | Heating Zone Collection | oic.r.heatingzonecollection               | oic.if.s         |
| Operation.HvacFanMode              | Mode                    | oic.r.mode                                | oic.if.a         |
| Operation.OnOffStatus              | Binary Switch           | oic.r.switch.binary                       | oic.if.s         |
| Operation.OvenCyclePhase           | Operational State       | oic.r.operationalstate                    | oic.if.s         |

**Table 4 – AllJoyn interface to OCF resource type mapping – optional interface set**

| AllJoyn Interface                  | OCF Resource Type Name | OCF Resource Type ID   | OCF Interface(s) |
|------------------------------------|------------------------|------------------------|------------------|
| Environment.TargetTemperatureLevel | Mode                   | oic.r.mode             | oic.if.a         |
| Environment.WaterLevel             | TBD                    | TBD                    | oic.if.s         |
| Environment.WindDirection          | Air Flow               | oic.r.airflow          | oic.if.a         |
| Operation.AirRecirculationMode     | Mode                   | oic.r.mode             | oic.if.a         |
| Operation.Alerts                   | TBD                    | TBD                    | TBD              |
| Operation.AudioVideoInput          | Media Source List      | oic.r.media.input      | oic.if.a         |
| Operation.BatteryStatus            | Battery                | oic.r.energy.battery   | oic.if.s         |
| Operation.CurrentPower             | Energy Usage           | oic.r.energy.usage     | oic.if.s         |
| Operation.DishWashingCyclePhase    | Operational State      | oic.r.operationalstate | oic.if.s         |
| Operation.EnergyUsage              | Energy Usage           | oic.r.energy.usage     | oic.if.s         |
| Operation.FilterStatus             | TBD                    | TBD                    | TBD              |
| Operation.LaundryCyclePhase        | Mode                   | oic.r.mode             | oic.if.s         |
| Operation.MoistureOutputLevel      | Mode                   | oic.r.mode             | oic.if.a         |
| Operation.PlugInUnits              | TBD                    | TBD                    | TBD              |

|                                   |               |                     |          |
|-----------------------------------|---------------|---------------------|----------|
| Operation.RapidMode               | Refrigeration | oic.r.refrigeration | oic.if.a |
| Operation.RemoteControllability   | TBD           | TBD                 | TBD      |
| Operation.RepeatMode              | Ecomode       | oic.r.ecomode       | oic.if.a |
| Operation.ResourceSaving          | TBD           | TBD                 | TBD      |
| Operation.RobotCleaningCyclePhase | Mode          | oic.r.mode          | oic.if.s |
| Operation.SoilLevel               | Mode          | oic.r.mode          | oic.if.a |
| Operation.SpinSpeedLevel          | Mode          | oic.r.mode          | oic.if.a |
| Operation.Timer                   | Time Period   | oic.r.time.period   | oic.if.s |

328 **6.2 Environment.CurrentAirQuality mapping**

329 If more than one instance of the AirQuality interface is exposed, then each instance maps to an  
330 instance of the OCF AirQuality Resource. The mapping defined in clause 8.2 describes the  
331 population of the OCF AirQuality Resource. Even if there is only a single instance of an OCF  
332 AirQuality Resource this shall be included in an instance of an OCF AirQualityCollection. The  
333 number of links in the collection equates to the number of instances of the AllJoyn CurrentAirQuality  
334 interface that are exposed. When mapping from OCF the valueType of the Resource shall be  
335 introspected, this API is invoked only if this is set to "Measured".

336 **6.3 Environment.CurrentAirQualityLevel mapping**

337 If more than one instance of the AirQualityLevel interface is exposed, then each instance maps to  
338 an instance of the OCF AirQuality Resource. The mapping defined in clause 8.2 describes the  
339 population of the OCF AirQuality Resource. Even if there is only a single instance of an OCF  
340 AirQuality Resource then this shall be included in an instance of an OCF AirQualityCollection. The  
341 number of links in the collection equates to the number of instances of the AllJoyn CurrentAirQuality  
342 interface that are exposed. When mapping from OCF the valueType of the Resource shall be  
343 introspected, this API is invoked only if this is set to "Qualitative".

344 **6.4 Operation.ClimateControlMode mapping**

345 ClimateControlMode has three Properties; these map as follows: mode and supportedmodes maps  
346 to the Mode Resource, operationalstate maps to the OperationalState Resource This can be  
347 represented in OCF either as two distinct Resource instances or a single instance with two  
348 Resource Types (oic.r.mode, oic.r.operationalstate).

349 **6.5 Operation.FanSpeedLevel mapping**

350 The setting of the FanSpeedLevel to "0x00" (off) is handled via the "OffControl" interface rather  
351 than writing directly to this interface. In such a case an instance of Binary Switch shall be exposed  
352 on the OCF side; this can be modelled as AirFlowControl which is then a collection of Binary Switch  
353 and AirFlow.

354 **6.6 Operation.HeatingZone mapping**

355 Each element in the array of heating zones within the AllJoyn HeatingZone interface maps to an  
356 instance of OCF HeatingZone, itself a link in an instance of an OCF HeatingZoneCollection. The  
357 mapping defined clause 8.13 describes the population of the OCF HeatingZone Resource that  
358 constitutes the Resources that are contained in the collection.

359 **6.7 Operation.OnOffStatus, Operation.OnControl, and Operation.OffControl mapping**

360 A discovered instance of a Binary Switch is always mapped to an Operation.OnOffStatus interface.  
361 A RETRIEVE on a Binary Switch maps to an action on an instance of an Operation.OnOffStatus  
362 Interface. An UPDATE on a Binary Switch maps to a method invocation on either  
363 Operation.OnControl or OffControl. value = true maps to Operation.OnControl value = false  
364 maps to Operation.OffControl.

365 **6.8 Operation.OvenCyclePhase**

366 OvenCyclePhase cyclephase Property pre-defines values 0x00-0x7F, 0x80-0xFF is for vendor  
367 specific values. The mapping defined in clause 8 covers only specification defined values. Any  
368 vendor defined value shall be represented in OCF using the x.<organization> syntax for a vendor  
369 defined Property.

370 **7 Detailed mapping APIs**

371 **7.1 Introduction**

372 This clause provides a mapping description (using JSON that aligns with the Derived Modelling  
373 syntax described in Derived Models for Interoperability between IoT Ecosystems for all Interfaces  
374 and Resources that are within scope.

375 The derived model definitions presented in clause 8 are formatted for readability, and so may  
376 appear to have extra line breaks.

377 Table 5 provides a reference and link to the per Interface clauses.

378

**Table 5 – Interface to resource summary**

| AllJoyn Interface Name                       | Equivalent Resource(s)                    | Clause |
|--|---|--------|
| Environment.CurrentAirQuality                | oic.r.airqualitycollection                | 8.2    |
| Environment.CurrentAirQualityLevel           | oic.r.airqualitycollection                | 8.3    |
| Environment.CurrentHumidity                  | oic.r.humidity                            | 8.4    |
| Environment.CurrentTemperature               | oic.r.temperature                         | 8.5    |
| Environment.TargetHumidity                   | oic.r.humidity,<br>oic.r.selectablelevels | 8.6    |
| Environment.TargetTemperature                | oic.r.temperature                         | 8.7    |
| Operation.AudioVolume                        | oic.r.audio                               | 8.8    |
| Operation.ClimateControlMode                 | oic.r.mode, oic.r.operationalstate        | 8.9    |
| Operation.ClosedStatus                       | oic.r.door                                | 8.10   |
| Operation.CycleControl                       | oic.r.operational.state                   | 8.11   |
| Operation.FanSpeedLevel                      | oic.r.airflow                             | 8.12   |
| Operation.HeatingZone                        | oic.r.heatingzonecollection               | 8.13   |
| Operation.HvacFanMode                        | oic.r.mode                                | 8.14   |
| Operation.OnControl,<br>Operation.OffControl | oic.r.switch.binary                       | 8.15   |
| Operation.OnOffStatus,                       | oic.r.switch.binary                       | 8.16   |
| Operation.OvenCyclePhase                     | oic.r.operationalstate                    | 8.17   |

379 **7.2 Current Air Quality**

380 **7.2.1 Derived model**

381 The derived model: "asa.environment.currentairquality".

382 **7.2.2 Property definition**

383 Table 6 provides the detailed per Property mapping for "asa.environment.currentairquality".



Table 6 – The property mapping for "asa.environment.currentairquality".

| AllJoyn Property name | OCF Resource            | To OCF   | From OCF  |
|-----------------------|-------------------------|--|---|
| minvalue              | oic.r.airquality        | range[0] = minvalue  | minvalue = range[0]   |
| maxvalue              | oic.r.airquality        | range[1] = maxvalue  | maxvalue = range[1]   |
| contaminanttype       | oic.r.airquality        | valuetype = Measuredcontaminanttypearray [CH2O,CO2,CO,PM2_5,PM10,VOC]<br>ocf.contaminanttype = contaminanttypearray[contaminanttype] | contaminanttype = indexof contaminanttypearray[ocf.contaminanttype] |
| currentvalue          | oic.r.airquality        | contaminantvalue = currentvalue  | currentvalue = contaminantvalue                                     |
| updatemintime         | oic.r.value.conditional | ocf.minnotifyperiod = updatemintime  | updatemintime = ocf.minnotifyperiod                                 |
| precision             | oic.r.airquality        | ocf.precision = precision  | precision = ocf.precision   |

385 Table 7 provides the details of the Properties that are part of "asa.environment.currentairquality".

386

Table 7 – The properties of "asa.environment.currentairquality".

| AllJoyn name    | Property | Type    | Required | Description          |
|-----------------|----------|---------|----------|----------------------|
| minvalue        |          | number  | yes      |                      |
| maxvalue        |          | number  | yes      |                      |
| contaminanttype |          | integer | yes      | The contaminant type |
| currentvalue    |          | number  | yes      |                      |
| updatemintime   |          | integer | yes      |                      |
| precision       |          | number  | yes      |                      |

### 387 7.2.3 Derived model definition

```

388 {
389   "id": "http://openinterconnect.org/asamapping/schemas/asa.environment.currentairquality.json#",
390   "$schema": "http://json-schema.org/draft-04/schema#",
391   "description": "Copyright (c) 2017 Open Connectivity Foundation, Inc. All rights reserved.",
392   "title": "Current Air Quality",
393   "definitions": {
394     "asa.environment.currentairquality": {
395       "type": "object",
396       "properties": {
397         "contaminanttype": {
398           "type": "integer",
399           "description": "The contaminant type",
400           "x-ocf-conversion": {
401             "x-ocf-alias": "oic.r.airquality",
402             "x-to-ocf": [
403               "valuetype = Measured",
404               "contaminanttypearray = [CH2O,CO2,CO,PM2_5,PM10,VOC]",
405               "ocf.contaminanttype = contaminanttypearray[contaminanttype]"
406             ],
407             "x-from-ocf": [
408               "contaminanttype = indexof contaminanttypearray[ocf.contaminanttype]"
409             ]
410           }
411         },
412         "currentvalue": {
413           "type": "number",

```

```

414         "x-ocf-conversion": {
415             "x-ocf-alias": "oic.r.airquality",
416             "x-to-ocf": [
417                 "contaminantvalue = currentvalue"
418             ],
419             "x-from-ocf": [
420                 "currentvalue = contaminantvalue"
421             ]
422         },
423     },
424     "minvalue": {
425         "type": "number",
426         "x-ocf-conversion": {
427             "x-ocf-alias": "oic.r.airquality",
428             "x-to-ocf": [
429                 "range[0] = minvalue"
430             ],
431             "x-from-ocf": [
432                 "minvalue = range[0]"
433             ]
434         },
435     },
436     "maxvalue": {
437         "type": "number",
438         "x-ocf-conversion": {
439             "x-ocf-alias": "oic.r.airquality",
440             "x-to-ocf": [
441                 "range[1] = maxvalue"
442             ],
443             "x-from-ocf": [
444                 "maxvalue = range[1]"
445             ]
446         },
447     },
448     "precision": {
449         "type": "number",
450         "x-ocf-conversion": {
451             "x-ocf-alias": "oic.r.airquality",
452             "x-to-ocf": [
453                 "ocf.precision = precision"
454             ],
455             "x-from-ocf": [
456                 "precision = ocf.precision"
457             ]
458         },
459     },
460     "updatemintime": {
461         "type": "integer",
462         "x-ocf-conversion": {
463             "x-ocf-alias": "oic.r.value.conditional",
464             "x-to-ocf": [
465                 "ocf.minnotifyperiod = updatemintime"
466             ],
467             "x-from-ocf": [
468                 "updatemintime = ocf.minnotifyperiod"
469             ]
470         },
471     },
472 },
473 },
474 },
475 "type": "object",
476 "allOf": [
477     {"$ref": "#/definitions/asa.environment.currentairquality"}
478 ],
479 "required": ["contaminanttype", "currentvalue", "minvalue", "maxvalue", "precision", "updatemintime"]
480 }
481

```

482 **7.3 Current Air Quality Level**

483 **7.3.1 Derived model**

484 The derived model: "asa.environment.currentairqualitylevel".

485 **7.3.2 Property definition**

486 Table 8 provides the detailed per Property mapping for "asa.environment.currentairqualitylevel".

487 **Table 8 – The property mapping for "asa.environment.currentairqualitylevel".**

| AllJoyn name    | Property | OCF Resource     | To OCF  | From OCF  |
|-----------------|----------|------------------|---|---|
| contaminanttype |          | oic.r.airquality | valuetype = Qualitativeif<br>contaminanttype = 0,<br>ocf.contaminanttype = CH2Oif<br>contaminanttype = 1,<br>ocf.contaminanttype = CO2if<br>contaminanttype = 2,<br>ocf.contaminanttype = COif<br>contaminanttype = 3,<br>ocf.contaminanttype = PM2_5if<br>contaminanttype = 4,<br>ocf.contaminanttype = PM10if<br>contaminanttype = 5,<br>ocf.contaminanttype = VOCif<br>contaminanttype = 253,<br>ocf.contaminanttype = Smokeif<br>contaminanttype = 254,<br>ocf.contaminanttype = Odorif<br>contaminanttype = 255,<br>ocf.contaminanttype = AirPollution | if ocf.contaminanttype = CH2O,<br>contaminanttype = 0if<br>ocf.contaminanttype = CO2,<br>contaminanttype = 1if<br>ocf.contaminanttype = CO,<br>contaminanttype = 2if<br>ocf.contaminanttype = PM2_5,<br>contaminanttype = 3if<br>ocf.contaminanttype = PM10,<br>contaminanttype = 4if<br>ocf.contaminanttype = VOC,<br>contaminanttype = 5if<br>ocf.contaminanttype = Smoke,<br>contaminanttype = 253if<br>ocf.contaminanttype = Odor,<br>contaminanttype = 254if<br>ocf.contaminanttype = AirPollution,<br>contaminanttype = 255 |
| maxlevel        |          | oic.r.airquality | range[0] = 0<br>range[1] = maxvalue   | maxvalue = range[1]   |
| currentlevel    |          | oic.r.airquality | contaminantvalue = currentlevel   | currentlevel = contaminantvalue   |

488 Table 9 provides the details of the Properties that are part of  
489 "asa.environment.currentairqualitylevel".

490 **Table 9 – The properties of "asa.environment.currentairqualitylevel".**

| AllJoyn name    | Property | Type    | Required | Description          |
|-----------------|----------|---------|----------|----------------------|
| contaminanttype |          | integer | yes      | The contaminant type |

|              |         |     |  |
|--------------|---------|-----|--|
| maxlevel     | integer | yes |  |
| currentlevel | integer | yes |  |

### 491 7.3.3 Derived model definition

```

492 {
493   "id":
494   "http://openinterconnect.org/asamapping/schemas/asa.environment.currentairqualitylevel.json#",
495   "$schema": "http://json-schema.org/draft-04/schema#",
496   "description" : "Copyright (c) 2017 Open Connectivity Foundation, Inc. All rights reserved.",
497   "title": "Current Air Quality Level",
498   "definitions": {
499     "asa.environment.currentairqualitylevel": {
500       "type": "object",
501       "properties": {
502         "contaminanttype": {
503           "type": "integer",
504           "description": "The contaminant type",
505           "x-ocf-conversion": {
506             "x-ocf-alias": "oic.r.airquality",
507             "x-to-ocf": [
508               "valuetype = Qualitative",
509               "if contaminanttype = 0, ocf.contaminanttype = CH2O",
510               "if contaminanttype = 1, ocf.contaminanttype = CO2",
511               "if contaminanttype = 2, ocf.contaminanttype = CO",
512               "if contaminanttype = 3, ocf.contaminanttype = PM2_5",
513               "if contaminanttype = 4, ocf.contaminanttype = PM10",
514               "if contaminanttype = 5, ocf.contaminanttype = VOC",
515               "if contaminanttype = 253, ocf.contaminanttype = Smoke",
516               "if contaminanttype = 254, ocf.contaminanttype = Odor",
517               "if contaminanttype = 255, ocf.contaminanttype = AirPollution"
518             ],
519             "x-from-ocf": [
520               "if ocf.contaminanttype = CH2O, contaminanttype = 0",
521               "if ocf.contaminanttype = CO2, contaminanttype = 1",
522               "if ocf.contaminanttype = CO, contaminanttype = 2",
523               "if ocf.contaminanttype = PM2_5, contaminanttype = 3",
524               "if ocf.contaminanttype = PM10, contaminanttype = 4",
525               "if ocf.contaminanttype = VOC, contaminanttype = 5",
526               "if ocf.contaminanttype = Smoke, contaminanttype = 253",
527               "if ocf.contaminanttype = Odor, contaminanttype = 254",
528               "if ocf.contaminanttype = AirPollution, contaminanttype = 255"
529             ]
530           }
531         },
532         "currentlevel": {
533           "type": "integer",
534           "x-ocf-conversion": {
535             "x-ocf-alias": "oic.r.airquality",
536             "x-to-ocf": [
537               "contaminantvalue = currentlevel"
538             ],
539             "x-from-ocf": [
540               "currentlevel = contaminantvalue"
541             ]
542           }
543         },
544         "maxlevel": {
545           "type": "integer",
546           "x-ocf-conversion": {
547             "x-ocf-alias": "oic.r.airquality",
548             "x-to-ocf": [
549               "range[0] = 0",
550               "range[1] = maxvalue"
551             ],
552             "x-from-ocf": [
553               "maxvalue = range[1]"
554             ]
555           }
556         }
557       }
558     }
559   }
560 }

```

```

558     }
559   },
560   "type": "object",
561   "allOf": [
562     { "$ref": "#/definitions/asa.environment.currentairqualitylevel" }
563   ],
564   "required": ["contaminanttype", "currentlevel", "maxlevel"]
565 }
566

```

## 567 7.4 Current Humidity

### 568 7.4.1 Derived model

569 The derived model: "asa.environment.currenthumidity".

### 570 7.4.2 Property definition

571 Table 10 provides the detailed per Property mapping for "asa.environment.currenthumidity".

572 **Table 10 – The property mapping for "asa.environment.currenthumidity".**

| AllJoyn name | Property | OCF Resource   | To OCF                          | From OCF                |
|--------------|----------|----------------|---------------------------------|-------------------------|
| maxvalue     |          | oic.r.humidity | range[0] = Orange[1] = maxvalue | maxvalue = range[1]     |
| currentvalue |          | oic.r.humidity | humidity = currentValue         | currentvalue = humidity |

573 Table 11 provides the details of the Properties that are part of "asa.environment.currenthumidity".

574 **Table 11 – The properties of "asa.environment.currenthumidity".**

| AllJoyn name | Property | Type   | Required | Description                    |
|--------------|----------|--------|----------|--------------------------------|
| maxvalue     |          | number | yes      | Max measured value for humidty |
| currentvalue |          | number | yes      | Measured value                 |

### 575 7.4.3 Derived model definition

```

576 {
577   "id": "http://openinterconnect.org/asamapping/schemas/asa.environment.currenthumidity.json#",
578   "$schema": "http://json-schema.org/draft-04/schema#",
579   "description": "Copyright (c) 2017 Open Connectivity Foundation, Inc. All rights reserved.",
580   "title": "Current Humidity",
581   "definitions": {
582     "asa.environment.currenthumidity": {
583       "type": "object",
584       "properties": {
585         "currentvalue": {
586           "type": "number",
587           "description": "Measured value",
588           "x-ocf-conversion": {
589             "x-ocf-alias": "oic.r.humidity",
590             "x-to-ocf": [
591               "humidity = currentValue"
592             ],
593             "x-from-ocf": [
594               "currentvalue = humidity"
595             ]
596           }
597         },
598         "maxvalue": {
599           "type": "number",
600           "description": "Max measured value for humidty",
601           "x-ocf-conversion": {
602             "x-ocf-alias": "oic.r.humidity",

```

```

603         "x-to-ocf": [
604             "range[0] = 0",
605             "range[1] = maxvalue"
606         ],
607         "x-from-ocf": [
608             "maxvalue = range[1]"
609         ]
610     }
611 }
612 }
613 }
614 },
615 "type": "object",
616 "allOf": [
617     {"$ref": "#/definitions/asa.environment.currenthumidity"}
618 ],
619 "required": [ "currentvalue", "maxvalue" ]
620 }
621

```

## 622 7.5 Current Temperature

### 623 7.5.1 Derived model

624 The derived model: "asa.environment.currenttemperature".

### 625 7.5.2 Property definition

626 Table 12 provides the detailed per Property mapping for "asa.environment.currenttemperature".

627 **Table 12 – The property mapping for "asa.environment.currenttemperature".**

| AllJoyn name  | Property | OCF Resource            | To OCF                              | From OCF                            |
|---------------|----------|-------------------------|-------------------------------------|-------------------------------------|
| precision     |          | oic.r.temperature       | ocf.precision = precision           | precision = ocf.precision           |
| currentvalue  |          | oic.r.temperature       | temperature = currentValueunits = C | oneOf                               |
| updatemintime |          | oic.r.value.conditional | ocf.minnotifyperiod = updatemintime | updatemintime = ocf.minnotifyperiod |

628 Table 13 provides the details of the Properties that are part of  
629 "asa.environment.currenttemperature".

630 **Table 13 – The properties of "asa.environment.currenttemperature".**

| AllJoyn name  | Property | Type    | Required | Description    |
|---------------|----------|---------|----------|----------------|
| precision     |          | number  | yes      |                |
| currentvalue  |          | number  | yes      | Measured value |
| updatemintime |          | integer | yes      |                |

### 631 7.5.3 Derived model definition

```

632 {
633     "id": "http://openinterconnect.org/asamapping/schemas/asa.environment.currenttemperature.json#",
634     "$schema": "http://json-schema.org/draft-04/schema#",
635     "description": "Copyright (c) 2017 Open Connectivity Foundation, Inc. All rights reserved.",
636     "title": "Current Temperature",
637     "definitions": {
638         "asa.environment.currenttemperature": {
639             "type": "object",
640             "properties": {
641                 "currentvalue": {
642                     "type": "number",
643                     "description": "Measured value",
644                     "x-ocf-conversion": {

```

```

645     "x-ocf-alias": "oic.r.temperature",
646     "x-to-ocf": [
647         "temperature = currentValue",
648         "units = C"
649     ],
650     "x-from-ocf": {
651         "oneOf": [
652             {
653                 "properties": {
654                     "units": "string",
655                     "enum": ["C"]
656                 },
657                 "x-from-ocf": [
658                     "currentvalue = temperature"
659                 ]
660             },
661             {
662                 "properties": {
663                     "units": "string",
664                     "enum": ["F"]
665                 },
666                 "x-from-ocf": [
667                     "currentvalue = (temperature-32)*5/9"
668                 ]
669             },
670             {
671                 "properties": {
672                     "units": "string",
673                     "enum": ["K"]
674                 },
675                 "x-from-ocf": [
676                     "currentvalue = temperature-273.15"
677                 ]
678             }
679         ]
680     }
681 },
682 "precision": {
683     "type": "number",
684     "x-ocf-conversion": {
685         "x-ocf-alias": "oic.r.temperature",
686         "x-to-ocf": [
687             "ocf.precision = precision"
688         ],
689         "x-from-ocf": [
690             "precision = ocf.precision"
691         ]
692     }
693 },
694 "updatemintime": {
695     "type": "integer",
696     "x-ocf-conversion": {
697         "x-ocf-alias": "oic.r.value.conditional",
698         "x-to-ocf": [
699             "ocf.minnotifyperiod = updatemintime"
700         ],
701         "x-from-ocf": [
702             "updatemintime = ocf.minnotifyperiod"
703         ]
704     }
705 }
706 }
707 }
708 }
709 },
710 "type": "object",
711 "allOf": [
712     {"$ref": "#/definitions/asa.environment.currenttemperature"}
713 ],
714 "required": [ "currentvalue", "precision", "updatemintime" ]

```

715 }  
716

717 **7.6 Target Humidity**

718 **7.6.1 Derived model**

719 The derived model: "asa.environment.targethumidity".

720 **7.6.2 Property definition**

721 Table 14 provides the detailed per Property mapping for "asa.environment.targethumidity".

722 **Table 14 – The property mapping for "asa.environment.targethumidity".**

| AllJoyn Property name    | OCF Resource                          | To OCF   | From OCF   |
|--------------------------|---------------------------------------|--|--|
| minvalue                 | oic.r.humidity                        | range[0] = minvalue  | minvalue = range[0]otherwise: minvalue = 0   |
| targetvalue              | oic.r.humidity,oic.r.selectablelevels | if minvalue != maxvalue, ocf.desiredhumidity = targetvalue;ocf.targetlevel = selectablehumiditylevels[0].if minvalue == maxvalue, ocf.targetlevel = targetvalue. | if x-ocf-alias == oic.r.humidity, targetvalue = desiredhumidity.if x-ocf-alias == oic.r.selectablelevels, targetvalue = targetlevel. |
| maxvalue                 | oic.r.humidity                        | range[1] = maxvalue  | maxvalue = range[1]otherwise: maxvalue = 100   |
| stepvalue                | oic.r.humidity                        | step = stepvalue   | stepvalue = stepotherwise: stepvalue = 1   |
| selectablehumiditylevels | oic.r.selectablelevels                | availablelevels[] = selectablehumiditylevels[]   | selectablehumiditylevels[] = availablelevels[]   |

723 Table 15 provides the details of the Properties that are part of "asa.environment.targethumidity".

724 **Table 15 – The properties of "asa.environment.targethumidity".**

| AllJoyn Property name    | Type   | Required | Description    |
|--------------------------|--------|----------|----------------|
| minvalue                 | number | yes      |                |
| targetvalue              | number | yes      | Measured value |
| maxvalue                 | number | yes      |                |
| stepvalue                | number | yes      |                |
| selectablehumiditylevels | array  | yes      |                |

725 **7.6.3 Derived model definition**

```
726 {
727   "id": "http://openinterconnect.org/asamapping/schemas/asa.environment.targethumidity.json#",
728   "$schema": "http://json-schema.org/draft-04/schema#",
729   "description": "Copyright (c) 2017 Open Connectivity Foundation, Inc. All rights reserved.",
730   "title": "Target Humidity",
731   "definitions": {
732     "asa.environment.targethumidity": {
733       "type": "object",
734       "properties": {
735         "targetvalue": {
```



```

736         "type": "number",
737         "description": "Measured value",
738         "x-ocf-conversion": {
739             "x-ocf-alias": "oic.r.humidity,oic.r.selectablelevels",
740             "x-to-ocf": [
741                 "if minvalue != maxvalue, ocf.desiredhumidity = targetvalue;ocf.targetlevel =
742 selectablehumiditylevels[0].",
743                 "if minvalue == maxvalue, ocf.targetlevel = targetvalue."
744             ],
745             "x-from-ocf": [
746                 "if x-ocf-alias == oic.r.humidity, targetvalue = desiredhumidity.",
747                 "if x-ocf-alias == oic.r.selectablelevels, targetvalue = targetlevel."
748             ]
749         }
750     },
751     "minvalue": {
752         "type": "number",
753         "x-ocf-conversion": {
754             "x-ocf-alias": "oic.r.humidity",
755             "x-to-ocf": [
756                 "range[0] = minvalue"
757             ],
758             "x-from-ocf": [
759                 "minvalue = range[0]",
760                 "otherwise: minvalue = 0"
761             ]
762         }
763     },
764     "maxvalue": {
765         "type": "number",
766         "x-ocf-conversion": {
767             "x-ocf-alias": "oic.r.humidity",
768             "x-to-ocf": [
769                 "range[1] = maxvalue"
770             ],
771             "x-from-ocf": [
772                 "maxvalue = range[1]",
773                 "otherwise: maxvalue = 100"
774             ]
775         }
776     },
777     "stepvalue": {
778         "type": "number",
779         "x-ocf-conversion": {
780             "x-ocf-alias": "oic.r.humidity",
781             "x-to-ocf": [
782                 "step = stepvalue"
783             ],
784             "x-from-ocf": [
785                 "stepvalue = step",
786                 "otherwise: stepvalue = 1"
787             ]
788         }
789     },
790     "selectablehumiditylevels": {
791         "type": "array",
792         "items": {
793             "type": "number"
794         },
795         "x-ocf-conversion": {
796             "x-ocf-alias": "oic.r.selectablelevels",
797             "x-to-ocf": [
798                 "availablelevels[] = selectablehumiditylevels[]"
799             ],
800             "x-from-ocf": [
801                 "selectablehumiditylevels[] = availablelevels[]"
802             ]
803         }
804     }
805 }
806 }

```

```

807     },
808     "type": "object",
809     "allOf": [
810       { "$ref": "#/definitions/asa.environment.targethumidity" }
811     ],
812     "required": [ "targetvalue", "minvalue", "maxvalue", "stepvalue", "selectablehumiditylevels" ]
813   }
814 }

```

## 815 7.7 Target Temperature

### 816 7.7.1 Derived model

817 The derived model: "asa.environment.targettemperature".

### 818 7.7.2 Property definition

819 Table 16 provides the detailed per Property mapping for "asa.environment.targettemperature".

820 **Table 16 – The property mapping for "asa.environment.targettemperature".**

| AllJoyn name | Property | OCF Resource      | To OCF                              | From OCF   |
|--------------|----------|-------------------|-------------------------------------|--|
| minvalue     |          | oic.r.temperature | range[0] = minvalue                 | minvalue = range[0] otherwise: minvalue = -MAXINT  |
| targetvalue  |          | oic.r.temperature | temperature = targetvalue units = C | oneOf  |
| maxvalue     |          | oic.r.temperature | range[1] = maxvalue                 | maxvalue = range[1] otherwise: maxvalue = MAXINT   |
| step         |          | oic.r.temperature | ocf.step = step                     | step = ocf.step otherwise: step = undefined (0x00) |

821 Table 17 provides the details of the Properties that are part of "asa.environment.targettemperature".

822 **Table 17 – The properties of "asa.environment.targettemperature".**

| AllJoyn name | Property | Type   | Required | Description    |
|--------------|----------|--------|----------|----------------|
| minvalue     |          | number | yes      |                |
| targetvalue  |          | number | yes      | Measured value |
| maxvalue     |          | number | yes      |                |
| step         |          | number | yes      |                |

### 823 7.7.3 Derived model definition

```

824 {
825   "id": "http://openinterconnect.org/asamapping/schemas/asa.environment.targettemperature.json#",
826   "$schema": "http://json-schema.org/draft-04/schema#",
827   "description": "Copyright (c) 2017 Open Connectivity Foundation, Inc. All rights reserved.",
828   "title": "Target Temperature",
829   "definitions": {
830     "asa.environment.targettemperature": {
831       "type": "object",
832       "properties": {
833         "targetvalue": {
834           "type": "number",
835           "description": "Measured value",
836           "x-ocf-conversion": {
837             "x-ocf-alias": "oic.r.temperature",
838             "x-to-ocf": [
839               "temperature = targetvalue",
840               "units = C"

```

```

841     ],
842     "x-from-ocf": {
843         "oneOf": [
844             {
845                 "properties": {
846                     "units": "string",
847                     "enum": ["C"]
848                 },
849                 "x-from-ocf": [
850                     "targetvalue = temperature"
851                 ]
852             },
853             {
854                 "properties": {
855                     "units": "string",
856                     "enum": ["F"]
857                 },
858                 "x-from-ocf": [
859                     "targetvalue = (temperature-32)*5/9"
860                 ]
861             },
862             {
863                 "properties": {
864                     "units": "string",
865                     "enum": ["K"]
866                 },
867                 "x-from-ocf": [
868                     "targetvalue = temperature-273.15"
869                 ]
870             }
871         ]
872     }
873 },
874 "minvalue": {
875     "type": "number",
876     "x-ocf-conversion": {
877         "x-ocf-alias": "oic.r.temperature",
878         "x-to-ocf": [
879             "range[0] = minvalue"
880         ],
881     },
882     "x-from-ocf": [
883         "minvalue = range[0]",
884         "otherwise: minvalue = -MAXINT"
885     ]
886 },
887 "maxvalue": {
888     "type": "number",
889     "x-ocf-conversion": {
890         "x-ocf-alias": "oic.r.temperature",
891         "x-to-ocf": [
892             "range[1] = maxvalue"
893         ],
894     },
895     "x-from-ocf": [
896         "maxvalue = range[1]",
897         "otherwise: maxvalue = MAXINT"
898     ]
899 },
900 "step": {
901     "type": "number",
902     "x-ocf-conversion": {
903         "x-ocf-alias": "oic.r.temperature",
904         "x-to-ocf": [
905             "ocf.step = step"
906         ],
907     },
908     "x-from-ocf": [
909         "step = ocf.step",
910         "otherwise: step = undefined (0x00)"
911     ]

```

```

912     }
913   }
914 }
915 },
916 },
917 "type": "object",
918 "allOf": [
919   {"$ref": "#/definitions/asa.environment.targettemperature"}
920 ],
921 "required": [ "targetvalue", "minvalue", "maxvalue", "step" ]
922 }
923

```

## 924 7.8 Audio Volume

### 925 7.8.1 Derived model

926 The derived model: "asa.operation.audiovolume".

### 927 7.8.2 Property definition

928 Table 18 provides the detailed per Property mapping for "asa.operation.audiovolume".

929 **Table 18 – The property mapping for "asa.operation.audiovolume".**

| AllJoyn name | Property | OCF Resource | To OCF                           | From OCF                                      |
|--------------|----------|--------------|----------------------------------|---|
| mute         |          | oic.r.audio  | ocf.mute = mute                  | mute = ocf.mute                               |
| maxvolume    |          | oic.r.audio  | range[0] = 0range[1] = maxvolume | maxvolume = range[1]otherwise: maxvalue = 100 |
| volume       |          | oic.r.audio  | ocf.volume = volume              | volume = ocf.volume                           |

930 Table 19 provides the details of the Properties that are part of "asa.operation.audiovolume".

931 **Table 19 – The properties of "asa.operation.audiovolume".**

| AllJoyn name | Property | Type    | Required | Description          |
|--------------|----------|---------|----------|----------------------|
| mute         |          | boolean | yes      |                      |
| maxvolume    |          | integer | yes      |                      |
| volume       |          | integer | yes      | Speaker volume index |

### 932 7.8.3 Derived model definition

```

933 {
934   "id": "http://openinterconnect.org/asamapping/schemas/asa.operation.audiovolume.json#",
935   "$schema": "http://json-schema.org/draft-04/schema#",
936   "description": "Copyright (c) 2017 Open Connectivity Foundation, Inc. All rights reserved.",
937   "title": "Audio Volume",
938   "definitions": {
939     "asa.operation.audiovolume": {
940       "type": "object",
941       "properties": {
942         "volume": {
943           "type": "integer",
944           "description": "Speaker volume index",
945           "x-ocf-conversion": {
946             "x-ocf-alias": "oic.r.audio",
947             "x-to-ocf": [
948               "ocf.volume = volume"
949             ],
950             "x-from-ocf": [
951               "volume = ocf.volume"
952             ]
953           }
954         },
955         "maxvolume": {

```

```

956     "type": "integer",
957     "x-ocf-conversion": {
958       "x-ocf-alias": "oic.r.audio",
959       "x-to-ocf": [
960         "range[0] = 0",
961         "range[1] = maxvolume"
962       ],
963       "x-from-ocf": [
964         "maxvolume = range[1]",
965         "otherwise: maxvalue = 100"
966       ]
967     }
968   },
969   "mute": {
970     "type": "boolean",
971     "x-ocf-conversion": {
972       "x-ocf-alias": "oic.r.audio",
973       "x-to-ocf": [
974         "ocf.mute = mute"
975       ],
976       "x-from-ocf": [
977         "mute = ocf.mute"
978       ]
979     }
980   }
981 }
982 }
983 },
984 "type": "object",
985 "allOf": [
986   {"$ref": "#/definitions/asa.operation.audiovolume"}
987 ],
988 "required": [ "volume", "maxvolume", "mute" ]
989 }
990

```

## 991 7.9 Climate Control Mode

### 992 7.9.1 Derived model

993 The derived model: "asa.operation.climatecontrolmode".

### 994 7.9.2 Property definition

995 Table 20 provides the detailed per Property mapping for "asa.operation.climatecontrolmode".

996 **Table 20 – The property mapping for "asa.operation.climatecontrolmode".**

| AllJoy<br>n<br>Proper<br>ty<br>name | OCF<br>Resourc<br>e            | To OCF   | From OCF   |
|-------------------------------------|--------------------------------|--|--|
| operati<br>onalsta<br>te            | oic.r.ope<br>rationalst<br>ate | machinestates =<br>[Idle,Heating,Cooling,PendingHeat,P<br>endingCool,AuxilliaryHeat]currentma<br>chinestate =<br>machinestates[operationalstate]                           | statearray =<br>[Idle,Heating,Cooling,PendingHeat<br>,PendingCool,AuxilliaryHeat]opera<br>tionalstate = indexof<br>statearray[currentmachinestate[0]]                              |
| suppor<br>tedmo<br>des              | oic.r.mod<br>e                 | modearray =<br>[Off,Heat,Cool,Auto,AuxilliaryHeat,D<br>ry,ContinuousDry]for x=0, x <<br>sizeof(supportedmodes):<br>ocf.supportedmodes[x] =<br>modearray[supportedmodes[x]] | modearray =<br>[Off,Heat,Cool,Auto,AuxilliaryHeat,<br>Dry,ContinuousDry]for x=0, x <<br>sizeof(supportedmodes):<br>supportedmodes[x] = indexof<br>modearray[ocf.supportedmodes[x]] |
| mode                                | oic.r.mod<br>e                 | modearray =<br>[Off,Heat,Cool,Auto,AuxilliaryHeat,D  | modearray =<br>[Off,Heat,Cool,Auto,AuxilliaryHeat,   |

|  |  |  |   |   |
|--|--|--|---|---|
|  |  | ry,ContinuousDry]ocf.mode[0] = modearray[mode] | = | Dry,ContinuousDry]mode = indexof modeArray[ocf.mode[0]] |
|--|--|--|---|---|

997 Table 21 provides the details of the Properties that are part of "asa.operation.climatecontrolmode".

998 **Table 21 – The properties of "asa.operation.climatecontrolmode".**

| AllJoyn name     | Property | Type    | Required | Description              |
|------------------|----------|---------|----------|--------------------------|
| operationalstate |          | integer | yes      | Current status of device |
| supportedmodes   |          | array   | yes      | Array of supported modes |
| mode             |          | integer | yes      | Current mode of device.  |

999 **7.9.3 Derived model definition**

```

1000 {
1001   "id": "http://openinterconnect.org/asamapping/schemas/asa.operation.climatecontrolmode.json#",
1002   "$schema": "http://json-schema.org/draft-04/schema#",
1003   "description": "Copyright (c) 2017 Open Connectivity Foundation, Inc. All rights reserved.",
1004   "title": "Climate Control Mode",
1005   "definitions": {
1006     "asa.operation.climatecontrolmode": {
1007       "type": "object",
1008       "properties": {
1009         "mode": {
1010           "type": "integer",
1011           "description": "Current mode of device.",
1012           "x-ocf-conversion": {
1013             "x-ocf-alias": "oic.r.mode",
1014             "x-to-ocf": [
1015               "modearray = [Off,Heat,Cool,Auto,AuxilliaryHeat,Dry,ContinuousDry]",
1016               "ocf.mode[0] = modearray[mode]"
1017             ],
1018             "x-from-ocf": [
1019               "modearray = [Off,Heat,Cool,Auto,AuxilliaryHeat,Dry,ContinuousDry]",
1020               "mode = indexof modeArray[ocf.mode[0]]"
1021             ]
1022           }
1023         },
1024         "supportedmodes": {
1025           "type": "array",
1026           "items": {
1027             "type": "integer"
1028           },
1029           "description": "Array of supported modes",
1030           "x-ocf-conversion": {
1031             "x-ocf-alias": "oic.r.mode",
1032             "x-to-ocf": [
1033               "modearray = [Off,Heat,Cool,Auto,AuxilliaryHeat,Dry,ContinuousDry]",
1034               "for x=0, x < sizeof(supportedmodes): ocf.supportedmodes[x] =
1035 modearray[supportedmodes[x]]"
1036             ],
1037             "x-from-ocf": [
1038               "modearray = [Off,Heat,Cool,Auto,AuxilliaryHeat,Dry,ContinuousDry]",
1039               "for x=0, x < sizeof(supportedmodes): supportedmodes[x] = indexof
1040 modearray[ocf.supportedmodes[x]]"
1041             ]
1042           }
1043         },
1044         "operationalstate": {
1045           "type": "integer",
1046           "description": "Current status of device",
1047           "x-ocf-conversion": {
1048             "x-ocf-alias": "oic.r.operationalstate",
1049             "x-to-ocf": [

```

```

1050         "machinestates = [Idle,Heating,Cooling,PendingHeat,PendingCool,AuxilliaryHeat]",
1051         "currentmachinestate = machinestates[operationalstate]"
1052     ],
1053     "x-from-ocf": [
1054         "statearray = [Idle,Heating,Cooling,PendingHeat,PendingCool,AuxilliaryHeat]",
1055         "operationalstate = indexof statearray[currentmachinestate[0]]"
1056     ]
1057 }
1058 }
1059 }
1060 }
1061 },
1062 "type": "object",
1063 "allOf": [
1064     {"$ref": "#/definitions/asa.operation.climatecontrolmode"}
1065 ],
1066 "required": [ "mode","supportedmodes","operationalstate" ]
1067 }
1068

```

1069 **7.10 Closed Status**

1070 **7.10.1 Derived model**

1071 The derived model: "asa.operation.closedstatus".

1072 **7.10.2 Property definition**

1073 Table 22 provides the detailed per Property mapping for "asa.operation.closedstatus".

1074 **Table 22 – The property mapping for "asa.operation.closedstatus".**

| AllJoyn name | Property | OCF Resource | To OCF  | From OCF                         |
|--------------|----------|--------------|---|----------------------------------|
| isclosed     |          | oic.r.door   | if isClosed<br>ocf.openState =<br>Closed.if !isClosed<br>ocf.openState =<br>Open. | isClosed = (openState == Closed) |

1075 Table 23 provides the details of the Properties that are part of "asa.operation.closedstatus".

1076 **Table 23 – The properties of "asa.operation.closedstatus".**

| AllJoyn name | Property | Type    | Required | Description                  |
|--------------|----------|---------|----------|------------------------------|
| isclosed     |          | boolean | yes      | Open/Closed status Indicator |

1077 **7.10.3 Derived model definition**

```

1078 {
1079     "id": "http://openinterconnect.org/asamapping/schemas/asa.operation.closedstatus.json#",
1080     "$schema": "http://json-schema.org/draft-04/schema#",
1081     "description": "Copyright (c) 2017 Open Connectivity Foundation, Inc. All rights reserved.",
1082     "title": "Closed Status",
1083     "definitions": {
1084         "asa.operation.closedstatus": {
1085             "type": "object",
1086             "properties": {
1087                 "isclosed": {
1088                     "type": "boolean",
1089                     "description": "Open/Closed status Indicator",
1090                     "x-ocf-conversion": {
1091                         "x-ocf-alias": "oic.r.door",
1092                         "x-to-ocf": [
1093                             "if isClosed ocf.openState = Closed.",
1094                             "if !isClosed ocf.openState = Open."

```

```

1095     ],
1096     "x-from-ocf": [
1097         "isClosed = (openState == Closed)"
1098     ]
1099 }
1100 }
1101 }
1102 }
1103 },
1104 "type": "object",
1105 "allOf": [
1106     {"$ref": "#/definitions/asa.operation.closedstatus"}
1107 ],
1108 "required": [ "isclosed" ]
1109 }
1110

```

1111 **7.11 Cycle Control**

1112 **7.11.1 Derived model**

1113 The derived model: "asa.operation.cyclecontrol".

1114 **7.11.2 Property definition**

1115 Table 24 provides the detailed per Property mapping for "asa.operation.cyclecontrol".

1116 **Table 24 – The property mapping for "asa.operation.cyclecontrol".**

| AllJoyn Property name       | OCF Resource           | To OCF  | From OCF   |
|-----------------------------|------------------------|---|--|
| operationalstate            | oic.r.operationalstate | statearray [Idle,Working,ReadyToStart,DelayedStart,Pause,EndOfCycle]currentmachinestate = statearray[operationalstate]  | statearray [Idle,Working,ReadyToStart,DelayedStart,Pause,EndOfCycle]operationalstate = indexof statearray[currentmachinestate[0]]  |
| executeoperationalcomand    | oic.r.action           |   |  |
| SupportedOperationalcomands | oic.r.action           |   |  |
| supportedoperationalstates  | oic.r.operationalstate | statearray [Idle,Working,ReadyToStart,DelayedStart,Pause,EndOfCycle]for x=0, x < sizeof(supportedoperationalstates): machinestates[x] = statearray[supportedoperationalstates[x]] | statearray [Idle,Working,ReadyToStart,DelayedStart,Pause,EndOfCycle]for x=0, x < sizeof(machinestates): supportedoperationalstates[x] = indexof statearray[machinestates[x]] |

1117 Table 25 provides the details of the Properties that are part of "asa.operation.cyclecontrol".

1118 **Table 25 – The properties of "asa.operation.cyclecontrol".**

| AllJoyn Property name    | Type    | Required | Description                                |
|--------------------------|---------|----------|--|
| operationalstate         | integer | yes      | Current operational state of the appliance |
| executeoperationalcomand |         | no       | Execute an operational command             |



|                              |       |     |   |
|------------------------------|-------|-----|---|
| SupportedOperationalcommands | array | no  | Array of operatinal commands supported by the appliance |
| supportedoperationalstates   | array | yes | Array of operational states supported by the Appliance. |

### 1119 7.11.3 Derived model definition

```

1120 {
1121   "id": "http://openinterconnect.org/asamapping/schemas/asa.operation.cyclecontrol.json#",
1122   "$schema": "http://json-schema.org/draft-04/schema#",
1123   "description": "Copyright (c) 2017 Open Connectivity Foundation, Inc. All rights reserved.",
1124   "title": "Cycle Control",
1125   "definitions": {
1126     "asa.operation.cyclecontrol": {
1127       "type": "object",
1128       "properties": {
1129         "operationalstate": {
1130           "type": "integer",
1131           "description": "Current operational state of the appliance",
1132           "x-ocf-conversion": {
1133             "x-ocf-alias": "oic.r.operationalstate",
1134             "x-to-ocf": [
1135               "statearray = [Idle,Working,ReadyToStart,DelayedStart,Pause,EndOfCycle]",
1136               "currentmachinestate = statearray[operationalstate]"
1137             ],
1138             "x-from-ocf": [
1139               "statearray = [Idle,Working,ReadyToStart,DelayedStart,Pause,EndOfCycle]",
1140               "operationalstate = indexof statearray[currentmachinestate[0]]"
1141             ]
1142           }
1143         },
1144         "supportedoperationalstates": {
1145           "type": "array",
1146           "items": {
1147             "type": "integer"
1148           },
1149           "description": "Array of operational states supported by the Appliance.",
1150           "x-ocf-conversion": {
1151             "x-ocf-alias": "oic.r.operationalstate",
1152             "x-to-ocf": [
1153               "statearray = [Idle,Working,ReadyToStart,DelayedStart,Pause,EndOfCycle]",
1154               "for x=0, x < sizeof(supportedoperationalstates): machinestates[x] =
1155 statearray[supportedoperationalstates[x]]"
1156             ],
1157             "x-from-ocf": [
1158               "statearray = [Idle,Working,ReadyToStart,DelayedStart,Pause,EndOfCycle]",
1159               "for x=0, x < sizeof(machinestates): supportedoperationalstates[x] = indexof
1160 statearray[machinestates[x]]"
1161             ]
1162           }
1163         },
1164         "SupportedOperationalcommands": {
1165           "type": "array",
1166           "items": {
1167             "type": "integer"
1168           },
1169           "description": "Array of operatinal commands supported by the appliance",
1170           "x-ocf-conversion": {
1171             "x-ocf-alias": "oic.r.action"
1172           }
1173         },
1174         "executeoperationalcomand": {
1175           "x-ocf-type": "method",
1176           "description": "Execute an operational command",
1177           "x-ocf-conversion": {

```

```

1178         "x-ocf-alias": "oic.r.action"
1179     }
1180 }
1181 }
1182 }
1183 },
1184 "type": "object",
1185 "allOf": [
1186     {"$ref": "#/definitions/asa.operation.cyclecontrol"}
1187 ],
1188 "required": [ "operationalstate","supportedoperationalstates" ]
1189 }
1190

```

1191 **7.12 Fan Speed Level**

1192 **7.12.1 Derived model**

1193 The derived model: "asa.operation.fanspeedlevel".

1194 **7.12.2 Property definition**

1195 Table 26 provides the detailed per Property mapping for "asa.operation.fanspeedlevel".

1196 **Table 26 – The property mapping for "asa.operation.fanspeedlevel".**

| AllJoyn Property name | OCF Resource  | To OCF   | From OCF  |
|-----------------------|---------------|--|---|
| fanspeedlevel         | oic.r.airflow | speed = fanspeedlevel  | fanspeedlevel = speed   |
| maxfanspeedlevel      | oic.r.airflow | range[0] = 0range[1] = maxfanspeedlevel                                  | maxfanspeedlevel = range[1]otherwise: maxfanspeedlevel = 100    |
| automode              | oic.r.airflow | if automode != NotSupported(0xFF) ocf.automode = automodeelse no mapping | automode = ocf.automodeotherwise: automode = NotSupported(0xFF) |

1197 Table 27 provides the details of the Properties that are part of "asa.operation.fanspeedlevel".

1198 **Table 27 – The properties of "asa.operation.fanspeedlevel".**

| AllJoyn Property name | Property | Type    | Required | Description                     |
|-----------------------|----------|---------|----------|---------------------------------|
| fanspeedlevel         |          | integer | yes      | Fan speed level. 0 = off.       |
| maxfanspeedlevel      |          | integer | yes      | Max level allowed for fan speed |
| automode              |          | integer | yes      | Auto mode status.               |

1199 **7.12.3 Derived model definition**

```

1200 {
1201     "id": "http://openinterconnect.org/asamapping/schemas/asa.operation.fanspeedlevel.json#",
1202     "$schema": "http://json-schema.org/draft-04/schema#",
1203     "description": "Copyright (c) 2017 Open Connectivity Foundation, Inc. All rights reserved.",
1204     "title": "Fan Speed Level",
1205     "definitions": {
1206         "asa.operation.fanspeedlevel": {
1207             "type": "object",
1208             "properties": {
1209                 "fanspeedlevel": {
1210                     "type": "integer",
1211                     "description": "Fan speed level. 0 = off.",

```

```

1212     "x-ocf-conversion": {
1213         "x-ocf-alias": "oic.r.airflow",
1214         "x-to-ocf": [
1215             "speed = fanspeedlevel"
1216         ],
1217         "x-from-ocf": [
1218             "fanspeedlevel = speed"
1219         ]
1220     },
1221 },
1222 "maxfanspeedlevel": {
1223     "type": "integer",
1224     "description": "Max level allowed for fan speed",
1225     "x-ocf-conversion": {
1226         "x-ocf-alias": "oic.r.airflow",
1227         "x-to-ocf": [
1228             "range[0] = 0",
1229             "range[1] = maxfanspeedlevel"
1230         ],
1231         "x-from-ocf": [
1232             "maxfanspeedlevel = range[1]",
1233             "otherwise: maxfanspeedlevel = 100"
1234         ]
1235     },
1236 },
1237 "automode": {
1238     "type": "integer",
1239     "description": "Auto mode status.",
1240     "x-ocf-conversion": {
1241         "x-ocf-alias": "oic.r.airflow",
1242         "x-to-ocf": [
1243             "if automode != NotSupported(0xFF)",
1244             " ocf.automode = automode",
1245             "else no mapping"
1246         ],
1247         "x-from-ocf": [
1248             "automode = ocf.automode",
1249             "otherwise: automode = NotSupported(0xFF)"
1250         ]
1251     },
1252 },
1253 },
1254 },
1255 },
1256 "type": "object",
1257 "allOf": [
1258     {"$ref": "#/definitions/asa.operation.fanspeedlevel"}
1259 ],
1260 "required": [ "fanspeedlevel", "maxfanspeedlevel", "automode" ]
1261 }
1262

```

## 1263 7.13 Heating Zone

### 1264 7.13.1 Derived model

1265 The derived model: "asa.operation.heatingzone".

### 1266 7.13.2 Property definition

1267 Table 28 provides the detailed per Property mapping for "asa.operation.heatingzone".

1268 **Table 28 – The property mapping for "asa.operation.heatingzone".**

| AllJoyn Property name | OCF Resource                | To OCF   | From OCF   |
|-----------------------|-----------------------------|--|--|
| numberofheatingzones  | oic.r.heatingzonecollection | number of links in the collection = numberofheatingzones | numberofheatingzones = number of links in the collection |

|                  |                   |   |  |
|------------------|-------------------|---|--|
| heatinglevels    | oic.r.heatingzone | Instance of oic.r.heatingzone per array item for x=0, x<sizeof(heatinglevels): ocf.heatinglevel = maxheatinglevels[x]       | for x=0;x<numlinks(oic.r.heatingzonecollection): heatinglevels[x] = ocf.heatinglevel       |
| maxheatinglevels | oic.r.heatingzone | Instance of oic.r.heatingzone per array item for x=0, x<sizeof(maxheatinglevels): ocf.maxheatinglevel = maxheatinglevels[x] | for x=0;x<numlinks(oic.r.heatingzonecollection): maxheatinglevels[x] = ocf.maxheatinglevel |

1269 Table 29 provides the details of the Properties that are part of "asa.operation.heatingzone".

1270 **Table 29 – The properties of "asa.operation.heatingzone".**

| AllJoyn name         | Property | Type    | Required | Description                           |
|----------------------|----------|---------|----------|---------------------------------------|
| numberofheatingzones |          | integer | yes      | Number of heating zones.              |
| heatinglevels        |          | array   | yes      | Current heating levels for each zone. |
| maxheatinglevels     |          | array   | yes      | Max heating levels for each zone      |

1271 **7.13.3 Derived model definition**

```

1272 {
1273   "id": "http://openinterconnect.org/asamapping/schemas/asa.operation.heatingzone.json#",
1274   "$schema": "http://json-schema.org/draft-04/schema#",
1275   "description": "Copyright (c) 2017 Open Connectivity Foundation, Inc. All rights reserved.",
1276   "title": "Heating Zone",
1277   "definitions": {
1278     "asa.operation.heatingzone": {
1279       "type": "object",
1280       "properties": {
1281         "numberofheatingzones": {
1282           "type": "integer",
1283           "description": "Number of heating zones.",
1284           "x-ocf-conversion": {
1285             "x-ocf-alias": "oic.r.heatingzonecollection",
1286             "x-to-ocf": [
1287               "number of links in the collection = numberofheatingzones"
1288             ],
1289             "x-from-ocf": [
1290               "numberofheatingzones = number of links in the collection"
1291             ]
1292           }
1293         },
1294         "maxheatinglevels": {
1295           "type": "array",
1296           "items": {
1297             "type": "integer"
1298           },
1299           "description": "Max heating levels for each zone",
1300           "x-ocf-conversion": {
1301             "x-ocf-alias": "oic.r.heatingzone",
1302             "x-to-ocf": [

```

```

1303         "Instance of oic.r.heatingzone per array item ",
1304         "for x=0, x<sizeof(maxheatinglevels): ocf.maxheatinglevel = maxheatinglevels[x]"
1305     ],
1306     "x-from-ocf": [
1307         "for x=0;x<numlinks(oic.r.heatingzonecollection): maxheatinglevels[x] =
1308 ocf.maxheatinglevel"
1309     ]
1310 },
1311 },
1312 "heatinglevels": {
1313     "type": "array",
1314     "items": {
1315         "type": "integer"
1316     },
1317     "description": "Current heating levels for each zone.",
1318     "x-ocf-conversion": {
1319         "x-ocf-alias": "oic.r.heatingzone",
1320         "x-to-ocf": [
1321             "Instance of oic.r.heatingzone per array item ",
1322             "for x=0, x<sizeof(heatinglevels): ocf.heatinglevel = maxheatinglevels[x]"
1323         ],
1324         "x-from-ocf": [
1325             "for x=0;x<numlinks(oic.r.heatingzonecollection): heatinglevels[x] = ocf.heatinglevel"
1326         ]
1327     }
1328 }
1329 }
1330 }
1331 },
1332 "type": "object",
1333 "allOf": [
1334     {"$ref": "#/definitions/asa.operation.heatingzone"}
1335 ],
1336 "required": [ "numberofheatingzones", "maxheatinglevels", "heatinglevels" ]
1337 }
1338 }

```

## 1339 7.14 HVAC Fan Mode

### 1340 7.14.1 Derived model

1341 The derived model: "asa.operation.hvacfanmode".

### 1342 7.14.2 Property definition

1343 Table 30 provides the detailed per Property mapping for "asa.operation.hvacfanmode".

1344 **Table 30 – The property mapping for "asa.operation.hvacfanmode".**

| AllJoyn Property name | OCF Resource | To OCF   | From OCF   |
|-----------------------|--------------|--|--|
| mode                  | oic.r.mode   | modearray = [Auto,Circulation,Continuous]ocf.mode[0] = modearray[mode]   | modearray = [Auto,Circulation,Continuous]mode = indexof modeArray[ocf.mode[0]]   |
| supportedmodes        | oic.r.mode   | modearray = [Auto,Circulation,Continuous]for x=0, x < sizeof(supportedmodes): ocf.supportedmodes[x] = modearray[supportedmodes[x]] | modearray = [Auto,Circulation,Continuous]for x=0, x < sizeof(supportedmodes): supportedmodes[x] = indexof modearray[ocf.supportedmodes[x]] |

1345 Table 31 provides the details of the Properties that are part of "asa.operation.hvacfanmode".

Table 31 – The properties of "asa.operation.hvacfanmode".

| AllJoyn name   | Property | Type    | Required | Description              |
|----------------|----------|---------|----------|--------------------------|
| mode           |          | integer | yes      | Current mode of device.  |
| supportedmodes |          | array   | yes      | Array of supported modes |

1347 **7.14.3 Derived model definition**

```

1348 {
1349   "id": "http://openinterconnect.org/asamapping/schemas/asa.operation.hvacfanmode.json#",
1350   "$schema": "http://json-schema.org/draft-04/schema#",
1351   "description": "Copyright (c) 2017 Open Connectivity Foundation, Inc. All rights reserved.",
1352   "title": "HVAC Fan Mode",
1353   "definitions": {
1354     "asa.operation.hvacfanmode": {
1355       "type": "object",
1356       "properties": {
1357         "mode": {
1358           "type": "integer",
1359           "description": "Current mode of device.",
1360           "x-ocf-conversion": {
1361             "x-ocf-alias": "oic.r.mode",
1362             "x-to-ocf": [
1363               "modearray = [Auto,Circulation,Continuous]",
1364               "ocf.mode[0] = modearray[mode]"
1365             ],
1366             "x-from-ocf": [
1367               "modearray = [Auto,Circulation,Continuous]",
1368               "mode = indexof modeArray[ocf.mode[0]]"
1369             ]
1370           }
1371         },
1372         "supportedmodes": {
1373           "type": "array",
1374           "items": {
1375             "type": "integer"
1376           },
1377           "description": "Array of supported modes",
1378           "x-ocf-conversion": {
1379             "x-ocf-alias": "oic.r.mode",
1380             "x-to-ocf": [
1381               "modearray = [Auto,Circulation,Continuous]",
1382               "for x=0, x < sizeof(supportedmodes): ocf.supportedmodes[x] =
1383 modearray[supportedmodes[x]]"
1384             ],
1385             "x-from-ocf": [
1386               "modearray = [Auto,Circulation,Continuous]",
1387               "for x=0, x < sizeof(supportedmodes): supportedmodes[x] = indexof
1388 modearray[ocf.supportedmodes[x]]"
1389             ]
1390           }
1391         }
1392       }
1393     }
1394   },
1395   "type": "object",
1396   "allOf": [
1397     { "$ref": "#/definitions/asa.operation.hvacfanmode" }
1398   ],
1399   "required": [ "mode", "supportedmodes" ]
1400 }
1401

```

1402 **7.15 On/Off Control**

1403 **7.15.1 Derived model**

1404 The derived model: "asa.operation.offcontrol".

1405 The derived model: "asa.operation.oncontrol".

1406 **7.15.2 Property definition**

1407 Table 32 provides the detailed per Property mapping for "asa.operation.offcontrol".

1408 **Table 32 – The property mapping for "asa.operation.offcontrol".**

| AllJoyn Property name | OCF Resource        | To OCF        | From OCF   |
|-----------------------|---------------------|---------------|--|
| switchon              | oic.r.switch.binary | value = false | if ocf.value = false, asa.operation.offcontrol::switchoff(). |

1409 Table 33 provides the details of the Properties that are part of "asa.operation.offcontrol".

1410 **Table 33 – The properties of "asa.operation.offcontrol".**

| AllJoyn name | Property | Type   | Required | Description         |
|--------------|----------|--------|----------|---------------------|
| switchon     |          | string | no       | Turn off the device |

1411 Table 34 provides the detailed per Property mapping for "asa.operation.oncontrol".

1412 **Table 34 – The property mapping for "asa.operation.oncontrol".**

| AllJoyn Property name | OCF Resource        | To OCF       | From OCF  |
|-----------------------|---------------------|--------------|---|
| switchon              | oic.r.switch.binary | value = true | if ocf.value = true, asa.operation.oncontrol::switchon(). |

1413 Table 35 provides the details of the Properties that are part of "asa.operation.oncontrol".

1414 **Table 35 – The properties of "asa.operation.oncontrol".**

| AllJoyn name | Property | Type   | Required | Description        |
|--------------|----------|--------|----------|--------------------|
| switchon     |          | string | no       | Turn on the device |

1415 **7.15.3 Derived model definition**

```

1416 {
1417   "id": "http://openinterconnect.org/asamapping/schemas/asa.operation.oncontrol.json#",
1418   "$schema": "http://json-schema.org/draft-04/schema#",
1419   "description": "Copyright (c) 2017 Open Connectivity Foundation, Inc. All rights reserved.",
1420   "title": "On/Off Control",
1421   "definitions": {
1422     "asa.operation.oncontrol": {
1423       "type": "object",
1424       "properties": {
1425         "switchon": {
1426           "type": "string",
1427           "format": "method",
1428           "description": "Turn on the device",
1429           "x-ocf-conversion": {
1430             "x-ocf-alias": "oic.r.switch.binary",
1431             "x-to-ocf": [
1432               "value = true"
1433             ],
1434             "x-from-ocf": [
1435               "if ocf.value = true, asa.operation.oncontrol::switchon()."
1436             ]
1437           }
1438         }
1439       }
1440     }
1441   }

```

```

1437     }
1438   }
1439 }
1440 },
1441 "asa.operation.offcontrol": {
1442   "type": "object",
1443   "properties": {
1444     "switchon": {
1445       "type": "string",
1446       "format": "method",
1447       "description": "Turn off the device",
1448       "x-ocf-conversion": {
1449         "x-ocf-alias": "oic.r.switch.binary",
1450         "x-to-ocf": [
1451           "value = false"
1452         ],
1453         "x-from-ocf": [
1454           "if ocf.value = false, asa.operation.offcontrol::switchoff()."
1455         ]
1456       }
1457     }
1458   }
1459 },
1460 "type": "object",
1461 "oneOf": [
1462   {"$ref": "#/definitions/asa.operation.oncontrol"},
1463   {"$ref": "#/definitions/asa.operation.offcontrol"}
1464 ]
1465 }
1466 }
1467

```

## 1468 7.16 On Off Mapping

### 1469 7.16.1 Derived model

1470 The derived model: "asa.operation.onoffstatus".

### 1471 7.16.2 Property definition

1472 Table 36 provides the detailed per Property mapping for "asa.operation.onoffstatus".

1473 **Table 36 – The property mapping for "asa.operation.onoffstatus".**

| AllJoyn name | Property | OCF Resource        | To OCF        | From OCF      |
|--------------|----------|---------------------|---------------|---------------|
| onoff        |          | oic.r.switch.binary | value = onoff | onoff = value |

1474 Table 37 provides the details of the Properties that are part of "asa.operation.onoffstatus".

1475 **Table 37 – The properties of "asa.operation.onoffstatus".**

| AllJoyn name | Property | Type    | Required | Description                 |
|--------------|----------|---------|----------|-----------------------------|
| onoff        |          | boolean | yes      | On/Off status of the device |

### 1476 7.16.3 Derived model definition

```

1477 {
1478   "id": "http://openinterconnect.org/asamapping/schemas/asa.operation.onoffstatus.json#",
1479   "$schema": "http://json-schema.org/draft-04/schema#",
1480   "description": "Copyright (c) 2017 Open Connectivity Foundation, Inc. All rights reserved.",
1481   "title": "On Off Mapping",
1482   "definitions": {
1483     "asa.operation.onoffstatus": {
1484       "type": "object",
1485       "properties": {
1486         "onoff": {
1487           "type": "boolean",

```



```

1488         "description": "On/Off status of the device",
1489         "x-ocf-conversion": {
1490             "x-ocf-alias": "oic.r.switch.binary",
1491             "x-to-ocf": [
1492                 "value = onoff"
1493             ],
1494             "x-from-ocf": [
1495                 "onoff = value"
1496             ]
1497         }
1498     }
1499 }
1500 }
1501 },
1502 "type": "object",
1503 "allOf": [
1504     {"$ref": "#/definitions/asa.operation.onoffstatus"}
1505 ],
1506 "required": [ "onoff" ]
1507 }
1508

```

1509 **7.17 Oven Cycle Phase**

1510 **7.17.1 Derived model**

1511 The derived model: "asa.operation.ovencyclephase".

1512 **7.17.2 Property definition**

1513 Table 38 provides the detailed per Property mapping for "asa.operation.ovencyclephase".

1514 **Table 38 – The property mapping for "asa.operation.ovencyclephase".**

| AllJoyn Property name      | OCF Resource           | To OCF  | From OCF   |
|----------------------------|------------------------|---|--|
| getvendorphasesdescription | oic.r.action           |   |  |
| supportedcyclephases       | oic.r.operationalstate | phasearray = [Unavailable,Preheating,Cooking,Cleaning]for x=0, x < sizeof(supportedcyclephases): machinestates[x] = phasearray[supportedcyclephases[x]] | phasearray = [Unavailable,Preheating,Cooking,Cleaning]for x=0, x < sizeof(machinestates): supportedcyclephases[x] = indexof phasearray[machinestates[x]] |
| cyclephase                 | oic.r.operationalstate | phasearray = [Unavailable,Preheating,Cooking,Cleaning]currentmachinestate = phasearray[cyclephase]  | phasearray = [Unavailable,Preheating,Cooking,Cleaning]cyclephase = indexof statearray[currentmachinestate[0]]  |

1515 Table 39 provides the details of the Properties that are part of "asa.operation.ovencyclephase".

1516 **Table 39 – The properties of "asa.operation.ovencyclephase".**

| AllJoyn Property name      | Type  | Required | Description                                       |
|----------------------------|-------|----------|---|
| getvendorphasesdescription |       | no       | Get cycle phases description                      |
| supportedcyclephases       | array | yes      | Array of cycle phases supported by the Appliance. |

|            |         |     |  |
|------------|---------|-----|--|
| cyclephase | integer | yes | Current phase of the operational cycle |
|------------|---------|-----|--|

1517 **7.17.3 Derived model definition**

```

1518 {
1519   "id": "http://openinterconnect.org/asamapping/schemas/asa.operation.ovencyclephase.json#",
1520   "$schema": "http://json-schema.org/draft-04/schema#",
1521   "description": "Copyright (c) 2017 Open Connectivity Foundation, Inc. All rights reserved.",
1522   "title": "Oven Cycle Phase",
1523   "definitions": {
1524     "asa.operation.ovencyclephase": {
1525       "type": "object",
1526       "properties": {
1527         "cyclephase": {
1528           "type": "integer",
1529           "description": "Current phase of the operational cycle",
1530           "x-ocf-conversion": {
1531             "x-ocf-alias": "oic.r.operationalstate",
1532             "x-to-ocf": [
1533               "phasearray = [Unavailable,Preheating,Cooking,Cleaning]",
1534               "currentmachinestate = phasearray[cyclephase]"
1535             ],
1536             "x-from-ocf": [
1537               "phasearray = [Unavailable,Preheating,Cooking,Cleaning]",
1538               "cyclephase = indexof statearray[currentmachinestate[0]]"
1539             ]
1540           }
1541         },
1542         "supportedcyclephases": {
1543           "type": "array",
1544           "items": {
1545             "type": "integer"
1546           },
1547           "description": "Array of cycle phases supported by the Appliance.",
1548           "x-ocf-conversion": {
1549             "x-ocf-alias": "oic.r.operationalstate",
1550             "x-to-ocf": [
1551               "phasearray = [Unavailable,Preheating,Cooking,Cleaning]",
1552               "for x=0, x < sizeof(supportedcyclephases): machinestates[x] =
1553 phasearray[supportedcyclephases[x]]"
1554             ],
1555             "x-from-ocf": [
1556               "phasearray = [Unavailable,Preheating,Cooking,Cleaning]",
1557               "for x=0, x < sizeof(machinestates): supportedcyclephases[x] = indexof
1558 phasearray[machinestates[x]]"
1559             ]
1560           }
1561         },
1562         "getvendorphasesdescription": {
1563           "x-ocf-type": "method",
1564           "description": "Get cycle phases description",
1565           "x-ocf-conversion": {
1566             "x-ocf-alias": "oic.r.action"
1567           }
1568         }
1569       }
1570     }
1571   },
1572   "type": "object",
1573   "allOf": [
1574     {"$ref": "#/definitions/asa.operation.ovencyclephase"}
1575   ],
1576   "required": [ "cyclephase", "supportedcyclephases" ]
1577 }
1578

```