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| CHANGE REQUEST | |
| Meeting ID:\* | SDS #47 |
| Source:\* | Andreas Kraft, DT, [Andreas.Kraft@t-systems.com](mailto:Andreas.Kraft@t-systems.com)  Andreas Neubacher, DT, [Andreas.Neubacher@magenta.at](mailto:Andreas.Neubacher@magenta.at) |
| Date:\* | 2020-10-14 |
| Reason for Change/s:\* | Moving RFC3986 to normative references in TS-0001 (R4) |
| CR against: Release\* | Release 4 |
| 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-0001-V4.7.0 |
| Clauses \* | Modified clauses: 2, 7.2, 9.3.2.2.3.0 |
| 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 change request proposes corrections for referencing the IETF RFC 3986 throughout TS-0001. That RFC is referenced in a normative way and needs to be moved from the “informative references” to the “normative references” section.

Change 1 proposes this change. The old reference (i.10) is voided. Please note that the title of the RFC is also corrected.

Change 2 corrects the reference in the “Identifier Formats” section where this RFC is referenced.

Change 3 correct the reference in another section where this RFC is referenced.

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

# 2 References

## 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 reference 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-0003: " Security Solutions".

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

[4] W3C RDF 1.1 Concepts and Abstract Syntax.

[5] W3C SPARQL 1.1 Query Language.

[6] oneM2M TS-0012: "oneM2M Base Ontology".

[7] oneM2M TS-0021: "oneM2M and AllJoyn Interworking".

[8] oneM2M TS-0023: "Home Appliances Information Model and Mapping".

[9] oneM2M TS-0016: “Secure Environment Abstraction”

[10] oneM2M TS-0022: "Field Device Configuration".

[11] IETF RFC 5771: “IANA Guidelines for IPv4 Multicast Address Assignments”.

[12] IETF RFC 2357: “IPv6 Multicast Address Assignments”.

[13] oneM2M TS-0032: ‘MAF and MEF Interface Specification”.

[14] oneM2M TS-0034: "Semantics Support".

[15] oneM2M TS-0026: "3GPP Interworking".

[16] IETF RFC 7946: "The GeoJSON Format".

NOTE: Available at <https://tools.ietf.org/html/rfc7946>

[17] IETF RFC 4566: "SDP: Session Description Protocol".

[18] IETF RFC 3986: "Uniform Resource Identifier (URI): Generic Syntax".

## 2.2 Informative 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 reference document (including any amendments) applies.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] oneM2M TS-0002: "Requirements".

[i.2] Broadband Forum TR-069: "CPE WAN Management Protocol Issue": 1 Amendment 5, November 2013.

[i.3] OMA-DM: "OMA Device Management Protocol", Version 1.3, Open Mobile Alliance.

[i.4] LWM2M: "OMA LightweightM2M", Version 1.0, Open Mobile Alliance.

[i.5] OMA-TS-MLP-V3-4-20130226-C: "Mobile Location Protocol", Version 3.4.

[i.6] OMA-TS-REST-NetAPI\_TerminalLocation-V1\_0-20130924-A: "RESTful Network API for Terminal Location", Version 1.0.

[i.7] IETF RFC 1035: "Domain names - Implementation and specification".

[i.8] IETF RFC 3588: "Diameter Base Protocol".

[i.9] IETF RFC 3596: "DNS Extensions to Support IP Version 6".

[i.10] void

[i.11] IETF RFC 4006: "Diameter Credit-Control Application".

[i.12] IETF RFC 6895: "Domain Name System (DNS) IANA Considerations".

[i.13] GSMA-IR.67: "DNS/ENU Guidelines for Service Providers & GRX/IPX Providers".

[i.14] 3GPP TS 23.682: "Architecture enhancements to facilitate communications with packet data networks and applications (Release 13)".

[i.15] ETSI TS 132 240: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Charging management; Charging architecture and principles (3GPP TS 32.240)".

[i.16] ETSI TS 132 299: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Charging management; Diameter charging applications (3GPP TS 32.299)".

[i.17] 3GPP2.S0068: "Network Enhancements for Machine to Machine (M2M)".

[i.18] JNI 6.0 API Specification: "Java Native Interface 6.0 Specification". .

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[i.23] 3GPP TS 23.003: "Numbering, addressing and identification".

[i.24] Recommendation ITU-T X.660 | ISO/IEC 9834-1: "Information technology - Procedures for the operation of object identifier registration authorities: General procedures and top arcs of the international object identifier tree".

[i.25] oneM2M TR-0008: "Analysis of Security Solutions for oneM2M System".

[i.26] IETF RFC 4122: "A Universally Unique IDentifier (UUID) URN Namespace".

[i.27] oneM2M Drafting Rules.

NOTE: Available at <http://www.onem2m.org/images/files/oneM2M-Drafting-Rules.pdf>

[i.28] oneM2M TR-0007: "Study of Abstraction and Semantics Enablement".

Void

Void

[i.31] OMA-TS-REST-NetAPI-CommunicationPatterns-V1-0: '"RESTful Network API for Communication Patterns'", Version 1.0, Open Mobile Alliance.

[i.[32](#REF_3GPPTS23246)] 3GPP TS 23.246: Multimedia Broadcast/Multicast Service (MBMS); Architecture and functional description; (Release 14).

[i.33] 3GPP TS 23.468: Group Communication System Enablers for LTE (GCSE\_LTE); (Release 14).

[i.34] IETF RFC 3171: “IANA Guidelines for IPv4 Multicast Address Assignments”, 2001

[i.35] IETF RFC 4291: “IP Version 6 Addressing Architecture”, 2006

[i.36] IETF RFC 6838: “Media Type Specifications and Registration Procedures”, 2013

[i.[37](#REF_IETFRFC3987)] IETF RFC 3987: "Internationalized Resource Identifiers (IRIs)".

NOTE: Available at <https://www.ietf.org/rfc/rfc3987.txt>.

[i.38] oneM2M TR-0052: "Study on Edge and Fog Computing in oneM2M systems".

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

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

7.2 Identifier formats

As a general rule, the identifiers of AEs, CSEs, Service Subscriptions, Service Subscribers, Service Users and resources are globally unique. In order to optimize their use, the identifiers shall be shortened when their scope can be derived from their context of use by the CSEs and the AEs. Such shortened identifiers are defined as 'relative' formats of the identifiers.

TheM2M system shall use the identifiers M2M-SP-ID, CSE-ID, App-ID, AE-ID, M2M-Sub-ID, M2M-SS-ID, M2M-User-ID and resource identifiers according to the formats and the rules specified in the following table (table 7.2-1).

**Table 7.2-1: Identifier formats and rules of use**

| **Identifier Name** | **Absolute & Format-Designator  or Relative & Format-Designator & Context** | Format | **Rule of use** |
| --- | --- | --- | --- |
| M2M-SP-ID | Absolute  M2M-SP-ID | The M2M-SP-ID shall conform to the FQDN format defined in the IETF RFC 1035 [i.7] prefixed by '//'  The format then has the structure of  //{FQDN}  Where {FQDN} is a placeholder for the Fully Qualified Domain Name of the M2M Service Provider Domain   Examples:   * //www.m2mprovider.com * //globalm2m.org   The following two M2M-SP-IDs could be used to separate two service segments:  //automotive.m2m.telematics-service-company.com  //building-management.m2m.telematics-service-company.com | Whenever The M2M-SP-ID is used, only an Absolute format of the M2M-SP-ID defined herein applies |
| CSE-ID | Relative  SP-relative-CSE-ID  Context: M2MService Provider Domain of the CSE | The SP-relative-CSE-ID begins with a slash character '/' and is followed by a sequence of characters that may include any of the unreserved characters defined in the clause 2.3 of the IETF RFC 3986 [18].  The SP-relative-CSE-ID is unique within the context of the M2M-SP Domain hosting the CSE.  The M2M-SP is assigning the SP-Relative-CSE-ID and is responsible for guaranteeing that the SP-Relative-CSE-ID is unique in the context of the hosting M2M-SP Domain.  Examples:   * /123A38ZZY * /CSE090112 * /3ace4fd3 | On the Mca and Mcc reference points: to refer to CSEs that are in the same M2M Service Provider Domain of the Receiver CSE. |
|  | Absolute  Absolute-CSE-ID | Concatenation according to the format  {M2M-SP-ID}{SP-relative-CSE-ID}  where {M2M-SP-ID} and {SP-relative-CSE-ID} are placeholders for the M2M-SP-ID and the SP-relative-CSE-ID format of the CSE-ID, respectively.  The Absolute-CSE-ID complies with what is specified in clause 3 of IETF RFC 3986 [18] under "hier-part".  Examples:   * //www.m2mprovider.com/C3219 * //m2m.thingscompany.com/ab3f124a | On Mca, Mcc and Mcc’ reference points: to refer to CSEs that are in different M2M Service Provider Domains |
| AE-ID | Relative   AE-ID-Stem  Context:  Registrar CSE of the AE   or  M2MService Provider Domain of the AE | The AE-ID-Stem is a sequence of characters that may include any of the unreserved characters defined in the clause 2.3 of the IETF RFC 3986 [18].  The first character of the AE-ID-Stem has a specific meaning and its value shall be as follows:   1. Fist character of AE-ID-Stem is 'C' The AE-ID-Stem is assigned by the Registrar CSE of the AE. In this case, the AE-ID-Stem shall be unique within the context of the Registrar CSE of the AE. The Hosting CSE is responsible for guaranteeing that the AE-ID-Stem is unique in the context of the Hosting CSE.  Examples:    * C190XX7T    * Ca3e3f3ab 2. Fist character of AE-ID-Stem is 'S': The AE-ID-Stem is assigned by the M2M-SP. In this case, the AE-ID-Stem shall be unique within the context of the M2M-SP Domain. The M2M-SP is responsible for guaranteeing that the AE-ID-Stem is unique in the context of the M2M-SP Domain.   Examples:    * S190XX7T    * Sa3e3f3ab   Use of other values for the first character of AE-ID-Stem is reserved. Which of the cases above shall apply will be determined during the AE registration procedure. The details of the process how an AE-ID-Stem unique within the M2M-SP Domain is assigned by the M2M-SP are described in the AE registration procedure description. | On the Mca reference point: to refer to AEs that registered to the Receiver CSE. |
|  | Relative  SP-relative-AE-ID  Context: M2M Service Provider Domain of the AE | 1. In the case the AE-ID-Stem starts with the letter 'C', the SP-relative-AE-ID is a concatenation according to the format  {SP-relative-CSE-ID}/{AE-ID-Stem}  where {SP-relative-CSE-ID} and {AE-ID-Stem} are placeholders for the SP-relative-CSE-ID of the Registrar CSE of the AE and the AE-ID-Stem format of the AE-ID, respectively.  Examples:    * /CSE090112/C190XX7T    * /3ace4fd3/Ca3e3f3ab 2. In the case the AE-ID-Stem starts with the letter 'S', the AE-ID-Stem is unique within the M2M-SP Domain. In that case the SP-relative-AE-ID is a concatenation according to the format  /{AE-ID-Stem}  where {AE-ID-Stem} is a placeholder for the AE-ID-Stem format of the AE-ID.  Examples:    * /S190XX7T    * /Sa3e3f3ab   The SP-relative-AE-ID begins with a slash character '/', and it complies with what is specified in clause 4.2 of IETF RFC 3986 [18] under "absolute-path reference". | On the Mca and Mcc reference points: to refer to AEsin the same M2M Service Provider Domain. |
|  | Absolute  Absolute-AE-ID | The Absolute-AE-ID format of the AE-ID is a concatenation according to the format:  {M2M-SP-ID}{SP-relative-AE-ID}  where {M2M-SP-ID} and {SP-relative-AE-ID} are placeholders for the M2M-SP-ID and the SP-relative-AE-ID format of the AE-ID, respectively.  The absolute AE-ID complies with what is specified in clause 3 of IETF RFC 3986 [18] under "hier-part".  Examples:   * //m2m.prov.com/CSE3219/C9886 * //m2m.things.com/ab3f124a/Ca2efb3f4 * //m2m.things.com/S98821 | On the Mca, Mcc and Mcc’ reference points: to refer to AEs that are in different M2M Service Provider Domains |
| Resource identifier | Relative  Unstructured-CSE-relative-Resource-ID  Context: CSE hosting the Resource | An Unstructured-CSE-relative-Resource-ID is a sequence of characters that may include any of the unreserved characters defined in the clause 2.3 of the IETF RFC 3986 [18].  An Unstructured-CSE-relative-Resource-ID is unique in the context of the CSE hosting the resource.  The Hosting CSE of the resource is responsible for guaranteeing that Unstructured-CSE-relative Resource-IDs are unique in the context of the Hosting CSE.  Examples:   * container123 * a1b2c3d4b0b00f0fa66a123456789abc * xxyz1234 | On the Mca and Mcc reference point: to refer to resources that are hosted by the CSE which is the Registrar CSE of the Originator. |
|  | Relative  Structured-CSE-relative-Resource-ID  Context: CSE hosting the resource | A Structured-CSE-relative-Resource-ID is a sequence of characters that may include any of the unreserved characters defined in the clause 2.3 of the IETF RFC 3986 [18], as well as the slash character. It shall not start with the slash character.  A Structured-CSE-relative Resource-ID is unique in the context of the CSE hosting the resource. The structure represents a chain of parent-child-relationships using resource IDs or resource names of parents and resource names of their children for segments that are separated by the '/' character. The first segment is one of the following:   1. the resource name of <CSEBase> resource, 2. the character "-" (dash) as a shortcut for the resource name of <CSEBase> resource, 3. the Unstructured-CSE-relative-Resource-ID of a parent resource on the Hosting CSE. When this is used, the second segment shall be the resourceName of a virtual resource.   Note: In case of C above, for conveninence it is called a hybrid resource identifier.  The Hosting CSE of the resource is responsible for guaranteeing that resource names - which are used to construct Structured-CSE-relative-Resource-ID formats - are unique in the context of a set of sibling resources sharing the same parent resource on the Hosting CSE.  Examples:   * bigCSE025/mainStreet/house5432/livingRoom/temperature  This example is the Structured-CSE-relative-Resource-ID of a <container> resource, where "bigCSE025" is assumed to be the name of the <CSEBase> resource, followed by four "/"-separated segments with names of <container> resources that are nested child resources thereof. * CSE-Building-A3/HVAC-AE/WaterTemp/sample0098  This example is the Structured-CSE-relative-Resource-ID of a <contentInstance> resource, where "CSE-Building-A3" is assumed to be the name of the <CSEBase> resource, followed by "/" plus the name "HVAC-AE" of an <AE> child resource, followed by "/" plus the name "WaterTemp" of a <container> child resources, followed by "/" plus the name "sample0098" of a child <contentInstance> resource. * ./HVAC-AE/WaterTemp/sample0098  This example is the Structured-CSE-relative-Resource-ID of a <contentInstance> resource, where the dash symbol "-" is used as a shortcut for the name of the <CSEBase> resource, followed by "/" plus the name "HVAC-AE" of an <AE> child resource, followed by "/" plus the name "WaterTemp" of a <container> child resource, followed by "/" plus the name "sample0098" of a child <contentInstance> resource. * 000AFE030003/sample0098  This example is the Structured-CSE-relative-Resource-ID of a <contentInstance> resource, where "000AFE030003" is assumed to be the Unstructured-CSE-relative-Resource-ID of a <container> resource, followed by "/" plus the name "sample0098" of a child <contentInstance> resource. | On the Mca and Mcc reference point: To refer to resources that are hosted by the CSE receiving a request targeting a resource. |
|  | Relative  SP-relative Resource-ID  Context: M2MService Provider Domain hosting the resource | Concatenation according to the format:  {SP-relative-CSE-ID}/{Unstructured-CSE-relative Resource ID}  {SP-relative-CSE-ID}/{Structured-CSE-relative Resource ID}  where {SP-relative-CSE-ID}, {Unstructured-CSE-relative Resource ID}, {Structured-CSE-relative Resource ID} are placeholders for the SP-relative-CSE-ID format of the CSE-ID and the Unstructured-CSE-relative-Resource-ID or a Structured-CSE-relative-Resource-ID format of the Resource ID, respectively.  The SP-relative-Resource-ID begins with a slash character, and it complies with what is specified in clause 4.2 of IETF RFC 3986 [18] under "absolute-path reference".  The SP-relative Resource ID is unique in the context of the Service Provider.  Examples:   * /CSE987776/a234361   This example is the SP-relative Resource-ID of a resource – not assuming any specific resource type – where the resource is hosted on a CSE with the SP-relative-CSE-ID "/CSE987776" and where the Unstructured-CSE-relative-Resource-ID is "a234361".   * /CSE00030F003A/CSE-Building-A3/HVAC-AE/WaterTemp/sample0098  This example is the SP-relative Resource-ID of a <contentInstance> resource, where the targeted resource is hosted on a CSE with the SP-relative-CSE-ID "/CSE00030F003A" and where the CSE-ID is followed by "/" plus the name "CSE-Building-A3" of the <CSEBase> resource, followed by "/" plus the name "HVAC-AE" of an <AE> child resource, followed by "/" plus the name "WaterTemp" of a <container> child resource, followed by "/" plus the name "sample0098" of the targeted child <contentInstance> resource. * /CSE00030F003A/./HVAC-AE/WaterTemp/sample0098  This example is the SP-relative Resource-ID of a <contentInstance> resource, where the targeted resource is hosted on a CSE with the SP-relative-CSE-ID "/CSE00030F003A" and where the CSE-ID is followed by "/" plus the dash symbol "-" as a shortcut for the name of the <CSEBase> resource, followed by "/" plus the name "HVAC-AE" of an <AE> child resource, followed by "/" plus the name "WaterTemp" of a <container> child resource, followed by "/" plus the name "sample0098" of the targeted child <contentInstance> resource. * /CSE00030F003A/000AFE030003/sample0098  This example is the SP-relative Resource-ID of a <contentInstance> resource, where the targeted resource is hosted on a CSE with the SP-relative-CSE-ID "/CSE00030F003A" and where the CSE-ID is followed by "/" plus the Unstructured-CSE-relative-Resource-ID "000AFE030003" of a <container> resource, followed by "/" plus the name "sample0098" of the targeted child <contentInstance> resource. | On the Mca and Mcc reference points: to refer to resources that are hosted by the CSE in the same M2M Service Provider Domain as the Originator. |
|  | Absolute  Absolute Resource ID | Concatenation according to the format:  {M2M-SP-ID}{SP-relative Resource ID}  where {M2M-SP-ID} and {SP-relative Resource ID} are placeholders for the M2M-SP-ID and the SP-relative Resource ID format of the Resource ID, respectively.  The Absolute-CSE-ID complies with what is specified in clause 3 of IETF RFC 3986 [18] under "hier-part".  Examples:   * //www.m2mprovider.com / CSE987776/a234361   This example is the Absolute Resource-ID of a resource – not assuming any specific resource type – where the resource is hosted within the domain of the M2M-Service Provider with the M2M-SP-ID "//www.m2mprovider.com" on a CSE with SP-relative-CSE-ID "/CSE987776" and where the Unstructured-CSE-relative-Resource-ID of the targeted resource is "a234361".   * //www.m2mprovider.com /CSE00030F003A/CSE-Building-A3/HVAC-AE/WaterTemp/sample0098  This example is the Absolute Resource-ID of a <contentInstance> resource, where the targeted resource is hosted within the domain of the M2M-Service Provider with the M2M-SP-ID "//www.m2mprovider.com" on a CSE with the SP-relative-CSE-ID "/CSE00030F003A" and where the CSE-ID is followed by "/" plus the name "CSE-Building-A3" of the <CSEBase> resource, followed by "/" plus the name "HVAC-AE" of an <AE> child resource, followed by "/" plus the name "WaterTemp" of a <container> child resource, followed by "/" plus the name "sample0098" of the targeted child <contentInstance> resource. | On Mca, Mcc and Mcc’ reference **points**: to refer to resources that are hosted by the CSE in a different M2M Service Provider Domain than the Originator’s. |
| APP-ID | App-ID | App-ID is either registered with the M2M App‑ID Registration Authority or non-registered.  Registered App-IDs shall be in the format:  R{authority‑ID}.{reverseDNS}.{applicationName}  The {reverseDNS} part shall be a string value following 'reverse DNS notation', which is constructed in the reverse order of domain name components (see IETF RFC 1035 [i.7])  Non-registered App-IDs shall be in the format:  N{non-registered-App-ID}  Examples:   * Ra01.com.company.smartcity * Nk836-t071-fc022 | AE Registration Procedure described in clause 10.2.2.2.  The first character of the App-ID shall be a capital letter of ‘R’ for registered and ‘N’ for non-registered. |
| M2M-Sub-ID | Relative  SP-relative-M2M-Sub-ID  Context: M2M Service Provider Domain of the M2M Service Subscriber | The SP-relative-M2M-Sub-ID begins with a slash character '/' and is followed by a sequence of characters that includes any of the unreserved characters defined in clause 2.3 of the IETF RFC 3986 [18].  The SP-relative-M2M-Sub-ID is unique within the context of the M2M Service Provider Domain of the M2M Service Subscriber.  The M2M Service Provider assigns the SP-relative-M2M-Sub-ID and is responsible for guaranteeing that it is unique within the context of the M2M Service Proivder’s Domain.  Example:   * /subscription783567 | Uniquely identifies a M2M Service Subscription within the M2M Service Provider Domain of the M2M Service Subscriber. |
| Absolute  Absolute-M2M-Sub-ID | Concatenation according to the format  {M2M-SP-ID}{SP-relative-M2M-Sub-ID}  where {M2M-SP-ID} and {SP-relative-M2M-Sub-ID} are placeholders for the M2M-SP-ID and the SP-relative-M2M-Sub-ID format of the M2M-Sub-ID respectively. | Uniquely identifies a M2M Service Subscription within a different M2M Service Provider Domain than the M2M Service Subscriber’s. |
| M2M-SS-ID | Relative  SP-relative-M2M-SS-ID  Context: M2M Service Provider Domain of the M2M Service Subscriber | The SP-relative-M2M-SS-ID begins with a slash character '/' and is followed by a sequence of characters that includes any of the unreserved characters defined in the clause 2.3 of the IETF RFC 3986 [18].  The SP-relative-M2M-SS-ID is unique within the context of the M2M Service Provider Domain of the M2M Service Subscriber.  The M2M Service Provider assigns the SP-relative-M2M-SS-ID and is responsible for guaranteeing that it is unique in the context of the M2M Service Provider’s Domain.  Examples:   * /SS123ABC * /7689ayx | On the Mca and Mcc reference points: Uniquely identifies a M2M Service Subscriber within the M2M Service Provider Domain of the M2M Service Subscriber |
|  | Absolute  Absolute-M2M-SS-ID | Concatenation according to the format  {M2M-SP-ID}{SP-relative-M2M-SS-ID}  where {M2M-SP-ID} and {SP-relative- M2M-SS-ID} are placeholders for the M2M-SP-ID and the SP-relative-M2M-SS-ID format of the M2M-SS-ID respectively. | On the Mca, Mcc and Mcc’ reference points: Uniquely identifies a M2M Service Subscriber within a different M2M Service Provider Domain than the M2M Service Subscriber’s. |
| M2M-User-ID | Relative  SP-relative-M2M-User-ID  Context: M2M Service Provider Domain of the M2M Service User | The SP-Relative-M2M-User-ID begins with a slash character '/' and is followed by a sequence of characters that includes any of the unreserved characters defined in the clause 2.3 of the IETF RFC 3986 [18].  The SP-relative-M2M-User-ID is unique within the context of the M2M Service Provider Domain of the M2M Service User.  The M2M Service Provider assigns the SP-Relative-M2M-User-ID and is responsible for guaranteeing that it is unique in the context of the M2M-SP Domain.  Examples:  • /supervisor  • /homeowner1 | On the Mca and Mcc reference points: Uniquely identifies a M2M Service User within the M2M Service Provider Domain of the M2M Service User. |
| Absolute  Absolute-M2M-User-ID | Concatenation according to the format  {M2M-SP-ID}{SP-relative-M2M-User-ID}  where {M2M-SP-ID} and {SP-relative- M2M-User-ID} are placeholders for the M2M-SP-ID and the SP-relative-M2M-User-ID format of the M2M-User-ID respectively. | On the Mca, Mcc and Mcc’ reference points: Uniquely identifies a M2M Service User within a different M2M Service Provider Domain than the M2M Service User’s. |

The format (i.e. CSE-relative, SP-relative or absolute) of resource identifier (e.g. the ***To*** parameter, *accessControlPolicyIDs* attribute) shall be correctly set by the Originator in an initial request, while the format of AE-ID or CSE-ID in the ***From*** parameter shall be set in a shortest format by the Originator in the initial request and it shall be converted in another format by the Registrar CSE or IN-CSE as the following.

When an AE is the Originator, the ***From*** parameter shall be in AE-ID-Stem. When the Registrar CSE receives the request, it shall convert the format into SP-relative AE-ID in case the stem is CSE-relative and the ***To*** parameter refers to a resource hosted by a different CSE.

When an CSE is the Originator, the ***From*** parameter shall be in SP-relative CSE-ID.

The IN-CSE shall convert the format of the ***From*** parameter in a request that is received from SP-relative to absolute if the ***To*** parameter refers to a resource is hosted by a CSE in a different M2M Service Provider Domain.

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

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

9.3.2.2.3.0 Overview

The CSE-PoA holds the information used by the M2M System to locate routing information for a CSE. This information shall be provided by the CSE at registration time. However, the routing information related to a CSE (and ultimately to the target AE) in an M2M System depends on the characteristics of the Underlying Network. This impacts the criteria for updating the CSE-PoA by the registered CSE, in addition to the regular CSE registration updates. The information to be conveyed as CSE-PoA needs to support Underlying Network specifics.

CSE-PoA is considered equivalent to the routable addresses of the targeted CSE.

In general the addressing and routing information related to a CSE can be achieved when a static public IP address is assigned to and M2M Node and direct DNS address translation or dynamic DNS address translation is used.

In those circumstances, the CSE-PoA for a registered CSE shall have a URI conforming to IETF RFC 3986 18] as follows:

* URI = scheme:/fullyqualifieddomainname/path/; or
* URI = scheme://ip-address/path/.

The following clauses specify the information to be conveyed in the CSE-PoA by a registered CSE for various types of Underlying Networks, as well as the criteria for updating the CSE-PoA for the registered CSEs, in addition to the normal CSE registration refresh.

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