**3GPP TSG- Meeting # *S5-253885d1***

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network | **X** |

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| ***Title:*** |  | | | | | | | | | |
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| ***Source to WG:*** | , Nokia | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
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| ***Work item code:*** | \_Ph3 | | | | |  | ***Date:*** | | |  |
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| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
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| ***Reason for change:*** | | The eSBMA architecture defines mechanisms to provided detailed information about each MnS, i.e. the MNSInfo of a particular MnS Producer in the MnS Registry. The MNSInfo version value comprises multiple elements. It is important to clarify which part(s) are recommended for use when constructing the “MnSVersion” defined as part of the URI structure. | | | | | | | | |
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| ***Summary of change:*** | | Add versioning handling details to URI structure. | | | | | | | | |
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| ***Consequences if not approved:*** | | Inconsistencies in MnS version handling can cause interoperability issues. | | | | | | | | |
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| ***Clauses affected:*** | | 4.4, 4.x (new), 4.x.1 (new), 4.x.2 (new) | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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| **1st Change** |

4.4 URI structure

4.4.1 Introduction

MnS producers can be divided into two categories. The first category exposes MnS(s) to manipulate resources representing managed object instances. In this case the URI structure is governed by the mapping rules defined in clause 4.2.3. The second category exposes MnS(s) to manipulate resources not representing managed object instances. In this case the DN concept is not relevant. The URI structure for both categories is different.

4.4.2 URI structure for resources representing managed object instances

URIs identifying resources representing managed object instances shall follow, when being used as a target URI in HTTP requests, the structure given by

{scheme}://{URI-DN-prefix}/{root}/{MnSName}/{MnSVersion}/{URI-LDN}

with:

{scheme} Scheme component "http" or "https"

{URI-DN-prefix} Authority component (host identifier and optional TCP port), the host name is constructed from the DN prefix as defined in clause 4.2.3.

{root} Part of the path component, allows specifying one or more optional path segments for structuring the resource hierarchy on a HTTP server. The DN or parts thereof shall not be mapped to this path component.

{MnSName} Part of the path component, allows specifying an optional MnS name in a single path segment.

{MnSVersion} Part of the path component, allows specifying an optional MnS component A version in a single path segment.

{URI-LDN} Part of the path component, constructed from the LDN as defined in clause 4.2.3, containing zero, one or more path segments.

As seen above, to construct the URI from a DN, it is necessary to map the "DNPrefixPlusRDNSeparator" as defined in clause 7.3 of TS 32.300 [3], the “LocalDN” as defined in clause 7.3 of TS 32.300 [3], and to add the additional optional path segments "/{root}/{MnSName}/{MnSVersion}".

To allow for a predictive mapping from an URI to the original DN it is necessary to specify "/{MnSName}/{MnSVersion}" in such a way that the beginning of the "LocalDN" can be unambigously identified.

Note it may be required when specifying a MnS to clearly identify the last RDN of "{URI-LDN}" and to use the following instead of "{URI-LDN}"

{URI-LDN-first-part}/{RDN}

or

{URI-LDN-first-part}/{className}={id}.

For the sake of brevity, "MnSRoot" is introduced that includes the "{scheme}" part, the colon (":"), the two slash characters ("//"), the "{authority}" part, a single slash character ("/") and the "{root}" part.

{MnSRoot} := {scheme}://{URI-DN-prefix}/{root}

When using "{MnSRoot}" the abbreviated URI structure is given by

{MnSRoot}/{MnSName}/{MnSVersion}/{URI-LDN}

or

{MnSRoot}/{MnSName}/{MnSVersion}/{URI-LDN-first-part}/{className}={id}

It is recommended to use this abbreviated form of the URI structure when defining Management Services.

The path segment "MnSVersion" allows access to resources with different MnS versions, for example:

http://operatorA.com/ProvMnS/v15/SubNetwork=south/.../Cell=1

http://operatorA.com/ProvMnS/v16/SubNetwork=south/.../Cell=1

Additional fields of “MnSVersion” such as vendor build information should be included in “MnSRoot” to further differentiate between API releases, for example:

http://operatorA.com/vendorX/ProvMnS/v1/SubNetwork=south/.../Cell=1

http://operatorA.com/vendorX/ProvMnS/v2/SubNetwork=south/.../Cell=1

Note that both URIs, though different as to the path segment indicating the version number of the ProvMnS, identify the same resource that is identified by the canonical URI:

http://operatorA.com/SubNetwork=south/.../Cell=1

and whose DN is:

DC=operatorA.com,SubNetwork=south,...,Cell=1

The optional path component "/{root}" may be used to separate the name space for 3GPP management from the name space for other domains:

http://operatorA.com/3gppManagement/ProvMnS/v1/SubNetwork=south/.../Cell=1

or to provide dedicated URIs on the same host for different tasks:

http://operatorA.com/3gppManagement/cm/ProvMnS/v1/SubNetwork=south/.../Cell=1

http://operatorA.com/3gppManagement/fm/ProvMnS/v1/SubNetwork=south/.../Cell=1

Note that when different hosts are used for different management tasks, like in

http://cm.operatorA.com/3gppManagement/ProvMnS/v1/SubNetwork=south/.../Cell=1

http://fm.operatorA.com/3gppManagement/ProvMnS/v1/SubNetwork=south/.../Cell=1

then also the resources are different and identifierd by the canonical URIs

http://cm.operatorA.com/SubNetwork=south/.../Cell=1

http://fm.operatorA.com/SubNetwork=south/.../Cell=1

or the DNs

DC=cm.operatorA.com,SubNetwork=south,...,Cell=1

DC=fm.operatorA.com,SubNetwork=south,...,Cell=1

In the example above, it is assumed that both resources represent the same cell in the network. This information cannot be derived from the DN or canonical URI, though.

4.4.3 URI structure for resources not representing managed object instances

URIs identifying other resources shall follow, when being used as a target URI in HTTP requests, the structure given by

{scheme}://{authority}/{root}/{MnSName}/{MnSVersion}/{MnSResourcePath}

with:

{scheme} Scheme component "http" or "https"

{authority} Authority component (host identifier and optional TCP port)

{root} Part of the path component, allows specifying optional path segments for structuring the resource hierarchy on a HTTP server.

{MnSName} Part of the path component, specifies the mandatory MnS name in a single path segment.

{MnSVersion} Part of the path component, specifies the mandatory MnS version in a single path segment.

{MnSResourcePath} Part of the path component, one or more path segments, specifies a resource of the MnS

For the sake of brevity, {MnSRoot} is introduced that includes the "{scheme}" part, the two slash characters ("//"), the "{authority}" part, a single slash character ("/") and the "{root}" part. When using "{MnSRoot}" the abbreviated URI structure is given by

{MnSRoot}/{MnSName}/{MnSVersion}/{MnSResourcePath}

It is recommended to use this abbreviated form of the URI structure when defining Management Services.

4.4.4 Resource "../{MnSName}/{MnSVersion}"

The resource identified by "../{MnSName}/{MnSVersion}" is called NRM root. It represents the conceptual parent of the top-level managed object instances. It is created by the MnS Producer. A MnS Consumer cannot create or delete this resource.

The resource is the target resource for many HTTP requests, such as requests to retrieve all top-level managed object instances in case there are multiple top-level managed object instances, or for requests to create objects in case there are no manged object instances yet and the creation request needs to be directed to the parent of the resource to be created.

Attempts to read the NRM root only shall return "204 No Content".

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| **2nd Change** |

4.x Versioning

4.X.1 MnS definition file versioning

A MnS is specified with one or more MnS definition files. For example, a file may describe the operations for accessing an information model and another file the information model.

Each file has its own version (MnS definition file version). The versions may evolve independently.

The format of the MnS definition file version shall follow the pattern outlined in TS 29.501 [22], clauses 4.3.1.1 and 4.3.1.2.

The version shall be included as meta-data in each MnS definition file.

4.x.2 MnS version in target URIs

The format of the MnS version, that shall be used as the "{MnSVersion}" path component in the target URIs defined in clause 4.4.2 and 4.4.3, shall be constructed by concatenating letter "v" and the 1st field of the MnS version.