

OCF Core - Optional Specification

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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

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

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. 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" (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. 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. 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
Factory_Reset	"fr"	"boolean"	N/A	N/A	R, W	No	When writing to this Property: false – No action (Default*) true – Start Factory Reset 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. 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
Reboot	"rb"	"boolean"	N/A	N/A	R, W	No	When writing to this Property: false – No action (Default) true – Start Reboot After Reboot, this value shall be changed back to

							the default value (i.e., false)
Last error	"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. 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
SVR	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
Mandatory Core Resources	No change	Reset to defined defaults, see clause 5.3.3.3.3	No change	No change
Optional Core Resources	No change	Reset to defined defaults, see clause 5.3.3.3.4	No change	No change
Vertical Resources	No change	Reset to defined defaults; see clause 5.3.3.3	No change	No change
Created Resources	No change	Deleted	No change	No change
Observe Transactions	No change	Canceled; see clause 5.3.3.2	No change	Re-evaluate ACL; see clause 5.3.3.2
OCF Cloud	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", "oic.if.baseline"	The Resource through which the Device is monitored. 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.

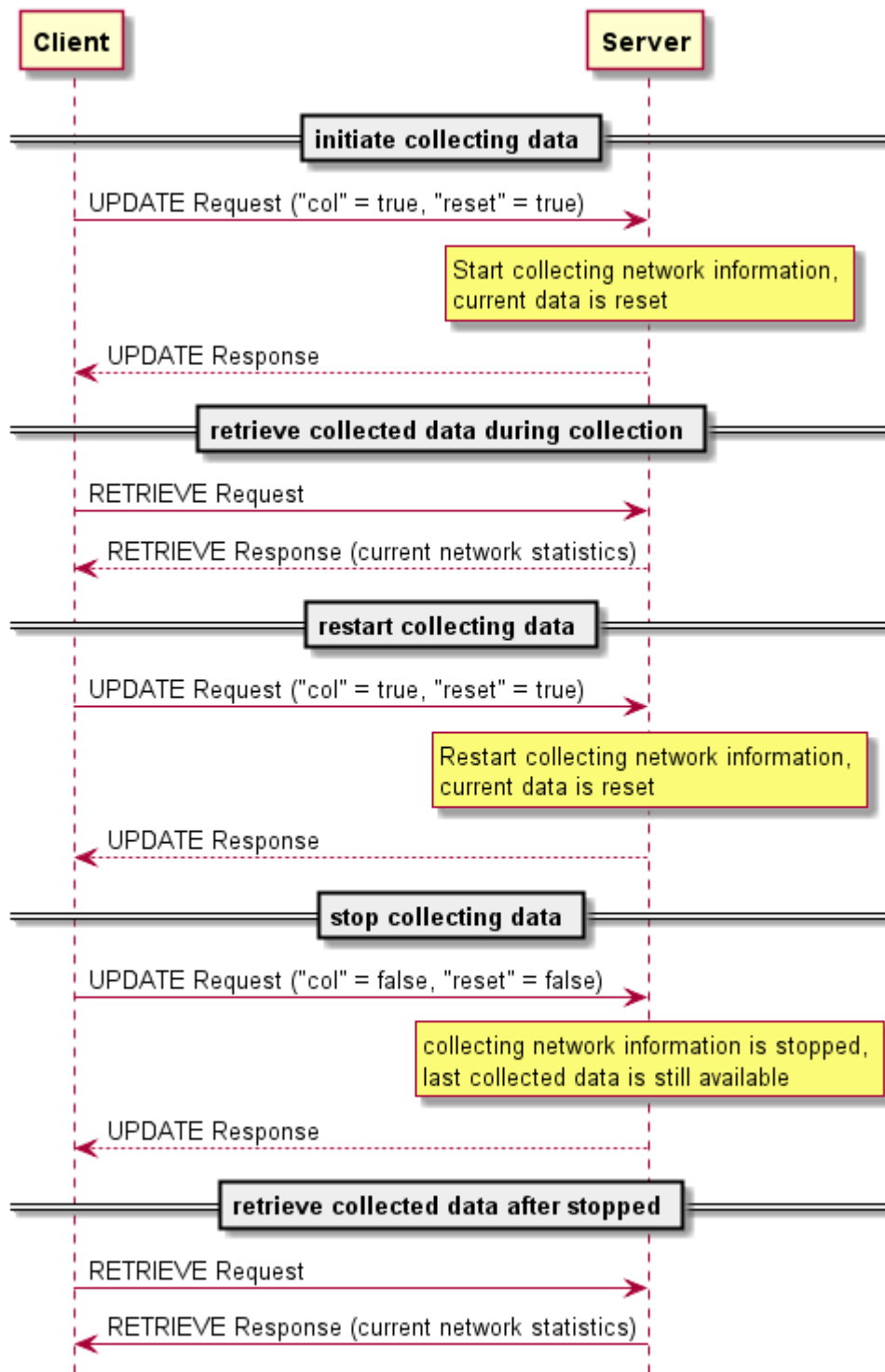
424 **Table 13 – "oic.wk.nmon" Resource Type definition**

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.

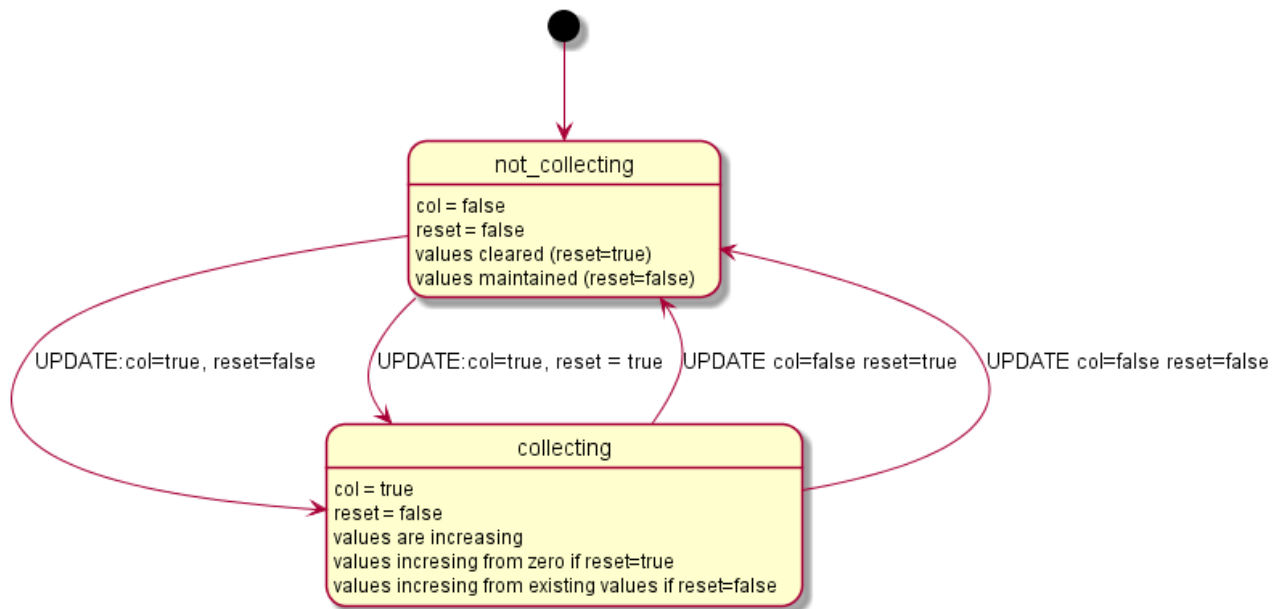


434

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", "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 Bit 128 = 0 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 Bit 128 = 0 Bit 256 = 1	"idle", "svv", "sva", "upgrading"
Software version validation (during downloading and checking the software integrity)	"svv"	Bit 64 = 0 Bit 128 = 0 Bit 256 = 1	"idle", "nsa", "sva", "upgrading"

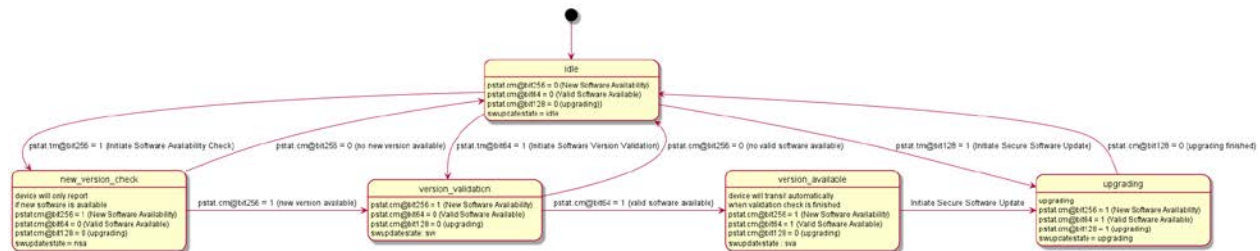
Software version available (The software is downloaded and deemed to be valid)	"sva"	Bit 64 = 1 Bit 128 = 0 Bit 256 = 1	"idle", "nsa", "svv", "upgrading"
Upgrading	"upgrading"	Bit 64 = 1 Bit 128 = 1 Bit 256 = 1	"idle", "nsa", "svv", "sva"

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.

473



474

475

Figure 3 – Typical state transitioning diagram for software update

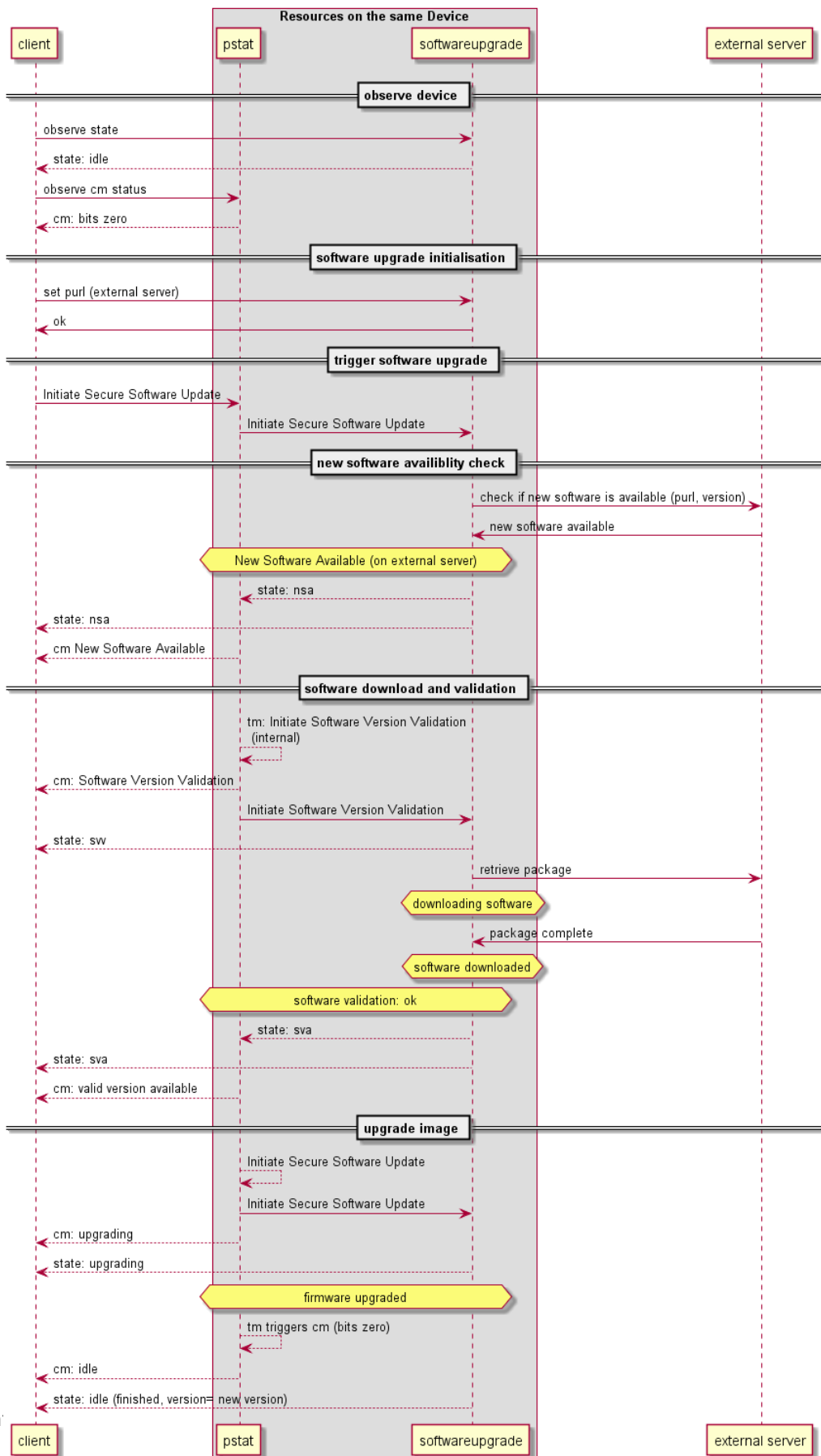
476 The "purl" Property indicates the URL to obtain the software package from. This URL shall be a
 477 fully qualified URL. If the value is an empty string ("") then the Device will use the built in vendor
 478 defined URL (see ISO/IEC 30118-2:2018). If a built in URL is not implemented, setting the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

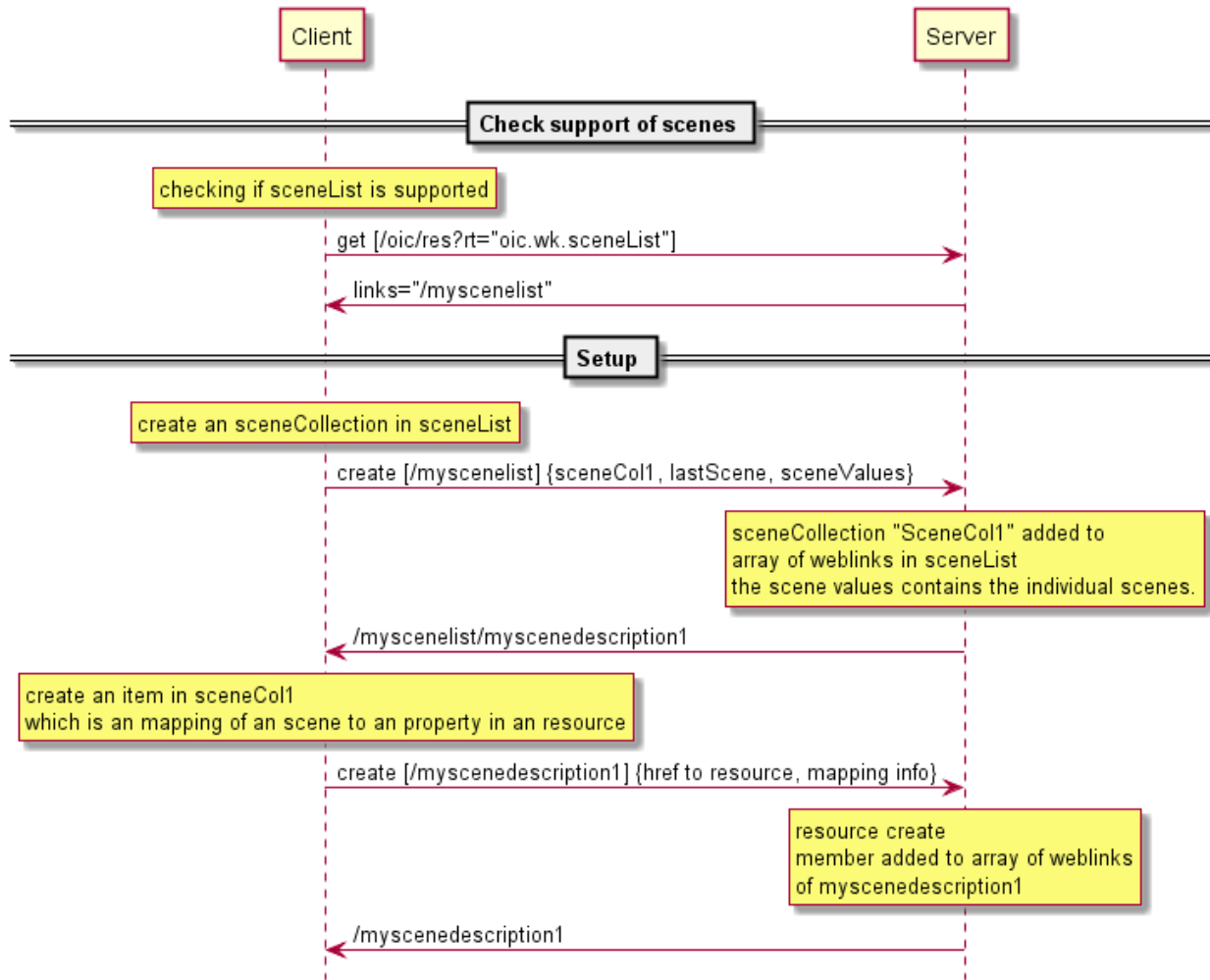


506
507 **Figure 5 – Generic Scene Resource structure**

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.



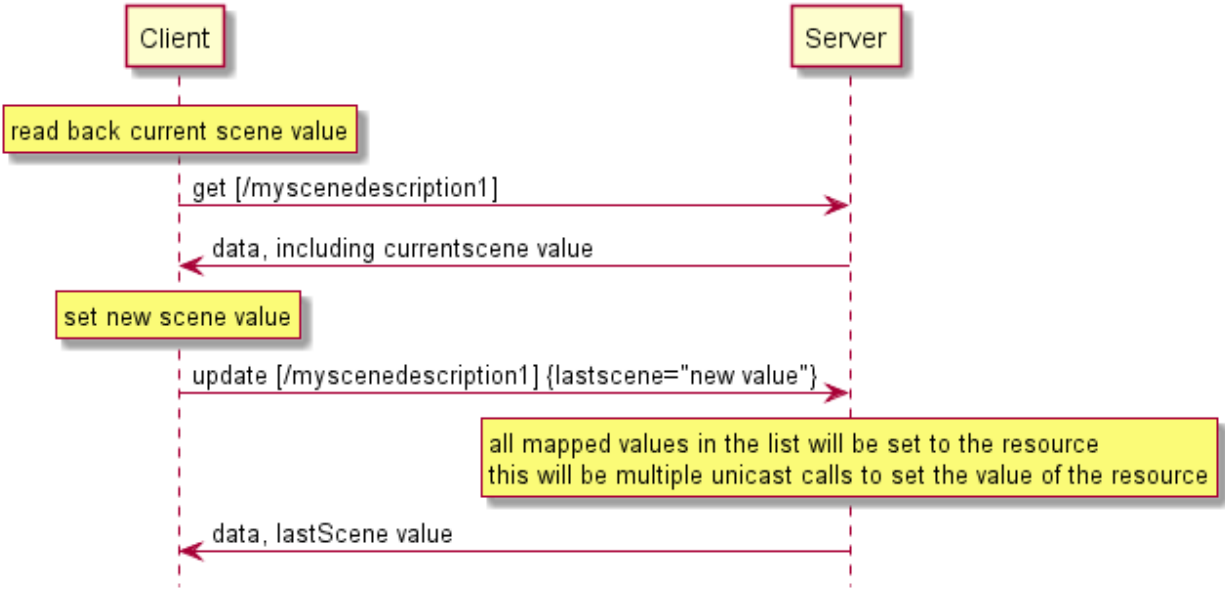
520

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

535

536

537

538

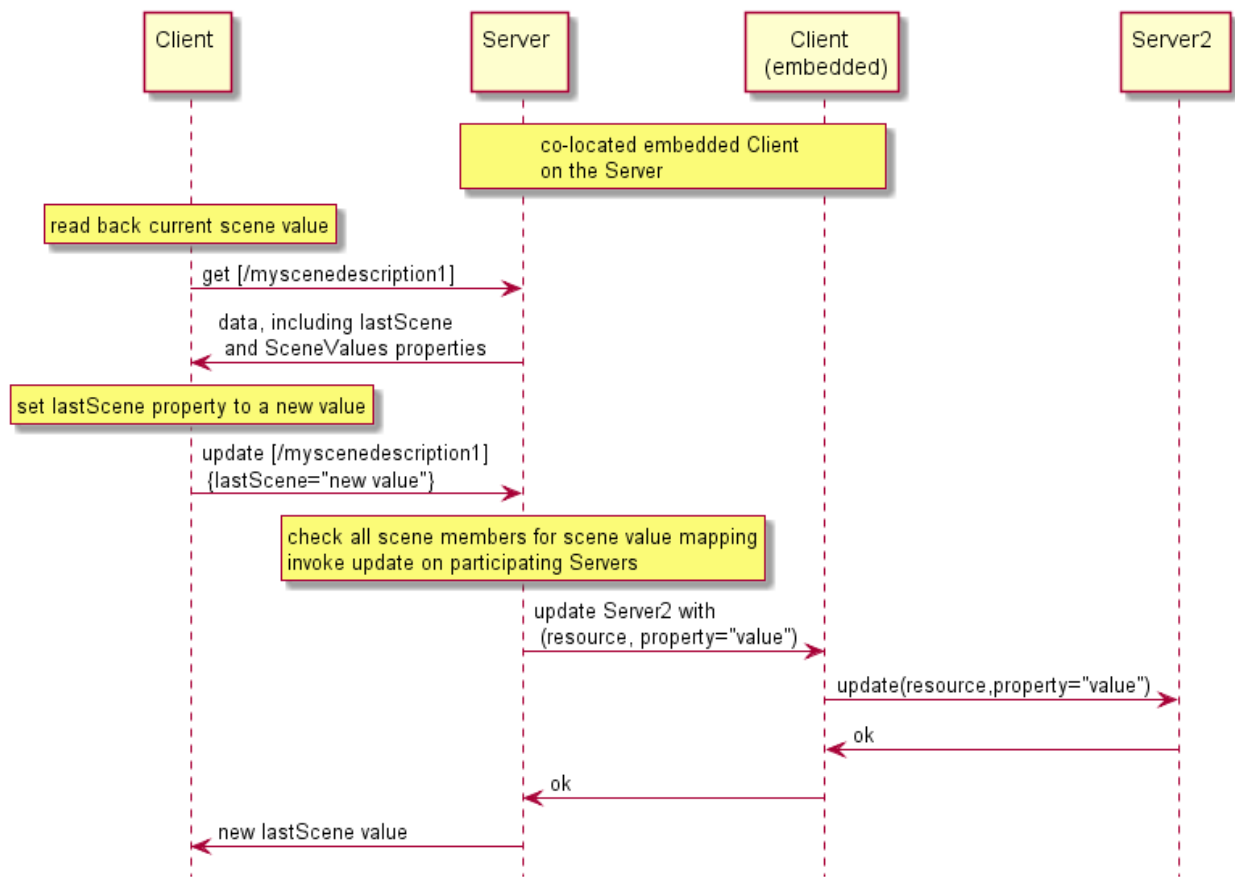
539

540

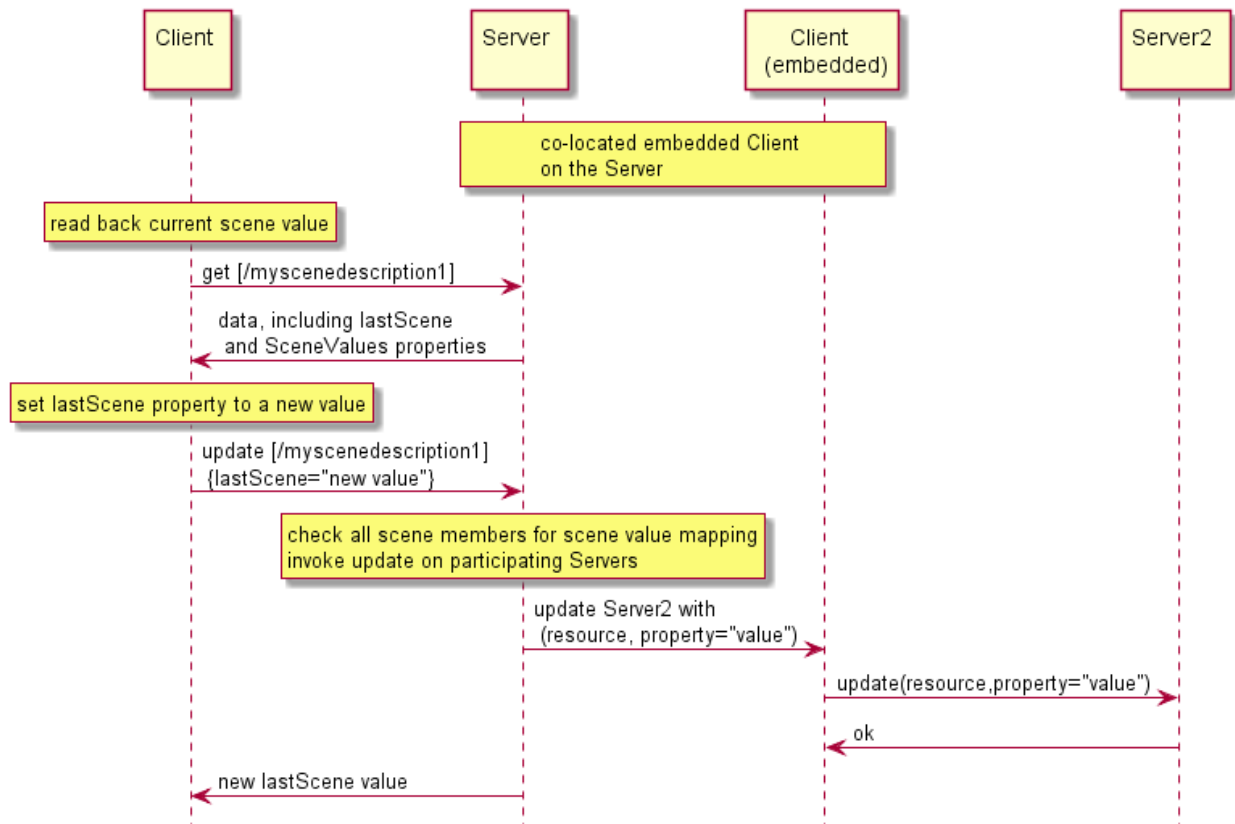
541

542

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

5.4.2.4 Summary of Resource Types defined for Scene functionality

547

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

548

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

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

552

553

554

555

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. 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
Mime Type	"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
Width	"width"	"integer"	>= 1	pixels	R	Yes	Width of the icon in pixels greater than or equal to 1.
Height	"height"	"integer"	>= 1	pixels	R	Yes	Height of the icon in pixels greater than or equal to 1.
Icon	"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", "oic.if.baseline"	The Resource through which the Device exposes Alerts. The Properties exposed by "oic.r.alert" are listed in Table 23.	Alerts
"/example/alertcollectionURI"	Alert Collection	"oic.r.alertcollection"	"oic.if.ll", "oic.if.b", "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**

```

950 {
951   "swagger": "2.0",
952   "info": {
953     "title": "Platform Configuration",
954     "version": "2019-03-04",
955     "license": {
956       "name": "OCF Data Model License",
957       "url": "https://openconnectivityfoundation.github.io/core/LICENSE.md",
958       "x-copyright": "Copyright 2016-2019 Open Connectivity Foundation, Inc. All rights reserved."
959     },
960     "termsOfService": "https://openconnectivityfoundation.github.io/core/DISCLAIMER.md"
961   },
962   "schemes": [
963     "http"
964   ],
965   "consumes": [
966     "application/json"
967   ],
968   "produces": [
969     "application/json"
970   ],
971   "paths": {
972     "/examplePlatformConfigurationResURI": {
973       "get": {
974         "description": "Resource that allows for Platform specific information to be configured.\n",
975         "parameters": [
976           {
977             "$ref": "#/parameters/interface-all"
978           }
979         ],
980         "responses": {
981           "200": {
982             "description": "",
983             "x-example": {
984               "rt": ["oic.wk.con.p"],
985               "mnpn": [ { "language": "en", "value": "My Friendly Device Name" } ]
986             },
987             "schema": { "$ref": "#/definitions/Conf_Platform" }
988           }
989         }
990       },
991       "post": {
992         "description": "Update the information about the Platform\n",
993         "parameters": [
994           {
995             "$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 https://www.iana.org/assignments/ianaiftype-mib/ianaiftype-mib
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: 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             "$ref": "#/definitions/slinks"
1782         }
1783     }
1784 }
1785 },
1786 "/SceneListResURI?if=oic.if.baseline": {
1787     "get": {
1788         "description": "Toplevel Scene Resource.\nThis Resource is a generic Collection
1789 Resource.\nThe rts value contains oic.wk.scenecollection Resource Types.\n",
1790         "parameters": [
1791             {
1792                 "$ref": "#/parameters/interface-all"
1793             }
1794         ],
1795         "responses": {
1796             "200": {
1797                 "description": "",
1798                 "x-example": {
1799                     "rt": ["oic.wk.scenelist"],
1800                     "if": ["oic.if.ll", "oic.if.baseline"],
1801                     "n": "list of scene collections",
1802                     "rts": ["oic.wk.scenecollection"],
1803                     "links": [
1804                         {"href": "/scenecollection1", "rt": ["oic.wk.scenecollection"], "if": ["oic.if.ll",
1805 "oic.if.baseline"]},
1806                         {"href": "/scenecollection2", "rt": ["oic.wk.scenecollection"], "if": ["oic.if.ll",
1807 "oic.if.baseline"]}
1808                     ]
1809                 },
1810                 "schema": { "$ref": "#/definitions/Collection" }
1811             }
1812         }
1813     }
1814 },
1815 },
1816 },
1817 "parameters": {
1818     "interface-all": {
1819         "in": "query",
1820         "name": "if",
1821         "type": "string",
1822         "enum": ["oic.if.ll", "oic.if.baseline"]
1823     }
1824 },
1825 "definitions": {
1826     "Collection": {
1827         "properties": {
1828             "links": {
1829                 "description": "A set of simple or individual OCF Links.",
1830                 "items": {
1831                     "$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.

2581 **Table A.17 – The CRUDN operations of the Resource with type "rt" =**
2582 **"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     }
2822   }

```



```

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".

Create	Read	Update	Delete	Notify
	get	post		observe

3319