**3GPP TSG- Meeting #**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  |  | **CR** |  | **rev** | **1** | **Current version:** |  |  |
|  |
| *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:***  |  |
|  |  |
| ***Source to WG:*** | , Nokia |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | \_Ph3 |  | ***Date:*** |  |
|  |  |  |  |  |
| ***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 canbe 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)* |
|  |  |
| ***Reason for change:*** | The eSBMA architecture defines mechanisms to version (i.e. MnSVersion) and publish (i.e. MnsRegisty) MnS Producers. At present the SA5 provided stage2 artefacts contain inconsistent versioning (i.e. ‘XXX’) and there are no no guidelines on version handling. TR 28.871 contains a proposal for MnS versioning handling based on similar in TS 29.501. |
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| ***Summary of change:*** | Add MnS versioning overview, requirements and registry usage. |
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| ***Consequences if not approved:*** | Inconsistencies in MnS version handling can lead to confusion and cause interoperability issues. |
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| ***Clauses affected:*** | 5.2.2, 5.X (new) |
|  |  |
|  | **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** |

# 5 Discovery of Management Services

## 5.1 Overview

To enable communication between MnS Consumers and MnS Producers, MnS Consumers need mechanisms to discover management service information available in the 3GPP management system, and their management capabilities. To this end, MnS Producers and their management capabilities need to be exposed in the 3GPP management system.

From management service perspective the following information can be exposed:

- Identifying data describing an MnS, e.g. name, version, type

- Capabilities of an MnS, e.g. supported operations, supported notifications

From MnS Consumer perspective such information can be used for different purposes, including:

- MnS Producer discovery: allows MnS Consumer to discover identifying information about an MnS Producer instance. In short, allows MnS Consumer to know which MnS Producers instances are exposed.

- MnS Producer Capabilities retrieval: allows MnS Consumer to retrieve capability information about an MnS Producer instance. In short, allows MnS Consumer to know what an MnS Producer instance is capable of.

In case an exposed MnS Producer instance’s information changes the 3GPP management system needs to be updated.

MnS Consumers wishing to discover MnS Producer instances might have different questions. For example, an MnS Consumer may wish to know which MnS Producers manage a certain geographical area or civic location. Or, after receiving an alarm notification specifying that a specific NF is alarmed, they may wish to know the MnS Producers from which they can request management data from that NF or to retrieve the configuration of that NF.

## 5.2 Specification level requirements

### 5.2.1 Use cases

#### 5.2.1.1 Adding a new management service producer to MnS registry

| Use case stage | Evolution/Specification | <<Uses>>Related use |
| --- | --- | --- |
| **Goal**  | Add a MnS producer to a 3GPP management system. |  |
| **Actors and Roles** | MnS Producer, MnS Registry |  |
| **Telecom resources** | MnS producer.MnS discovery service producer. |  |
| **Assumptions** | MnS producer is ready to be added to MnS registry. |  |
| **Pre-conditions** | The MnS Producer is available. |  |
| **Begins when**  | There is a need for a MnS producer to be exposed via MnS registry. |  |
| **Step 1 (M)** | The MnS producer is added to the MnS registry. |  |
| **Ends when**  | All the steps identified above are successfully completed. |  |
| **Exceptions** | One of the mandatory steps fails. |  |
| **Post-conditions** | MnS discovery service producer has stored the MnS information. |  |
| **Traceability**  | REQ-DMS-1 |  |

#### 5.2.1.2 Removing a management service producer from MnS registry

| Use case stage | Evolution/Specification | <<Uses>>Related use |
| --- | --- | --- |
| **Goal**  | Remove a MnS producerfrom MnS registry.. |  |
| **Actors and Roles** | Network operator. |  |
| **Telecom resources** | MnS producer. |  |
| **Assumptions** | -  |  |
| **Pre-conditions** | The management service producer is no longer required in the MnS registry. |  |
| **Begins when**  |  The management service is ready to be removed from MnS Registry. |  |
| **Step 1 (M)** |  The management service producer is removed from the MnS Registry. |  |
| **Ends when**  | All the steps identified above are successfully completed. |  |
| **Exceptions** | One of the mandatory steps fails. |  |
| **Post-conditions** | MnS discovery service producer has removed the MnS information related to the MnS Producer. |  |
| **Traceability**  | REQ-DMS-1 |  |

#### 5.2.1.3 MnS Consumer retrieves management service information from MnS registry

| Use case stage | Evolution/Specification | <<Uses>>Related use |
| --- | --- | --- |
| **Goal**  | MnS consumer retrieves information from MnS registry. |  |
| **Actors and Roles** | MnS Consumer |  |
| **Telecom resources** | MnS registry |  |
| **Assumptions** | MnS consumer is authorized to obtain the MnS information for the available management service(s) from MnS discovery service producer. |  |
| **Pre-conditions** | MnS information exists in MnS registry. |  |
| **Begins when**  | MnS Consumer needs to access a specific MnS Producer(s). |  |
| **Step 1 (M)** | MnS Consumer queries MnS Registry with filter criteria based on the management service(s) of interest. |  |
| **Step 2 (M)** | MnS Consumer receives response with MnS Info for the management service(s) which match the criteria. |  |
| **Ends when**  | All the steps identified above are successfully completed. |  |
| **Exceptions** | One of the mandatory steps fails. |  |
| **Post-conditions** | MnS Consumer has basic information about the management service(s). |  |
| **Traceability**  | REQ-DMS-2, REQ-DMS-3, REQ-DMS-4  |  |

NOTE: MnS information refer to the information used by the consumer to discover the producers of specific Management Services and to derive the addresses of the Management Service.

#### 5.2.1.4 Providing detailed capabilities about management service

| Use case stage | Evolution/Specification | <<Uses>>Related use |
| --- | --- | --- |
| **Goal**  | Management service detailed capabilities are exposed. |  |
| **Actors and Roles** |  |  |
| **Telecom resources** | - |  |
| **Assumptions** | Management service detailed capabilities are available. |  |
| **Pre-conditions** | Management service detailed capabilities are ready to be exposed. |  |
| **Begins when**  | MnS Producer wants to expose its detailed capabilities. |  |
| **Step 1 (M)** | Management service detailed capabilities are exposed by MnS Producer. |  |
| **Post-conditions** | Management services detailed capabilities have been exposed. |  |
| **Traceability**  |  |  |

#### 5.2.1.5 MnS Consumer retrieves detailed capabilities about management service

| Use case stage | Evolution/Specification | <<Uses>>Related use |
| --- | --- | --- |
| **Goal**  | MnS Consumer retrieves detailed capabilities for specific MnS Producer(s). |  |
| **Actors and Roles** | MnS Consumer |  |
| **Telecom resources** | - |  |
| **Assumptions** | Management service has ability to expose its detailed capabilities. |  |
| **Pre-conditions** | Authorized MnS Consumer knows location and method to retrieve detailed capabilities. |  |
| **Begins when**  | MnS Consumer requires to retrieve detailed capabilities of specific MnS Producer(s). |  |
| **Step 1 (M)** | MnS Consumer reads detailed capabilities from MnS Producer of interest. |  |
| **Post-conditions** | MnS Consumer has retrieved detailed capabilities of specific MnS Producer(s). |  |
| **Traceability**  |  |  |

### 5.2.2 Requirements

**REQ-DMS-1:** The 3GPP management system shall provide capabilities allowing MnS producers to register their management capabilities (including the endpoint address) at MnS discovery service producer for use by MnS consumers wishing to interact with these MnS producers.

**REQ-DMS-2:** The 3GPP management system shall provide capabilities allowing MnS consumers to retrieve the management capabilities registered at MnS discovery service producer by MnS producers.

**REQ-DMS-3:** The 3GPP management system shall provide capabilities allowing to discover MnS producers that are managing a specified managed entity.

**REQ-DMS-4:** The 3GPP management system shall provide capabilities allowing to discover the managed entities a MnS producer is responsible for.

**REQ-DMS-5:** The 3GPP management system shall provide capabilities allowing MnS producers to publish their MnS version in the MnS Registry.

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| **2nd Change** |

# 5 Discovery of Management Services

## 5.X MnS version publication

The MnS version is published in the MnS Registry NRM fragment [32] in support of MnS Discovery as defined in this specification.