

# OCF Core - Optional Specification

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|    |  |   |
|----|--|---|
| 20 | <b>CONTENTS</b>  |   |
| 21 | 1  | Scope..... 1  |
| 22 | 2  | Normative references ..... 1                                |
| 23 | 3  | Terms, definitions, and abbreviated terms ..... 2           |
| 24 | 3.1  | Terms and definitions..... 2                                |
| 25 | 4  | Document conventions and organization..... 2                |
| 26 | 4.1  | Conventions..... 2  |
| 27 | 4.2  | Notation ..... 2  |
| 28 | 4.3  | Data types ..... 3  |
| 29 | 5  | Functional interactions ..... 3                             |
| 30 | 5.1  | Introduction..... 3   |
| 31 | 5.2  | Onboarding, provisioning and configuration ..... 4          |
| 32 | 5.3  | Device management ..... 6                                   |
| 33 | 5.3.1  | Overview ..... 6  |
| 34 | 5.3.2  | Diagnostics and maintenance Resource Type..... 6            |
| 35 | 5.3.3  | Core behaviours on Device maintenance state changes ..... 7 |
| 36 | 5.3.4  | Network monitoring Resource Type ..... 9                    |
| 37 | 5.3.5  | Software update Resource Type ..... 13                      |
| 38 | 5.4  | Scenes ..... 18   |
| 39 | 5.4.1  | Introduction ..... 18                                       |
| 40 | 5.4.2  | Scenes Resource model ..... 18                              |
| 41 | 5.4.3  | Security considerations..... 22                             |
| 42 | 5.5  | Icons..... 23   |
| 43 | 5.5.1  | Overview ..... 23   |
| 44 | 5.5.2  | Resource ..... 23   |
| 45 | 5.6  | Alerts ..... 23   |
| 46 | 5.6.1  | Overview ..... 23   |
| 47 | 5.6.2  | Resource Types ..... 24                                     |
| 48 | 5.6.3  | Example of Use ..... 25                                     |
| 49 | Annex A (normative) Resource Type definitions ..... 26 |   |
| 50 | A.1  | List of Resource Type definitions ..... 26                  |
| 51 | A.2  | Device Configuration..... 26                                |
| 52 | A.2.1  | Introduction ..... 26                                       |
| 53 | A.2.2  | Example URI ..... 26  |
| 54 | A.2.3  | Resource type ..... 26                                      |
| 55 | A.2.4  | OpenAPI 2.0 definition..... 26                              |
| 56 | A.2.5  | Property definition ..... 31                                |
| 57 | A.2.6  | CRUDN behaviour ..... 31                                    |
| 58 | A.3  | Platform Configuration ..... 32                             |
| 59 | A.3.1  | Introduction ..... 32                                       |
| 60 | A.3.2  | Example URI ..... 32  |
| 61 | A.3.3  | Resource type ..... 32                                      |
| 62 | A.3.4  | OpenAPI 2.0 definition..... 32                              |

|     |       |                             |    |
|-----|-------|-----------------------------|----|
| 63  | A.3.5 | Property definition .....   | 35 |
| 64  | A.3.6 | CRUDN behaviour .....       | 35 |
| 65  | A.4   | Icon .....                  | 35 |
| 66  | A.4.1 | Introduction .....          | 35 |
| 67  | A.4.2 | Example URI .....           | 35 |
| 68  | A.4.3 | Resource type .....         | 36 |
| 69  | A.4.4 | OpenAPI 2.0 definition..... | 36 |
| 70  | A.4.5 | Property definition .....   | 37 |
| 71  | A.4.6 | CRUDN behaviour .....       | 38 |
| 72  | A.5   | Maintenance .....           | 38 |
| 73  | A.5.1 | Introduction .....          | 38 |
| 74  | A.5.2 | Well-known URI .....        | 38 |
| 75  | A.5.3 | Resource type .....         | 38 |
| 76  | A.5.4 | OpenAPI 2.0 definition..... | 38 |
| 77  | A.5.5 | Property definition .....   | 41 |
| 78  | A.5.6 | CRUDN behaviour .....       | 42 |
| 79  | A.6   | Network Monitoring.....     | 42 |
| 80  | A.6.1 | Introduction .....          | 42 |
| 81  | A.6.2 | Example URI .....           | 42 |
| 82  | A.6.3 | Resource type .....         | 42 |
| 83  | A.6.4 | OpenAPI 2.0 definition..... | 42 |
| 84  | A.6.5 | Property definition .....   | 45 |
| 85  | A.6.6 | CRUDN behaviour .....       | 46 |
| 86  | A.7   | Scene List.....             | 46 |
| 87  | A.7.1 | Introduction .....          | 46 |
| 88  | A.7.2 | Example URI .....           | 46 |
| 89  | A.7.3 | Resource type .....         | 46 |
| 90  | A.7.4 | OpenAPI 2.0 definition..... | 46 |
| 91  | A.7.5 | Property definition .....   | 49 |
| 92  | A.7.6 | CRUDN behaviour .....       | 50 |
| 93  | A.8   | Scene Collection.....       | 51 |
| 94  | A.8.1 | Introduction .....          | 51 |
| 95  | A.8.2 | Example URI .....           | 51 |
| 96  | A.8.3 | Resource type .....         | 51 |
| 97  | A.8.4 | OpenAPI 2.0 definition..... | 51 |
| 98  | A.8.5 | Property definition .....   | 55 |
| 99  | A.8.6 | CRUDN behaviour .....       | 56 |
| 100 | A.9   | Scene Member.....           | 56 |
| 101 | A.9.1 | Introduction .....          | 56 |
| 102 | A.9.2 | Example URI .....           | 56 |
| 103 | A.9.3 | Resource type .....         | 57 |
| 104 | A.9.4 | OpenAPI 2.0 definition..... | 57 |
| 105 | A.9.5 | Property definition .....   | 60 |
| 106 | A.9.6 | CRUDN behaviour .....       | 61 |

|     |        |                             |    |
|-----|--------|-----------------------------|----|
| 107 | A.10   | Alert.....                  | 61 |
| 108 | A.10.1 | Introduction .....          | 61 |
| 109 | A.10.2 | Example URI .....           | 61 |
| 110 | A.10.3 | Resource type .....         | 62 |
| 111 | A.10.4 | OpenAPI 2.0 definition..... | 62 |
| 112 | A.10.5 | Property definition .....   | 64 |
| 113 | A.10.6 | CRUDN behaviour .....       | 65 |
| 114 | A.11   | Alert Collection .....      | 65 |
| 115 | A.11.1 | Introduction .....          | 65 |
| 116 | A.11.2 | Example URI .....           | 65 |
| 117 | A.11.3 | Resource type .....         | 65 |
| 118 | A.11.4 | OpenAPI 2.0 definition..... | 65 |
| 119 | A.11.5 | Property definition .....   | 69 |
| 120 | A.11.6 | CRUDN behaviour .....       | 70 |
| 121 | A.12   | software update .....       | 70 |
| 122 | A.12.1 | Introduction .....          | 70 |
| 123 | A.12.2 | Example URI .....           | 70 |
| 124 | A.12.3 | Resource type .....         | 70 |
| 125 | A.12.4 | OpenAPI 2.0 definition..... | 70 |
| 126 | A.12.5 | Property definition .....   | 74 |
| 127 | A.12.6 | CRUDN behaviour .....       | 74 |
| 128 |        |                             |    |
| 129 |        |                             |    |

130  
131  
132

## Figures

|     |   |    |
|-----|---|----|
| 133 | Figure 1 – Interactions with the network monitoring Resource .....                | 12 |
| 134 | Figure 2 – State transition diagram of collecting network information .....       | 13 |
| 135 | Figure 3 – Typical state transitioning diagram for software update .....          | 15 |
| 136 | Figure 4 – Typical sequence for none scheduled upgrading software .....           | 18 |
| 137 | Figure 5 – Generic Scene Resource structure .....                                 | 18 |
| 138 | Figure 6 – Interactions to check Scene support and setup of specific Scenes ..... | 19 |
| 139 | Figure 7 – Client interactions on a specific Scene .....                          | 20 |
| 140 | Figure 8 – Interaction overview due to a Scene change .....                       | 22 |

141

## Tables

142  
143

|     |   |    |
|-----|---|----|
| 144 | Table 1 – List of optional Core Resources.....  | 3  |
| 145 | Table 2 – Configuration Resource.....   | 4  |
| 146 | Table 3 – "oic.wk.con" Resource Type definition .....                                     | 4  |
| 147 | Table 4 – "oic.wk.con.p" Resource Type definition .....                                   | 5  |
| 148 | Table 5 – Optional diagnostics and maintenance Device management Core Resources.....      | 6  |
| 149 | Table 6 – "oic.wk.mnt" Resource Type definition.....                                      | 6  |
| 150 | Table 7 – Actions on Device state change.....   | 7  |
| 151 | Table 8 – Default values for "/oic/d" .....   | 8  |
| 152 | Table 9 – Default values for "/oic/p" .....   | 8  |
| 153 | Table 10 – Default values for Device configuration Resource.....                          | 9  |
| 154 | Table 11 – Default values for CoAPCloudConf Resource .....                                | 9  |
| 155 | Table 12 – Optional monitoring Device management Core Resources.....                      | 10 |
| 156 | Table 13 – "oic.wk.nmon" Resource Type definition .....                                   | 10 |
| 157 | Table 14 – Optional software update Resources .....                                       | 13 |
| 158 | Table 15 – "oic.r.softwareupdate" Resource Type definition.....                           | 14 |
| 159 | Table 16 State definitions and state transitions of software update Resource .....        | 14 |
| 160 | Table 17 Value definitions for the Property "swupdateaction" .....                        | 15 |
| 161 | Table 18 List of codes of the "swupdateresult" Property.....                              | 16 |
| 162 | Table 19 – list of Resource Types for Scenes .....  | 22 |
| 163 | Table 20 – Optional Icon Core Resource.....   | 23 |
| 164 | Table 21 – "oic.r.icon" Resource Type definition .....                                    | 23 |
| 165 | Table 22 – Optional Alert Core Resources .....  | 24 |
| 166 | Table 23 – "oic.r.alert" Resource Type definition.....                                    | 24 |
| 167 | Table 24 – "oic.r.alertcollection" Resource Type definition .....                         | 25 |
| 168 | Table A.1 – Alphabetized list of Core Resources.....                                      | 26 |
| 169 | Table A.2 – The Property definitions of the Resource with type "rt" = "oic.wk.con". ..... | 31 |

|     |  |    |
|-----|--|----|
| 170 | Table A.3 – The CRUDN operations of the Resource with type "rt" = "oic.wk.con".            | 32 |
| 171 | Table A.4 – The Property definitions of the Resource with type "rt" = "oic.wk.con.p".      | 35 |
| 172 | Table A.5 – The CRUDN operations of the Resource with type "rt" = "oic.wk.con.p".          | 35 |
| 173 | Table A.6 – The Property definitions of the Resource with type "rt" = "oic.r.icon".        | 38 |
| 174 | Table A.7 – The CRUDN operations of the Resource with type "rt" = "oic.r.icon".            | 38 |
| 175 | Table A.8 – The Property definitions of the Resource with type "rt" = "oic.wk.mnt".        | 41 |
| 176 | Table A.9 – The CRUDN operations of the Resource with type "rt" = "oic.wk.mnt".            | 42 |
| 177 | Table A.10 – The Property definitions of the Resource with type "rt" = "oic.wk.nmon".      | 45 |
| 178 | Table A.11 – The CRUDN operations of the Resource with type "rt" = "oic.wk.nmon".          | 46 |
| 179 | Table A.12 – The Property definitions of the Resource with type "rt" = "oic.wk.scenelist". | 50 |
| 180 | Table A.13 – The CRUDN operations of the Resource with type "rt" = "oic.wk.scenelist".     | 50 |
| 181 | Table A.14 – The Property definitions of the Resource with type "rt" =                     |    |
| 182 | "oic.wk.scenecollection".  | 55 |
| 183 | Table A.15 – The CRUDN operations of the Resource with type "rt" =                         |    |
| 184 | "oic.wk.scenecollection".  | 56 |
| 185 | Table A.16 – The Property definitions of the Resource with type "rt" =                     |    |
| 186 | "oic.wk.scenemember".  | 60 |
| 187 | Table A.17 – The CRUDN operations of the Resource with type "rt" =                         |    |
| 188 | "oic.wk.scenemember".  | 61 |
| 189 | Table A.18 – The Property definitions of the Resource with type "rt" = "oic.r.alert".      | 64 |
| 190 | Table A.19 – The CRUDN operations of the Resource with type "rt" = "oic.r.alert".          | 65 |
| 191 | Table A.20 – The Property definitions of the Resource with type "rt" =                     |    |
| 192 | "oic.r.alertcollection".   | 69 |
| 193 | Table A.21 – The CRUDN operations of the Resource with type "rt" =                         |    |
| 194 | "oic.r.alertcollection".   | 70 |
| 195 | Table A.22 – The Property definitions of the Resource with type "rt" =                     |    |
| 196 | "oic.r.softwareupdate".  | 74 |
| 197 | Table A.23 – The CRUDN operations of the Resource with type "rt" =                         |    |
| 198 | "oic.r.softwareupdate".  | 75 |
| 199 |  |    |
| 200 |  |    |

201

## 202 **1 Scope**

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

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

214

## 215 **2 Normative references**

216 The following documents, in whole or in part, are normatively referenced in this document and are  
217 indispensable for its application. For dated references, only the edition cited applies. For undated  
218 references, the latest edition of the referenced document (including any amendments) applies.

219 ISO/IEC DIS 20924, *Information Technology – Internet of Things – Vocabulary*, June 2018  
220 <https://www.iso.org/standard/69470.html>

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

225 ISO/IEC 30118-2:2018, Information technology – Open Connectivity Foundation (OCF)  
226 Specification – Part 2: Security specification  
227 <https://www.iso.org/standard/74239.html>  
228 Latest version available at: [https://openconnectivity.org/specs/OCF\\_Security\\_Specification.pdf](https://openconnectivity.org/specs/OCF_Security_Specification.pdf)

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

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

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

235 IANA ifType-MIB Definitions  
236 <https://www.iana.org/assignments/ianaiftype-mib/ianaiftype-mib>

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

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



## 241 **3 Terms, definitions, and abbreviated terms**

### 242 **3.1 Terms and definitions**

243 For the purposes of this document, the terms and definitions given in ISO/IEC 30118-1:2018.  
244 ISO/IEC 30118-2:2018, and the following apply.

245 ISO and IEC maintain terminological databases for use in standardization at the following  
246 addresses:

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

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

#### 249 **3.1.1**

##### 250 **Alert**

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

#### 253 **3.1.2**

##### 254 **Scene**

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

256 Note 1 to entry: A Scene (3.1.2) is a prescribed setting of a set of Resources with each having a predetermined value  
257 for the Property that has to change.

#### 258 **3.1.3**

##### 259 **Scene Collection**

260 a Collection that contains an enumeration of possible Scene Values (3.1.5) and the current Scene  
261 Value (3.1.5)

262 Note 1 to entry: The member values of the Scene Collection (3.1.3) are Scene Members (3.1.4).

#### 263 **3.1.4**

##### 264 **Scene Member**

265 a Resource that contains mappings of Scene Values (3.1.5) to values of a Property in the Resource

#### 266 **3.1.5**

##### 267 **Scene Value**

268 a Scene (3.1.2) enumerator representing the state in which a Resource can be

## 269 **4 Document conventions and organization**

### 270 **4.1 Conventions**

271 In this document a number of terms, conditions, mechanisms, sequences, parameters, events,  
272 states, or similar terms are printed with the first letter of each word in uppercase and the rest  
273 lowercase (e.g., Network Architecture). Any lowercase uses of these words have the normal  
274 technical English meaning.

### 275 **4.2 Notation**

276 In this document, features are described as required, recommended, allowed or DEPRECATED as  
277 follows:

278 Required (or shall or mandatory)(M).

279 – These basic features shall be implemented to comply with Core Architecture. The phrases "shall  
280 not", and "PROHIBITED" indicate behaviour that is prohibited, i.e. that if performed means the  
281 implementation is not in compliance.

282 Recommended (or should)(S).

283 – These features add functionality supported by Core Architecture and should be implemented.  
 284 Recommended features take advantage of the capabilities Core Architecture, usually without  
 285 imposing major increase of complexity. Notice that for compliance testing, if a recommended  
 286 feature is implemented, it shall meet the specified requirements to be in compliance with these  
 287 guidelines. Some recommended features could become requirements in the future. The phrase  
 288 "should not" indicates behaviour that is permitted but not recommended.

289 Allowed (may or allowed)(O).

290 – These features are neither required nor recommended by Core Architecture, but if the feature  
 291 is implemented, it shall meet the specified requirements to be in compliance with these  
 292 guidelines.

293 DEPRECATED.

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

300 Conditionally allowed (CA).

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

303 Conditionally required (CR).

304 – The definition or behaviour depends on a condition. If the specified condition is met, then the  
 305 definition or behaviour is required. Otherwise the definition or behaviour is allowed as default  
 306 unless specifically defined as not allowed.

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

308 Words that are emphasized are printed in italic.

309 In all of the Property and Resource definition tables that are included throughout this document the  
 310 "Mandatory" column indicates that the item detailed is mandatory to implement; the mandating of  
 311 inclusion of the item in a Resource Payload associated with a CRUDN action is dependent on the  
 312 applicable schema for that action.

### 313 4.3 Data types

314 Resources are defined using data types derived from JSON values as defined in clause 4.3 in  
 315 ISO/IEC 30118-1:2018.

## 316 5 Functional interactions

### 317 5.1 Introduction

318 The functional interactions between a Client and a Server are described in 5.2 through 5.6  
 319 respectively. The functional interactions use CRUDN messages (clause 8 in ISO/IEC 30118-1:2018)  
 320 and include Discovery, Notification, and Device management. These functions require support of  
 321 core defined Resources as defined in Table 1.

322 **Table 1 – List of optional Core Resources**

| Pre-defined URI | Resource Name | Resource Type | Related Functional Interaction | Mandatory |
|-----------------|---------------|---------------|--------------------------------|-----------|
| (none)          | Configuration | "oic.wk.con"  | Device management              | No        |

|            |                    |                          |                   |    |
|------------|--------------------|--------------------------|-------------------|----|
| (none)     | Configuration      | "oic.wk.con.p"           | Device management | No |
| "/oic/mnt" | Maintenance        | "oic.wk.mnt"             | Device management | No |
| (none)     | Network monitoring | "oic.wk.nmon"            | Device management | No |
| (none)     | Software update    | "oic.wk.softwareupdate"  | Device management | No |
| (none)     | Icon               | "oic.r.icon"             | Icons             | No |
| (none)     | Scene List         | "oic.wk.scenellist"      | Scenes            | No |
| (none)     | Scene Collection   | "oic.wk.scenecollection" | Scenes            | No |
| (none)     | Scene Member       | "oic.wk.scenemember"     | Scenes            | No |
| (none)     | Alerts             | "oic.r.alert"            | Alerts            | No |
| (none)     | Alerts Collection  | "oic.r.alertcollection"  | Alerts            | No |

323

## 324 5.2 Onboarding, provisioning and configuration

325 Onboarding and provisioning are fully defined by the ISO/IEC 30118-2:2018.

326 Should a Device support Client update of configurable information it shall do so via exposing an  
327 "oic.wk.con" Core Resource (Table 2) in "/oic/res".

328

**Table 2 – Configuration Resource**

| Example URI        | Resource Type Title    | Resource Type ID ("rt" value) | OCF Interfaces | Description  | Related Functional Interaction |
|--------------------|------------------------|-------------------------------|----------------|--|--------------------------------|
| "/example/oic/con" | Device configuration   | "oic.wk.con"                  | "oic.if.rw"    | The Resource Type through which configurable information specific to the Device is exposed.<br>The Resource Properties exposed in "oic.wk.con" are listed in Table 3.  | Configuration                  |
| "/example/oic/con" | Platform configuration | "oic.wk.con.p"                | "oic.if.rw"    | The optional Resource Type through which configurable information specific to the Platform is exposed. The Properties exposed in "oic.wk.con.p" are listed in Table 4. | Configuration                  |

329

330 Table 3 defines the "oic.wk.con" Resource Type.

331

**Table 3 – "oic.wk.con" Resource Type definition**

| Property title | Property name                                  | Value type | Value rule | Unit | Access mode | Mandatory | Description   |
|----------------|--|------------|------------|------|-------------|-----------|---|
| (Device) Name  | "n"<br>(Common Property of "/example/oic/con") | "string"   | N/A        | N/A  | R, W        | Yes       | Human friendly name configurable by the end user (e.g. Bob's thermostat). The "n" Common Property of the oic.wk.con Core Resource and the "n" Common Property of the "/oic/d" Core Resource shall have the same Value. When the "n" Common Property Value of the oic.wk.con Core Resource is modified, it shall be reflected to |

|                  |        |   |     |         |      |    |  |
|------------------|--------|---|-----|---------|------|----|--|
|                  |        |   |     |         |      |    | the "n" Common Property of "/oic/d" Core Resource.   |
| Location         | "loc"  | array of float (has two elements, the first is latitude, the second is longitude) | N/A | Degrees | R, W | No | Provides location information where available.   |
| Location Name    | "locn" | "string"  | N/A | N/A     | R, W | no | Human friendly name for location For example, "Living Room".   |
| Currency         | "c"    | "string"  | N/A | N/A     | R,W  | no | Indicates the currency that is used for any monetary transactions  |
| Region           | "r"    | "string"  | N/A | N/A     | R,W  | no | Free form text Indicating the current region in which the Device is located geographically.  |
| Localized Names  | "ln"   | "array"   | N/A | N/A     | R,W  | no | Human-friendly name of the Device, in one or more languages. This Property is an array of objects where each object has a "language" field (containing an IETF RFC 5646 language tag) and a "value" field containing the Device name in the indicated language. If this Property and the Device Name (n) Property are both supported, the Device Name (n) value shall be included in this array. |
| Default Language | "dl"   | "language-tag"  | N/A | N/A     | R,W  | no | The default language supported by the Device, specified as an IETF RFC 5646 language tag. By default, clients can treat any string Property as being in this language unless the Property specifies otherwise.   |

332

333 Table 4 defines the "oic.wk.con.p" Resource Type.

334

**Table 4 – "oic.wk.con.p" Resource Type definition**

| Property title | Property name | Value type | Value rule | Unit | Access mode | Mandatory | Description  |
|----------------|---------------|------------|------------|------|-------------|-----------|--|
| Platform Names | "mnpn"        | "array"    | N/A        | N/A  | R,W         | No        | Friendly name of the Platform. This Property is an array of objects where each object has a "language" field (containing an IETF RFC 5646 language tag) and a "value" field containing the platform friendly name in the indicated language.<br><br>For example, |

|  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  | [[{"language": "en", "value": "Dave's Laptop"}]] |
|--|--|--|--|--|--|--|--|

335

336 **5.3 Device management**

337 **5.3.1 Overview**

338 Device management includes the following functions:

- 339 – Diagnostics and maintenance
- 340 – Network monitoring

341 **5.3.2 Diagnostics and maintenance Resource Type**

342 The Diagnostics and Maintenance Resource Type is intended to enable the resolution of issues  
 343 encountered with the Devices while operating in the field. If diagnostics and maintenance is  
 344 supported by a Device, the Core Resource "/oic/mnt" shall be supported as described in Table 5.

345 **Table 5 – Optional diagnostics and maintenance Device management Core Resources**

| Pre-defined URI | Resource Type Title | Resource Type ID ("rt" value) | OCF Interfaces | Description   | Related Functional Interaction |
|-----------------|---------------------|-------------------------------|----------------|---|--------------------------------|
| "/oic/mnt"      | Maintenance         | "oic.wk.mnt"                  | "oic.if.rw"    | The Resource through which the Device is maintained and can be used for diagnostic purposes.<br>The Properties exposed by "/oic/mnt" are listed in Table 6. | Device management              |

346 Table 6 defines the "oic.wk.mnt" Resource Type. At least one of the Factory\_Reset, Reboot, or last  
 347 error Properties shall be implemented.

348 **Table 6 – "oic.wk.mnt" Resource Type definition**

| Property title       | Property name | Value type | Value rule | Unit | Access mode | Mandatory | Description   |
|----------------------|---------------|------------|------------|------|-------------|-----------|---|
| <b>Factory_Reset</b> | "fr"          | "boolean"  | N/A        | N/A  | R, W        | No        | When writing to this Property:<br>false – No action (Default*)<br>true – Start Factory Reset<br>When reading this Property, a value of true indicates a pending factory reset. Once the factory reset has been completed, the Device shall set the value back to false.<br>This Property is functionally equivalent to a transition to a state of Hard Reset as defined in ISO/IEC 30118-2:2018, clause 8.1 |
| <b>Reboot</b>        | "rb"          | "boolean"  | N/A        | N/A  | R, W        | No        | When writing to this Property:<br>false – No action (Default)<br>true – Start Reboot<br>After Reboot, this value shall be changed back to   |

|                   |       |           |                 |     |   |    |  |
|-------------------|-------|-----------|-----------------|-----|---|----|--|
|                   |       |           |                 |     |   |    | the default value (i.e., false)  |
| <b>Last error</b> | "err" | "integer" | HTTP error code | N/A | R | No | Last occurred error code, shall be cleared to 503 (service unavailable), when doing a Factory Reset or Reboot.<br>All HTTP errors outside the 100, 200 or 300 range shall be stored. |

349  
350 NOTE Default indicates the value of this Property as soon as the Device is rebooted or factory reset.

351 **5.3.3 Core behaviours on Device maintenance state changes**

352 **5.3.3.1 Overview**

353 As defined in ISO/IEC 30118-2:2018 a Device has a state machine through which it transitions  
354 during its operational lifetime.

355 ISO/IEC 30118-2:2018 details actions on such state transitions for the Resources defined therein.  
356 This clause defines the actions to be taken on such state transitions for the Resources and  
357 functionality defined within this document.

358 The state transitions to be considered are:

- 359 – RFNOP to Soft Reset
- 360 – RFNOP to Hard Reset
- 361 – RFNOP to RFPRO
- 362 – RFPRO to RFNOP

363 Table 7 provides a summary of the actions to be taken in each case for functions defined in the  
364 ISO/IEC 30118-2:2018 and this document, other extensions to these documents may define further  
365 behaviours.

366 **Table 7 – Actions on Device state change**

|                                 | Soft reset                             | Hard reset                                      | RFNOP -> RFPRO                         | RFPRO -> RFNOP                         |
|---------------------------------|--|---|--|--|
| <b>SVR</b>                      | As per ISO/IEC 30118-2:2018 clause 8.5 | As per ISO/IEC 30118-2:2018 clause 8.1          | As per ISO/IEC 30118-2:2018 clause 8.3 | As per ISO/IEC 30118-2:2018 clause 8.4 |
| <b>Mandatory Core Resources</b> | No change                              | Reset to defined defaults, see clause 5.3.3.3.3 | No change                              | No change                              |
| <b>Optional Core Resources</b>  | No change                              | Reset to defined defaults, see clause 5.3.3.3.4 | No change                              | No change                              |
| <b>Vertical Resources</b>       | No change                              | Reset to defined defaults; see clause 5.3.3.3   | No change                              | No change                              |
| <b>Created Resources</b>        | No change                              | Deleted   | No change                              | No change                              |
| <b>Observe Transactions</b>     | No change                              | Canceled; see clause 5.3.3.2                    | No change                              | Re-evaluate ACL; see clause 5.3.3.2    |
| <b>OCF Cloud</b>                | No change                              | See clause 5.3.3.4                              | No change                              | No change                              |

367

368 **5.3.3.2 Handling of Observe transactions**

369 On a transition to hard reset all active Observe transactions shall be cancelled by the Server by  
370 sending a "Service Unavailable" response on each active Observe transaction.

371 On a state transition that allows for modification of the access controls that exist against a Resource  
372 (such as from RFPRO to RFNOP) it is possible that the access controls themselves as defined  
373 within the ISO/IEC 30118-2:2018 are changed such that the original RETRIEVE operation that  
374 established the Observe would not have been allowed. In such instances the Server shall cancel  
375 the Observe by sending a "Service Unavailable" response on the Observe transaction.

376 **5.3.3.3 Reset of Resource Properties to defined defaults**

377 **5.3.3.3.1 Overview**

378 On a hard or factory reset Resource Properties are reset to default values. These are commonly  
379 referred to as *manufacturer defaults* however it is not possible in all instances to revert to such  
380 values as they may not be known or be practicable.

381 The default values to be applied for the mandatory and optional Core Resources, plus any Vertical  
382 Resources are defined in clauses 5.3.3.3.2 through 5.3.3.3.4 respectively.

383 **5.3.3.3.2 Defaults for Vertical Resources**

384 Default values for any Vertical Resources exposed by a Device are up to the implementation.

385 **5.3.3.3.3 Defaults for mandatory Core Resources**

386 Table 8 and

387 Table 9 capture default values that shall be set for mandatory Properties of the mandatory Core  
388 Resources where those Resources contain Properties that can be changed by a Client. This  
389 excludes "/oic/res" as that has no mutable Properties.

390 **Table 8 – Default values for "/oic/d"**

| Property | Default                       | Notes  |
|----------|-------------------------------|--|
| "n"      | ""                            | Empty string if "/oic/con" is also exposed, otherwise not mutable. |
| "di"     | Temporary not repeated value. | See ISO/IEC 30118-2:2018 requirements.                             |
| "icv"    | Unchanged                     | Not mutable  |
| "dmv"    | Unchanged                     | Not mutable  |
| "piid"   | Temporary not repeated value. | See ISO/IEC 30118-2:2018 requirements.                             |

391

392 **Table 9 – Default values for "/oic/p"**

| Property | Default                       | Notes                                  |
|----------|-------------------------------|--|
| "pi"     | Temporary not repeated value. | See ISO/IEC 30118-2:2018 requirements. |
| "mnmn"   | Unchanged                     | Not mutable                            |

393

394 **5.3.3.3.4 Defaults for optional Core Resources**

395 This clause details the actions to be taken with respect to the optional Core Resources.

396 The icon Resource ("oic.r.icon") has no mutable Properties, so no action is to be taken.

397 The network monitoring Resource ("oic.wk.nmon") shall have all Properties reset (i.e. behaviour as  
 398 if an UPDATE with the "reset" Property set to "true" had been received). The "col" Property shall  
 399 be set to "false".

400 Any Resources that were added to an instance of a Collection or a specialisation of a Collection  
 401 (e.g. Scene List ("oic.wk.scenelist") or Scene Collection ("oic.wk.scenecollection")) by a Client shall  
 402 be deleted.

403 The Device configuration Resource ("oic.wk.con") shall be modified in accordance with Table 10  
 404 for those Properties that are implemented.

405

406 **Table 10 – Default values for Device configuration Resource**

| Property | Default                     | Notes   |
|----------|-----------------------------|---|
| "loc"    | [0.0,0.0]                   |   |
| "locn"   | ""                          | Empty string  |
| "c"      | ""                          | Empty string  |
| "r"      | ""                          | Empty string  |
| "ln"     | [{}]                        | One item array with an empty object.  |
| "dl"     | Defined by the manufacturer | Recommend the primary language tag for the region into which the Device is marketed (e.g. "en" for primarily English speaking countries). |

407

408 **5.3.3.4 Handling of OCF Cloud**

409 On a hard reset the Device if registered to an OCF Cloud shall de-register from the OCF Cloud in  
 410 accordance with the procedures in the ISO/IEC 30118-2:2018, clause 13.10.

411 Further, on a hard reset the CoAPCloudConf Resource ("oic.r.coapcloudconf") shall be modified in  
 412 accordance with Table 11 for those Properties that are implemented.

413 **Table 11 – Default values for CoAPCloudConf Resource**

| Property | Default  | Notes   |
|----------|--|---|
| "apn"    | ""   | Empty string, only if no manufacturer default exists, in which case it reverts to that default or is unchanged. |
| "cis"    | "coaps+tcp://127.0.0.1"  | Or other valid but non-resolving URI.   |
| "at"     | ""   | Empty string, only if no manufacturer default exists, in which case it reverts to that default or is unchanged. |
| "sid"    | Temporary not repeated value or "00000000-0000-0000-0000-000000000000" |   |
| "clec"   | 0  | No error.   |

414

415 **5.3.4 Network monitoring Resource Type**

416 Network monitoring is used for monitoring the current network state of the Device.

417 The network monitoring Resource Type is "oic.wk.nmon" and is described in Table 12. The  
 418 Resource Type may occur multiple times if more than 1 network interface is implemented. The



419 Common Property "n" may be used to distinguish the different network interfaces, like distinguish  
 420 the 2.4 and 5G Wi-Fi network interfaces.

421 **Table 12 – Optional monitoring Device management Core Resources**

| Example URI         | Resource Type Title | Resource Type ID ("rt" value) | OCF Interfaces                    | Description   | Related Functional Interaction |
|---------------------|---------------------|-------------------------------|-----------------------------------|---|--------------------------------|
| "/example/oic/nmon" | Network Monitoring  | "oic.wk.nmon"                 | "oic.if.rw",<br>"oic.if.baseline" | The Resource through which the Device is monitored.<br>The Resource exposes Properties relevant to aspects that may be monitored. The Resource Properties exposed by Resource Type "oic.wk.nmon" are listed in Table 13 | Device management              |

422

423 Table 13 defines "oic.wk.nmon" Resource Type.

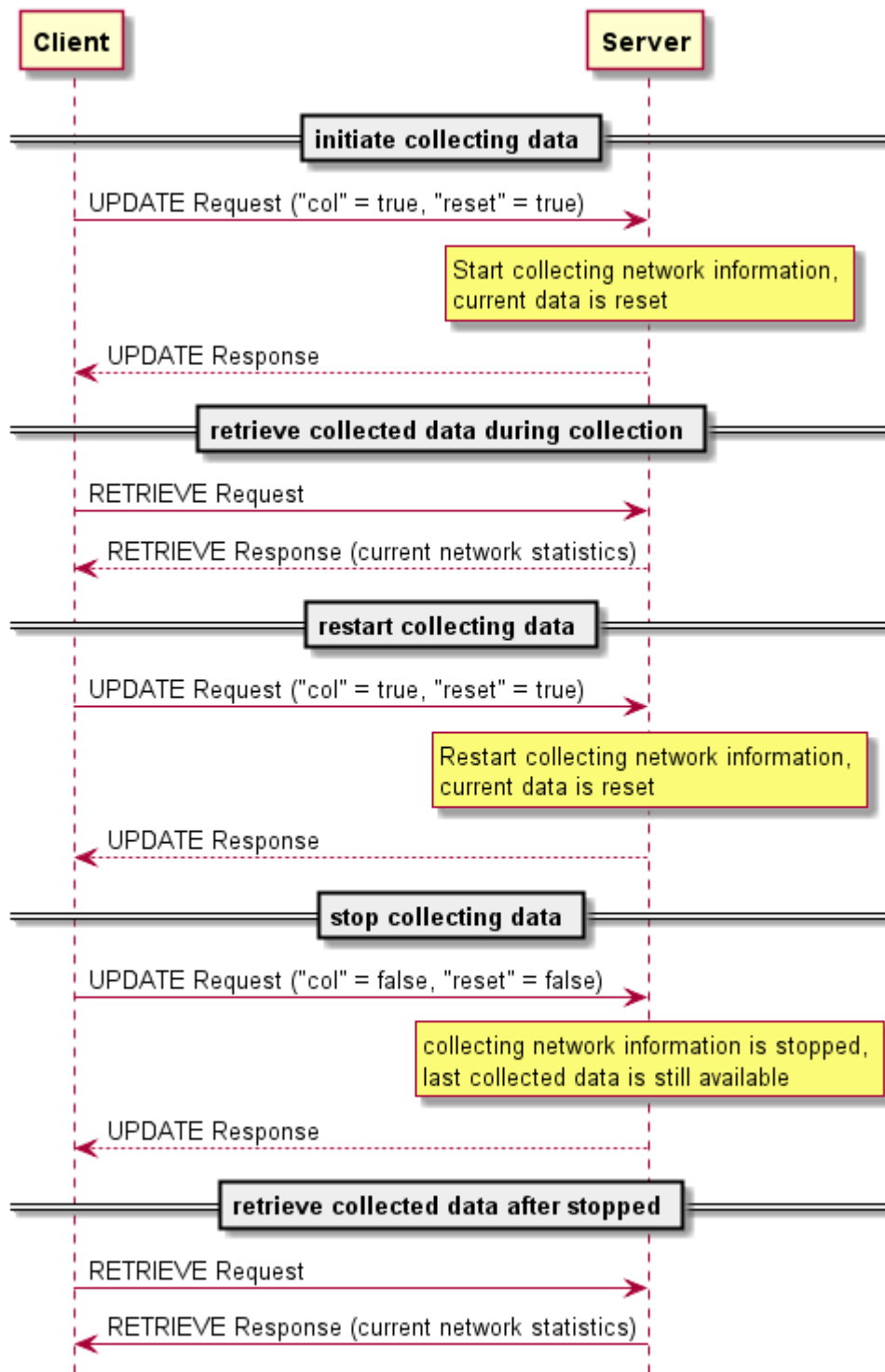
424 **Table 13 – "oic.wk.nmon" Resource Type definition**

| Property title               | Property name | Value type | Value rule   | Unit       | Access mode | Mandatory | Description  |
|------------------------------|---------------|------------|--|------------|-------------|-----------|--|
| Network indicator            | "ianaifType"  | "integer"  | The integer value of the ianaifType  | N/A        | R           | Yes       | The network type this Resource is collecting information from as defined by IANA ifType-MIB Definitions. |
| reset                        | "reset"       | "boolean"  | True, all collected values should be reset. The server should reset the value automatically to false after the reset occurred. | N/A        | RW          | Yes       | Reset of the collected values  |
| Collecting status indication | "col"         | "boolean"  | True: collecting data. False: not collecting data  | N/A        | RW          | Yes       | Boolean to start/stop collecting data.   |
| Transmission bytes           | "tx"          | "integer"  | N/A  | kilo bytes | R           | No        | Amount of transmitted kilo bytes from the collection   |
| Reception bytes              | "rx"          | "integer"  | N/A  | kilo bytes | R           | No        | Amount of received kilo bytes from the collection.   |

|                          |         |           |       |        |   |    |  |
|--------------------------|---------|-----------|-------|--------|---|----|--|
| Maximum message size tx  | "mmstx" | "integer" | bytes | byte s | R | No | Maximum transmitted message, e.g. Max(tx) in the collection period       |
| Maximum message size rx  | "mmsrx" | "integer" | bytes | byte s | R | No | Maximum received message, e.g. Max(rx) in the collection period          |
| Average message size -tx | "amstx" | "integer" | bytes | byte s | R | No | Average transmitted message size, e.g. AVG(tx) in the collection period. |
| Average message size -rx | "amsrx" | "integer" | bytes | byte s | R | No | Average received message size e.g. AVT( rx) in the collection period.    |

425  
426 Examples of typical used values for ianaifType are 71 (ieee80211) for Wi-Fi and 6 (ethernetCsmacd)  
427 for Ethernet.

428 A Device should start collecting network monitoring data when receiving an UPDATE operation  
429 with the parameter "col" = true. A Device should stop collecting network data when receiving an  
430 UPDATE operation with parameter "col" = false. The collected network data should be reset when  
431 an UPDATE operation with parameter "reset" = true is received, if the parameter "reset" is false  
432 then the values should not be reset. Figure 1 illustrates the interactions with the network monitoring  
433 Resource.

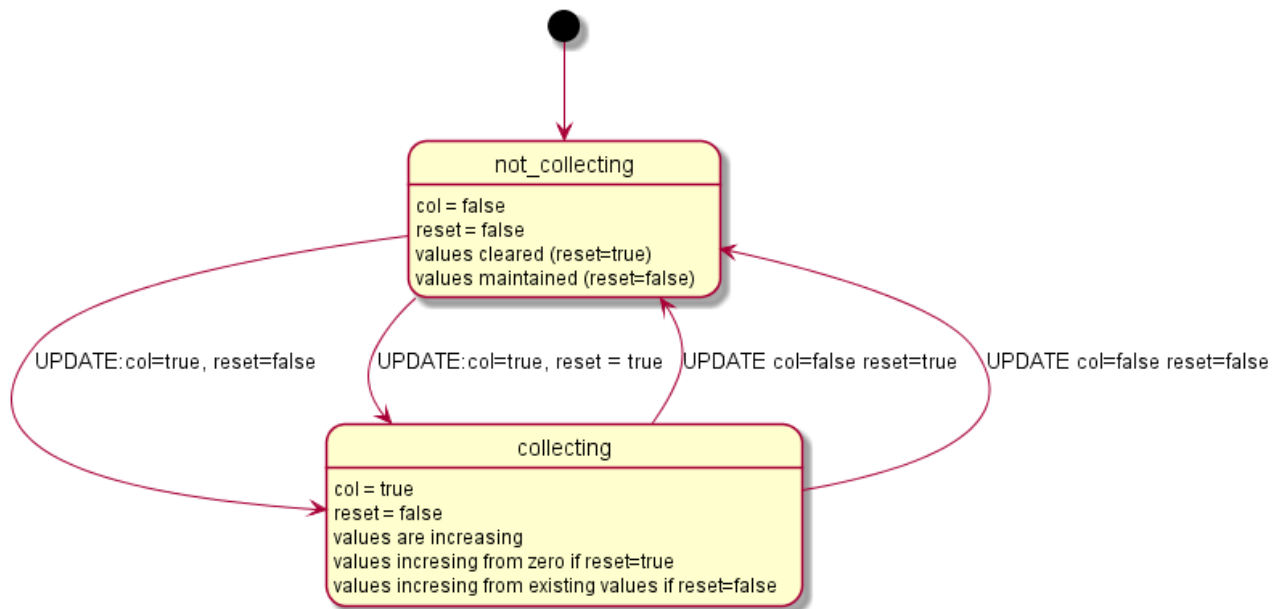


434

435

**Figure 1 – Interactions with the network monitoring Resource**

436 The state transition diagram for collecting or not collecting network information is described by  
 437 Figure 2.



438

439

**Figure 2 – State transition diagram of collecting network information**

440 **5.3.5 Software update Resource Type**

441 The software update Resource is used to control software updates of the Device.

442 In ISO/IEC 30118-2:2018 there is already a manual triggered software update mechanism available.  
 443 The triggering of the Client (manual) software update is achieved via the security Resource Type  
 444 "oic.r.pstat" by using the appropriate bits in the "tm" Property. The software update triggering  
 445 results in updates of the "cm" Property in the "oic.r.pstat" Resource Type (see ISO/IEC 30118-  
 446 2:2018 clause 13.8). The software update Resource adds additional features to the security  
 447 specified mechanism, like:

- 448 – Specify the source to obtain the software package.
- 449 – Time scheduled software update actions.
- 450 – Status information, especially more info about various error situations.

451 If the Device implements the software update Resource, it is required to implement the software  
 452 update behaviour to actually update the software of the Device as indicated by the "oic.r.pstat"  
 453 "cm" bits as defined in ISO/IEC 30118-2:2018 clause 13.8. Also the security defined software  
 454 update process shall use the data that is set on the software update Resource like the "purl"  
 455 Property.

456 The software update Resource Type is "oic.r.softwareupdate" and is described in Table 14.

457

**Table 14 – Optional software update Resources**

| Example URI          | Resource Type Title | Resource Type ID ("rt" value) | OCF Interfaces                    | Description   | Related Functional Interaction |
|----------------------|---------------------|-------------------------------|-----------------------------------|---|--------------------------------|
| "/example/oic/swupd" | Software Update     | "oic.r.softwareupdate"        | "oic.if.rw",<br>"oic.if.baseline" | The Resource exposes Properties to control and monitor the software update mechanism. The Properties exposed by Resource Type | Device management              |

|  |  |  |  |  |  |
|--|--|--|--|--|--|
|  |  |  |  | "oic.r.softwareupdate" are listed in Table 15. |  |
|--|--|--|--|--|--|

458

459 Table 15 defines the Properties of the "oic.r.softwareupdate" Resource Type.

460

**Table 15 – "oic.r.softwareupdate" Resource Type definition**

| Property title | Property name    | Value type | Value rule          | Unit | Access mode | Mandatory | Description   |
|----------------|------------------|------------|---------------------|------|-------------|-----------|---|
| New version    | "nv"             | "string"   | N/A                 | N/A  | R           | No        | New available software version.   |
| Package url    | "purl"           | "string"   | URL                 | N/A  | RW          | Yes       | Source of the software package, might be an HTTPS or a CoAPs URL.   |
| Action         | "swupdateaction" | "string"   | enum (see Table 17) | N/A  | RW          | Yes       | Scheduled action to do a software update.   |
| State          | "swupdatestate"  | "string"   | enum (see Table 16) | N/A  | R           | Yes       | State of the software update.   |
| Result         | "swupdateresult" | "integer"  | N/A                 | N/A  | R           | Yes       | Result of the software update. List of error codes are as defined in Table 18.                                |
| Lastupdate     | "lastupdate"     | "string"   | date-time           | N/A  | R           | No        | Time of the last software update according to IETF RFC 3339. Initial set on date of manufacturing.            |
| Signage        | "signed"         | "string"   | enum                | N/A  | R           | No        | Signage method of the software package, currently the only allowed value is "vendor".                         |
| Update time    | "update time"    | "string"   | date-time           | N/A  | RW          | Yes       | Scheduled time, according to IETF RFC 3339, to do action which is specified in the "swupdateaction" Property. |

461

462 The values of the "swupdatestate" Property are described in Table 16.

463

**Table 16 State definitions and state transitions of software update Resource**

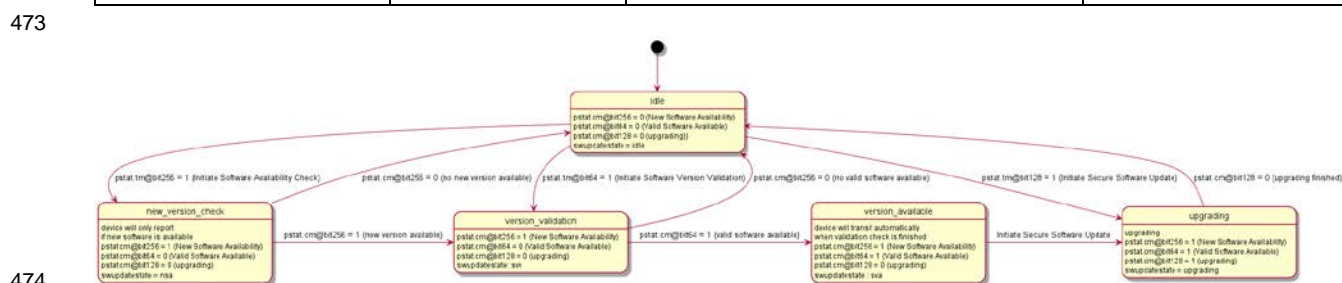
| Description   | Value of Property "swupdatestate" | equivalent "cm" bit values in "pstat".   | Transition allowed from state     |
|---|-----------------------------------|--|-----------------------------------|
| Idle, waiting for updates   | "idle"                            | Bit 64 = 0<br>Bit 128 = 0<br>Bit 256 = 0 | "nsa", "svv", "sva", "upgrading"  |
| New software available (after checking for new software being available on the url indicated by "purl"). This step does not download the new software | "nsa"                             | Bit 64 = 0<br>Bit 128 = 0<br>Bit 256 = 1 | "idle", "svv", "sva", "upgrading" |
| Software version validation (during downloading and checking the software integrity)  | "svv"                             | Bit 64 = 0<br>Bit 128 = 0<br>Bit 256 = 1 | "idle", "nsa", "sva", "upgrading" |

|   |             |  |                                   |
|---|-------------|--|-----------------------------------|
| Software version available<br>(The software is downloaded and deemed to be valid) | "sva"       | Bit 64 = 1<br>Bit 128 = 0<br>Bit 256 = 1 | "idle", "nsa", "svv", "upgrading" |
| Upgrading   | "upgrading" | Bit 64 = 1<br>Bit 128 = 1<br>Bit 256 = 1 | "idle", "nsa", "svv", "sva"       |

464 The typical state transitions are described Figure 3. The state transitions can be triggered manually  
 465 or by a timed action. The manual state triggers (i.e., "tm" Property of "oic.r.pstat") are described in  
 466 ISO/IEC 30118-2:2018 clause 13.8. The timed state triggers are managed using the  
 467 "swupdateaction" and "updatetime" Properties of the software update Resource to trigger software  
 468 update actions at some future date and time. The action names for scheduled actions are listed in  
 469 Table 17. When the "updatetime" for the timed action is in the past then the update shall not take  
 470 place, it is implementation dependent if the UPDATE with an "updatetime" value in the past will  
 471 give an error on the UPDATE operation.

472 **Table 17 Value definitions for the Property "swupdateaction"**

| Description                           | Value of Property "swupdateaction", for scheduled update actions. | Action taken  | Equivalent "pstat" "tm" bits. |
|---------------------------------------|---|---|-------------------------------|
| Nothing scheduled (not applicable).   | "idle"  | No action   |                               |
| Initiate software availability check. | "isac"  | Check on remote end point if a newer software version is available.   | "tm" bit 256.                 |
| Initiate software version Validation. | "isvv"  | Downloads and verifies if the software version is valid.  | "tm" bit 64.                  |
| Initiate secure software update.      | "upgrade"   | Upgrades the software in the Device. It uses the downloaded and validated software package. If no validated software package is available on the Device, the Device takes the necessary steps to obtain a validated software package, by downloading and verifying the software from the external source. | "tm" bit 128.                 |



474 **Figure 3 – Typical state transitioning diagram for software update**

475

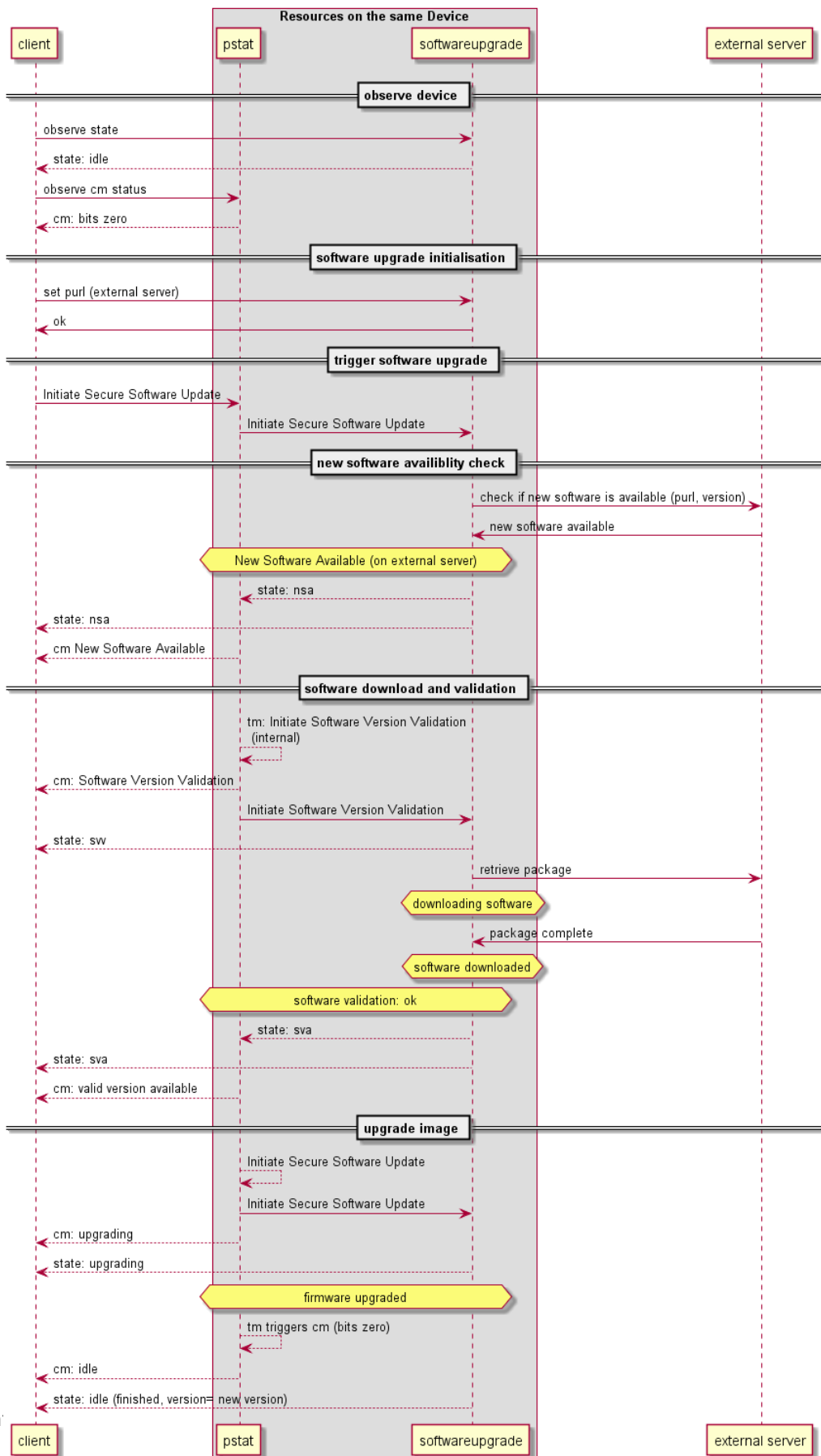
476 The "purl" Property indicates the URL to obtain the software package from. This URL shall be a  
 477 fully qualified URL. If the value is an empty string ("") then the Device will use the built in vendor  
 478 defined URL (see ISO/IEC 30118-2:2018). If a built in URL is not implemented, setting the "purl"  
 479 Property value to an empty string will result in an error code value of 6 as defined in Table 18.

**Table 18 List of codes of the "swupdateresult" Property.**

| Description  | code    |
|--|---------|
| Idle.  | 0       |
| Success, everything went well.   | 1       |
| Not enough RAM.  | 2       |
| Not enough Flash.  | 3       |
| Connection lost.   | 4       |
| Software validation failure.   | 5       |
| Invalid URL to receive the software package.   | 6       |
| Unsupported protocol for download URL.   | 7       |
| Firmware update failed.  | 8       |
| Software transport error codes. HTTP result codes when accessing the URL to download the software package. | 400-600 |

481

482 Figure 4 depicts a typical update scenario. This scenario is using the observability of "pstat", so  
 483 that the Client is informed on the changes of the "cm" bit value to track the progress.





485 **Figure 4 – Typical sequence for none scheduled upgrading software**

486 **5.4 Scenes**

487 **5.4.1 Introduction**

488 Scenes are a mechanism for automating certain operations.

489 A Scene is a static entity that stores a set of defined Property values for a Collection of Resources.  
490 Scenes provide a mechanism to store a setting over multiple Resources that may be hosted by  
491 multiple separate Servers. Scenes, once set up, can be used by multiple Clients to recall a setup.

492 Scenes can be grouped and reused, a group of Scenes is also a Scene.

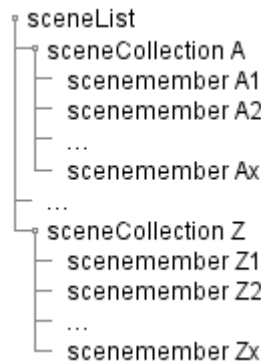
493 In short, Scenes are bundled user settings.

494 **5.4.2 Scenes Resource model**

495 **5.4.2.1 Introduction**

496 Scenes are described by means of Resources. The Scene Resources are hosted by a Server and  
497 the top level Resource is listed in "/oic/res". This means that a Client can determine if the Scene  
498 functionality is hosted on a Server via Resource discovery as defined in clause 11.2 in  
499 ISO/IEC 30118-1:2018. The setup of Scenes is driven by Client interactions. This includes creating  
500 new Scenes, and mappings of Server Properties that are part of a Scene.

501 The Scene functionality is created by multiple Resources and has the structure depicted in Figure 5.  
502 The sceneList and sceneCollection Resources are overloaded Collection Resources. The  
503 sceneCollection Resource contains a list of Scenes. This list contains zero or more Scenes. The  
504 sceneMember Resource contains the mapping between a Scene and what needs to happen  
505 according to that Scene on an indicated Resource.

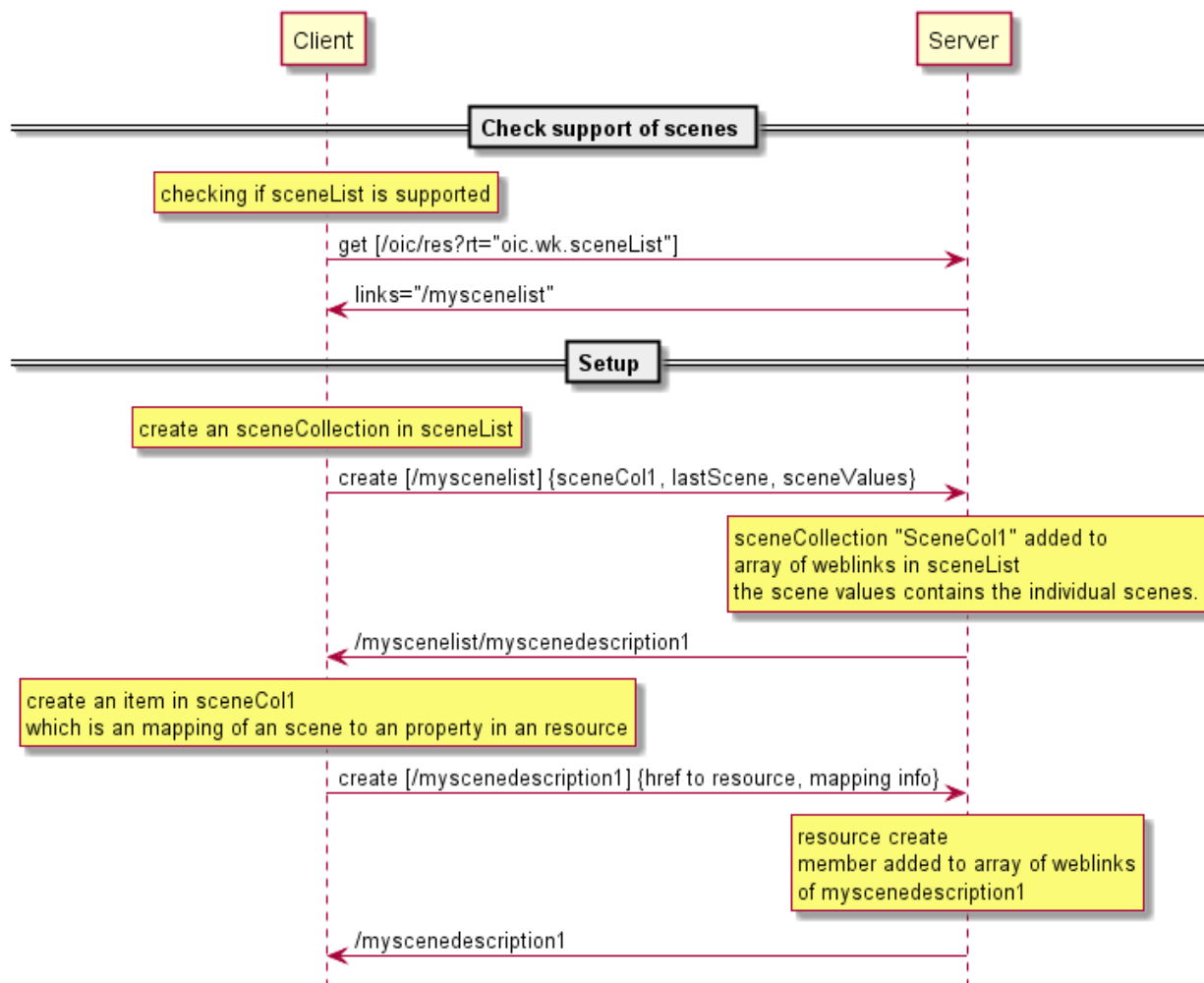


506  
507 **Figure 5 – Generic Scene Resource structure**

508 **5.4.2.2 Scene creation**

509 A Client desiring to interact with Scenes needs to first determine if the Server supports the Scene  
510 feature; the sceneMembers of a Scene that are Resources of end Device being updated by the  
511 Scene change do not have to be co-located on the Server supporting the Scene feature. This can  
512 be done by checking if "/oic/res" contains the "rt" of the sceneList Resource. This is depicted in  
513 first steps of Figure 6. The sceneCollection Resource is created by the Server using some out of  
514 bound mechanism, Client creation of Scenes is not supported at this time. This will entail defining  
515 the Scene with an applicable list of Scene Values and the mappings for each Resource being part  
516 of the Scene. The mapping for each Resource being part of the sceneCollection Resource is  
517 described by a Resource called sceneMember. The sceneMember Resource contains the link to a

518 Resource and the mapping between the Scene listed in the "sceneValues" Property and the actual  
 519 Property value of the Resource indicated by the Link.



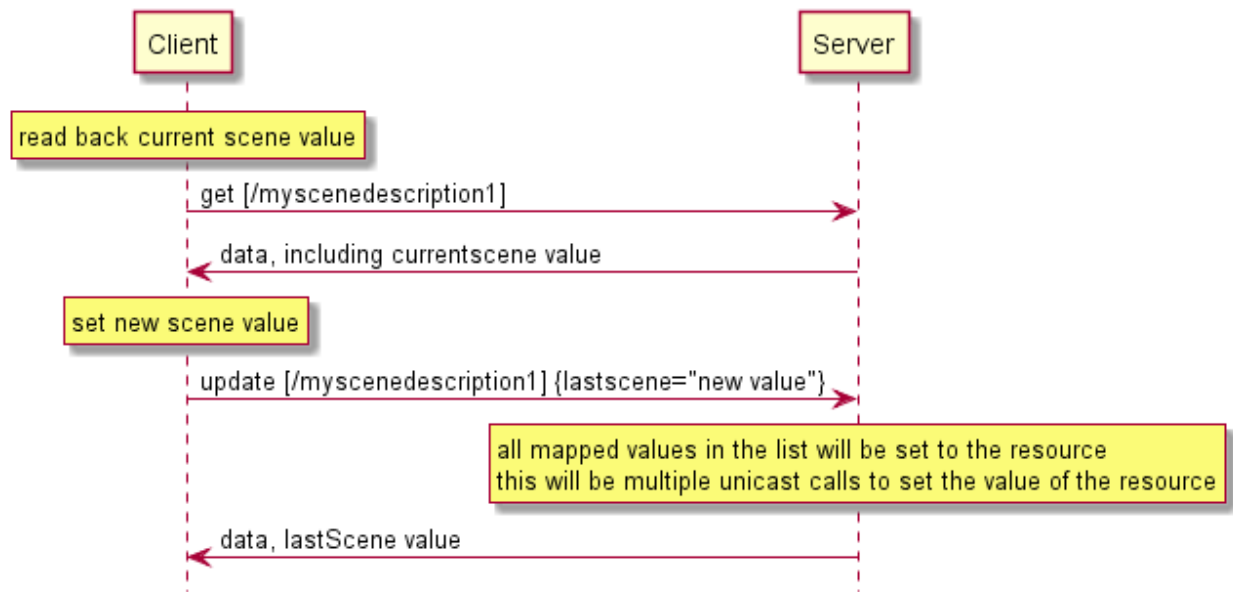
520

521 **Figure 6 – Interactions to check Scene support and setup of specific Scenes**

522 **5.4.2.3 Interacting with Scenes**

523 All capable Clients can interact with Scenes. The allowed Scene Values and the last applied Scene  
 524 Value can be retrieved from the Server hosting the Scene. The Scene Value shall be changed by  
 525 issuing an UPDATE operation with a payload that sets the "lastScene" Property to one of the listed  
 526 allowed Scene Values. These steps are depicted in Figure 7. Note that the "lastScene" Property  
 527 value does not imply that the current state of all Resources that are part of the Scene will be at the  
 528 mapped value. This is due to that the setting the Scene Values are not modelled as actual states  
 529 of the system. This means that another Client can change just one Resource being part of the  
 530 Scene without having feedback that the state of the Scene is changed.

531

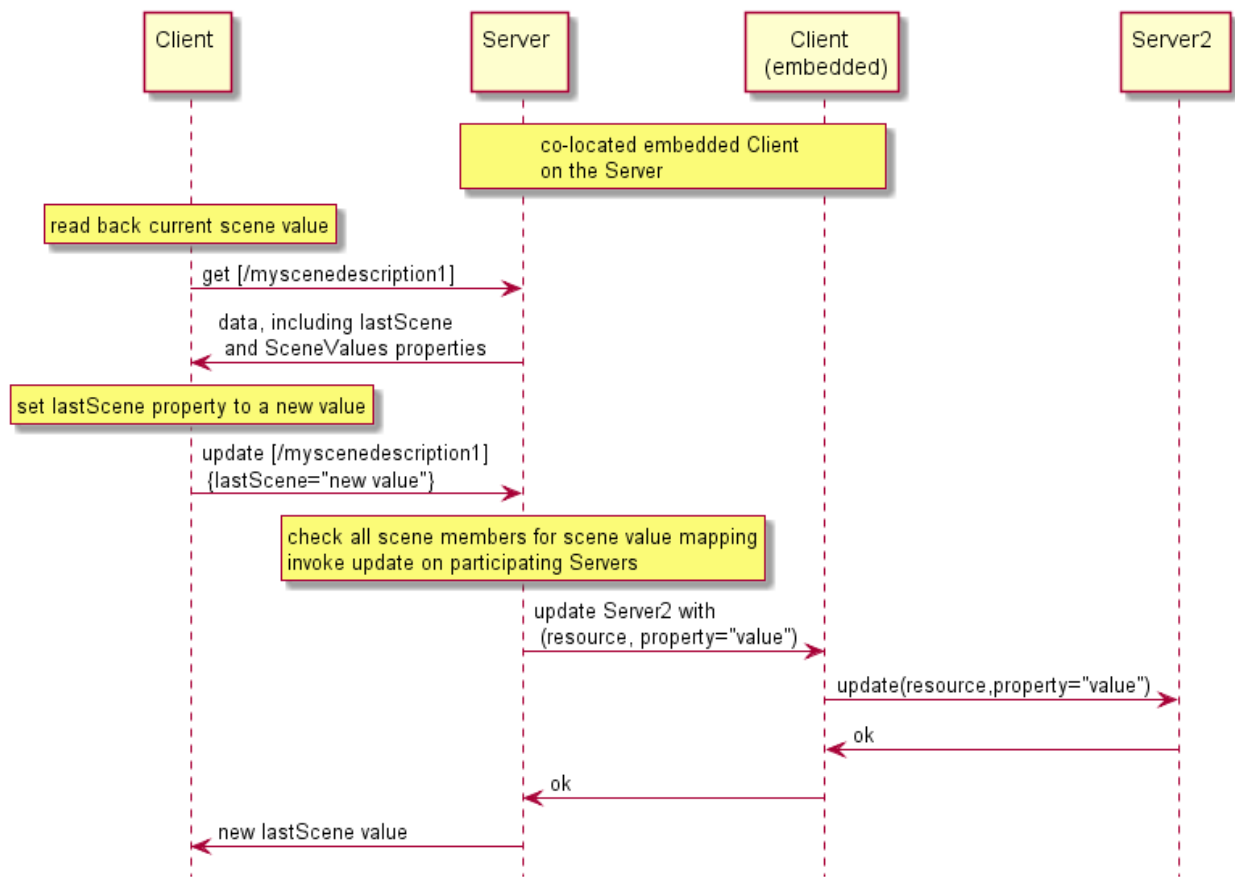


532

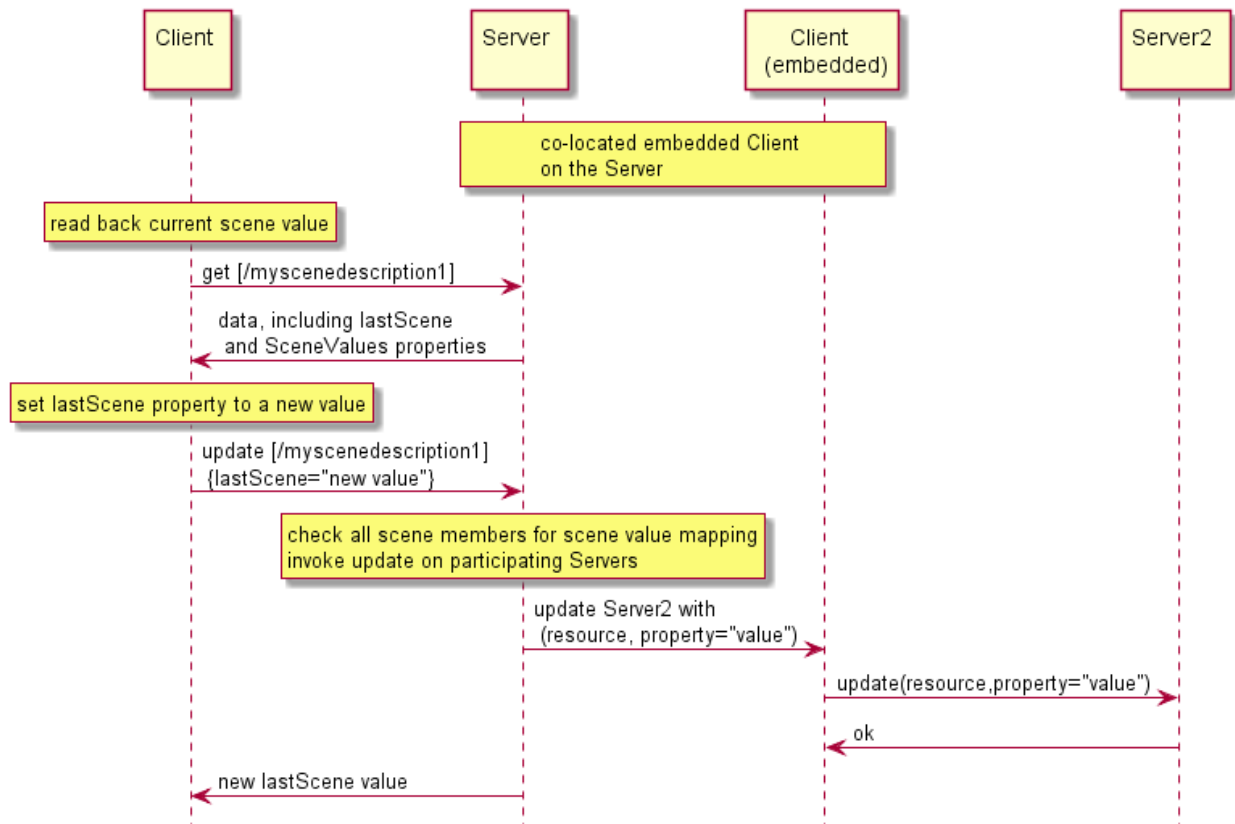
533

**Figure 7 – Client interactions on a specific Scene**

534 As described previously, a Scene can reference one or more Resources (i.e., sceneMembers) that  
 535 are present on one or more Servers. The Scene Members are re-evaluated each time a Scene  
 536 change takes place. This evaluation is triggered by a Client that is either embedded as part of the  
 537 Server hosting the Scene, or separate to the Server having knowledge of the Scene via a  
 538 RETRIEVE operation, Observing the referenced Resources using the mechanism described in  
 539 clause 11.3.2 in ISO/IEC 30118-1:2018. The embedded Client located in the same Device with the  
 540 Server is a general Client but interacts only with Scene functionalities. During the evaluation the  
 541 mappings for the new Scene Value will be applied to the Servers which contain sceneMembers  
 542 from the Scene that is being updated. This behaviour is depicted in Figure 8.



543



544

545 **Figure 8 – Interaction overview due to a Scene change**

546

547 **5.4.2.4 Summary of Resource Types defined for Scene functionality**

548

Table 19 summarizes the list of Resource Types that are part of Scenes.

549

**Table 19 – list of Resource Types for Scenes**

| Friendly Name (informative) | Resource Type (rt)       | Short Description  | Clause |
|-----------------------------|--------------------------|--|--------|
| sceneList                   | "oic.wk.scenelist"       | Top Level Collection containing sceneCollections                               | N/A    |
| sceneCollection             | "oic.wk.scenecollection" | Description of zero or more scenes   | N/A    |
| sceneMember                 | "oic.wk.scenemember"     | Description of mappings for each specific Resource part of the sceneCollection | N/A    |

549

550 **5.4.3 Security considerations**

551

552 Creation of Scenes on a Server that is capable of this functionality is dependent on the ACLs  
 553 applied to the Resources and the Client having the appropriate permissions. Interaction between  
 554 a Client (embedded or separate) and a Server that hosts the Resource that is referenced as a  
 555 Scene Member is contingent on the Client having appropriate permissions to access the Resource on the host Server.

556 See ISO/IEC 30118-2:2018 for details on the use of ACLs and also the mechanisms around Device  
 557 Authentication that are necessary to ensure that the correct permissions exist for the Client to  
 558 access the Scene Member Resource(s) on the Server.

559 **5.5 Icons**

560 **5.5.1 Overview**

561 Icons are a primitive that are needed by various OCF subsystems, such as bridging. An optional  
 562 Resource Type of "oic.r.icon" has been defined to provide a common representation of an icon  
 563 Resource that can be used by Devices.

564 **5.5.2 Resource**

565 The icon Resource is as defined in Table 20.

566 **Table 20 – Optional Icon Core Resource**

| Example URI         | Resource Type Title | Resource Type ID ("rt" value) | OCF Interfaces | Description   | Related Functional Interaction |
|---------------------|---------------------|-------------------------------|----------------|---|--------------------------------|
| "/example/oic/icon" | Icon                | "oic.r.icon"                  | "oic.if.r"     | The Resource through which the Device can obtain icon images.<br>The Properties exposed by "/example/oic/mnt" are listed in Table 21. | Icon                           |

567

568 Table 21 defines the details for the "oic.r.icon" Resource Type.

569 **Table 21 – "oic.r.icon" Resource Type definition**

| Property title   | Property name | Value type | Value rule | Unit   | Access mode | Mandatory | Description   |
|------------------|---------------|------------|------------|--------|-------------|-----------|---|
| <b>Mime Type</b> | "mimetype"    | "string"   | N/A        | N/A    | R           | Yes       | Specifies the format (media type) of the icon. It should be a template string as specified in IANA Media Types Assignment |
| <b>Width</b>     | "width"       | "integer"  | >= 1       | pixels | R           | Yes       | Width of the icon in pixels greater than or equal to 1.   |
| <b>Height</b>    | "height"      | "integer"  | >= 1       | pixels | R           | Yes       | Height of the icon in pixels greater than or equal to 1.  |
| <b>Icon</b>      | "media"       | "uri"      | N/A        | N/A    | R           | Yes       | URI to the location of the icon image.  |

570

571 **5.6 Alerts**

572 **5.6.1 Overview**

573 Alerts provide a means by which a Device provides information to an interested party with regard  
 574 to error or other conditions that the Device is experiencing. An Alert contains human readable text  
 575 that is dependent on the Device itself and the condition being reported. A Device may expose  
 576 discrete instances of an Alert Resource Type ("oic.r.alert") or may also expose Alerts within an  
 577 Alert Collection ("oic.r.alertcollection"). If the instance of "oic.r.alertcollection" is Observable (see  
 578 clause 7.8.2.2.2 in ISO/IEC 30118-1:2018) then a Client may Observe the Collection using the

579 mechanisms defined in clause 11.3 in ISO/IEC 30118-1:2018. As the Device adds and removes  
 580 Alerts from the Collection notifications may be generated for any registered Observers, the format  
 581 of which is dependent upon the OCF Interface used for the initial Observe, see clause 7.6.3 in  
 582 ISO/IEC 30118-1:2018.

### 583 5.6.2 Resource Types

584 The Alert and Alert Collection Resource Types are as defined in Table 22.

585 **Table 22 – Optional Alert Core Resources**

| Example URI                   | Resource Type Title | Resource Type ID ("rt" value) | Interfaces                                       | Description   | Related Functional Interaction |
|-------------------------------|---------------------|-------------------------------|--|---|--------------------------------|
| "/example/alertURI"           | Alert               | "oic.r.alert"                 | "oic.if.r",<br>"oic.if.baseline"                 | The Resource through which the Device exposes Alerts.<br>The Properties exposed by "oic.r.alert" are listed in Table 23.  | Alerts                         |
| "/example/alertcollectionURI" | Alert Collection    | "oic.r.alertcollection"       | "oic.if.ll",<br>"oic.if.b",<br>"oic.if.baseline" | A specialisation of a Collection that contains only instances of "oic.r.alert" that may be Observed by a Client in order to consume Alerts as they are created by the Device. | Alerts                         |

586

587 Table 23 defines the details for the "oic.r.alert" Resource Type.

588 **Table 23 – "oic.r.alert" Resource Type definition**

| Property title | Property name   | Value type  | Value rule | Unit | Access mode | Mandatory | Description  |
|----------------|-----------------|-------------|------------|------|-------------|-----------|--|
| Category       | "category"      | "string"    |            |      | R           | Yes       | Device defined category for the Alert (e.g. "System", "I/O")   |
| Generated Time | "generatedtime" | "date-time" |            |      | R           | Yes       | IETF RFC 3339 formatted time at which the Alert was generated.   |
| Originator ID  | "originatorid"  | "string"    |            |      | R           | Yes       | Identity of the originator of the Alert. May be the Device ID of the Device or some other Device defined identity.   |
| Severity       | "severity"      | "integer"   | [0,7]      |      | R           | Yes       | IETF RFC 5424 defined severity value   |
| Subject        | "subject"       | "array"     |            |      | R           | No        | Human-friendly subject of the Alert in one or more languages. This Property is an array of objects where each object has a "language" field (containing an IETF RFC 5646 language tag) and a "value" field containing the subject of the Alert name in the indicated language. |
| Account ID     | "accounted"     | "string"    |            |      | R           | No        | Identity of the account with which the Device  |

|  |  |  |  |  |  |  |                                      |
|--|--|--|--|--|--|--|--------------------------------------|
|  |  |  |  |  |  |  | generating this Alert is associated. |
|--|--|--|--|--|--|--|--------------------------------------|

589

590 The Alert Collection ("oic.r.alertcollection") Resource Type defines no Properties additional to  
 591 those defined for all instances of a Collection in Table 13 of ISO/IEC 30118-1:2018. However the  
 592 Alert Collection does impose restrictions of the values that shall be populated in the "rt" and "rts"  
 593 Properties. These are described in Table 24.

594

**Table 24 – "oic.r.alertcollection" Resource Type definition**

| Property title | Property name | Value type | Value rule  | Unit | Access mode | Mandatory | Description                           |
|----------------|---------------|------------|---|------|-------------|-----------|---------------------------------------|
| Links          | "links"       | "array"    | See Table 13 in ISO/IEC 30118-1:2018                          |      | R           | Yes       | See Table 13 in ISO/IEC 30118-1:2018. |
| Resource Type  | "rt"          | "array"    | ["oic.r.alertcollection"]                                     |      | R           | Yes       | See Table 4 in ISO/IEC 30118-1:2018.  |
| Resource Types | "rts"         | "array"    | ["oic.r.alert"] or ["oic.r.alert", "oic.r.value.conditional"] |      | R           | Yes       | See Table 11 in ISO/IEC 30118-1:2018. |

595

### 596 5.6.3 Example of Use

597 Consider a Device that is capable of generating Alerts; it exposes an empty instance of an Alert  
 598 Collection ("oic.r.alertcollection"); that is the array of Links (the "links" Property) contains no items.

599 As the Device under whatever conditions generates Alerts, the Device adds a Link to the Alert  
 600 Resource in the instance of an Alert Collection. A Client that has discovered the Device and is  
 601 Observing the Alert Collection using the links list OCF Interface ("oic.if.ll") will receive a notification  
 602 containing the complete Alert Collection (not just any Links that were added). It is the responsibility  
 603 of the Client to determine which Links were added (or removed if the Alert was removed); noting  
 604 that the "generatedtime" Property may be used to determine the generated order. The Client then  
 605 retrieves the Alert itself via a RETRIEVE to the "href" Link Parameter in the newly added Link to  
 606 the Collection.

607 See A.10 for an example of an Alert Resource and the applicable schema.



608 Annex A  
609 (normative)

610 Resource Type definitions  
611

612 A.1 List of Resource Type definitions

613 All the clauses in Annex A describe the Resource Types with a RESTful API definition language.  
614 The Resource Type definitions presented in Annex A are formatted for readability, and so may  
615 appear to have extra line breaks. Table A.1 contains the list of defined Core Common Resources  
616 in this document.

617 Table A.1 – Alphabetized list of Core Resources

| Friendly Name (informative) | Resource Type (rt)       | Clause |
|-----------------------------|--------------------------|--------|
| Alerts                      | "oic.r.alert"            | A.10   |
| Alerts Collection           | "oic.r.alertcollection"  | A.11   |
| Device Configuration        | "oic.wk.con"             | A.2    |
| Platform Configuration      | "oic.wk.con.p"           | A.3    |
| Icon                        | "oic.r.icon"             | A.4    |
| Maintenance                 | "oic.wk.mnt"             | A.5    |
| Network Monitoring          | "oic.wk.nmon"            | A.6    |
| Scenes (Top Level)          | "oic.wk.scenelist"       | A.7    |
| Scenes Collections          | "oic.wk.scenecollection" | A.8    |
| Scene Member                | "oic.wk.scenemember"     | A.9    |
| Software Update             | "oic.r.softwareupdate"   | A.12   |

618  
619 A.2 Device Configuration

620 A.2.1 Introduction

621 Resource that allows for Device specific information to be configured.  
622

623 A.2.2 Example URI

624 /exampleDeviceConfigurationResURI

625 A.2.3 Resource type

626 The Resource Type is defined as: "oic.wk.con".

627 A.2.4 OpenAPI 2.0 definition

```
628 {  
629   "swagger": "2.0",  
630   "info": {  
631     "title": "Device Configuration",  
632     "version": "2019-02-28",  
633     "license": {  
634       "name": "OCF Data Model License",  
635       "url": "https://openconnectivityfoundation.github.io/core/LICENSE.md",  
636       "x-copyright": "Copyright 2016-2019 Open Connectivity Foundation, Inc. All rights reserved."  
637     },  
638     "termsOfService": "https://openconnectivityfoundation.github.io/core/DISCLAIMER.md"
```

```

639     },
640     "schemes": [
641         "http"
642     ],
643     "consumes": [
644         "application/json"
645     ],
646     "produces": [
647         "application/json"
648     ],
649     "paths": {
650         "/exampleDeviceConfigurationResURI" : {
651             "get": {
652                 "description": "Resource that allows for Device specific information to be configured.\n",
653                 "parameters": [
654                     {
655                         "$ref": "#/parameters/interface-all"
656                     }
657                 ],
658                 "responses": {
659                     "200": {
660                         "description": "",
661                         "x-example": {
662                             "n": "My Friendly Device Name",
663                             "rt": ["oic.wk.con"],
664                             "loc": [32.777,-96.797],
665                             "locn": "My Location Name",
666                             "c": "USD",
667                             "r": "MyRegion",
668                             "dl": "en"
669                         },
670                         "schema": {
671                             "$ref": "#/definitions/Configuration"
672                         }
673                     }
674                 }
675             },
676             "post": {
677                 "description": "Update the information about the Device\n",
678                 "parameters": [
679                     {
680                         "$ref": "#/parameters/interface-rw"
681                     },
682                     {
683                         "name": "body",
684                         "in": "body",
685                         "required": true,
686                         "schema": {
687                             "$ref": "#/definitions/Update"
688                         },
689                         "x-example": {
690                             "n": "Nuevo Nombre Amistoso",
691                             "r": "MyNewRegion",
692                             "ln": [ { "language": "es", "value": "Nuevo Nombre Amistoso" } ],
693                             "dl": "es"
694                         }
695                     }
696                 ],
697                 "responses": {
698                     "200": {
699                         "description": "",
700                         "x-example": {
701                             "n": "Nuevo Nombre Amistoso",
702                             "r": "MyNewRegion",
703                             "ln": [ { "language": "es", "value": "Nuevo Nombre Amistoso" } ],
704                             "dl": "es"
705                         },
706                         "schema": {
707                             "$ref": "#/definitions/Update"
708                         }
709                     }
710                 }
711             }
712         }
713     }

```

```

710     }
711   }
712 }
713 },
714 "parameters": {
715   "interface-rw" : {
716     "in" : "query",
717     "name" : "if",
718     "type" : "string",
719     "enum" : ["oic.if.rw"]
720   },
721   "interface-all" : {
722     "in" : "query",
723     "name" : "if",
724     "type" : "string",
725     "enum" : ["oic.if.rw", "oic.if.baseline"]
726   }
727 },
728 "definitions": {
729   "Configuration": {
730     "properties": {
731       "rt": {
732         "description": "Resource Type of the Resource",
733         "items": {
734           "enum": ["oic.wk.con"],
735           "type": "string",
736           "maxLength": 64
737         },
738         "minItems": 1,
739         "uniqueItems": true,
740         "readOnly": true,
741         "type": "array"
742       },
743       "loc": {
744         "description": "Location information (lat, long)",
745         "items": {
746           "type": "number"
747         },
748         "maxItems": 2,
749         "minItems": 2,
750         "type": "array"
751       },
752       "c": {
753         "description": "Currency",
754         "maxLength": 64,
755         "type": "string"
756       },
757       "ln": {
758         "description": "Localized names",
759         "items": {
760           "properties": {
761             "language": {
762               "allOf": [
763                 {
764                   "description": "Format pattern according to IETF RFC 5646 (language tag).",
765                   "pattern": "^[A-Za-z]{1,8}(-[A-Za-z0-9]{1,8})*$",
766                   "type": "string"
767                 },
768                 {
769                   "description": "An RFC 5646 language tag."
770                 }
771               ]
772             },
773             "value": {
774               "description": "The Device name in the indicated language.",
775               "maxLength": 64,
776               "type": "string"
777             }
778           },
779           "type": "object"
780         },

```

```

781         "minItems": 1,
782         "type": "array"
783     },
784     "locn": {
785         "description": "Human Friendly Name for location",
786         "maxLength": 64,
787         "type": "string"
788     },
789     "dl": {
790         "allOf": [
791             {
792                 "description": "Format pattern according to IETF RFC 5646 (language tag).",
793                 "pattern": "^[A-Za-z]{1,8}(-[A-Za-z0-9]{1,8})*$",
794                 "type": "string"
795             },
796             {
797                 "description": "Default Language as an RFC 5646 language tag."
798             }
799         ]
800     },
801     "n": {
802         "$ref" :
803         "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
804         schema.json#/definitions/n"
805     },
806     "id": {
807         "$ref" :
808         "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
809         schema.json#/definitions/id"
810     },
811     "r": {
812         "description": "Region",
813         "maxLength": 64,
814         "type": "string"
815     },
816     "if" : {
817         "description": "The OCF Interfaces supported by this Resource",
818         "items": {
819             "enum": [
820                 "oic.if.baseline",
821                 "oic.if.rw"
822             ],
823             "type": "string",
824             "maxLength": 64
825         },
826         "minItems": 1,
827         "uniqueItems": true,
828         "readOnly": true,
829         "type": "array"
830     }
831 },
832 "type" : "object",
833 "required": ["n"]
834 },
835 "Update" : {
836     "properties": {
837         "loc": {
838             "description": "Location information (lat, long)",
839             "items": {
840                 "type": "number"
841             },
842             "maxItems": 2,
843             "minItems": 2,
844             "type": "array"
845         },
846         "c": {
847             "description": "Currency",
848             "maxLength": 64,
849             "type": "string"
850         },
851         "ln": {

```

```

852         "description": "Localized names",
853         "items": {
854             "properties": {
855                 "language": {
856                     "allOf": [
857                         {
858                             "description": "Format pattern according to IETF RFC 5646 (language tag).",
859                             "pattern": "^[A-Za-z]{1,8}(-[A-Za-z0-9]{1,8})*$",
860                             "type": "string"
861                         },
862                         {
863                             "description": "An RFC 5646 language tag."
864                         }
865                     ]
866                 },
867                 "value": {
868                     "description": "The Device name in the indicated language.",
869                     "maxLength": 64,
870                     "type": "string"
871                 }
872             },
873             "type": "object"
874         },
875         "minItems": 1,
876         "type": "array"
877     },
878     "locn": {
879         "description": "Human Friendly Name for location",
880         "maxLength": 64,
881         "type": "string"
882     },
883     "dl": {
884         "allOf": [
885             {
886                 "description": "Format pattern according to IETF RFC 5646 (language tag).",
887                 "pattern": "^[A-Za-z]{1,8}(-[A-Za-z0-9]{1,8})*$",
888                 "type": "string"
889             },
890             {
891                 "description": "Default Language as an RFC 5646 language tag."
892             }
893         ]
894     },
895     "n": {
896         "description": "The human friendly name to be set on the Resource, this is also reflected
897 in the same Property in oic.wk.d",
898         "maxLength": 64,
899         "type": "string"
900     },
901     "r": {
902         "description": "Region",
903         "maxLength": 64,
904         "type": "string"
905     }
906 },
907 "anyOf": [
908     {
909         "required": ["loc"]
910     },
911     {
912         "required": ["locn"]
913     },
914     {
915         "required": ["c"]
916     },
917     {
918         "required": ["r"]
919     },
920     {
921         "required": ["ln"]
922     }

```

```

923     {
924         "required": ["dl"]
925     },
926     {
927         "required": ["n"]
928     }
929 ],
930 "type" : "object"
931 }
932 }
933 }
934

```

### 935 A.2.5 Property definition

936 Table A.2 defines the Properties that are part of the "oic.wk.con" Resource Type.

937 **Table A.2 – The Property definitions of the Resource with type "rt" = "oic.wk.con".**

| Property name | Value type                 | Mandatory | Access mode | Description  |
|---------------|----------------------------|-----------|-------------|--|
| rt            | array: see schema          | No        | Read Only   | Resource Type of the Resource  |
| loc           | array: see schema          | No        | Read Write  | Location information (lat, long)   |
| c             | string                     | No        | Read Write  | Currency   |
| ln            | array: see schema          | No        | Read Write  | Localized names  |
| locn          | string                     | No        | Read Write  | Human Friendly Name for location   |
| dl            | multiple types: see schema | No        | Read Write  |  |
| n             | multiple types: see schema | Yes       | Read Write  |  |
| id            | multiple types: see schema | No        | Read Write  |  |
| r             | string                     | No        | Read Write  | Region   |
| if            | array: see schema          | No        | Read Only   | The OCF Interfaces supported by this Resource  |
| loc           | array: see schema          | No        | Read Write  | Location information (lat, long)   |
| c             | string                     | No        | Read Write  | Currency   |
| ln            | array: see schema          | No        | Read Write  | Localized names  |
| locn          | string                     | No        | Read Write  | Human Friendly Name for location   |
| dl            | multiple types: see schema | No        | Read Write  |  |
| n             | string                     | Yes       | Read Write  | The human friendly name to be set on the Resource, this is also reflected in the same Property in oic.wk.d |
| r             | string                     | No        | Read Write  | Region   |

### 938 A.2.6 CRUDN behaviour

939 Table A.3 defines the CRUDN operations that are supported on the "oic.wk.con" Resource Type.

940

**Table A.3 – The CRUDN operations of the Resource with type "rt" = "oic.wk.con".**

| Create | Read | Update | Delete | Notify  |
|--------|------|--------|--------|---------|
|        | get  | post   |        | observe |

941

**A.3 Platform Configuration**

942

**A.3.1 Introduction**

943

Resource that allows for Platform specific information to be configured.

944

945

**A.3.2 Example URI**

946

/examplePlatformConfigurationResURI

947

**A.3.3 Resource type**

948

The Resource Type is defined as: "oic.wk.con.p".

949

**A.3.4 OpenAPI 2.0 definition**

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995

```

{
  "swagger": "2.0",
  "info": {
    "title": "Platform Configuration",
    "version": "2019-03-04",
    "license": {
      "name": "OCF Data Model License",
      "url": "https://openconnectivityfoundation.github.io/core/LICENSE.md",
      "x-copyright": "Copyright 2016-2019 Open Connectivity Foundation, Inc. All rights reserved."
    },
    "termsOfService": "https://openconnectivityfoundation.github.io/core/DISCLAIMER.md"
  },
  "schemes": [
    "http"
  ],
  "consumes": [
    "application/json"
  ],
  "produces": [
    "application/json"
  ],
  "paths": {
    "/examplePlatformConfigurationResURI": {
      "get": {
        "description": "Resource that allows for Platform specific information to be configured.\n",
        "parameters": [
          {
            "$ref": "#/parameters/interface-all"
          }
        ],
        "responses": {
          "200": {
            "description": "",
            "x-example": {
              "rt": ["oic.wk.con.p"],
              "mnpn": [ { "language": "en", "value": "My Friendly Device Name" } ]
            },
            "schema": { "$ref": "#/definitions/Conf_Platform" }
          }
        }
      },
      "post": {
        "description": "Update the information about the Platform\n",
        "parameters": [
          {
            "$ref": "#/parameters/interface-rw"
          }
        ]
      }
    }
  }
}

```

```

996     },
997     {
998         "name": "body",
999         "in": "body",
1000         "required": true,
1001         "schema": { "$ref": "#/definitions/Update_Platform" },
1002         "x-example": {
1003             "n": "Nuevo nombre",
1004             "mnpn": [ { "language": "es", "value": "Nuevo nombre de Plataforma Amigable" } ]
1005         }
1006     }
1007 ],
1008 "responses": {
1009     "200": {
1010         "description": "",
1011         "x-example": {
1012             "n": "Nuevo nombre",
1013             "mnpn": [ { "language": "es", "value": "Nuevo nombre de Plataforma Amigable" } ]
1014         },
1015         "schema": { "$ref": "#/definitions/Update_Platform" }
1016     }
1017 }
1018 }
1019 }
1020 },
1021 "parameters": {
1022     "interface-rw": {
1023         "in": "query",
1024         "name": "if",
1025         "type": "string",
1026         "enum": [ "oic.if.rw" ]
1027     },
1028     "interface-all": {
1029         "in": "query",
1030         "name": "if",
1031         "type": "string",
1032         "enum": [ "oic.if.rw", "oic.if.baseline" ]
1033     }
1034 },
1035 "definitions": {
1036     "Conf_Platform": {
1037         "properties": {
1038             "rt": {
1039                 "description": "Resource Type of the Resource",
1040                 "items": {
1041                     "enum": [ "oic.wk.con.p" ],
1042                     "type": "string",
1043                     "maxLength": 64
1044                 },
1045                 "minItems": 1,
1046                 "uniqueItems": true,
1047                 "readOnly": true,
1048                 "type": "array"
1049             },
1050             "n": {
1051                 "$ref":
1052 "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
1053 schema.json#/definitions/n"
1054             },
1055             "mnpn": {
1056                 "description": "Platform names",
1057                 "items": {
1058                     "properties": {
1059                         "language": {
1060                             "allOf": [
1061                                 {
1062                                     "$ref": "http://openconnectivityfoundation.github.io/core/schemas/oic.types-
1063 schema.json#/definitions/language-tag"
1064                                 },
1065                                 {
1066                                     "description": "An RFC 5646 language tag."

```



```

1067         }
1068     ]
1069 },
1070     "value": {
1071         "description": "The Platform description in the indicated language.",
1072         "maxLength": 64,
1073         "type": "string"
1074     }
1075 },
1076     "type": "object"
1077 },
1078     "minItems": 1,
1079     "type": "array"
1080 },
1081     "id": {
1082         "$ref":
1083 "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
1084 schema.json#/definitions/id"
1085     },
1086     "if": {
1087         "description": "The OCF Interfaces supported by this Resource",
1088         "items": {
1089             "enum": [
1090                 "oic.if.rw",
1091                 "oic.if.baseline"
1092             ],
1093             "type": "string",
1094             "maxLength": 64
1095         },
1096         "minItems": 1,
1097         "readOnly": true,
1098         "uniqueItems": true,
1099         "type": "array"
1100     }
1101 },
1102     "type" : "object"
1103 },
1104     "Update_Platform": {
1105         "properties": {
1106             "n": {
1107                 "description": "The human friendly name to be set on the Resource, this is also reflected
1108 in the same Property in oic.wk.p",
1109                 "maxLength": 64,
1110                 "type": "string"
1111             },
1112             "mnpn" : {
1113                 "description": "Platform names",
1114                 "items": {
1115                     "properties": {
1116                         "language": {
1117                             "allOf": [
1118                                 {
1119                                     "$ref": "http://openconnectivityfoundation.github.io/core/schemas/oic.types-
1120 schema.json#/definitions/language-tag"
1121                                 },
1122                                 {
1123                                     "description": "An RFC 5646 language tag."
1124                                 }
1125                             ]
1126                         },
1127                         "value": {
1128                             "description": "The Platform description in the indicated language.",
1129                             "maxLength": 64,
1130                             "type": "string"
1131                         }
1132                     },
1133                     "type": "object"
1134                 },
1135                 "minItems": 1,
1136                 "type": "array"
1137             }

```

```

1138     },
1139     "type": "object",
1140     "anyOf": [
1141       {
1142         "required": ["mnpn"]
1143       },
1144       {
1145         "required": ["n"]
1146       }
1147     ]
1148   }
1149 }
1150 }
1151

```

### 1152 A.3.5 Property definition

1153 Table A.4 defines the Properties that are part of the "oic.wk.con.p" Resource Type.

1154 **Table A.4 – The Property definitions of the Resource with type "rt" = "oic.wk.con.p".**

| Property name | Value type                 | Mandatory | Access mode | Description  |
|---------------|----------------------------|-----------|-------------|--|
| rt            | array: see schema          |           | Read Only   | Resource Type of the Resource  |
| n             | multiple types: see schema |           | Read Write  |  |
| mnpn          | array: see schema          |           | Read Write  | Platform names   |
| id            | multiple types: see schema |           | Read Write  |  |
| if            | array: see schema          |           | Read Only   | The OCF Interfaces supported by this Resource  |
| n             | string                     | Yes       | Read Write  | The human friendly name to be set on the Resource, this is also reflected in the same Property in oic.wk.p |
| mnpn          | array: see schema          | No        | Read Write  | Platform names   |

### 1155 A.3.6 CRUDN behaviour

1156 Table A.5 defines the CRUDN operations that are supported on the "oic.wk.con.p" Resource Type.

1157 **Table A.5 – The CRUDN operations of the Resource with type "rt" = "oic.wk.con.p".**

| Create | Read | Update | Delete | Notify  |
|--------|------|--------|--------|---------|
|        | get  | post   |        | observe |

## 1158 A.4 Icon

### 1159 A.4.1 Introduction

1160 This Resource describes the attributes associated with an Icon.

1161

### 1162 A.4.2 Example URI

1163 /IconResURI

### 1164 A.4.3 Resource type

1165 The Resource Type is defined as: "oic.r.icon".

### 1166 A.4.4 OpenAPI 2.0 definition

```
1167 {
1168   "swagger": "2.0",
1169   "info": {
1170     "title": "Icon",
1171     "version": "2019-02-26",
1172     "license": {
1173       "name": "OCF Data Model License",
1174       "url": "https://openconnectivityfoundation.github.io/core/LICENSE.md",
1175       "x-copyright": "Copyright 2016-2019 Open Connectivity Foundation, Inc. All rights reserved."
1176     },
1177     "termsOfService": "https://openconnectivityfoundation.github.io/core/DISCLAIMER.md"
1178   },
1179   "schemes": [
1180     "http"
1181   ],
1182   "consumes": [
1183     "application/json"
1184   ],
1185   "produces": [
1186     "application/json"
1187   ],
1188   "paths": {
1189     "/IconResURI" : {
1190       "get": {
1191         "description": "This Resource describes the attributes associated with an Icon.\n",
1192         "parameters": [
1193           {
1194             "$ref": "#/parameters/interface"
1195           }
1196         ],
1197         "responses": {
1198           "200": {
1199             "description": "",
1200             "x-example": {
1201               "rt": ["oic.r.icon"],
1202               "mimetype": "image/png",
1203               "width": 256,
1204               "height": 256,
1205               "media": "http://findbetter.ru/public/uploads/1481662800/2043.png"
1206             },
1207             "schema": {
1208               "$ref": "#/definitions/Icon"
1209             }
1210           }
1211         }
1212       }
1213     }
1214   },
1215   "parameters": {
1216     "interface" : {
1217       "in" : "query",
1218       "name" : "if",
1219       "type" : "string",
1220       "enum" : ["oic.if.r", "oic.if.baseline"]
1221     }
1222   },
1223   "definitions": {
1224     "Icon" : {
1225       "properties": {
1226         "mimetype": {
1227           "description": "The Media Type of the icon",
1228           "maxLength": 64,
1229           "readOnly": true,
1230           "type": "string"
1231         },
```

```

1232     "rt": {
1233         "description": "Resource Type of the Resource",
1234         "items": {
1235             "enum": ["oic.r.icon"],
1236             "type": "string",
1237             "maxLength": 64
1238         },
1239         "minItems": 1,
1240         "uniqueItems": true,
1241         "readOnly": true,
1242         "type": "array"
1243     },
1244     "media": {
1245         "description": "Specifies the URI to the icon",
1246         "format": "uri",
1247         "maxLength": 256,
1248         "readOnly": true,
1249         "type": "string"
1250     },
1251     "n": {
1252         "$ref" :
1253         "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
1254         schema.json#/definitions/n"
1255     },
1256     "id": {
1257         "$ref" :
1258         "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
1259         schema.json#/definitions/id"
1260     },
1261     "width": {
1262         "description": "The width in pixels",
1263         "minimum": 1,
1264         "readOnly": true,
1265         "type": "integer"
1266     },
1267     "height": {
1268         "description": "The height in pixels",
1269         "minimum": 1,
1270         "readOnly": true,
1271         "type": "integer"
1272     },
1273     "if": {
1274         "description": "The OCF Interfaces supported by this Resource",
1275         "items": {
1276             "enum": [
1277                 "oic.if.r",
1278                 "oic.if.baseline"
1279             ],
1280             "maxLength": 64,
1281             "type": "string"
1282         },
1283         "minItems": 2,
1284         "uniqueItems": true,
1285         "readOnly": true,
1286         "type": "array"
1287     }
1288 },
1289 "type" : "object",
1290 "required": ["mimetype", "width", "height", "media"]
1291 }
1292 }
1293 }
1294

```

#### 1295 **A.4.5 Property definition**

1296 Table A.6 defines the Properties that are part of the "oic.r.icon" Resource Type.

1297

**Table A.6 – The Property definitions of the Resource with type "rt" = "oic.r.icon".**

| Property name | Value type                 | Mandatory | Access mode | Description                                   |
|---------------|----------------------------|-----------|-------------|---|
| mimetype      | string                     | Yes       | Read Only   | The Media Type of the icon                    |
| rt            | array: see schema          | No        | Read Only   | Resource Type of the Resource                 |
| media         | string                     | Yes       | Read Only   | Specifies the URI to the icon                 |
| n             | multiple types: see schema | No        | Read Write  |   |
| id            | multiple types: see schema | No        | Read Write  |   |
| width         | integer                    | Yes       | Read Only   | The width in pixels                           |
| height        | integer                    | Yes       | Read Only   | The height in pixels                          |
| if            | array: see schema          | No        | Read Only   | The OCF Interfaces supported by this Resource |

1298 **A.4.6 CRUDN behaviour**

1299 Table A.7 defines the CRUDN operations that are supported on the "oic.r.icon" Resource Type.

1300 **Table A.7 – The CRUDN operations of the Resource with type "rt" = "oic.r.icon".**

| Create | Read | Update | Delete | Notify  |
|--------|------|--------|--------|---------|
|        | get  |        |        | observe |

1301 **A.5 Maintenance**1302 **A.5.1 Introduction**

1303 The Resource through which a Device is maintained and can be used for diagnostic purposes.  
 1304 fr (Factory Reset) is a boolean.

1305 The value 0 means No action (Default), the value 1 means Start Factory Reset  
 1306 After factory reset, this value shall be changed back to the default value  
 1307 rb (Reboot) is a boolean.

1308 The value 0 means No action (Default), the value 1 means Start Reboot  
 1309 After Reboot, this value shall be changed back to the default value  
 1310

1311 **A.5.2 Well-known URI**

1312 /oic/mnt

1313 **A.5.3 Resource type**

1314 The Resource Type is defined as: "oic.wk.mnt".

1315 **A.5.4 OpenAPI 2.0 definition**

```

1316 {
1317   "swagger": "2.0",
1318   "info": {
1319     "title": "Maintenance",
1320     "version": "2019-03-04",
1321     "license": {
1322       "name": "OCF Data Model License",
1323       "url":

```

```

1324 "https://github.com/openconnectivityfoundation/core/blob/e28a9e0a92e17042ba3e83661e4c0fbce8bdc4ba/LI
1325 CENSE.md",
1326   "x-copyright": "Copyright 2016-2019 Open Connectivity Foundation, Inc. All rights reserved."
1327 },
1328   "termsOfService": "https://openconnectivityfoundation.github.io/core/DISCLAIMER.md"
1329 },
1330   "schemes": ["http"],
1331   "consumes": ["application/json"],
1332   "produces": ["application/json"],
1333   "paths": {
1334     "/oic/mnt" : {
1335       "get": {
1336         "description": "The Resource through which a Device is maintained and can be used for
1337 diagnostic purposes.\nfr (Factory Reset) is a boolean.\n The value 0 means No action (Default), the
1338 value 1 means Start Factory Reset\nAfter factory reset, this value shall be changed back to the
1339 default value\nrb (Reboot) is a boolean.\n The value 0 means No action (Default), the value 1 means
1340 Start Reboot\nAfter Reboot, this value shall be changed back to the default value\n",
1341         "parameters": [
1342           {"$ref": "#/parameters/interface-all"}
1343         ],
1344         "responses": {
1345           "200": {
1346             "description": "",
1347             "x-example": {
1348               "rt": ["oic.wk.mnt"],
1349               "fr": false,
1350               "rb": false,
1351               "err": 503
1352             },
1353             "schema": { "$ref": "#/definitions/mnt" }
1354           }
1355         }
1356       },
1357       "post": {
1358         "description": "Set the maintenance action(s)\n",
1359         "parameters": [
1360           {"$ref": "#/parameters/interface-rw"},
1361           {
1362             "name": "body",
1363             "in": "body",
1364             "required": true,
1365             "schema": { "$ref": "#/definitions/mnt-update" },
1366             "x-example": {
1367               "fr": false,
1368               "rb": false
1369             }
1370           }
1371         ],
1372         "responses": {
1373           "200": {
1374             "description": "",
1375             "x-example": {
1376               "fr": false,
1377               "rb": false
1378             },
1379             "schema": { "$ref": "#/definitions/mnt" }
1380           }
1381         }
1382       }
1383     }
1384   },
1385   "parameters": {
1386     "interface-all" : {
1387       "in" : "query",
1388       "name" : "if",
1389       "type" : "string",
1390       "enum" : ["oic.if.rw", "oic.if.baseline"]
1391     },
1392     "interface-rw" : {
1393       "in" : "query",
1394       "name" : "if",

```

```

1395     "type" : "string",
1396     "enum" : ["oic.if.rw"]
1397   }
1398 },
1399 "definitions": {
1400   "mnt" : {
1401     "properties": {
1402       "rt" : {
1403         "description": "Resource Type of the Resource",
1404         "items": {
1405           "enum": ["oic.wk.mnt"],
1406           "type": "string",
1407           "maxLength": 64
1408         },
1409         "minItems": 1,
1410         "uniqueItems": true,
1411         "readOnly": true,
1412         "type": "array"
1413       },
1414       "fr" : {
1415         "description": "Factory Reset",
1416         "type": "boolean"
1417       },
1418       "err" : {
1419         "description": "Last HTTP occurred error",
1420         "maximum": 599,
1421         "minimum": 399,
1422         "readOnly": true,
1423         "type": "integer"
1424       },
1425       "n" : {
1426         "$ref":
1427         "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
1428         schema.json#/definitions/n"
1429       },
1430       "rb" : {
1431         "description": "Reboot Action",
1432         "type": "boolean"
1433       },
1434       "id" : {
1435         "$ref":
1436         "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
1437         schema.json#/definitions/id"
1438       },
1439       "if" : {
1440         "description": "The OCF Interfaces supported by this Resource",
1441         "items": {
1442           "enum": [
1443             "oic.if.rw",
1444             "oic.if.baseline"
1445           ],
1446           "type": "string",
1447           "maxLength": 64
1448         },
1449         "minItems": 1,
1450         "readOnly": true,
1451         "uniqueItems": true,
1452         "type": "array"
1453       }
1454     },
1455     "anyOf" : [
1456       {
1457         "required": [ "fr" ]
1458       },
1459       {
1460         "required": [ "rb" ]
1461       },
1462       {
1463         "required": [ "err" ]
1464       }
1465     ]

```

```

1466     "type" : "object"
1467   },
1468   "mnt-update" : {
1469     "properties": {
1470       "fr" : {
1471         "description": "Factory Reset",
1472         "type": "boolean"
1473       },
1474       "n" : {
1475         "$ref":
1476 "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
1477 schema.json#/definitions/n"
1478       },
1479       "rb" : {
1480         "description": "Reboot Action",
1481         "type": "boolean"
1482       }
1483     },
1484     "anyOf" : [
1485       {
1486         "required": [
1487           "fr"
1488         ]
1489       },
1490       {
1491         "required": [
1492           "rb"
1493         ]
1494       }
1495     ],
1496     "type" : "object"
1497   }
1498 }
1499 }
1500

```

### 1501 A.5.5 Property definition

1502 Table A.8 defines the Properties that are part of the "oic.wk.mnt" Resource Type.

1503 **Table A.8 – The Property definitions of the Resource with type "rt" = "oic.wk.mnt".**

| Property name | Value type                 | Mandatory | Access mode | Description                                   |
|---------------|----------------------------|-----------|-------------|---|
| rt            | array: see schema          | No        | Read Only   | Resource Type of the Resource                 |
| fr            | boolean                    | No        | Read Write  | Factory Reset                                 |
| err           | integer                    | Yes       | Read Only   | Last HTTP occurred error                      |
| n             | multiple types: see schema | No        | Read Write  |   |
| rb            | boolean                    | No        | Read Write  | Reboot Action                                 |
| id            | multiple types: see schema | No        | Read Write  |   |
| if            | array: see schema          | No        | Read Only   | The OCF Interfaces supported by this Resource |
| fr            | boolean                    | No        | Read Write  | Factory Reset                                 |
| n             | multiple types: see schema | No        | Read Write  |   |
| rb            | boolean                    | Yes       | Read Write  | Reboot Action                                 |



1504 **A.5.6 CRUDN behaviour**

1505 Table A.9 defines the CRUDN operations that are supported on the "oic.wk.mnt" Resource Type.

1506 **Table A.9 – The CRUDN operations of the Resource with type "rt" = "oic.wk.mnt".**

| Create | Read | Update | Delete | Notify  |
|--------|------|--------|--------|---------|
|        | get  | post   |        | observe |

1507 **A.6 Network Monitoring**

1508 **A.6.1 Introduction**

1509 The Resource through which a Device can monitor network traffic.

1510

1511 **A.6.2 Example URI**

1512 /nmonResURI

1513 **A.6.3 Resource type**

1514 The Resource Type is defined as: "oic.wk.nmon".

1515 **A.6.4 OpenAPI 2.0 definition**

```

1516 {
1517   "swagger": "2.0",
1518   "info": {
1519     "title": "Network Monitoring",
1520     "version": "2019-03-27",
1521     "license": {
1522       "name": "OCF Data Model License",
1523       "url":
1524         "https://github.com/openconnectivityfoundation/core/blob/e28a9e0a92e17042ba3e83661e4c0fbce8bdc4ba/LI
1525         CENSE.md",
1526       "x-copyright": "Copyright 2016-2019 Open Connectivity Foundation, Inc. All rights reserved."
1527     },
1528     "termsOfService": "https://openconnectivityfoundation.github.io/core/DISCLAIMER.md"
1529   },
1530   "schemes": ["http"],
1531   "consumes": ["application/json"],
1532   "produces": ["application/json"],
1533   "paths": {
1534     "/nmonResURI" : {
1535       "get": {
1536         "description": "The Resource through which a Device can monitor network traffic.\n",
1537         "parameters": [
1538           {"$ref": "#/parameters/interface-all"}
1539         ],
1540         "responses": {
1541           "200": {
1542             "description": "",
1543             "x-example": {
1544               "rt": ["oic.wk.nmon"],
1545               "ianaifType": 71,
1546               "reset": false,
1547               "col": false,
1548               "tx": 10,
1549               "rx": 15,
1550               "mmstx": 50,
1551               "amstx": 35,
1552               "mmsrx": 35,
1553               "amsrx": 20
1554             },
1555             "schema": { "$ref": "#/definitions/nmon" }
1556           }
1557         }
1558       }
1559     }
1560   }

```

```

1558     },
1559     "post": {
1560         "description": "Start/Stop collecting and reset the networking monitor Resource\n",
1561         "parameters": [
1562             { "$ref": "#/parameters/interface-rw" },
1563             {
1564                 "name": "body",
1565                 "in": "body",
1566                 "required": true,
1567                 "schema": { "$ref": "#/definitions/nmon-update" },
1568                 "x-example": {
1569                     "col": true,
1570                     "reset": true
1571                 }
1572             }
1573         ],
1574         "responses": {
1575             "200": {
1576                 "description": "",
1577                 "x-example": {
1578                     "rt": ["oic.wk.nmon"],
1579                     "ianaifType": 71,
1580                     "reset": false,
1581                     "col": true,
1582                     "tx": 0,
1583                     "rx": 0,
1584                     "mmstx": 0,
1585                     "amstx": 0,
1586                     "mmsrx": 0,
1587                     "amsrx": 0
1588                 },
1589                 "schema": { "$ref": "#/definitions/nmon" }
1590             }
1591         }
1592     }
1593 },
1594 },
1595 "parameters": {
1596     "interface-rw": {
1597         "in": "query",
1598         "name": "if",
1599         "type": "string",
1600         "enum": ["oic.if.rw"]
1601     },
1602     "interface-all": {
1603         "in": "query",
1604         "name": "if",
1605         "type": "string",
1606         "enum": ["oic.if.rw", "oic.if.baseline"]
1607     }
1608 },
1609 "definitions": {
1610     "nmon": {
1611         "properties": {
1612             "amstx": {
1613                 "description": "Average transmitted message size in bytes (tx) in the collection period",
1614                 "readOnly": true,
1615                 "type": "integer"
1616             },
1617             "reset": {
1618                 "description": "True: reset the collected values",
1619                 "readOnly": false,
1620                 "type": "boolean"
1621             },
1622             "mmsrx": {
1623                 "description": "Maximum received message size in bytes (rx) in the collection period",
1624                 "readOnly": true,
1625                 "type": "integer"
1626             },
1627             "mmstx": {
1628                 "description": "Maximum transmitted message size in bytes (tx) in the collection period",

```

```

1629         "readOnly": true,
1630         "type": "integer"
1631     },
1632     "tx" : {
1633         "description": "Amount of transmitted kilo bytes from the collection",
1634         "readOnly": true,
1635         "type": "integer"
1636     },
1637     "rt" : {
1638         "description": "Resource Type of the Resource",
1639         "items": {
1640             "enum": ["oic.wk.nmon"],
1641             "type": "string",
1642             "maxLength": 64
1643         },
1644         "minItems": 1,
1645         "uniqueItems": true,
1646         "readOnly": true,
1647         "type": "array"
1648     },
1649     "ianaifType" : {
1650         "description": "The type of the network connection, as defined by iana
1651 https://www.iana.org/assignments/ianaiftype-mib/ianaiftype-mib",
1652         "readOnly": true,
1653         "type": "integer"
1654     },
1655     "rx" : {
1656         "description": "Amount of received kilobytes from the collection",
1657         "readOnly": true,
1658         "type": "integer"
1659     },
1660     "id" : {
1661         "$ref":
1662 "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
1663 schema.json#/definitions/id"
1664     },
1665     "amsrx" : {
1666         "description": "Average received message size in bytes (rx) in the collection period",
1667         "readOnly": true,
1668         "type": "integer"
1669     },
1670     "n" : {
1671         "$ref":
1672 "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
1673 schema.json#/definitions/n"
1674     },
1675     "col" : {
1676         "description": "True: Device is collecting values",
1677         "readOnly": false,
1678         "type": "boolean"
1679     },
1680     "if" : {
1681         "description": "The OCF Interfaces supported by this Resource",
1682         "items": {
1683             "enum": [
1684                 "oic.if.rw",
1685                 "oic.if.baseline"
1686             ],
1687             "type": "string",
1688             "maxLength": 64
1689         },
1690         "minItems": 1,
1691         "readOnly": true,
1692         "uniqueItems": true,
1693         "type": "array"
1694     }
1695 },
1696 "type": "object",
1697 "required": ["reset", "col", "ianaifType"]
1698 },
1699 "nmon-update" : {

```

```

1700     "properties": {
1701       "reset" : {
1702         "description": "True: reset the collected values",
1703         "readOnly": false,
1704         "type": "boolean"
1705       },
1706       "n" : {
1707         "$ref":
1708         "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
1709         schema.json#/definitions/n"
1710       },
1711       "col" : {
1712         "description": "True: Device is collecting values",
1713         "readOnly": false,
1714         "type": "boolean"
1715       }
1716     },
1717     "type" : "object",
1718     "required": ["reset", "col"]
1719   }
1720 }
1721 }
1722

```

### 1723 A.6.5 Property definition

1724 Table A.10 defines the Properties that are part of the "oic.wk.nmon" Resource Type.

1725 **Table A.10 – The Property definitions of the Resource with type "rt" = "oic.wk.nmon".**

| Property name | Value type                 | Mandatory | Access mode | Description   |
|---------------|----------------------------|-----------|-------------|---|
| amstx         | integer                    | No        | Read Only   | Average transmitted message size in bytes (tx) in the collection period   |
| reset         | boolean                    | Yes       | Read Write  | True: reset the collected values  |
| mmsrx         | integer                    | No        | Read Only   | Maximum received message size in bytes (rx) in the collection period  |
| mmstx         | integer                    | No        | Read Only   | Maximum transmitted message size in bytes (tx) in the collection period   |
| tx            | integer                    | No        | Read Only   | Amount of transmitted kilo bytes from the collection  |
| rt            | array: see schema          | No        | Read Only   | Resource Type of the Resource   |
| ianaifType    | integer                    | Yes       | Read Only   | The type of the network connection, as defined by iana<br><a href="https://www.iana.org/assignments/ianaiftype-mib/ianaiftype-mib">https://www.iana.org/assignments/ianaiftype-mib/ianaiftype-mib</a> |
| rx            | integer                    | No        | Read Only   | Amount of received kilobytes from the collection  |
| id            | multiple types: see schema | No        | Read Write  |   |
| amsrx         | integer                    | No        | Read Only   | Average received message size in bytes (rx) in the collection period  |
| n             | multiple types: see schema | No        | Read Write  |   |
| col           | boolean                    | Yes       | Read Write  | True: Device is collecting values   |
| if            | array: see schema          | No        | Read Only   | The OCF Interfaces supported by this Resource   |
| reset         | boolean                    | Yes       | Read Write  | True: reset the collected values  |

|     |                               |     |            |                                   |
|-----|-------------------------------|-----|------------|-----------------------------------|
| n   | multiple types:<br>see schema | No  | Read Write |                                   |
| col | boolean                       | Yes | Read Write | True: Device is collecting values |

1726 **A.6.6 CRUDN behaviour**

1727 Table A.11 defines the CRUDN operations that are supported on the "oic.wk.nmon" Resource Type.

1728 **Table A.11 – The CRUDN operations of the Resource with type "rt" = "oic.wk.nmon".**

| Create | Read | Update | Delete | Notify  |
|--------|------|--------|--------|---------|
|        | get  | post   |        | observe |

1729 **A.7 Scene List**

1730 **A.7.1 Introduction**

1731 Toplevel Scene Resource.

1732 This Resource is a generic Collection Resource.

1733 The rts value contains oic.wk.scenecollection Resource Types.

1734

1735 **A.7.2 Example URI**

1736 /SceneListResURI

1737 **A.7.3 Resource type**

1738 The Resource Type is defined as: "oic.wk.scenelist".

1739 **A.7.4 OpenAPI 2.0 definition**

```

1740 {
1741   "swagger": "2.0",
1742   "info": {
1743     "title": "Scene List",
1744     "version": "2019-03-04",
1745     "license": {
1746       "name": "OCF Data Model License",
1747       "url": "https://openconnectivityfoundation.github.io/core/LICENSE.md",
1748       "x-copyright": "Copyright 2016-2019 Open Connectivity Foundation, Inc. All rights reserved."
1749     },
1750     "termsOfService": "https://openconnectivityfoundation.github.io/core/DISCLAIMER.md"
1751   },
1752   "schemes": [
1753     "http"
1754   ],
1755   "consumes": [
1756     "application/json"
1757   ],
1758   "produces": [
1759     "application/json"
1760   ],
1761   "paths": {
1762     "/SceneListResURI?if=oic.if.ll": {
1763       "get": {
1764         "description": "Toplevel Scene Resource.\nThis Resource is a generic Collection
1765 Resource.\nThe rts value contains oic.wk.scenecollection Resource Types.\n",
1766         "parameters": [
1767           {
1768             "$ref": "#/parameters/interface-all"
1769           }
1770         ],
1771         "responses": {
1772           "200": {
1773             "description": "",

```

```

1774         "x-example": [
1775             {"href": "/scenecollection1", "rt": ["oic.wk.scenecollection"], "if": ["oic.if.ll",
1776 "oic.if.baseline"]},
1777             {"href": "/scenecollection2", "rt": ["oic.wk.scenecollection"], "if": ["oic.if.ll",
1778 "oic.if.baseline"]}
1779         ],
1780         "schema": {
1781             "$ref": "#/definitions/slinks"
1782         }
1783     }
1784 }
1785 }
1786 },
1787 "/SceneListResURI?if=oic.if.baseline": {
1788     "get": {
1789         "description": "Toplevel Scene Resource.\nThis Resource is a generic Collection
1790 Resource.\nThe rts value contains oic.wk.scenecollection Resource Types.\n",
1791         "parameters": [
1792             {
1793                 "$ref": "#/parameters/interface-all"
1794             }
1795         ],
1796         "responses": {
1797             "200": {
1798                 "description": "",
1799                 "x-example": {
1800                     "rt": ["oic.wk.scenelist"],
1801                     "if": ["oic.if.ll", "oic.if.baseline"],
1802                     "n": "list of scene collections",
1803                     "rts": ["oic.wk.scenecollection"],
1804                     "links": [
1805                         {"href": "/scenecollection1", "rt": ["oic.wk.scenecollection"], "if": ["oic.if.ll",
1806 "oic.if.baseline"]},
1807                         {"href": "/scenecollection2", "rt": ["oic.wk.scenecollection"], "if": ["oic.if.ll",
1808 "oic.if.baseline"]}
1809                     ]
1810                 },
1811                 "schema": { "$ref": "#/definitions/Collection" }
1812             }
1813         }
1814     }
1815 },
1816 },
1817 "parameters": {
1818     "interface-all": {
1819         "in": "query",
1820         "name": "if",
1821         "type": "string",
1822         "enum": ["oic.if.ll", "oic.if.baseline"]
1823     }
1824 },
1825 "definitions": {
1826     "Collection": {
1827         "properties": {
1828             "links": {
1829                 "description": "A set of simple or individual OCF Links.",
1830                 "items": {
1831                     "$ref": "#/definitions/oic.oic-link"
1832                 },
1833                 "type": "array"
1834             },
1835             "n": {
1836                 "$ref":
1837 "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
1838 schema.json#/definitions/n"
1839             },
1840             "id": {
1841                 "$ref":
1842 "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
1843 schema.json#/definitions/id"
1844             },

```

```

1845     "if": {
1846         "type": "array",
1847         "description": "The OCF Interfaces supported by this Resource",
1848         "items": {
1849             "enum": [
1850                 "oic.if.ll",
1851                 "oic.if.baseline"
1852             ],
1853             "type": "string",
1854             "maxLength": 64
1855         },
1856         "minItems": 2,
1857         "uniqueItems": true,
1858         "readOnly": true
1859     },
1860     "rts": {
1861         "description": "The list of allowable Resource Types in Links included in the Collection",
1862         "items": {
1863             "enum": ["oic.wk.scenecollection"],
1864             "type": "string",
1865             "maxLength": 64
1866         },
1867         "minItems": 1,
1868         "uniqueItems": true,
1869         "readOnly": true,
1870         "type": "array"
1871     },
1872     "rt": {
1873         "description": "Resource Type of the Resource",
1874         "items": {
1875             "enum": ["oic.wk.scenelist"],
1876             "type": "string",
1877             "maxLength": 64
1878         },
1879         "minItems": 1,
1880         "readOnly": true,
1881         "uniqueItems": true,
1882         "type": "array"
1883     }
1884 },
1885 "type": "object",
1886 "required": [
1887     "rt",
1888     "if",
1889     "links"
1890 ]
1891 },
1892 "slinks" : {
1893     "type" : "array",
1894     "items" : {
1895         "$ref": "#/definitions/oic.oic-link"
1896     }
1897 },
1898 "oic.oic-link": {
1899     "properties": {
1900         "if": {
1901             "description": "The OCF Interfaces supported by the Linked Resource",
1902             "items": {
1903                 "enum": [
1904                     "oic.if.ll",
1905                     "oic.if.baseline"
1906                 ],
1907                 "type": "string",
1908                 "maxLength": 64
1909             },
1910             "minItems": 1,
1911             "uniqueItems": true,
1912             "readOnly": true,
1913             "type": "array"
1914         },
1915         "rt": {

```

```

1916         "description": "The Resource Type of the Linked Resource",
1917         "items": {
1918             "enum": ["oic.wk.scenecollection"],
1919             "type": "string",
1920             "maxLength": 64
1921         },
1922         "minItems": 1,
1923         "uniqueItems": true,
1924         "readOnly": true,
1925         "type": "array"
1926     },
1927     "anchor": {
1928         "$ref":
1929         "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
1930         schema.json#/definitions/anchor"
1931     },
1932     "di": {
1933         "$ref":
1934         "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
1935         schema.json#/definitions/di"
1936     },
1937     "eps": {
1938         "$ref":
1939         "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
1940         schema.json#/definitions/eps"
1941     },
1942     "href": {
1943         "$ref":
1944         "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
1945         schema.json#/definitions/href"
1946     },
1947     "ins": {
1948         "$ref":
1949         "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
1950         schema.json#/definitions/ins"
1951     },
1952     "p": {
1953         "$ref":
1954         "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
1955         schema.json#/definitions/p"
1956     },
1957     "rel": {
1958         "$ref":
1959         "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
1960         schema.json#/definitions/rel_array"
1961     },
1962     "title": {
1963         "$ref":
1964         "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
1965         schema.json#/definitions/title"
1966     },
1967     "type": {
1968         "$ref":
1969         "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
1970         schema.json#/definitions/type"
1971     }
1972 },
1973 "required": [
1974     "href",
1975     "rt",
1976     "if"
1977 ],
1978 "type": "object"
1979 }
1980 }
1981 }
1982

```

### 1983 **A.7.5 Property definition**

1984 Table A.12 defines the Properties that are part of the "oic.wk.scenelist" Resource Type.



1985 **Table A.12 – The Property definitions of the Resource with type "rt" = "oic.wk.scenelist".**

| Property name | Value type                 | Mandatory | Access mode | Description  |
|---------------|----------------------------|-----------|-------------|--|
| links         | array: see schema          | Yes       | Read Write  | A set of simple or individual OCF Links.                                 |
| n             | multiple types: see schema | No        | Read Write  |  |
| id            | multiple types: see schema | No        | Read Write  |  |
| if            | array: see schema          | Yes       | Read Only   | The OCF Interfaces supported by this Resource                            |
| rts           | array: see schema          | No        | Read Only   | The list of allowable Resource Types in Links included in the Collection |
| rt            | array: see schema          | Yes       | Read Only   | Resource Type of the Resource  |
| if            | array: see schema          | Yes       | Read Only   | The OCF Interfaces supported by the Linked Resource                      |
| rt            | array: see schema          | Yes       | Read Only   | The Resource Type of the Linked Resource                                 |
| anchor        | multiple types: see schema | No        | Read Write  |  |
| di            | multiple types: see schema | No        | Read Write  |  |
| eps           | multiple types: see schema | No        | Read Write  |  |
| href          | multiple types: see schema | Yes       | Read Write  |  |
| ins           | multiple types: see schema | No        | Read Write  |  |
| p             | multiple types: see schema | No        | Read Write  |  |
| rel           | multiple types: see schema | No        | Read Write  |  |
| title         | multiple types: see schema | No        | Read Write  |  |
| type          | multiple types: see schema | No        | Read Write  |  |

1986 **A.7.6 CRUDN behaviour**

1987 Table A.13 defines the CRUDN operations that are supported on the "oic.wk.scenelist" Resource  
 1988 Type.

1989 **Table A.13 – The CRUDN operations of the Resource with type "rt" = "oic.wk.scenelist".**

| Create | Read | Update | Delete | Notify  |
|--------|------|--------|--------|---------|
|        | get  |        |        | observe |

## 1990 **A.8 Scene Collection**

### 1991 **A.8.1 Introduction**

1992 Collection that models a set of Scenes.

1993 This Resource is a generic Collection Resource with additional Properties.

1994 The rts value contains oic.scenemember Resource Types.

1995 The additional Properties are

1996 lastScene, this is the Scene Value last set by any Client

1997 sceneValues, this is the list of available Scenes

1998 lastScene shall be listed in sceneValues.

1999

### 2000 **A.8.2 Example URI**

2001 /SceneCollectionResURI

### 2002 **A.8.3 Resource type**

2003 The Resource Type is defined as: "oic.wk.scenecollection".

### 2004 **A.8.4 OpenAPI 2.0 definition**

```
2005 {
2006   "swagger": "2.0",
2007   "info": {
2008     "title": "Scene Collection",
2009     "version": "2019-03-04",
2010     "license": {
2011       "name": "OCF Data Model License",
2012       "url": "https://openconnectivityfoundation.github.io/core/LICENSE.md",
2013       "x-copyright": "Copyright 2016-2019 Open Connectivity Foundation, Inc. All rights reserved."
2014     },
2015     "termsOfService": "https://openconnectivityfoundation.github.io/core/DISCLAIMER.md"
2016   },
2017   "schemes": [
2018     "http"
2019   ],
2020   "consumes": [
2021     "application/json"
2022   ],
2023   "produces": [
2024     "application/json"
2025   ],
2026   "paths": {
2027     "/SceneCollectionResURI?if=oic.if.ll" : {
2028       "get": {
2029         "description": "Collection that models a set of Scenes.\nThis Resource is a generic
2030 Collection Resource with additional Properties.\nThe rts value contains oic.scenemember Resource
2031 Types.\nThe additional Properties are\n lastScene, this is the Scene Value last set by any Client\n
2032 sceneValues, this is the list of available Scenes\n lastScene shall be listed in sceneValues.\n",
2033         "parameters": [
2034           {
2035             "$ref": "#/parameters/interface-all"
2036           }
2037         ],
2038         "responses": {
2039           "200": {
2040             "description": "",
2041             "x-example": [
2042               {"href": "/scenemember1", "rt": ["oic.wk.scenemember"], "if": ["oic.if.baseline"]},
2043               {"href": "/scenemember2", "rt": ["oic.wk.scenemember"], "if": ["oic.if.baseline"]}
2044             ],
2045             "schema": {
2046               "$ref": "#/definitions/slinks"
2047             }
2048           }
2049         }
2050       }
2051     }
2052   }
2053 }
```

```

2050     }
2051   },
2052   "/SceneCollectionResURI?if=oic.if.baseline" : {
2053     "get": {
2054       "description": "Collection that models a set of Scenes.\nThis Resource is a generic
2055 Collection Resource with additional Properties.\nThe rts value contains oic.scenemember Resource
2056 Types.\nThe additional Properties are\n lastScene, this is the Scene Value last set by any Client\n
2057 sceneValues, this is the list of available Scenes\n lastScene shall be listed in sceneValues.\n",
2058       "parameters": [
2059         {
2060           "$ref": "#/parameters/interface-all"
2061         }
2062       ],
2063       "responses": {
2064         "200": {
2065           "description" : "",
2066           "x-example": {
2067             "lastScene": "off",
2068             "sceneValues": ["off","Reading","TVWatching"],
2069             "rt": ["oic.wk.scenecollection"],
2070             "n": "My Scenes for my living room",
2071             "rts": ["oic.wk.scenemember"],
2072             "links": [
2073               {"href": "/scenemember1","rt": ["oic.wk.scenemember"],"if":["oic.if.baseline"]},
2074               {"href": "/scenemember2","rt": ["oic.wk.scenemember"],"if":["oic.if.baseline"]}
2075             ]
2076           },
2077           "schema": {
2078             "$ref": "#/definitions/SceneCollection"
2079           }
2080         }
2081       }
2082     },
2083     "post": {
2084       "description": "Provides the action to change the last set Scene selection.\nCalling this
2085 method shall update all Scene Members to the prescribed membervalue.\nWhen this method is called
2086 with the same value as the current lastScene value\nthen all Scene Members shall be updated.\n",
2087       "parameters": [
2088         {
2089           "$ref": "#/parameters/interface-update"
2090         },
2091         {
2092           "name": "body",
2093           "in": "body",
2094           "required": true,
2095           "schema": {
2096             "$ref": "#/definitions/SceneCollectionUpdate"
2097           },
2098           "x-example": {
2099             "lastScene": "Reading"
2100           }
2101         }
2102       ],
2103       "responses": {
2104         "200": {
2105           "description" : "Indicates that the value is changed.\nThe changed Properties are
2106 provided in the response.\n",
2107           "x-example": {
2108             "lastScene": "Reading"
2109           },
2110           "schema": {
2111             "$ref": "#/definitions/SceneCollectionUpdate"
2112           }
2113         }
2114       }
2115     }
2116   },
2117   "parameters": {
2118     "interface-update" : {
2119       "in" : "query",
2120

```

```

2121     "name" : "if",
2122     "type" : "string",
2123     "enum" : ["oic.if.a"]
2124 },
2125 "interface-all" : {
2126     "in" : "query",
2127     "name" : "if",
2128     "type" : "string",
2129     "enum" : ["oic.if.ll", "oic.if.baseline"]
2130 }
2131 },
2132 "definitions": {
2133     "SceneCollection": {
2134         "properties": {
2135             "rt": {
2136                 "description": "Resource Type of the Resource",
2137                 "items": {
2138                     "enum": ["oic.wk.scenecollection"],
2139                     "type": "string",
2140                     "maxLength": 64
2141                 },
2142                 "minItems": 1,
2143                 "readOnly": true,
2144                 "uniqueItems": true,
2145                 "type": "array"
2146             },
2147             "lastScene": {
2148                 "description": "Last selected Scene from the set of sceneValues",
2149                 "type": "string"
2150             },
2151             "links": {
2152                 "description": "A set of simple or individual OCF Links.",
2153                 "items": {
2154                     "$ref": "#/definitions/oic.oic-link"
2155                 },
2156                 "type": "array"
2157             },
2158             "sceneValues": {
2159                 "description": "All available Scene Values",
2160                 "items": {
2161                     "type": "string"
2162                 },
2163                 "readOnly": true,
2164                 "type": "array"
2165             },
2166             "n": {
2167                 "$ref" :
2168 "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
2169 schema.json#/definitions/n"
2170             },
2171             "id": {
2172                 "$ref" :
2173 "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
2174 schema.json#/definitions/id"
2175             },
2176             "rts": {
2177                 "description": "Resource Type of the Resources within the Collection",
2178                 "items": {
2179                     "enum": ["oic.wk.scenemember"],
2180                     "type": "string",
2181                     "maxLength": 64
2182                 },
2183                 "minItems": 1,
2184                 "readOnly": true,
2185                 "uniqueItems": true,
2186                 "type": "array"
2187             },
2188             "if" : {
2189                 "description": "The OCF Interfaces supported by this Resource",
2190                 "items": {
2191                     "enum": [

```

```

2192         "oic.if.ll",
2193         "oic.if.baseline",
2194         "oic.if.a"
2195     ],
2196     "type": "string",
2197     "maxLength": 64
2198 },
2199     "minItems": 1,
2200     "uniqueItems": true,
2201     "readOnly": true,
2202     "type": "array"
2203 }
2204 },
2205 "type" : "object"
2206 },
2207 "SceneCollectionUpdate": {
2208     "properties": {
2209         "lastScene": {
2210             "description": "Last selected Scene from the set of sceneValues",
2211             "type": "string"
2212         }
2213     },
2214     "type" : "object"
2215 },
2216 "slinks" : {
2217     "type" : "array",
2218     "items" : {
2219         "$ref": "#/definitions/oic.oic-link"
2220     }
2221 },
2222 "oic.oic-link": {
2223     "type": "object",
2224     "properties": {
2225         "if": {
2226             "description": "The OCF Interfaces supported by the Linked Resource",
2227             "items": {
2228                 "enum": [
2229                     "oic.if.baseline"
2230                 ],
2231                 "type": "string",
2232                 "maxLength": 64
2233             },
2234             "minItems": 1,
2235             "uniqueItems": true,
2236             "readOnly": true,
2237             "type": "array"
2238         },
2239         "rt": {
2240             "description": "Resource Type of the Linked Resource",
2241             "items": {
2242                 "enum": ["oic.wk.scenemember"],
2243                 "type": "string",
2244                 "maxLength": 64
2245             },
2246             "minItems": 1,
2247             "uniqueItems": true,
2248             "readOnly": true,
2249             "type": "array"
2250         },
2251         "anchor": {
2252             "$ref":
2253 "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
2254 schema.json#/definitions/anchor"
2255         },
2256         "di": {
2257             "$ref":
2258 "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
2259 schema.json#/definitions/di"
2260         },
2261         "eps": {
2262             "$ref":

```

```

2263 "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
2264 schema.json#/definitions/eps"
2265     },
2266     "href": {
2267         "$ref":
2268         "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
2269         schema.json#/definitions/href"
2270     },
2271     "ins": {
2272         "$ref":
2273         "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
2274         schema.json#/definitions/ins"
2275     },
2276     "p": {
2277         "$ref":
2278         "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
2279         schema.json#/definitions/p"
2280     },
2281     "rel": {
2282         "$ref":
2283         "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
2284         schema.json#/definitions/rel_array"
2285     },
2286     "title": {
2287         "$ref":
2288         "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
2289         schema.json#/definitions/title"
2290     },
2291     "type": {
2292         "$ref":
2293         "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
2294         schema.json#/definitions/type"
2295     }
2296     },
2297     "required": [
2298         "href",
2299         "rt",
2300         "if"
2301     ]
2302 }
2303 }
2304 }
2305

```

2306 **A.8.5 Property definition**

2307 Table A.14 defines the Properties that are part of the "oic.wk.scenecollection" Resource Type.

2308 **Table A.14 – The Property definitions of the Resource with type "rt" =**  
2309 **"oic.wk.scenecollection".**

| Property name | Value type                 | Mandatory | Access mode | Description                                     |
|---------------|----------------------------|-----------|-------------|---|
| rt            | array: see schema          |           | Read Only   | Resource Type of the Resource                   |
| lastScene     | string                     |           | Read Write  | Last selected Scene from the set of sceneValues |
| links         | array: see schema          |           | Read Write  | A set of simple or individual OCF Links.        |
| sceneValues   | array: see schema          |           | Read Only   | All available Scene Values                      |
| n             | multiple types: see schema |           | Read Write  |   |

|           |                            |     |            |  |
|-----------|----------------------------|-----|------------|--|
| id        | multiple types: see schema |     | Read Write |  |
| rts       | array: see schema          |     | Read Only  | Resource Type of the Resources within the Collection |
| if        | array: see schema          |     | Read Only  | The OCF Interfaces supported by this Resource        |
| lastScene | string                     |     | Read Write | Last selected Scene from the set of sceneValues      |
| if        | array: see schema          | Yes | Read Only  | The OCF Interfaces supported by the Linked Resource  |
| rt        | array: see schema          | Yes | Read Only  | Resource Type of the Linked Resource                 |
| anchor    | multiple types: see schema | No  | Read Write |  |
| di        | multiple types: see schema | No  | Read Write |  |
| eps       | multiple types: see schema | No  | Read Write |  |
| href      | multiple types: see schema | Yes | Read Write |  |
| ins       | multiple types: see schema | No  | Read Write |  |
| p         | multiple types: see schema | No  | Read Write |  |
| rel       | multiple types: see schema | No  | Read Write |  |
| title     | multiple types: see schema | No  | Read Write |  |
| type      | multiple types: see schema | No  | Read Write |  |

2310 **A.8.6 CRUDN behaviour**

2311 Table A.15 defines the CRUDN operations that are supported on the "oic.wk.scenecollection"  
2312 Resource Type.

2313 **Table A.15 – The CRUDN operations of the Resource with type "rt" =**  
2314 **"oic.wk.scenecollection".**

| Create | Read | Update | Delete | Notify  |
|--------|------|--------|--------|---------|
|        | get  | post   |        | observe |

2315 **A.9 Scene Member**

2316 **A.9.1 Introduction**

2317 Single Link that models a Scene Member.

2318

2319 **A.9.2 Example URI**

2320 /SceneMemberResURI

2321 **A.9.3 Resource type**

2322 The Resource Type is defined as: "oic.wk.scenemember".

2323 **A.9.4 OpenAPI 2.0 definition**

```
2324 {
2325   "swagger": "2.0",
2326   "info": {
2327     "title": "Scene Member",
2328     "version": "2019-03-04",
2329     "license": {
2330       "name": "OCF Data Model License",
2331       "url": "https://openconnectivityfoundation.github.io/core/LICENSE.md",
2332       "x-copyright": "Copyright 2016-2019 Open Connectivity Foundation, Inc. All rights reserved."
2333     },
2334     "termsOfService": "https://openconnectivityfoundation.github.io/core/DISCLAIMER.md"
2335   },
2336   "schemes": [
2337     "http"
2338   ],
2339   "consumes": [
2340     "application/json"
2341   ],
2342   "produces": [
2343     "application/json"
2344   ],
2345   "paths": {
2346     "/SceneMemberResURI" : {
2347       "get": {
2348         "description": "Single Link that models a Scene Member.\n",
2349         "parameters": [
2350           {
2351             "$ref": "#/parameters/interface-baseline"
2352           }
2353         ],
2354         "responses": {
2355           "200": {
2356             "description": "",
2357             "x-example": {
2358               "rt": ["oic.wk.scenemember"],
2359               "id": "0685B960-FFFF-46F7-BEC0-9E6234671ADC1",
2360               "n": "my binary switch (for light bulb) mappings",
2361               "if": ["oic.if.baseline"],
2362               "link": {
2363                 "href": "binarySwitch",
2364                 "rt": ["oic.r.switch.binary"],
2365                 "if": ["oic.if.a", "oic.if.baseline"],
2366                 "eps": [
2367                   {"ep": "coap://[fe80::b1d6]:1111", "pri": 2},
2368                   {"ep": "coaps://[fe80::b1d6]:1122"},
2369                   {"ep": "coap+tcp://[2001:db8:a::123]:2222", "pri": 3}
2370                 ]
2371               }
2372             },
2373             "SceneMappings": [
2374               {
2375                 "scene": "off",
2376                 "memberProperty": "value",
2377                 "memberValue": "true"
2378               },
2379               {
2380                 "scene": "Reading",
2381                 "memberProperty": "value",
2382                 "memberValue": "false"
2383               },
2384               {
2385                 "scene": "TVWatching",
2386                 "memberProperty": "value",
2387                 "memberValue": "true"
2388               }
2389             ]
2390           }
2391         }
2392       }
2393     }
2394   }
2395 }
```



```

2389         },
2390         "schema": {
2391             "$ref": "#/definitions/SceneMember"
2392         }
2393     }
2394 }
2395 }
2396 },
2397 },
2398 "parameters": {
2399     "interface-baseline" : {
2400         "in" : "query",
2401         "name" : "if",
2402         "type" : "string",
2403         "enum" : ["oic.if.baseline"]
2404     }
2405 },
2406 "definitions": {
2407     "SceneMember": {
2408         "properties": {
2409             "rt": {
2410                 "description": "Resource Type of the Resource",
2411                 "items": {
2412                     "enum": ["oic.wk.scenemember"],
2413                     "type": "string",
2414                     "maxLength": 64
2415                 },
2416                 "minItems": 1,
2417                 "readOnly": true,
2418                 "uniqueItems": true,
2419                 "type": "array"
2420             },
2421             "SceneMappings": {
2422                 "description": "Array of mappings per Scene, can be one(1)",
2423                 "items": {
2424                     "properties": {
2425                         "memberProperty": {
2426                             "description": "Property name that will be mapped",
2427                             "readOnly": true,
2428                             "type": "string"
2429                         },
2430                         "memberValue": {
2431                             "description": "Value of the Member Property",
2432                             "readOnly": true,
2433                             "type": "string"
2434                         },
2435                         "scene": {
2436                             "description": "Specifies a Scene Value that will be acted upon",
2437                             "type": "string"
2438                         }
2439                     },
2440                     "required": [
2441                         "scene",
2442                         "memberProperty",
2443                         "memberValue"
2444                     ],
2445                     "type": "object"
2446                 },
2447                 "type": "array"
2448             },
2449             "n": {
2450                 "$ref" :
2451                 "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
2452                 schema.json#/definitions/n"
2453             },
2454             "id": {
2455                 "$ref" :
2456                 "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
2457                 schema.json#/definitions/id"
2458             },
2459             "link": {

```

```

2460         "$ref": "#/definitions/oic.oic-link"
2461     },
2462     "if": {
2463         "description": "The OCF Interfaces supported by this Resource",
2464         "items": {
2465             "enum": [
2466                 "oic.if.baseline"
2467             ],
2468             "type": "string",
2469             "maxLength": 64
2470         },
2471         "minItems": 1,
2472         "readOnly": true,
2473         "uniqueItems": true,
2474         "type": "array"
2475     }
2476 },
2477 "type" : "object",
2478 "required": [
2479     "rt",
2480     "if",
2481     "SceneMappings"
2482 ]
2483 },
2484 "oic.oic-link": {
2485     "properties": {
2486         "if": {
2487             "description": "The OCF Interfaces supported by the target Resource",
2488             "items": {
2489                 "enum": [
2490                     "oic.if.baseline",
2491                     "oic.if.ll",
2492                     "oic.if.b",
2493                     "oic.if.lb",
2494                     "oic.if.rw",
2495                     "oic.if.r",
2496                     "oic.if.a",
2497                     "oic.if.s"
2498                 ],
2499                 "type": "string",
2500                 "maxLength": 64
2501             },
2502             "minItems": 1,
2503             "uniqueItems": true,
2504             "readOnly": true,
2505             "type": "array"
2506         },
2507         "rt": {
2508             "description": "Resource Type of the target Resource",
2509             "items": {
2510                 "type": "string",
2511                 "maxLength": 64
2512             },
2513             "minItems": 1,
2514             "readOnly": true,
2515             "uniqueItems": true,
2516             "type": "array"
2517         },
2518         "anchor": {
2519             "$ref":
2520 "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
2521 schema.json#/definitions/anchor"
2522         },
2523         "di": {
2524             "$ref":
2525 "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
2526 schema.json#/definitions/di"
2527         },
2528         "eps": {
2529             "$ref":
2530 "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-

```

```

2531 schema.json#/definitions/eps"
2532     },
2533     "href": {
2534       "$ref":
2535       "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
2536       schema.json#/definitions/href"
2537     },
2538     "ins": {
2539       "$ref":
2540       "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
2541       schema.json#/definitions/ins"
2542     },
2543     "p": {
2544       "$ref":
2545       "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
2546       schema.json#/definitions/p"
2547     },
2548     "rel": {
2549       "$ref":
2550       "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
2551       schema.json#/definitions/rel_array"
2552     },
2553     "title": {
2554       "$ref":
2555       "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
2556       schema.json#/definitions/title"
2557     },
2558     "type": {
2559       "$ref":
2560       "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
2561       schema.json#/definitions/type"
2562     }
2563   },
2564   "required": [
2565     "href",
2566     "rt",
2567     "if"
2568   ],
2569   "type": "object"
2570 }
2571 }
2572 }
2573

```

2574 **A.9.5 Property definition**

2575 Table A.16 defines the Properties that are part of the "oic.wk.scenemember" Resource Type.

2576 **Table A.16 – The Property definitions of the Resource with type "rt" =**  
2577 **"oic.wk.scenemember".**

| Property name | Value type                 | Mandatory | Access mode | Description                                |
|---------------|----------------------------|-----------|-------------|--|
| rt            | array: see schema          | Yes       | Read Only   | Resource Type of the Resource              |
| SceneMappings | array: see schema          | Yes       | Read Write  | Array of mappings per Scene, can be one(1) |
| n             | multiple types: see schema | No        | Read Write  |  |
| id            | multiple types: see schema | No        | Read Write  |  |
| link          | multiple types: see schema | No        | Read Write  |  |

|        |                            |     |            |   |
|--------|----------------------------|-----|------------|---|
| if     | array: see schema          | Yes | Read Only  | The OCF Interfaces supported by this Resource       |
| if     | array: see schema          | Yes | Read Only  | The OCF Interfaces supported by the target Resource |
| rt     | array: see schema          | Yes | Read Only  | Resource Type of the target Resource                |
| anchor | multiple types: see schema | No  | Read Write |   |
| di     | multiple types: see schema | No  | Read Write |   |
| eps    | multiple types: see schema | No  | Read Write |   |
| href   | multiple types: see schema | Yes | Read Write |   |
| ins    | multiple types: see schema | No  | Read Write |   |
| p      | multiple types: see schema | No  | Read Write |   |
| rel    | multiple types: see schema | No  | Read Write |   |
| title  | multiple types: see schema | No  | Read Write |   |
| type   | multiple types: see schema | No  | Read Write |   |

2578 **A.9.6 CRUDN behaviour**

2579 Table A.17 defines the CRUDN operations that are supported on the "oic.wk.scenemember"  
2580 Resource Type.

**Table A.17 – The CRUDN operations of the Resource with type "rt" = "oic.wk.scenemember".**

| Create | Read | Update | Delete | Notify  |
|--------|------|--------|--------|---------|
|        | get  |        |        | observe |

2583 **A.10 Alert**

2584 **A.10.1 Introduction**

2585 This Resource provides a mechanism for a Server to expose information to an  
2586 interested party with regard to error or other conditions that the Device is experiencing (Alerts).  
2587 category is a string that contains the Device defined category for the Alert.  
2588 timestamp is an RFC3339 formatted time at which the Alert was generated.  
2589 originatorid is a string that contains the identity of the originator of the Alert.  
2590 severity is an integer that contains the RFC5424 defined severity of the Alert.  
2591 subject is an array containing human readable text in one or more languages.  
2592 accountid is a string containing the identity of the account with which the Device is associated.  
2593

2594 **A.10.2 Example URI**

2595 /AlertResURI

2596 **A.10.3 Resource type**

2597 The Resource Type is defined as: "oic.r.alert".

2598 **A.10.4 OpenAPI 2.0 definition**

```
2599 {
2600   "swagger": "2.0",
2601   "info": {
2602     "title": "Alert",
2603     "version": "2019-02-28",
2604     "license": {
2605       "name": "OCF Data Model License",
2606       "url": "https://openconnectivityfoundation.github.io/core/LICENSE.md",
2607       "x-copyright": "Copyright 2019 Open Connectivity Foundation, Inc. All rights reserved."
2608     },
2609     "termsOfService": "https://openconnectivityfoundation.github.io/core/DISCLAIMER.md"
2610   },
2611   "schemes": ["http"],
2612   "consumes": ["application/json"],
2613   "produces": ["application/json"],
2614   "paths": {
2615     "/AlertResURI" : {
2616       "get": {
2617         "description": "This Resource provides a mechanism for a Server to expose information to
2618 an\ninterested party with regard to error or other conditions that the Device is experiencing
2619 (Alerts).\ncategory is a string that contains the Device defined category for the Alert.\ntimestamp
2620 is an RFC3339 formatted time at which the Alert was generated.\noriginatorid is a string that
2621 contains the identity of the originator of the Alert.\nseverity is an integer that contains the
2622 RFC5424 defined severity of the Alert.\nsubject is an array containing human readable text in one or
2623 more languages.\naccountid is a string containing the identity of the account with which the Device
2624 is associated.\n",
2625         "parameters": [
2626           {"$ref": "#/parameters/interface"}
2627         ],
2628         "responses": {
2629           "200": {
2630             "description": "",
2631             "x-example":
2632               {
2633                 "rt": ["oic.r.alert"],
2634                 "accountid": "MyAccountID",
2635                 "category": "MyCategory",
2636                 "timestamp": "2018-02-28T08:00:00Z",
2637                 "originatorid": "MyOriginatorID",
2638                 "severity": 3,
2639                 "subject": [{"language": "en-US", "value": "System error"}]
2640               },
2641             "schema": {"$ref": "#/definitions/Alert"}
2642           }
2643         }
2644       }
2645     }
2646   },
2647   "parameters": {
2648     "interface" : {
2649       "in" : "query",
2650       "name" : "if",
2651       "type" : "string",
2652       "enum" : ["oic.if.r", "oic.if.baseline"]
2653     }
2654   },
2655   "definitions": {
2656     "Alert" : {
2657       "properties": {
2658         "category": {
2659           "description": "Category into which the notification is classified",
2660           "maxLength": 64,
2661           "readOnly": true,
2662           "type": "string"
2663         },
```

```

2664     "rt": {
2665         "description": "Resource Type",
2666         "items": {
2667             "maxLength": 64,
2668             "type": "string",
2669             "enum": ["oic.r.alert"]
2670         },
2671         "minItems": 1,
2672         "readOnly": true,
2673         "uniqueItems": true,
2674         "type": "array"
2675     },
2676     "severity": {
2677         "description": "RFC 5424 severity of the alert",
2678         "maximum": 7,
2679         "minimum": 0,
2680         "readOnly": true,
2681         "type": "integer"
2682     },
2683     "timestamp": {
2684         "description": "An RFC3339 formatted time indicating when the data was observed (e.g.:
2685 2016-02-15T09:19Z, 1996-12-19T16:39:57-08:00)",
2686         "format": "date-time",
2687         "readOnly": true,
2688         "type": "string"
2689     },
2690     "subject": {
2691         "description": "Alert subject matter.",
2692         "items": {
2693             "properties": {
2694                 "language": {
2695                     "allOf": [
2696                         {
2697                             "description": "An identifier formatted according to IETF RFC 5646 (language
2698 tag).",
2699                             "pattern": "^[A-Za-z]{1,8}(-[A-Za-z0-9]{1,8})*$",
2700                             "type": "string"
2701                         },
2702                         {
2703                             "description": "An RFC 5646 language tag.",
2704                             "readOnly": true
2705                         }
2706                     ]
2707                 },
2708                 "value": {
2709                     "description": "Alert subject matter in the indicated language.",
2710                     "maxLength": 255,
2711                     "readOnly": true,
2712                     "type": "string"
2713                 }
2714             },
2715             "type": "object"
2716         },
2717         "minItems": 1,
2718         "readOnly": true,
2719         "type": "array"
2720     },
2721     "originatorid": {
2722         "description": "ID of the creator of the event",
2723         "maxLength": 64,
2724         "readOnly": true,
2725         "type": "string"
2726     },
2727     "n": {
2728         "$ref" :
2729 "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
2730 schema.json#/definitions/n"
2731     },
2732     "id": {
2733         "$ref" :
2734 "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-

```

```

2735 schema.json#/definitions/id"
2736     },
2737     "accountid": {
2738       "description": "ID of the account",
2739       "maxLength": 64,
2740       "readOnly": true,
2741       "type": "string"
2742     },
2743     "if": {
2744       "description": "The OCF Interfaces supported by this Resource",
2745       "items": {
2746         "enum": [
2747           "oic.if.r",
2748           "oic.if.baseline"
2749         ],
2750         "type": "string",
2751         "maxLength": 64
2752       },
2753       "minItems": 2,
2754       "readOnly": true,
2755       "uniqueItems": true,
2756       "type": "array"
2757     }
2758   },
2759   "type": "object",
2760   "required": ["category", "timestamp", "originatorid", "severity"]
2761 }
2762 }
2763 }
2764

```

#### 2765 A.10.5 Property definition

2766 Table A.18 defines the Properties that are part of the "oic.r.alert" Resource Type.

2767 **Table A.18 – The Property definitions of the Resource with type "rt" = "oic.r.alert".**

| Property name | Value type                 | Mandatory | Access mode | Description  |
|---------------|----------------------------|-----------|-------------|--|
| category      | string                     | Yes       | Read Only   | Category into which the notification is classified   |
| rt            | array: see schema          | No        | Read Only   | Resource Type  |
| severity      | integer                    | Yes       | Read Only   | RFC 5424 severity of the alert   |
| timestamp     | string                     | Yes       | Read Only   | An RFC3339 formatted time indicating when the data was observed (e.g.: 2016-02-15T09:19Z, 1996-12-19T16:39:57-08:00) |
| subject       | array: see schema          | No        | Read Only   | Alert subject matter.  |
| originatorid  | string                     | Yes       | Read Only   | ID of the creator of the event   |
| n             | multiple types: see schema | No        | Read Write  |  |
| id            | multiple types: see schema | No        | Read Write  |  |
| accountid     | string                     | No        | Read Only   | ID of the account  |
| if            | array: see schema          | No        | Read Only   | The OCF Interfaces supported by this Resource  |

2768 **A.10.6 CRUDN behaviour**

2769 Table A.19 defines the CRUDN operations that are supported on the "oic.r.alert" Resource Type.

2770 **Table A.19 – The CRUDN operations of the Resource with type "rt" = "oic.r.alert".**

| Create | Read | Update | Delete | Notify  |
|--------|------|--------|--------|---------|
|        | get  |        |        | observe |

2771 **A.11 Alert Collection**

2772 **A.11.1 Introduction**

2773 This Resource is a Collection containing instances of Alerts (oic.r.alert).

2774 This is the response using the baseline interface.

2775

2776 **A.11.2 Example URI**

2777 /AlertCollectionResURI

2778 **A.11.3 Resource type**

2779 The Resource Type is defined as: "oic.r.alertcollection".

2780 **A.11.4 OpenAPI 2.0 definition**

```

2781 {
2782   "swagger": "2.0",
2783   "info": {
2784     "title": "Alert Collection",
2785     "version": "2019-03-04",
2786     "license": {
2787       "name": "OCF Data Model License",
2788       "url": "https://openconnectivityfoundation.github.io/core/LICENSE.md",
2789       "x-copyright": "Copyright 2019 Open Connectivity Foundation, Inc. All rights reserved."
2790     },
2791     "termsOfService": "https://openconnectivityfoundation.github.io/core/DISCLAIMER.md"
2792   },
2793   "schemes": ["http"],
2794   "consumes": ["application/json"],
2795   "produces": ["application/json"],
2796   "paths": {
2797     "/AlertCollectionResURI?if=oic.if.ll" : {
2798       "get": {
2799         "description": "This Resource is a Collection containing instances of Alerts
2800 (oic.r.alert).\nThis is the response using the links list OCF Interface.\n",
2801         "parameters": [
2802           {"$ref": "#/parameters/interface-all"}
2803         ],
2804         "responses": {
2805           "200": {
2806             "description": "",
2807             "x-example": [
2808               {"href": "/myAlert1ResURI", "rt": ["oic.r.alert"], "if":
2809 ["oic.if.r","oic.if.baseline"], "eps": [{"ep": "coaps://[fe80::b1d6]:1122"}]},
2810               {"href": "/myAlert2ResURI", "rt": ["oic.r.alert"], "if":
2811 ["oic.if.r","oic.if.baseline"], "eps": [{"ep": "coaps://[fe80::b1d6]:1122"}]},
2812               {"href": "/myAlert3ResURI", "rt": ["oic.r.alert"], "if":
2813 ["oic.if.r","oic.if.baseline"], "eps": [{"ep": "coaps://[fe80::b1d6]:1122"}]},
2814               {"href": "/myAlert4ResURI", "rt": ["oic.r.alert"], "if":
2815 ["oic.if.r","oic.if.baseline"], "eps": [{"ep": "coaps://[fe80::b1d6]:1122"}]}
2816             ],
2817             "schema": { "$ref": "#/definitions/AlertCollection-ll" }
2818           }
2819         }
2820       }
2821     }

```



```

2821     },
2822     "/AlertCollectionResURI?if=oic.if.b" : {
2823         "get": {
2824             "description": "This Resource is a Collection containing instances of Alerts
2825 (oic.r.alert).\nThis is the response using the Batch interface.\n",
2826             "parameters": [
2827                 {"$ref": "#/parameters/interface-all"}
2828             ],
2829             "responses": {
2830                 "200": {
2831                     "description" : "",
2832                     "x-example": [
2833                         {
2834                             "href": "/Alert1ResURI",
2835                             "rep":{
2836                                 "rt":          ["oic.r.alert"],
2837                                 "accountid":   "MyAccountID",
2838                                 "category":    "MyCategory",
2839                                 "timestamp":   "2018-02-28T08:00:00Z",
2840                                 "originatorid": "MyOriginatorID",
2841                                 "severity": 3,
2842                                 "subject": [{"language":"en-US","value":"System error"}]
2843                             }
2844                         },
2845                         {
2846                             "href": "/Alert2ResURI",
2847                             "rep":{
2848                                 "rt":          ["oic.r.alert"],
2849                                 "accountid":   "MyAccountID",
2850                                 "category":    "MyCategory",
2851                                 "timestamp":   "2018-02-28T08:15:00Z",
2852                                 "originatorid": "MyOriginatorID",
2853                                 "severity": 4,
2854                                 "subject": [{"language":"en-US","value":"Network error"}]
2855                             }
2856                         }
2857                     ],
2858                     "schema": { "$ref": "#/definitions/AlertCollection-b" }
2859                 }
2860             }
2861         }
2862     },
2863     "/AlertCollectionResURI?if=oic.if.baseline" : {
2864         "get": {
2865             "description": "This Resource is a Collection containing instances of Alerts
2866 (oic.r.alert).\nThis is the response using the baseline interface.\n",
2867             "parameters": [
2868                 {"$ref": "#/parameters/interface-all"}
2869             ],
2870             "responses": {
2871                 "200": {
2872                     "description" : "",
2873                     "x-example": {
2874                         "rt":          ["oic.r.alertcollection"],
2875                         "rts":         ["oic.r.alert"],
2876                         "if":          ["oic.if.ll", "oic.if.b", "oic.if.baseline"],
2877                         "links": [
2878                             {"href": "/myAlert1ResURI", "rt": ["oic.r.alert"], "if":
2879 ["oic.if.r","oic.if.baseline"], "eps": [{"ep": "coaps://[fe80::b1d6]:1122"}]},
2880                             {"href": "/myAlert2ResURI", "rt": ["oic.r.alert"], "if":
2881 ["oic.if.r","oic.if.baseline"], "eps": [{"ep": "coaps://[fe80::b1d6]:1122"}]},
2882                             {"href": "/myAlert3ResURI", "rt": ["oic.r.alert"], "if":
2883 ["oic.if.r","oic.if.baseline"], "eps": [{"ep": "coaps://[fe80::b1d6]:1122"}]},
2884                             {"href": "/myAlert4ResURI", "rt": ["oic.r.alert"], "if":
2885 ["oic.if.r","oic.if.baseline"], "eps": [{"ep": "coaps://[fe80::b1d6]:1122"}]}
2886                         ]
2887                     },
2888                     "schema": { "$ref": "#/definitions/AlertCollection-baseline" }
2889                 }
2890             }
2891         }

```

```

2892     }
2893   },
2894   "parameters": {
2895     "interface-all" : {
2896       "in" : "query",
2897       "name" : "if",
2898       "type" : "string",
2899       "enum" : ["oic.if.ll", "oic.if.b", "oic.if.baseline"]
2900     }
2901   },
2902   "definitions": {
2903     "AlertCollection-b" : {
2904       "type": "array",
2905       "minItems": 0,
2906       "uniqueItems": true,
2907       "items": {
2908         "type": "object",
2909         "additionalProperties": true,
2910         "properties": {
2911           "href": {
2912             "$ref":
2913 "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
2914 schema.json#/definitions/href"
2915           },
2916           "rep": {
2917             "$ref":
2918 "http://openconnectivityfoundation.github.io/core/swagger2.0/oic.r.alert.swagger.json#/definitions/A
2919 lert"
2920           }
2921         },
2922         "required": [
2923           "href",
2924           "rep"
2925         ]
2926       }
2927     },
2928     "AlertCollection-baseline" : {
2929       "properties": {
2930         "n": {
2931           "$ref" :
2932 "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
2933 schema.json#/definitions/n"
2934         },
2935         "id": {
2936           "$ref" :
2937 "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
2938 schema.json#/definitions/id"
2939         },
2940         "rt": {
2941           "items": {
2942             "type": "string",
2943             "enum": ["oic.r.alertcollection"],
2944             "maxLength": 64
2945           },
2946           "minItems": 1,
2947           "type": "array",
2948           "uniqueItems": true,
2949           "readOnly": true
2950         },
2951         "rts": {
2952           "items": {
2953             "type": "string",
2954             "enum": ["oic.r.alert"],
2955             "maxLength": 64
2956           },
2957           "minItems": 1,
2958           "type": "array",
2959           "uniqueItems": true,
2960           "readOnly": true
2961         },
2962         "if": {

```

```

2963         "description": "The OCF Interfaces supported by this Resource",
2964         "items": {
2965             "enum": [
2966                 "oic.if.ll",
2967                 "oic.if.b",
2968                 "oic.if.baseline"
2969             ],
2970             "type": "string",
2971             "maxLength": 64
2972         },
2973         "minItems": 3,
2974         "readOnly": true,
2975         "uniqueItems": true,
2976         "type": "array"
2977     },
2978     "links": {
2979         "description": "A set of simple or individual Links.",
2980         "items": {
2981             "$ref": "#/definitions/oic.oic-link"
2982         },
2983         "type": "array"
2984     }
2985 },
2986 "type" : "object",
2987 "required": ["rt","rts","if","links"]
2988 },
2989 "AlertCollection-ll" : {
2990     "type": "array",
2991     "items": {
2992         "$ref": "#/definitions/oic.oic-link"
2993     }
2994 },
2995 "oic.oic-link": {
2996     "type": "object",
2997     "properties": {
2998         "anchor": {
2999             "$ref":
3000 "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
3001 schema.json#/definitions/anchor"
3002         },
3003         "di": {
3004             "$ref":
3005 "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
3006 schema.json#/definitions/di"
3007         },
3008         "eps": {
3009             "$ref":
3010 "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
3011 schema.json#/definitions/eps"
3012         },
3013         "href": {
3014             "$ref":
3015 "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
3016 schema.json#/definitions/href"
3017         },
3018         "ins": {
3019             "$ref":
3020 "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
3021 schema.json#/definitions/ins"
3022         },
3023         "p": {
3024             "$ref":
3025 "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
3026 schema.json#/definitions/p"
3027         },
3028         "rel": {
3029             "$ref":
3030 "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
3031 schema.json#/definitions/rel_array"
3032         },
3033         "title": {

```

```

3034         "$ref":
3035         "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
3036         schema.json#/definitions/title"
3037     },
3038     "type": {
3039         "$ref":
3040         "https://openconnectivityfoundation.github.io/core/schemas/oic.links.properties.core-
3041         schema.json#/definitions/type"
3042     },
3043     "if": {
3044         "description": "The OCF Interfaces supported by the target Resource",
3045         "items": {
3046             "enum": [
3047                 "oic.if.r",
3048                 "oic.if.baseline"
3049             ],
3050             "type": "string",
3051             "maxLength": 64
3052         },
3053         "minItems": 2,
3054         "uniqueItems": true,
3055         "type": "array",
3056         "readOnly": true
3057     },
3058     "rt": {
3059         "description": "Resource Type of the target Resource",
3060         "items": {
3061             "maxLength": 64,
3062             "type": "string",
3063             "enum": ["oic.r.alert"]
3064         },
3065         "minItems": 1,
3066         "type": "array",
3067         "uniqueItems": true,
3068         "readOnly": true
3069     }
3070 },
3071 "required": [
3072     "href",
3073     "rt",
3074     "if"
3075 ]
3076 }
3077 }
3078 }
3079

```

### 3080 A.11.5 Property definition

3081 Table A.20 defines the Properties that are part of the "oic.r.alertcollection" Resource Type.

3082 **Table A.20 – The Property definitions of the Resource with type "rt" =**  
3083 **"oic.r.alertcollection".**

| Property name | Value type                 | Mandatory | Access mode | Description |
|---------------|----------------------------|-----------|-------------|-------------|
| href          | multiple types: see schema | Yes       | Read Write  |             |
| rep           | multiple types: see schema | Yes       | Read Write  |             |
| n             | multiple types: see schema | No        | Read Write  |             |
| id            | multiple types: see schema | No        | Read Write  |             |
| rt            | array: see schema          | Yes       | Read Only   |             |
| rts           | array: see schema          | Yes       | Read Only   |             |

|        |                            |     |            |   |
|--------|----------------------------|-----|------------|---|
| if     | array: see schema          | Yes | Read Only  | The OCF Interfaces supported by this Resource       |
| links  | array: see schema          | Yes | Read Write | A set of simple or individual Links.                |
| anchor | multiple types: see schema | No  | Read Write |   |
| di     | multiple types: see schema | No  | Read Write |   |
| eps    | multiple types: see schema | No  | Read Write |   |
| href   | multiple types: see schema | Yes | Read Write |   |
| ins    | multiple types: see schema | No  | Read Write |   |
| p      | multiple types: see schema | No  | Read Write |   |
| rel    | multiple types: see schema | No  | Read Write |   |
| title  | multiple types: see schema | No  | Read Write |   |
| type   | multiple types: see schema | No  | Read Write |   |
| if     | array: see schema          | Yes | Read Only  | The OCF Interfaces supported by the target Resource |
| rt     | array: see schema          | Yes | Read Only  | Resource Type of the target Resource                |

3084 **A.11.6 CRUDN behaviour**

3085 Table A.21 defines the CRUDN operations that are supported on the "oic.r.alertcollection"  
3086 Resource Type.

3087 **Table A.21 – The CRUDN operations of the Resource with type "rt" = "oic.r.alertcollection".**

| Create | Read | Update | Delete | Notify  |
|--------|------|--------|--------|---------|
|        | get  |        |        | observe |

3088 **A.12 software update**

3089 **A.12.1 Introduction**

3090 The Resource performing scheduled software update.

3091 **A.12.2 Example URI**

3092 /softwareupdateResURI

3093 **A.12.3 Resource type**

3094 The Resource Type is defined as: "oic.r.softwareupdate".

3095 **A.12.4 OpenAPI 2.0 definition**

3096 {  
3097 "swagger": "2.0",  
3098 "info": {

```

3099     "title": "software update",
3100     "version": "20190408",
3101     "license": {
3102         "name": "OCF Data Model License",
3103         "url":
3104         "https://github.com/openconnectivityfoundation/core/blob/e28a9e0a92e17042ba3e83661e4c0fbce8bdc4ba/LI
3105 CENSE.md",
3106         "x-copyright": "Copyright 2019 Open Connectivity Foundation, Inc. All rights reserved."
3107     },
3108     "termsOfService": "https://openconnectivityfoundation.github.io/core/DISCLAIMER.md"
3109 },
3110 "schemes": ["http"],
3111 "consumes": ["application/json"],
3112 "produces": ["application/json"],
3113 "paths": {
3114     "/softwareupdateResURI" : {
3115         "get": {
3116             "description": "The Resource performing scheduled software update.",
3117             "parameters": [
3118                 {"$ref": "#/parameters/interface"}
3119             ],
3120             "responses": {
3121                 "200": {
3122                     "description": "Schedule an software update.",
3123                     "x-example":
3124                     {
3125                         "rt": ["oic.r.softwareupdate"],
3126                         "if": ["oic.if.rw", "oic.if.baseline"],
3127                         "nv": "my version",
3128                         "purl": "https://myvendor/myexampleurl",
3129                         "swupdateaction": "idle",
3130                         "swupdatestate" : "idle",
3131                         "swupdateresult" : 0,
3132                         "lastupdate" : "2015-01-09T14:30:00Z",
3133                         "signed" : "vendor",
3134                         "updatetime" : "2015-01-09T14:30:00Z"
3135                     },
3136                     "schema": { "$ref": "#/definitions/swupdate" }
3137                 }
3138             }
3139         },
3140         "post": {
3141             "description": "Mechanism to schedule a start of the software update.",
3142             "parameters": [
3143                 {"$ref": "#/parameters/interface"},
3144                 {
3145                     "name": "body",
3146                     "in": "body",
3147                     "required": true,
3148                     "schema": { "$ref": "#/definitions/swupdate-update" },
3149                     "x-example":
3150                     {
3151                         "purl": "https://myvendor/newversion",
3152                         "swupdateaction": "upgrade",
3153                         "updatetime" : "2030-01-09T14:30:00Z"
3154                     }
3155                 }
3156             ],
3157             "responses": {
3158                 "200": {
3159                     "description": "",
3160                     "x-example":
3161                     {
3162                         "nv": "my new version",
3163                         "purl": "https://myvendor/myexampleurl",
3164                         "swupdateaction": "upgrade",
3165                         "swupdatestate" : "idle",
3166                         "swupdateresult" : 0,
3167                         "lastupdate" : "2015-01-09T14:30:00Z",
3168                         "signed" : "vendor",
3169                         "updatetime" : "2030-01-09T14:30:00Z"

```

```

3170         },
3171         "schema": { "$ref": "#/definitions/swupdate" }
3172     }
3173 }
3174 }
3175 }
3176 },
3177 "parameters": {
3178     "interface": {
3179         "in": "query",
3180         "name": "if",
3181         "type": "string",
3182         "enum": ["oic.if.rw", "oic.if.baseline"]
3183     }
3184 },
3185 "definitions": {
3186     "swupdate": {
3187         "properties": {
3188             "rt": {
3189                 "items": {
3190                     "enum": [
3191                         "oic.r.softwareupdate"
3192                     ],
3193                     "type": "string",
3194                     "maxLength": 64
3195                 },
3196                 "minItems": 1,
3197                 "type": "array",
3198                 "readOnly": true,
3199                 "uniqueItems": true
3200             },
3201             "nv": {
3202                 "description": "New available Software version",
3203                 "maxLength": 64,
3204                 "type": "string",
3205                 "readOnly": true
3206             },
3207             "purl": {
3208                 "description": "Source of the software package, might be a HTTPS or CoAPs URL",
3209                 "maxLength": 64,
3210                 "type": "string",
3211                 "format": "uri"
3212             },
3213             "swupdateaction": {
3214                 "description": "Scheduled action to do a software update",
3215                 "maxLength": 64,
3216                 "type": "string",
3217                 "enum": [
3218                     "idle",
3219                     "isac",
3220                     "isvv",
3221                     "upgrade"
3222                 ]
3223             },
3224             "swupdatestate": {
3225                 "description": "State of the software update",
3226                 "readOnly": true,
3227                 "type": "string",
3228                 "enum": [
3229                     "idle",
3230                     "nsa",
3231                     "svv",
3232                     "sva",
3233                     "upgrading"
3234                 ]
3235             },
3236             "swupdateresult": {
3237                 "description": "Result of the software update, list of result codes",
3238                 "readOnly": true,
3239                 "type": "integer"
3240             }

```

```

3241         "lastupdate": {
3242             "description": "Time of the last software update (in RFC3339 format), Initial set on date
3243 of manufacturing",
3244             "readOnly": true,
3245             "maxLength": 64,
3246             "type": "string",
3247             "format": "date-time"
3248         },
3249         "signed": {
3250             "description": "Signage method of the software package, currently the only allowed value
3251 is 'vendor'.",
3252             "readOnly": true,
3253             "type": "string",
3254             "enum": [
3255                 "vendor"
3256             ]
3257         },
3258         "updatetime": {
3259             "description": "Scheduled time (in RFC3339 format) to do action which is specified in
3260 'swupdateaction' Property.",
3261             "maxLength": 64,
3262             "type": "string",
3263             "format": "date-time"
3264         },
3265         "n": {
3266             "$ref":
3267 "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
3268 schema.json#/definitions/n"
3269         },
3270         "id": {
3271             "$ref":
3272 "https://openconnectivityfoundation.github.io/core/schemas/oic.common.properties.core-
3273 schema.json#/definitions/id"
3274         },
3275         "if": {
3276             "description": "The interface set supported by this resource",
3277             "items": {
3278                 "enum": [
3279                     "oic.if.rw",
3280                     "oic.if.baseline"
3281                 ],
3282                 "type": "string"
3283             },
3284             "minItems": 2,
3285             "maxItems": 2,
3286             "type": "array",
3287             "readOnly": true,
3288             "uniqueItems": true
3289         }
3290     },
3291     "required": ["purl", "swupdateaction", "swupdatestate", "swupdateresult", "updatetime"]
3292 },
3293 "swupdate-update": {
3294     "properties": {
3295         "purl": {
3296             "$ref": "#/definitions/swupdate/properties/purl"
3297         },
3298         "swupdateaction" : {
3299             "$ref": "#/definitions/swupdate/properties/swupdateaction"
3300         },
3301         "updatetime": {
3302             "$ref": "#/definitions/swupdate/properties/updatetime"
3303         }
3304     },
3305     "required": ["purl", "swupdateaction", "updatetime"]
3306 }
3307 }
3308 }
3309

```



3310 **A.12.5 Property definition**

3311 Table A.22 defines the Properties that are part of the "oic.r.softwareupdate" Resource Type.

3312 **Table A.22 – The Property definitions of the Resource with type "rt" =**  
 3313 **"oic.r.softwareupdate".**

| Property name  | Value type                 | Mandatory | Access mode | Description  |
|----------------|----------------------------|-----------|-------------|--|
| rt             | array: see schema          | No        | Read Only   |  |
| nv             | string                     | No        | Read Only   | New available Software version   |
| purl           | string                     | Yes       | Read Write  | Source of the software package, might be a HTTPS or CoAPs URL                                    |
| swupdateaction | string                     | Yes       | Read Write  | Scheduled action to do a software update   |
| swupdatestate  | string                     | Yes       | Read Only   | State of the software update   |
| swupdateresult | integer                    | Yes       | Read Only   | Result of the software update, list of result codes  |
| lastupdate     | string                     | No        | Read Only   | Time of the last software update (in RFC3339 format), Initial set on date of manufacturing       |
| signed         | string                     | No        | Read Only   | Signage method of the software package, currently the only allowed value is 'vendor'.            |
| updatetime     | string                     | Yes       | Read Write  | Scheduled time (in RFC3339 format) to do action which is specified in 'swupdateaction' Property. |
| n              | multiple types: see schema | No        | Read Write  |  |
| id             | multiple types: see schema | No        | Read Write  |  |
| if             | array: see schema          | No        | Read Only   | The interface set supported by this resource   |
| purl           | multiple types: see schema | Yes       | Read Write  |  |
| swupdateaction | multiple types: see schema | Yes       | Read Write  |  |
| updatetime     | multiple types: see schema | Yes       | Read Write  |  |

3314 **A.12.6 CRUDN behaviour**

3315 Table A.23 defines the CRUDN operations that are supported on the "oic.r.softwareupdate"  
 3316 Resource Type.

3317  
3318

**Table A.23 – The CRUDN operations of the Resource with type "rt" = "oic.r.softwareupdate".**

| <b>Create</b> | <b>Read</b> | <b>Update</b> | <b>Delete</b> | <b>Notify</b> |
|---------------|-------------|---------------|---------------|---------------|
|               | get         | post          |               | observe       |

3319