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| --- | --- |
| CHANGE REQUEST | |
| Meeting ID:\* | SDS #62 |
| Source:\* | Andreas Kraft, DT, [A.Kraft@telekom.de](mailto:A.Kraft@telekom.de)  Andreas Neubacher, DT, [Andreas.Neubacher@magenta.at](mailto:Andreas.Neubacher@magenta.at)  Andre Dutra, DT, [Andre.Dias-Dutra@telekom.de](mailto:Andre.Dias-Dutra@telekom.de) |
| Date:\* | 2023-11-29 |
| Reason for Change/s:\* | TS-0022 – Adding SIM and mobileNetwork MgmtObjs |
| CR against: Release\* | Release 5 |
| CR against: WI\* | Active WI-xxxx  MNT maintenance / < Work Item number(optional)>  Is this a mirror CR? Yes  No  mirror CR number: (Note to Rapporteur - use latest agreed revision)  STE Small Technical Enhancements / < Work Item number (optional)>  Only ONE of the above shall be ticked |
| CR against: TS/TR\* | TS-0022 v.4.5.0 |
| Clauses \* | 2.1, 7.1.1, 7.1.11, 7.1.12, 7.2.11, 7.2.12, 7.3.2, 7.3.3.3, 7.3.3.4, 7.3.3.5, 7.3.3.6, 9.2, 9.3 |
| Type of change: \* | Editorial change  Bug Fix or Correction  Change to existing feature or functionality  New feature or functionality  Only ONE of the above shall be ticked |
| Impacted other TS/TR(s) |  |
| Post Freeze checking:\* | This CR contains only essential changes and corrections? YES  NO  This CR may break backwards compatibility with the last approved version of the TS? YES  NO |
| Template Version: January 2017 (Do not modify) | |

**oneM2M Notice**

The document to which this cover statement is attached is submitted to oneM2M. Participation in, or attendance at, any activity of oneM2M, constitutes acceptance of and agreement to be bound by terms of the Working Procedures and the Partnership Agreement, including the Intellectual Property Rights (IPR) Principles Governing oneM2M Work found in Annex 1 of the Partnership Agreement.

GUIDELINES for Change Requests:

Provide an informative introduction containing the problem(s) being solved, and a summary list of proposals.

Each CR should contain changes related to only one particular issue/problem.

In case of a correction, and the change apply to previous releases, a separate “mirror CR” should be posted at the same time of this CR

Mirror CR: applies only when the text, including clause numbering are exactly the same.

Companion CR: applies when the change means the same but the baselines differ in some way (e.g. clause number).

Follow the principle of completeness, where all changes related to the issue or problem within a deliverable are simultaneously proposed to be made E.g. A change impacting 5 tables should not only include a proposal to change only 3 tables. Includes any changes to references, definitions, and acronyms in the same deliverable.

Follow the drafting rules.

All pictures must be editable.

Check spelling and grammar to the extent practicable.

Use Change bars for modifications.

The change should include the current and surrounding clauses to clearly show where a change is located and to provide technical context of the proposed change. Additions of complete clauses need not show surrounding clauses as long as the proposed clause number clearly shows where the new clause is proposed to be located.

Multiple changes in a single CR shall be clearly separated by horizontal lines with embedded text such as, start of change 1, end of change 1, start of new clause, end of new clause.

When subsequent changes are made to content of a CR, then the accepted version should not show changes over changes. The accepted version of the CR should only show changes relative to the baseline approved text.

Introduction

This CR proposes the addition of two new <managementObject> specializations for holding SIM and mobile network related information.

If this CR is agreed further CRs are necessary and will be provided:

* TS-0001: Add new child resource types to <node> and update 9.6.15 and allign correct numbering
* TS-0023: Add mapping to FCNT based management

**R01:**

* Added URLs to references.
* Updated IMSI attribute description.
* Added use cases for usage of [SIM] and [mobileNetwork].
* Added reference to ICCID definition.

**R02:**

* Upper/lower case corrections.
* Change 5: corrected name space for dcfg:simStatus and dcfg:simConnected.
* Removed superflous “simConnected” attribute from Table 7.2.11.1-2.

**R03:**

It may be possible that only the ICCID of a deployed SIM is available on the device itself and all other information, such as IMSI and/or SIM status, are derived through other means, e.g. a RADIUS server or other AAA sources.

* Changes 3 and 5: Made *imsi*, *simStatus*, and *simType* optional in general, and optional for CREATE.

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 1 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

## 2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non‑specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

The following referenced documents are necessary for the application of the present document.

[1] oneM2M TS-0011: "Common Terminology".

[2] oneM2M TS-0001: "Functional Architecture".

[3] oneM2M TS-0003: "Security Solutions".

[4] oneM2M TS-0004: "Service Layer Core Protocol".

[5] oneM2M TS-0005: "Management Enablement (OMA)".

[6] oneM2M TS-0006: "Management Enablement (BBF)".

[7] IETF RFC 6920: "Naming Things with Hashes".

[8] IANA Transport Layer Security (TLS) Parameters.

NOTE: Available at <http://www.iana.org/assignments/tls-parameters/tls-parameters.xhtml>.

[9] oneM2M TS-0032: "MAF and MEF Interface Specification".

[10] FIPS PUB 180-4: "Secure Hash Standard (SHS)".

NOTE: Available at <http://nvlpubs.nist.gov/nistpubs/FIPS/NIST.FIPS.180-4.pdf>.

[11] OMA LightweightM2M (LwM2M) Object and Resource Registry – Connection Monitoring

NOTE: Available at https://technical.openmobilealliance.org/OMNA/LwM2M/LwM2MRegistry.html [12] 3GPP Specification #: 44.018 - Mobile radio interface layer 3 specification; GSM/EDGE Radio Resource Control (RRC) protocol

NOTE: Available at https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=2686 [13] 3GPP Specification #: 36.214 - Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer; Measurements

NOTE: Available at https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=2428

[14] 3GPP Specification #: 23.003 - Numbering, addressing and identification

NOTE: Available at https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=729

[15] 3GPP Specification #: 24.008 - Mobile radio interface Layer 3 specification; Core network protocols; Stage 3

NOTE: Available at https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=1015

[16] 3GPP Specification #: 36.331 - Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification

NOTE: Available at https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=2440

[17] 3GPP Specification #: 36.213 - Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer procedures

NOTE: Available at <https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=2427>

[18] ETSI TS 102 221: "Smart Cards; UICC-Terminal interface; Physical and logical characteristics"

NOTE: Available at https://www.etsi.org/deliver/etsi\_ts/102200\_102299/102221/15.00.00\_60/ts\_102221v150000p.pdf

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 1 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 2 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 7.1.1 Introduction

The present clause specifies <*mgmtObj*> resource specializations used to configure AEs or CSEs on ADN or ASN/MN nodes in the Field Domain in order to establish M2M Service Layer operation.

Table 7.1.1-1 shows a summary of <*mgmtObj*> resource specializations defined in the present document.

Table 7.1.1-1: Summary of defined <*mgmtObj*> resources

| **mgmtObj** | **mgmtDefinition** | **Intended use** | **Note** |
| --- | --- | --- | --- |
| Registration | 1020 | Service Layer Configuration information needed to register an AE or CSE with a Registrar CSE. | This is M2M Service Provider dependent. |
| dataCollection | 1021 | Application Configuration information needed to establish collection of data within the AE and transmit the data to the Hosting CSE using <container> and <contentInstance> resource types. | This is M2M Application dependent. |
| authenticationProfile | 1022 | Security information needed to establish mutually-authenticated secure communications |  |
| myCertFileCred | 1023 | Configuring a file containing a certificate and associated information |  |
| trustAnchorCred | 1024 | Identifies a trust anchor certificate and provides a URL from which the certificate can be retrieved. The trust anchor certificate can be used to validate a certificate which the Managed Entity uses to authenticate another entity. |  |
| MAFClientRegCfg | 1025 | Instructions for performing the MAF Client Registration procedure with a MAF. Links to an Authentication Profile instance. |  |
| MEFClientRegCfg | 1026 | Instructions for performing the MEF Client Registration procedure with a MEF. Links to an Authentication Profile instance. |  |
| OAuth2Authentication | 1027 | To store access token and refresh token used in OAuth2 security protocol. |  |
| wificlient | 1028 | To store configuration of WiFi connection on the client device. |  |
| SIM | 1029 | To store configuration of Subscriber Identification Module (SIM) |  |
| mobileNetwork | 1030 | To store information about the currently connected mobile network. |  |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 2 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 3 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 7.1.11 Resource [*SIM]*

This specialization of <mgmtObj> is used to store configuration of Subscriber Identification Module (SIM) and status information. These information are meant to configure devices, e.g. to activate or deactivate SIM on a device, as well as provide information about used and deployed SIM identifies to other entities.

For the sake of readability, the terms “SIM” and “Subscriber Identity Module” are used in the present document to refer either to a 3GPP subscription (2G and beyond) or to the physical/logical platform hosting the application handling authentication of the related subscriber onto a 3GPP network.

The *[SIM]* resource shall contain the child resources specified in table 7.1.11-1.

Table 7.1.11-1: Child resources of *[SIM]* resource

| Child Resources of *[wifiClient]* | Child Resource Type | Multiplicity | Description |
| --- | --- | --- | --- |
| *[variable]* | *<subscription>* | 0..n | See clause 9.6.8 of oneM2M TS-0001 [2] |

The *[SIM]* resource shall contain the attributes specified in table 7.1.11-2.

Table 7.1.11-2: Attributes of *[SIM]* resource

| Attributes of  *[wifiClient]* | Multiplicity | RW/ RO/ WO | Description |
| --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3 of oneM2M TS-0001 [2]. |
| *resourceID* | 1 | RO | See clause 9.6.1.3 of oneM2M TS-0001 [2]. |
| *resourceName* | 1 | WO | See clause 9.6.1.3 of oneM2M TS-0001 [2]. |
| *parentID* | 1 | RO | See clause 9.6.1.3 of oneM2M TS-0001 [2]. |
| *expirationTime* | 1 | RW | See clause 9.6.1.3 of oneM2M TS-0001 [2]. |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3 of oneM2M TS-0001 [2]. |
| *creationTime* | 1 | RO | See clause 9.6.1.3 of oneM2M TS-0001 [2]. |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3 of oneM2M TS-0001 [2]. |
| *labels* | 0..1(L) | RW | See clause 9.6.1.3 of oneM2M TS-0001 [2]. |
| *mgmtDefinition* | 1 | WO | See clause 9.6.15 of oneM2M TS-0001 [2].. This attribute shall have the fixed value 1029 (SIM). |
| *objectIDs* | 0..1 (L) | WO | See clause 9.6.15 of oneM2M TS-0001 [2]. |
| *objectPaths* | 0..1 (L) | WO | See clause 9.6.15 of oneM2M TS-0001 [2]. |
| *description* | 0..1 | RW | See clause 9.6.15 of oneM2M TS-0001 [2]. |
| *imsi* | 0..1 | RW | The *international mobile subscriber identity* (IMSI) is a number that is meant to uniquely identifies every 3GPP subscription. |
| *iccid* | 1 | RW | The physical/logical platform for each SIM is uniquely identified by its *integrated circuit card identifier* (ICCID) as specified in ETSI TS 102 221*.* It is also used to identify eSIM profiles. |
| *simStatus* | 0..1 | RW | The activation status of the SIM in the device. |
| *simType* | 0..1 | RW | The type of the SIM. |
| *serviceProviderName* | 0..1 | RW | The Service Provider Name (SPN) of a SIM. |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 3 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 4 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 7.1.12 Resource [*mobileNetwork]*

This specialization of <mgmtObj> is used to store information about the currently connected mobile network. These information can be derived from the network, but also be provided by an OSS (Operation Support System), or be provided by a device.

The *[mobileNetwork]* resource shall contain the child resources specified in table 7.1.12-1.

Table 7.1.12-1: Child resources of *[mobileNetwork]* resource

| Child Resources of *[wifiClient]* | Child Resource Type | Multiplicity | Description |
| --- | --- | --- | --- |
| *[variable]* | *<subscription>* | 0..n | See clause 9.6.8 of oneM2M TS-0001 [2] |

The *[mobileNetwork]* resource shall contain the attributes specified in table 7.1.12-2. The specialisation attributes are derived from and map to the LwM2M Object #4 “Connectivity Monitoring” definition [11].

Table 7.1.12-2: Attributes of *[mobileNetwork]* resource

| Attributes of  *[wifiClient]* | Multiplicity | RW/ RO/ WO | Description |
| --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3 of oneM2M TS-0001 [2]. |
| *resourceID* | 1 | RO | See clause 9.6.1.3 of oneM2M TS-0001 [2]. |
| *resourceName* | 1 | WO | See clause 9.6.1.3 of oneM2M TS-0001 [2]. |
| *parentID* | 1 | RO | See clause 9.6.1.3 of oneM2M TS-0001 [2]. |
| *expirationTime* | 1 | RW | See clause 9.6.1.3 of oneM2M TS-0001 [2]. |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3 of oneM2M TS-0001 [2]. |
| *creationTime* | 1 | RO | See clause 9.6.1.3 of oneM2M TS-0001 [2]. |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3 of oneM2M TS-0001 [2]. |
| *labels* | 0..1(L) | RW | See clause 9.6.1.3 of oneM2M TS-0001 [2]. |
| *mgmtDefinition* | 1 | WO | See clause 9.6.15 of oneM2M TS-0001 [2].. This attribute shall have the fixed value 1030 (mobileNetwork). |
| *objectIDs* | 0..1 (L) | WO | See clause 9.6.15 of oneM2M TS-0001 [2]. |
| *objectPaths* | 0..1 (L) | WO | See clause 9.6.15 of oneM2M TS-0001 [2]. |
| *description* | 0..1 | RW | See clause 9.6.15 of oneM2M TS-0001 [2]. |
| *cellularNetworkBearer* | 0..1 | RW | Indicates the cellular network bearer used for the current cellular communication session. |
| *radioSignalStrength* | 0..1 | RW | Indicates the average value of the received signal strength indication used in the current cellular network bearer. For the following network bearers the signal strength parameters indicated below are represented by this resource:  GSM: RSSI UMTS: RSCP LTE: RSRP NB-IoT: NRSRP |
| *linkQuality* | 0..1 | RW | This attribute contains received link quality e.g. LQI for IEEE 802.15.4 (range 0...255), RxQual Downlink for GSM (range 0...7, see 3GPP 44.018 [12]), RSRQ for LTE, (see 3GPP 36.214 [13]), NRSRQ for NB-IoT (see [13]). |
| *ipAddresses* | 0..1(L) | RW | The IP addresses assigned to the connectivity interface. (e.g. IPv4, IPv6, etc.) |
| *routerIPAddresses* | 0..1(L) | RW | The IP address of the next-hop IP router, on each of the interfaces specified in resource 4 (IP Addresses). |
| *apn* | 0..1 | RW | Access Point Name of the cellular network. |
| *cellID* | 0..1 | RW | Serving Cell ID of a cellular Network. |
| *smnc* | 0..1 | RW | Serving Mobile Network Code of a cellular network.  As specified in 3GPP 23.003 [14]. |
| *smcc* | 0..1 | RW | Serving Mobile Country Code of a cellular network. As specified in 3GPP 23.003 [14]. |
| *lac* | 0..1 | RW | Location Area Code for a Cellular Network. As specified in 3GPP 23.003 [14] and in 3GPP 24.008 [15]. |
| *coverageEnhancementLevel* | 0..1 | RW | Indicates the Coverage Enhancement Level of the UE in the serving cell. The Coverage Enhancement levels are defined and specified in 3GPP 36.331 [16] and 36.213 [17]. |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 4 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 5 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 7.2.11 Resource [SIM]

#### 7.2.11.1 Introduction

This specialization of <mgmtObj> is used to store configuration of Subscriber Identification Module (SIM) and status information.

Table 7.2.11.1‑1: Data Type Definition of [SIM]

|  |  |  |
| --- | --- | --- |
| Data Type ID | File Name | Note |
| wifiClient | DCFG-SIM.xsd |  |

Table 7.2.11.1‑2: Resource specific attributes of [SIM]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute Name | Request Optionality | | Data Type | Default Value and Constraints |
| Create | Update |
| mgmtDefinition | M | NP | See clause 7.4.15 of oneM2M TS-0004 [4]. | 1029 (SIM) |
| objectIDs | O | NP | See clause 7.4.15 of oneM2M TS-0004 [4]. |  |
| objectPaths | O | NP | See clause 7.4.15 of oneM2M TS-0004 [4]. |  |
| description | O | O | See clause 7.4.15 of oneM2M TS-0004 [4]. |  |
| imsi | O | O | dcfg:imsi |  |
| iccid | M | O | dcfg:iccid |  |
| simStatus | O | O | dcfg:simStatus |  |
| simType | O | O | dcfg:simType |  |
| serviceProviderName | O | O | xs:string |  |

#### 7.2.11.2 Resource specific procedure on CRUD operations

### When management is performed using technology specific protocols, the procedures defined in clause 7.4.15.2 of oneM2M TS-0004 [4], '<mgmtObj> specific procedures' shall be used. There is no change from the generic procedures in clause 7.2.2 of oneM2M TS-0004 [4] for operations on this resource. oneM2M TS-0005 [5] and oneM2M TS 0006 [6] provide the mapping of these resources into the technology specific protocol data model.

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 5 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 6 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 7.2.12 Resource [mobileNetwork]

#### 7.2.12.1 Introduction

This specialization of <mgmtObj> is used to store configuration of Subscriber Identification Module (SIM) and status information.

Table 7.2.12.1‑1: Data Type Definition of [mobileNetwork]

|  |  |  |
| --- | --- | --- |
| Data Type ID | File Name | Note |
| wifiClient | DCFG-mobileNetwork.xsd |  |

Table 7.2.12.1‑2: Resource specific attributes of [mobileNetwork]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute Name | Request Optionality | | Data Type | Default Value and Constraints |
| Create | Update |
| mgmtDefinition | M | NP | See clause 7.4.15 of oneM2M TS-0004 [4]. | 1030 (mobileNetwori) |
| objectIDs | O | NP | See clause 7.4.15 of oneM2M TS-0004 [4]. |  |
| objectPaths | O | NP | See clause 7.4.15 of oneM2M TS-0004 [4]. |  |
| description | O | O | See clause 7.4.15 of oneM2M TS-0004 [4]. |  |
| cellularNetworkBearer | O | O | dcfg:cellularNetworkBearerType |  |
| *radioSignalStrength* | O | O | xs:integer |  |
| *linkQuality* | O | O | xs:integer |  |
| *ipAddresses* | O | O | list of m2m:ipAddress |  |
| *routerIPAddresses* | O | O | list of m2m:ipAddress |  |
| *apn* | O | O | dcfg:apn |  |
| *cellID* | O | O | xs:integer |  |
| *smnc* | O | O | xs:integer |  |
| *smcc* | O | O | xs:integer |  |
| *lac* | O | O | dcfg:lac |  |
| *coverageEnhancementLevel* | O | O | dcfg:coverageEnhancementLevel |  |

#### 7.2.12.2 Resource specific procedure on CRUD operations

### When management is performed using technology specific protocols, the procedures defined in clause 7.4.15.2 of oneM2M TS-0004 [4], '<mgmtObj> specific procedures' shall be used. There is no change from the generic procedures in clause 7.2.2 of oneM2M TS-0004 [4] for operations on this resource. oneM2M TS-0005 [5] and oneM2M TS 0006 [6] provide the mapping of these resources into the technology specific protocol data model.

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 6 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 7 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 7.3.2 Simple oneM2M data types for device configuration

Table 7.3.2-1 describes simple data type definitions specific to security. The types in table 7.3.2-1 are either:

1. Atomic data types derived from XML Schema data types by restrictions other than enumeration
2. List data types constructed from other XML Schema or oneM2M-defined atomic data types.

Table 7.3.2-1: oneM2M simple data types for device configuration

| **XSD type name** | **Used for** | **Examples** | **Description** |
| --- | --- | --- | --- |
| dcfg:TLSCiphersuite | A TLS Ciphersuite identifier | C0A5 | Four hexadecimal characters representing a TLS Cipher suite identifier. The list of TLS cipher suites identifiers can be found at the IANA TLS Cipher Suite Registry [8] |
| dcfg:ListOfTLSCiphersuite | A list of TLS Ciphersuite identifiers |  | xs:list of elements of data type dcfg:TLSCiphersuite |
| dcfg:niURI | Identifying information with a hash value | ni:///sha-256;UyaQV...  ni:///1;UyaQV... ("1" is a short identifier for sha-256) | An xs:anyURI conforming to the Named Information 'ni' URI scheme specified in IETF RFC 6920 [7], with no authority field. |
| dcfg:nihURI | Identifying information with a human speakable encoding of a hash value | nih:sha-256-32;53269057;b  nih:sha-256-32;5326-9057;b  nih:6;5326-9057 ("6" is a short identifier for sha-256-32) | An xs:anyURI conforming to the Human Speakable Named Information 'nih' URI scheme specified in IETF RFC 6920 [7], with no authority field. A checkdigit may be present. |
| dcfg:ssid | SSID of WiFi network |  | The ssid of wifi network |
| dcfg:listOfSsids | List of SSIDs |  | xs:list of elements of data type m2m:ssid. |
| dcfg:imsi | IMSI of a SIM | 262019876543210 | IMSI compliant numerical representation |
| dcfg:iccid | ICCID of a SIM | 89490200000829149056 | ICCID alphanumerical representation |
| dcfg:apn | APN of a cellular network | internet.t-mobile | xs:string with an internal format that follows the structure of an APN (Access Point Name). It usually consists of a network identifier and an operator identifier. See [14]. |
| dcfg:lac | Location Area Code for a cellular network | 0x0523 | A Location Area Code is a fixed length code of 2 octets identifying a location area. The data type is xs:integer. |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 7 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 8 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 7.3.3.3 dcfg:simStatus

Used for indicating a SIM status.

Table 7.3.3.3-1: Interpretation of dcfg:simStatus

|  |  |  |
| --- | --- | --- |
| Value | Interpretation | Note |
| 0 | inactive |  |
| 1 | active |  |

#### 7.3.3.4 dcfg:simType

Used for indicating a SIM type.

Table 7.3.3.4-1: Interpretation of dcfg:simType

|  |  |  |
| --- | --- | --- |
| Value | Interpretation | Note |
| 0 | UICC (removable) |  |
| 1 | eUICC (removable) |  |
| 2 | eUICC (non-removable) |  |
| 3 | iUICC |  |

#### 7.3.3.5 dcfg:cellularNetworkBearerType

Used for indicating a Cellular Network Bearer type.

Table 7.3.3.5-1: Interpretation of dcfg:cellularNetworkBearerType

|  |  |  |
| --- | --- | --- |
| Value | Interpretation | Note |
| 0 | GSM cellular network |  |
| 1 | TD-SCDMA cellular network |  |
| 2 | WCDMA cellular network |  |
| 3 | CDMA2000 cellular network |  |
| 4 | WiMAX cellular network |  |
| 5 | LTE-TDD cellular network |  |
| 6 | LTE-FDD cellular network |  |
| 7 | NB-IoT |  |

#### 7.3.3.6 dcfg:coverageEnhancementLevel

Used for indicating a Coverage Enhancement Level.

Table 7.3.3.6-1: Interpretation of dcfg:coverageEnhancementLevel

|  |  |  |
| --- | --- | --- |
| Value | Interpretation | Note |
| 0 | No Coverage Enhancement in the serving cell |  |
| 1 | Coverage Enhancement level 0 |  |
| 2 | Coverage Enhancement level 1 |  |
| 3 | Coverage Enhancement level 2 |  |
| 4 | Coverage Enhancement level 3 |  |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 8 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 9 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

## 9.2 Common and Field Device Configuration specific oneM2M Resource attributes

In protocol bindings, resource attribute names shall be translated into short names of table 9.2-1 and in table 8.2.3-1 of oneM2M TS-0004 [4].

Table 9.2-1: Common and Field Device Configuration specific oneM2M Attribute Short Names

| **Attribute Name** | **Occurs in** | **Short Name** | **Notes** |
| --- | --- | --- | --- |
| *resourceType* | All | ***ty*** | Defined in oneM2M TS-0004 [4]. |
| *resourceID* | All | ***ri*** | Defined in oneM2M TS-0004 [4]. |
| *resourceName* | All | ***rn*** | Defined in oneM2M TS-0004 [4]. |
| *parentID* | All | ***pi*** | Defined in oneM2M TS-0004 [4]. |
| *expirationTime* | All | ***et*** | Defined in oneM2M TS-0004 [4]. |
| *creationTime* | All | ***ct*** | Defined in oneM2M TS-0004 [4]. |
| *Labels* | All | ***lbl*** | Defined in oneM2M TS-0004 [4]. |
| *lastModifiedTime* | All | ***lt*** | Defined in oneM2M TS-0004 [4]. |
| *description* | All | ***dc*** | Defined in oneM2M TS-0004 [4]. |
| *mgmtDefinition* | All | ***mgd*** | Defined in oneM2M TS-0004 [4]. |
| *objectIDs* | All | ***obis*** | Defined in oneM2M TS-0004 [4]. |
| *objectPaths* | All | ***obps*** | Defined in oneM2M TS-0004 [4]. |
| *mgmtLink* | All | ***cmlk*** | Defined in oneM2M TS-0004 [4]. |
| *CSE-ID* | registration | ***csi*** | Defined in oneM2M TS-0004 [4]. |
| *CSEBase* | registration | ***cb*** | Defined in oneM2M TS-0004 [4]. |
| *originatorID* | registration | ***oid*** |  |
| *pointOfAccess* | registration | ***poa*** |  |
| *appID* | registration | ***apid*** |  |
| *externalID* | registration | ***eid*** |  |
| *Trigger-Recipient-ID* | registration | ***tri*** | Defined in oneM2M TS-0004 [4]. |
| *containerPath* | dataCollection | ***cntp*** |  |
| *reportingSchedule* | dataCollection | ***rpsc*** |  |
| *measurementSchedule* | dataCollection | ***mesc*** |  |
| *SUID* | authenticationProfile | ***suid*** |  |
| *TLSCiphersuites* | authenticationProfile | ***tlcs*** |  |
| *symmKeyID* | authenticationProfile | ***ski*** |  |
| *symmKeyValue* | authenticationProfile | ***skv*** |  |
| *MAFKeyRegLabels* | authenticationProfile | ***mkrl*** |  |
| *MAFKeyRegDuration* | authenticationProfile | ***mkrd*** |  |
| *mycertFingerprint* | authenticationProfile | ***mcfp*** |  |
| *rawPubKeyID* | authenticationProfile | ***rpki*** |  |
| *SUIDs* | myCertFileCred | ***suids*** |  |
| *myCertFileFormat* | myCertFileCred | ***mcff*** |  |
| *myCertFileContent* | myCertFileCred | ***mcfc*** |  |
| *certFingerprint* | trustAnchorCred | ***cfp*** |  |
| *URI* | trustAnchorCred | ***uri*** | Defined in oneM2M TS-0004 [4]. |
| *Fqdn* | MEFClientRegCfg,  MAFClientRegCfg | ***fq*** | Defined in oneM2M TS-0032 [9]. |
| *adminFQDN* | MEFClientRegCfg, MAFClientRegCfg | ***adfq*** | Defined in oneM2M TS-0032 [9]. |
| *httpPort* | MEFClientRegCfg, MAFClientRegCfg | ***hpt*** | Defined in oneM2M TS-0032 [9]. |
| *coapPort* | MEFClientRegCfg, MAFClientRegCfg | ***copt*** | Defined in oneM2M TS-0032 [9]. |
| *websocketPort* | MEFClientRegCfg, MAFClientRegCfg | ***wpt*** | Defined in oneM2M TS-0032 [9]. |
| accessToken | OAuth2Authentication | ***atk*** |  |
| refreshToken | OAuth2Authentication | ***rtk*** |  |
| ssid | wifiClient | ***ssid*** |  |
| credentials | wifiClient | ***cred*** |  |
| macAddress | wifiClient | ***maca*** |  |
| channel | wifiClient | ***chan*** |  |
| connectionStatus | wifiClient | ***cons*** |  |
| scan | wifiClient | ***scan*** |  |
| scanResult | wifiClient | ***scanr*** |  |
| update | wificlient, | ***ud*** | Defined in oneM2M TS-0004 [4]. |
| *updateStatus* | wifiClient | ***uds*** | Defined in oneM2M TS-0004 [4]. |
| *toggleRadioStatus* | wifiClient | ***trdst*** |  |
| *radioStatus* | wifiClient | ***rdst*** |  |
| *imsi* | SIM | ***imsi*** |  |
| *iccid* | SIM | ***icid*** |  |
| *simStatus* | SIM | ***sist*** |  |
| *simType* | SIM | ***sity*** |  |
| *serviceProviderName* | SIM | ***spn*** |  |
| *cellularNetworkBearer* | mobileNetwork | ***cnb*** |  |
| *radioSignalStrength* | mobileNetwork | ***rss*** |  |
| *linkQuality* | mobileNetwork | ***liqu*** |  |
| *ipAddresses* | mobileNetwork | ***ipad*** |  |
| *routerIPAddresses* | mobileNetwork | ***ripa*** |  |
| *apn* | mobileNetwork | ***apna*** |  |
| *cellID* | mobileNetwork | ***ceid*** |  |
| *smnc* | mobileNetwork | ***smnc*** |  |
| *smcc* | mobileNetwork | ***smcc*** |  |
| *lac* | mobileNetwork | ***lac*** |  |
| *coverageEnhancementLevel* | mobileNetwork | ***coel*** |  |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 9 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 10 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

## 9.3 Field Device Configuration specific oneM2M Resource types

In protocol bindings, resource type names of the <mgmtObj> specializations shall be translated into the short names of table 9.3-1.

Table 9.3-1: Field Device Configuration specific Resource Type Short Names

| **ResourceType Name** | **Short Name** |
| --- | --- |
| *registration* | ***reg*** |
| *registrationAnnc* | ***regA*** |
| *dataCollection* | ***datc*** |
| *dataCollectionAnnc* | ***datcA*** |
| *authenticationProfile* | ***autp*** |
| *MAFClientRegCfg* | ***macrc*** |
| *MEFClientRegCfg* | ***mecrc*** |
| *myCertFileCred* | ***nycfc*** |
| *trustAnchorCred* | ***tac*** |
| *wifiClient* | ***wfct*** | |
| *OAuth2Authentication* | ***Oaan*** | |
| *SIM* | ***sim*** | |
| *mobileNetwork* | ***mnwk*** | |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 10 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*