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| 3GPP TS 24.575 V18.1.0 (2023-06) | |
| Technical Specification | |
| 3rd Generation Partnership Project;  Technical Specification Group Core Network and Terminals;  5G System; Multicast/Broadcast UE pre-configuration  Management Object (MO)  (Release 18) | |
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# Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

x the first digit:

1 presented to TSG for information;

2 presented to TSG for approval;

3 or greater indicates TSG approved document under change control.

y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z the third digit is incremented when editorial only changes have been incorporated in the document.

In the present document, modal verbs have the following meanings:

**shall** indicates a mandatory requirement to do something

**shall not** indicates an interdiction (prohibition) to do something

The constructions "shall" and "shall not" are confined to the context of normative provisions, and do not appear in Technical Reports.

The constructions "must" and "must not" are not used as substitutes for "shall" and "shall not". Their use is avoided insofar as possible, and they are not used in a normative context except in a direct citation from an external, referenced, non-3GPP document, or so as to maintain continuity of style when extending or modifying the provisions of such a referenced document.

**should** indicates a recommendation to do something

**should not** indicates a recommendation not to do something

**may** indicates permission to do something

**need not** indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

**can** indicates that something is possible

**cannot** indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

**will** indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

**will not** indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

**might** indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

**might not** indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

In addition:

**is** (or any other verb in the indicative mood) indicates a statement of fact

**is not** (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

# 1 Scope

The present document specifies UE pre-configuration for multicast/broadcast services (MBS) in order to receive the data of multicast communication services and broadcast communication services as specified in 3GPP TS 23.247 [3].

The present document defines a management object (MO) that can be used to configure the UE with parameters related to reception of data of multicast communication services and broadcast communication services.

The MO is compatible with the OMA Device Management (DM) protocol specifications, version 1.2 and upwards, and is defined using the OMA DM device description framework (DDF) as described in the Enabler Release Definition OMA-ERELD-DM-V1\_2 [8].

The MO consists of nodes and leaves conveying UE pre-configuration parameters used for multicast communication service and broadcast communication service selection and data reception.

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.003: "Numbering, addressing and identification".

[3] 3GPP TS 23.247: "Architectural enhancements for 5G multicast-broadcast services; Stage 2".

[4] 3GPP TS 26.346: "Multimedia Broadcast/Multicast Service (MBMS); Protocols and Codecs".

[5] 3GPP TS 38.101-1: "NR; User Equipment (UE) radio transmission and reception; Part 1: Range 1 Standalone".

[6] 3GPP TS 38.101-2: "NR; User Equipment (UE) radio transmission and reception; Part 2: Range 1 Standalone".

[7] IETF RFC 3629: "UTF-8, a transformation format of ISO 10646".

[8] OMA-ERELD-DM-V1\_2: "Enabler Release Definition for OMA Device Management".

[9] "Unicode 6.3.0, Unicode Standard Annex #15; Unicode Normalization Forms", September 2013. <http://www.unicode.org>.

[10] 3GPP TS 24.501: "Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3".

[11] 3GPP TS 26.517: "5G Multicast-Broadcast User Services; Protocols and Formats".

# 3 Definitions of terms, symbols and abbreviations

## 3.1 Terms

For the purposes of the present document, the terms given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

DNN Data Network Name

MBS Multicast/Broadcast Services

S-NSSAI Single Network Slice Selection Assistance Information

TMGI Temporary Mobile Group Identity

USD User Service Description

SDP Session Description Protocol

# 4 General description

A UE can support multicast and broadcast service (MBS) that is a point-to-multipoint service in which data is transmitted from a single source entity to multiple recipients either to all users in a broadcast service area (MBS broadcast communication), or to users in a multicast group (MBS multicast communication) as defined in 3GPP TS 23.247 [3]. The UE may support pre-configuration of information for services using MBS.

If the UE is pre-configured with information related to services using MBS, the UE can discover and receive data for services by using the provisioned configuration.

The UE pre-configuration contains a list of PLMNs in which for each PLMN, the following information is configured:

a) PLMN ID of the PLMN for which the configuration applies;

b) RAN information based on NR-ARFCN on which the broadcast communication service is available;

c) list of TMGI, on which the broadcast communication service is available, each associated with user service description (USD) information (see 3GPP TS 26.517 [11]) for the MBS broadcast service. If TMGI and USD information for the MBS user service is configured for the PLMN selected for broadcast communication service, the UE uses the information configured therein to acquire the broadcast communication service;

d) list of TMGI, on which the service announcement for broadcast communication service is available along with the associated USD information (see 3GPP TS 26.517 [11]) for the MBS user service announcement service. If TMGI and USD information for MBS user service announcement is configured for a PLMN selected for broadcast communication service, the UE uses the information configured therein to acquire the service announcement for broadcast communication service; and

e) default DNN and S-NSSAI pair for PDU sessions that can be used to join MBS multicast sessions (as specified in 3GPP TS 24.501 [refyy]) for which no other information is available.

# 5 Multicast/Broadcast UE pre-configuration

## 5.1 General

The UE pre-configuration MO is used to configure the UE with parameters related to MBS (see 3GPP TS 23.247 [3]).

The MO identifier is: urn: oma:mo:ext-3gpp-UE-pre-config-MBS:1.0.

Editor’s note: The MO identifier needs to be registered.

The OMA DM access control list (ACL) property mechanism (see OMA-ERELD-DM-V1\_2 [8]) may be used to grant or deny access rights to OMA DM servers in order to modify nodes and leaf objects of the UE pre-configuration MO.

## 5.2 UE pre-configuration MO structure

The structure of the UE pre-configuration MO is shown in figure 5.2.1 and figure 5.2.1 below.



Figure 5.2.1: UE pre-configuration MO



Figure 5.2.2: PLMNList node

# 6 UE pre-configuration MO parameters

## 6.1 General

This clause describes the nodes and leaves of the UE pre-configuration MO parameters.

## 6.2 Node: *<X>*

This interior node acts as a placeholder for zero or one accounts for a fixed node.

- Occurrence: ZeroOrOne

- Format: node

- Access Types: Get

- Values: N/A

## 6.3 *<X>*/Name

The Name leaf is a name for the UE pre-configuration MO settings.

- Occurrence: ZeroOrOne

- Format: chr

- Access Types: Get

- Values: <User displayable name>

The User displayable name shall be represented by Unicode characters encoded as UTF-8 as specified in IETF RFC 3629 [7] and formatted using normalization form KC (NFKC) as specified in Unicode Standard Annex #15; Unicode Normalization Forms [9].

## 6.4 *<X>*/PLMNList

The PlmnList node acts as a placeholder for per-PLMN configuration.

- Occurrence: ZeroOrOne

- Format: node

- Access Types: Get, Replace

- Values: N/A

## 6.5 *<X>*/PLMNList/*<X>*/

This interior node acts as a placeholder for UE pre-configuration parameters for one PLMN.

- Occurrence: OneOrMore

- Format: node

- Access Types: Get, Replace

- Values: N/A

## 6.6 *<X>*/PLMNList/*<X>*/PLMNId

The PlmnId leaf indicates a PLMN identity of the PLMN for which the UE pre-configuration parameters applies.

- Occurrence: One

- Format: chr

- Access Types: Get, Replace

- Values: <PLMN identity>

The format of the PLMN identity is specified in 3GPP TS 23.003 [2].

## 6.7 *<X>*/PLMNList/*<X>*/TMGIConfiguration

The TMGIConfiguration node acts as a placeholder for the TMGI configuration in the PLMN identified by the PlmnId leaf.

- Occurrence: One

- Format: node

- Access Types: Get, Replace

- Values: N/A

## 6.8 *<X>*/PLMNList/*<X>*/TMGIConfiguration/TMGIListForSA

The TMGIListForSA node acts as a placeholder for the TMGI list and the MBS service announcement information for broadcast or multicast communication services.

- Occurrence: ZeroOrOne

- Format: node

- Access Types: Get, Replace

- Values: N/A

## 6.9 *<X>*/PLMNList/*<X>*/TMGIConfiguration/TMGIListForSA/*<X>*

This node acts as a placeholder for one or more TMGI and the MBS service announcement information for broadcast or multicast communication service.

- Occurrence: OneOrMore

- Format: node

- Access Types: Get, Replace

- Values: N/A

## 6.10 *<X>*/PLMNList/*<X>*/TMGIConfiguration/TMGIListForSA/*<X>*/TMGI

The TMGI leaf indicates a TMGI for the MBS service announcement information for broadcast or multicast communication service.

- Occurrence: One

- Format: node

- Access Types: Get, Replace

- Values: <TMGI>

The format of the TMGI is specified in 3GPP TS 23.003 [2].

## 6.11 *<X>*/PLMNList/*<X>*/TMGIConfiguration/TMGIListForSA/*<X>*/USD

The USD leaf provides MBS service announcement information for MBS service announcement service for broadcast or multicast communication service.

- Occurrence: ZeroOrOne

- Format: node

- Access Types: Get, Replace

- Values: <USD>

The format of the USD is defined in 3GPP TS 26.517 [11].

NOTE: 3GPP TS 26.346 [4] specifies the session description and parameters based on SDP.

## 6.12 *<X>*/PLMNList/*<X>*/TMGIConfiguration/TMGIListForService

The TMGIListForService node acts as a placeholder for the TMGI list and the MBS user service announcement information for the MBS service for broadcast communication services.

- Occurrence: ZeroOrOne

- Format: node

- Access Types: Get, Replace

- Values: N/A

## 6.13 *<X>*/PLMNList/*<X>*/TMGIConfiguration/TMGIListForService/*<X>*

This node acts as a placeholder for one or more TMGI and MBS user service announcement information for the MBS service for broadcast communication services.

- Occurrence: OneOrMore

- Format: node

- Access Types: Get, Replace

- Values: N/A

## 6.14 *<X>*/PLMNList/*<X>*/TMGIConfiguration/TMGIListForService/*<X>*/TMGI

The TMGI leaf indicates a TMGI for broadcast communication service.

- Occurrence: One

- Format: chr

- Access Types: Get, Replace

- Values: <TMGI>

The format of the TMGI is specified in 3GPP TS 23.003 [2].

## 6.15 *<X>*/PLMNList/*<X>*/TMGIConfiguration/TMGIListForService/*<X>*/USD

The USD leaf provides the MBS user service announcement information for the MBS service corresponding to the broadcast communication service.

- Occurrence: ZeroOrOne

- Format: chr

- Access Types: Get, Replace

- Values: <USD>

The format of the USD is defined in 3GPP TS 26.517 [11].

NOTE: 3GPP TS 26.346 [4] specifies the session description and parameters based on SDP.

## 6.16 *<X>*/PLMNList/*<X>*/RANInfo

The RANInfo node acts as a placeholder for the RAN-specific information.

- Occurrence: ZeroOrOne

- Format: node

- Access Types: Get, Replace

- Values: N/A

## 6.17 *<X>*/PLMNList/*<X>*/RANInfo/*<X>*

This node acts as a placeholder for one or more NR ARFCN values of one or more MBS frequencies.

- Occurrence: OneOrMore

- Format: node

- Access Types: Get, Replace

- Values: N/A

## 6.18 *<X>*/PLMNList/*<X>*/RANInfo/*<X>*/NRARFCN

The NRARFCN leaf indicates the NR-ARFCN value of one MBS frequency.

- Occurrence: One

- Format: int

- Access Types: Get, Replace

- Values: <NRARFCN>

The value of the NRARFCN is a 32-bit long unsigned integer. The format of the NR-ARFCN is specified in 3GPP TS 38.101-1 [5] and 3GPP TS 38.101-2 [6].

## 6.19 *<X>*/PLMNList/*<X>*/PDUInfo

The PDUInfo node acts as a placeholder for the PDU session-specific information.

- Occurrence: ZeroOrOne

- Format: chr

- Access Types: Get, Replace

- Values: N/A

## 6.20 Void

## 6.21 *<X>*/PLMNList/*<X>*/PDUInfo/PDUInfoList*/<X>*

This node acts as a placeholder for one or more PDU session-specific information values. PDU session-specific information consists of DNN and S-NSSAI pair for a PDU session that can be used to join MBS multicast session(s).

- Occurrence: OneOrMore

- Format: node

- Access Types: Get, Replace

- Values: N/A

## 6.22 *<X>*/PLMNList/*<X>*/PDUInfo/*<X>*/DNN

The DNN leaf indicates the DNN value of one PDU session associated with an MBS session.

- Occurrence: One

- Format: chr

- Access Types: Get, Replace

- Values: <DNN>

The format of the DNN is defined by 3GPP TS 23.003 [2] in clause 9A.

EXAMPLE: mycompany.mnc012.mcc340.gprs

## 6.23 *<X>*/PLMNList/*<X>*/PDUInfo*/<X>*/S-NSSAI

The S-NSSAI leaf indicates the S-NSSAI value of one PDU session associated with an MBS session.

- Occurrence: One

- Format: int

- Access Types: Get, Replace

- Values: <S-NSSAI>

The format of the S-NSSAI is defined by 3GPP TS 23.003 [2] in clause 28.4.2

## 6.24 *<X>*/Ext

The Ext is an interior node for where the vendor specific information about the UE pre-configuration MO is being placed (vendor meaning application vendor, device vendor etc.). Usually the vendor extension is identified by vendor specific name under the ext node. The tree structure under the vendor identifier is not defined and can therefore include one or more non-standardized sub-trees.

- Occurrence: ZeroOrOne

- Format: node

- Access Types: Get

- Values: N/A

Annex A (informative):  
UE pre-configuration MO DDF

This DDF is the standardized minimal set. A vendor can define its own DDF for the complete device. This DDF can include more features than this minimal standardized version.

<?xml version="1.0" encoding="UTF-8"?>

<!DOCTYPE MgmtTree PUBLIC "-//OMA//DTD-DM-DDF 1.2//EN"

"http://www.openmobilealliance.org/tech/DTD/dm\_ddf-v1\_2.dtd">

<MgmtTree>

<VerDTD>1.2</VerDTD>

<Man>--The device manufacturer--</Man>

<Mod>--The device model--</Mod>

<Node>

<NodeName/>

<DFProperties>

<AccessType>

<Get/>

</AccessType>

<Description>UE pre-configuration for MBS</Description>

<DFFormat>

<node/>

</DFFormat>

<Occurrence>

<ZeroOrOne/>

</Occurrence>

<DFTitle>The UE pre-configuration management object (MO).</DFTitle>

<DFType>

<DDFName>urn:oma:mo:ext-3gpp-UE-pre-config-MBS:1.0</DDFName>

</DFType>

</DFProperties>

<Node>

<NodeName>Name</NodeName>

<DFProperties>

<AccessType>

<Get/>

</AccessType>

<DFFormat>

<chr/>

</DFFormat>

<Occurrence>

<ZeroOrOne/>

</Occurrence>

<DFTitle>User displayable name for the node.</DFTitle>

<DFType>

<MIME>text/plain</MIME>

</DFType>

</DFProperties>

</Node>

<Node>

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<Replace/>

</AccessType>

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<node/>

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</Occurrence>

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<DDFName/>

</DFType>

</DFProperties>

<Node>

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<DFProperties>

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<Replace/>

</AccessType>

<DFFormat>

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</DFFormat>

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<OneOrMore/>

</Occurrence>

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<DDFName></DDFName>

</DFType>

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</AccessType>

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</Occurrence>

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</DFType>

</DFProperties>

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<!-- The TMGI configuration per PLMN starts here. -->

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</AccessType>

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<node/>

</DFFormat>

<Occurrence>

<One/>

</Occurrence>

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<DDFName/>

</DFType>

</DFProperties>

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<DFProperties>

<AccessType>

<Get/>

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</AccessType>

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</DFFormat>

<Occurrence>

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</Occurrence>

<DFTitle>TMGI provided via service announcement.</DFTitle>

<DFType>

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<Replace/>

</AccessType>

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<node/>

</DFFormat>

<Occurrence>

<ZeroOrOne/>

</Occurrence>

<DFTitle>List of TMGI for service announcement information for MBS broadcast communication services.</DFTitle>

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<DDFName/>

</DFType>

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<DFProperties>

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<Replace/>

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<Occurrence>

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<Replace/>

</AccessType>

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<chr/>

</DFFormat>

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</Occurrence>

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<Node>

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</AccessType>

<DFFormat>

<node/>

</DFFormat>

<Occurrence>

<ZeroOrOne/>

</Occurrence>

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<DFType>

<MIME>text/plain</MIME>

</DFType>

</DFProperties>

</Node>

<Node>

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<!-- The per-PLMN configuration starts here. -->

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<Replace/>

</AccessType>

<DFFormat>

<node/>

</DFFormat>

<Occurrence>

<ZeroOrOne/>

</Occurrence>

<DFTitle>List of TMGI for MBS user service announcement information for MBS broadcast communication services.</DFTitle>

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<DDFName/>

</DFType>

</DFProperties>

<Node>

<NodeName></NodeName>

<DFProperties>

<AccessType>

<Get/>

<Replace/>

</AccessType>

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</DFType>

</DFProperties>

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<NodeName>TMGI</NodeName>

<DFProperties>

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</AccessType>

<DFFormat>

<chr/>

</DFFormat>

<Occurrence>

<One/>

</Occurrence>

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Annex A (informative):  
Change history

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Change history** | | | | | | | |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2022-04 | CT1#135-e | C1-223029 |  |  |  | Draft skeleton provided by the rapporteur. | 0.0.0 |
| 2022-04 | CT1#135-e | C1-223030 |  |  |  | Implementing the following p-CR agreed by CT1: C1-223030 | 0.1.0 |
| 2023-03 | CT1#140 | C1-230960  C1-230961 |  |  |  | Implementing the following p-CRs agreed by CT1: C1-230960, C1-230961; and  editorials changes from the rapporteur. | 0.2.0 |
| 2023-03 | CT#99 | CP-230183 |  |  |  | TS presented for information and approval | 1.0.0 |
| 2023-03 | CT#99 |  |  |  |  | Version created after approval at TSG CT | 18.0.0 |
| 2023-06 | CT#100 | CP-231279 | 0007 | - | B | Updating the UE pre-configuration for Multicast MBS services | 18.1.0 |
| 2023-06 | CT#100 | CP-231279 | 0008 | - | F | Corrections for some node parameters | 18.1.0 |
| 2023-06 | CT#100 | CP-231279 | 0001 | 1 | F | Update to the scope clause | 18.1.0 |
| 2023-06 | CT#100 | CP-231279 | 0002 | 1 | F | Wrong format of the <X> node | 18.1.0 |
| 2023-06 | CT#100 | CP-231279 | 0004 | 1 | F | Introduction of necessary DDF for the UE pre-configuration MO | 18.1.0 |
| 2023-06 | CT#100 | CP-231279 | 0006 | 1 | B | Description for the UE pre-configuration for Multicast MBS services | 18.1.0 |
| 2023-06 | CT#100 | CP-231279 | 0009 | 1 | F | Removing the extra node PDUInfoList | 18.1.0 |
| 2023-06 | CT#100 | CP-231279 | 0010 | 1 | F | Correction for the pre-configuration of the service announcement information | 18.1.0 |
| 2023-06 | CT#100 | CP-231279 | 0011 | 1 | F | Correction to the RANinfo node | 18.1.0 |