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Technical Specification

3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Selective Disabling of 3GPP User Equipment Capabilities (SDoUE) Management Object (MO) (Release 11)



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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;
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- 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.

1 Scope

The present document specifies a mobile device Selective Disabling of 3GPP UE Capabilities (SDoUE) Management Object (MO) and the rules and corresponding behaviour of the UE with regard to the selective disabling of 3GPP UE capabilities, for example, when services or functions are disabled/enabled.

The SDoUE 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-ERELED-DM-V1_2 [8].

The SDoUE MO consists of the relevant parameters that can be managed for selective disabling of 3GPP UE capabilities.

The SDoUE MO defines a repository of data into the ME.

The service requirements for selective disabling of 3GPP UE capabilities are defined in 3GPP TS 22.011 [2].

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 22.011: "Service accessibility".
- [2A] 3GPP TS 23.003: "Numbering, addressing and identification".
- [3] 3GPP TS 24.008: "Mobile radio interface Layer 3 specification; Core network protocols; Stage 3".
- [4] 3GPP TS 24.010: "Mobile radio interface layer 3; Supplementary services specification; General aspects".
- [5] 3GPP TS 24.011: "Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".
- [6] 3GPP TS 24.030: "Location Services (LCS); Supplementary service operations; Stage 3".
- [7] 3GPP TS 24.229: "IP Multimedia Call Control Protocol based on SIP and SDP; Stage 3".
- [7A] 3GPP TS 24.301: "Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3".
- [8] OMA-ERELED-DM-V1_2: "Enabler Release Definition for OMA Device Management".
- [9] ITU-T Recommendation E.164: "The international public telecommunication numbering plan".
- [10] ITU-T Recommendation E.212: "The international identification plan for mobile terminals and mobile users".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1] apply.

3.2 Abbreviations

ACL	Access Control List
CS	Circuit Switched
DDF	Device Description Framework
DM	Device Management
EPS	Evolved Packet System
ESM	EPS Session Management
IMS	IP Multimedia core network Subsystem
MBMS	Multimedia Broadcast/Multicast Service
MCC	Mobile Country Code
MNC	Mobile Network Code
ME	Mobile Equipment
MO	Management Object
OMA	Open Mobile Alliance
PDP	Packet Data Protocol
PS	Packet Switched
SDoUE	Selective Disabling of 3GPP UE Capabilities
SM	Session Management
UE	User Equipment

4 Selective Disabling of 3GPP UE Capabilities Management Object

The Selective Disabling of 3GPP UE Capabilities (SDoUE) Management Object (MO) is used to manage settings of the UE for remotely disabling selected UE capabilities.

The Management Object Identifier is: urn:oma:mo:ext-3gpp-sdoue:1.0.

The OMA DM Access Control List (ACL) property mechanism as standardized (see Enabler Release Definition OMA-ERELED-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 SDoUE MO.

The following nodes and leaf objects are possible under the SDoUE node:

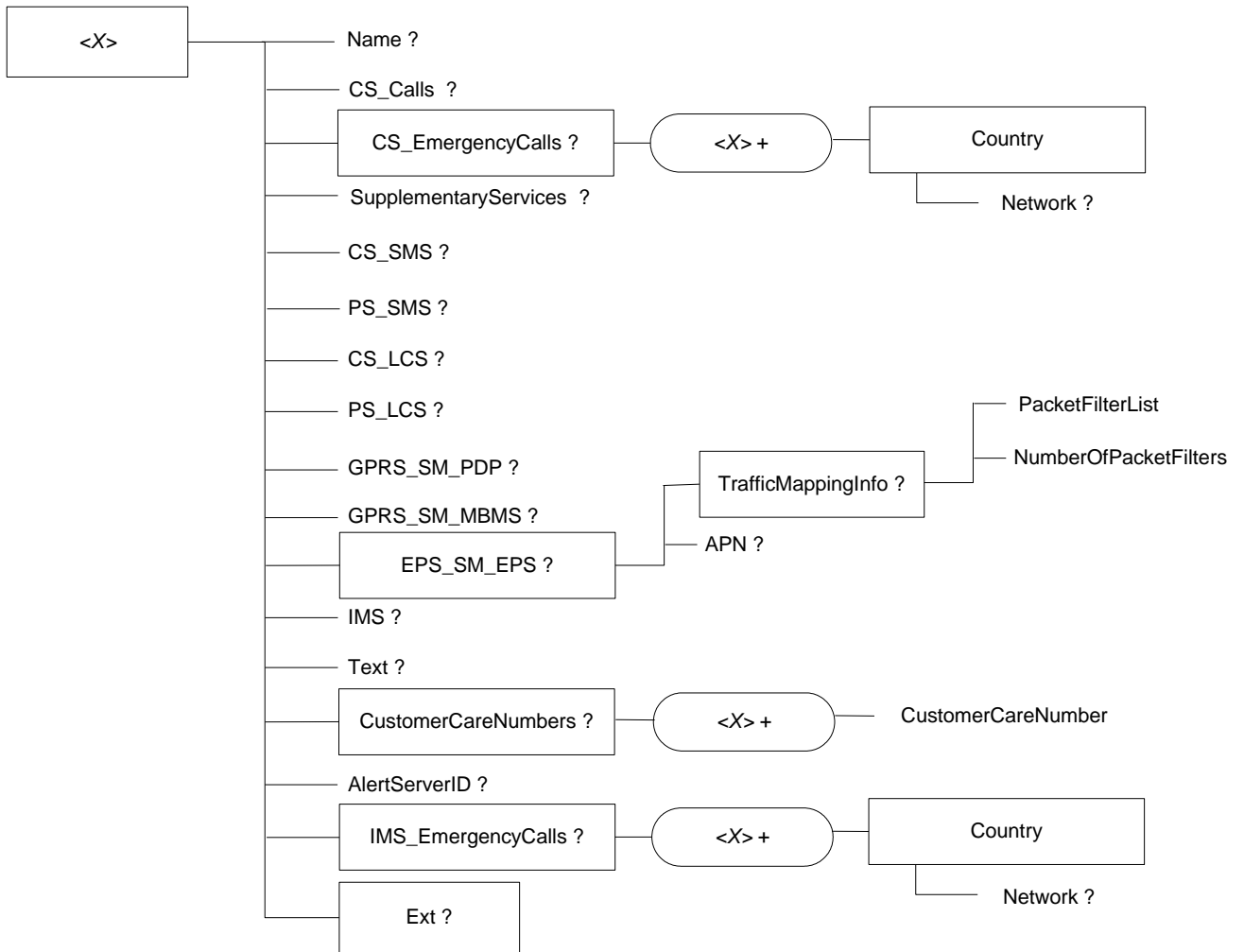


Figure 1: The SDoUE Management Object

5 Management Object parameters

5.1 General

This clause describes the parameters for the SDoUE Management Object (MO).

5.2 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

5.3 /<X>/Name

The Name leaf is a name for the SDoUE MO settings.

- Occurrence: ZeroOrOne
- Format: chr
- Access Types: Get
- Values: <User displayable name>

5.4 /<X>/CS_Calls

The CS_Calls leaf indicates an operator's preference to enable or disable mobile-originated Call Control (CC) procedures except for emergency calls.

The CC procedures are specified in 3GPP TS 24.008 [3].

- Occurrence: ZeroOrOne
- Format: bool
- Access Types: Get
- Values: 0, 1
 - 0 – Indicates that mobile-originated CS calls are enabled.
 - 1 – Indicates that mobile-originated CS calls are disabled.

When the CS_Calls leaf value is set to "1", the UE shall initiate the signalling procedure for release of all calls except for emergency calls (see 3GPP TS 24.008 [3]). Furthermore, the UE shall not use mobile-originated call control procedures except for emergency calls and customer care service number(s) until the CS_Calls leaf value is set to "0".

NOTE: Customer care service number(s) is(are) provided by the CustomerCareNumbers leaf (see sub-clauses 5.15, 5.16 and 5.17).

5.5 /<X>/ CS_EmergencyCalls

The CS_EmergencyCalls interior node indicates an operator's preference to enable or disable emergency call control procedures.

NOTE 1: Disabling of emergency call control procedures is subject to regional regulatory requirements. Therefore, emergency call control procedures cannot be disabled in regions where support of them is required (see 3GPP TS 22.011 [2]).

The emergency call control procedures are specified in 3GPP TS 24.008 [3].

- Occurrence: ZeroOrOne
- Format: bool
- Access Types: Get
- Values: 0, 1
 - 0 – Indicates that CS emergency calls are enabled.
 - 1 – Indicates that CS emergency calls are disabled.

When the CS_EmergencyCalls node value is set to "1" and the UE detects being under coverage of a PLMN (identified by Mobile Country Code (MCC) and Mobile Network Code (MNC)) as indicated by any of the stored Country and

Network pairs of nodes (see sub-clauses 5.5A, 5.5B and 5.5C), then the UE shall initiate the signalling procedure for release of all emergency calls that use call control procedures. Furthermore, the UE shall not use call control procedures to establish emergency calls until the CS_EmergencyCalls node value is set to "0" or the UE detects a change of Mobile Country Code (MCC) and Mobile Network Code (MNC) that does not match any of the stored Country and Network pairs of nodes.

NOTE 2: As described by the definition and structure of the SDoUE MO the Country and Network nodes, if exist, constitute a pair of nodes. However, it is possible to indicate only a country/region by means of only setting the value of the Country node.

5.5A /<X>/CS_EmergencyCalls/<X>

This run-time node acts as a placeholder for one or more Country nodes. Furthermore, this node provides a means for the operator to indicate where emergency call control procedures are disabled (i.e. The CS_EmergencyCalls value is set to "1").

- Occurrence: ZeroOrMore
- Format: node
- Access Types: Get
- Values: N/A

5.5B /<X>/CS_EmergencyCalls/<X>/Country

The Country interior node represents one Mobile Country Code (MCC). This node provides a means for including information that can be used to indicate in which MCC the emergency call control procedures are disabled (i.e. The CS_EmergencyCalls value is set to "1").

The Country node value shall be a Mobile Country Code (MCC) as specified by ITU-T E.212 [10].

- Occurrence: One
- Format: chr
- Access Types: Get
- Values: <Mobile Country Code>

The UE shall only use the information stored in the Country node when emergency call control procedures are disabled (i.e. The CS_EmergencyCalls value is set to "1").

5.5C /<X>/CS_EmergencyCalls/<X>/Country/Network

The Network leaf represents one Mobile Network Code (MNC). This leaf provides a means, together with the Country leaf, for including information that can be used to indicate in which MCC and MNC the emergency calls procedures are disabled.

The Network leaf value shall be a Mobile Network Code (MNC) as specified by ITU-T E.212 [10].

- Occurrence: ZeroOrOne
- Format: chr
- Access Types: Get
- Values: <Mobile Network Code>

The UE shall only use the information stored in the Network leaf when emergency call control procedures are disabled (i.e. The CS_EmergencyCalls value is set to "1"). Furthermore, the UE shall interpret the information stored in the Network leaf, if exists, in conjunction with the corresponding Country node.

5.6 /<X>/SupplementaryServices

The SupplementaryServices leaf indicates an operator's preference to enable or disable mobile-originated Supplementary services operations.

The Supplementary service operations are specified in 3GPP TS 24.010 [4].

NOTE: The functionality indicated by the SupplementaryServices leaf does not include the Location Service (LCS) supplementary service operations.

- Occurrence: ZeroOrOne
- Format: bool
- Access Types: Get
- Values: 0, 1
 - 0 – Indicates that mobile-originated Supplementary service operations are enabled.
 - 1 – Indicates that mobile-originated Supplementary service operations are disabled.

When the SupplementaryServices leaf value is set to "1", the UE shall initiate the signalling procedure for release of all ongoing supplementary service operations (transactions). Furthermore, the UE shall not invoke mobile-originated supplementary service operation procedures until the SupplementaryServices leaf value is set to "0".

5.7 /<X>/CS_SMS

The CS_SMS leaf indicates an operator's preference to enable or disable mobile-originated Short Message Service (SMS) via CS.

The SMS procedures are specified in 3GPP TS 24.011 [5].

- Occurrence: ZeroOrOne
- Format: bool
- Access Types: Get
- Values: 0, 1
 - 0 – Indicates that mobile-originated SMS via CS are enabled.
 - 1 – Indicates that mobile-originated SMS via CS are disabled.

If the CS_SMS leaf value is "1", the UE shall not use the CS domain for mobile-originated SMS transfer until the CS_SMS leaf value is set to "0". The UE may use the PS domain instead of the CS domain for mobile-originated SMS transfer when the CS_SMS leaf value is "1".

5.8 /<X>/PS_SMS

The PS_SMS leaf indicates an operator's preference to enable or disable mobile-originated Short Message Service (SMS) via PS.

The SMS procedures are specified in 3GPP TS 24.011 [5].

- Occurrence: ZeroOrOne
- Format: bool
- Access Types: Get
- Values: 0, 1

0 – Indicates that mobile-originated SMS via PS are enabled.

1 – Indicates that mobile-originated SMS via PS are disabled.

If the PS_SMS leaf value is "1", the UE shall not use the PS domain for mobile-originated SMS transfer until the PS_SMS leaf value is set to "0". The UE may use the CS domain instead of the PS domain for mobile-originated SMS transfer when the PS_SMS leaf value is "1".

5.9 /<X>/CS_LCS

The CS_LCS leaf indicates an operator's preference to enable or disable mobile-originated Location Service (LCS) operations via CS.

The LCS Supplementary service operations are specified in 3GPP TS 24.030 [6].

- Occurrence: ZeroOrOne
 - Format: bool
 - Access Types: Get
 - Values: 0, 1
- 0 – Indicates that mobile-originated LCS via CS enabled.
- 1 – Indicates that mobile-originated LCS via CS disabled.

If the CS_LCS leaf value is "1", the UE shall not use the CS domain for mobile-originated LCS service operations until the CS_LCS leaf value is set to "0". The UE may use the PS domain instead of the CS domain for mobile-originated LCS service operations when the CS_LCS leaf value is "1".

5.10 /<X>/PS_LCS

The PS_LCS leaf indicates an operator's preference to enable or disable mobile-originated Location Service (LCS) operations via PS.

The LCS Supplementary service operations are specified in 3GPP TS 24.030 [6].

- Occurrence: ZeroOrOne
 - Format: bool
 - Access Types: Get
 - Values: 0, 1
- 0 – Indicates that mobile-originated LCS via PS are enabled.
- 1 – Indicates that mobile-originated LCS via PS are disabled.

If the PS_LCS leaf value is "1", the UE shall not use the PS domain for mobile-originated LCS service operations until the PS_LCS leaf value is set to "0". The UE may use the CS domain instead of the PS domain for mobile-originated LCS service operations when the PS_LCS leaf value is "1".

5.11 /<X>/GPRS_SM_PDP

The GPRS_SM_PDP leaf indicates an operator's preference to enable or disable mobile-originated GPRS Session Management (SM) procedures for PDP contexts, e.g. PDP context activation, deactivation and modification.

The GPRS SM procedures for PDP contexts are specified in 3GPP TS 24.008 [3].

- Occurrence: ZeroOrOne

- Format: bool
- Access Types: Get
- Values: 0, 1
 - 0 – Indicates that mobile-originated GPRS SM procedures for PDP contexts are enabled.
 - 1 – Indicates that mobile-originated GPRS SM procedures for PDP contexts are disabled.

When the GPRS_SM_PDP leaf value is set to "1", the UE shall initiate the signalling procedure for PDP context deactivation of all PDP contexts (see 3GPP TS 24.008 [3]). Additionally, the UE shall not use mobile-originated GPRS SM procedures for PDP contexts until the GPRS_SM_PDP leaf value is set to "0". The UE is however allowed to use mobile-originated GPRS SM procedure for PDP context activation in the following cases:

- upon receipt of an OMA DM notification message indicating that the UE shall initiate an OMA DM session to the OMA DM server that either had set the disable value of the GPRS_SM_PDP leaf or is the one stored in the AlertServerID leaf;
- when the mobile-originated PDP context activation procedure is necessary in order to either establish an emergency call over IMS (if the IMS_EmergencyCalls value is set to "0") or send an OMA DM generic alert message according to the sub-clause 5.17A.

5.12 /<X>/GPRS_SM_MBMS

The GPRS_SM_MBMS leaf indicates an operator's preference to enable or disable GPRS Session Management (SM) procedures for MBMS contexts, i.e. MBMS context activation and deactivation.

The GPRS SM procedures for MBMS contexts are specified in 3GPP TS 24.008 [3].

- Occurrence: ZeroOrOne
- Format: bool
- Access Types: Get
- Values: 0, 1
 - 0 – Indicates that GPRS SM procedures for MBMS contexts are enabled.
 - 1 – Indicates that GPRS SM procedures for MBMS contexts are disabled.

When the GPRS_SM_MBMS leaf value is set to "1", the UE shall locally release all resources allocated for MBMS contexts and it shall erase the MBMS context data. Furthermore, the UE shall not use GPRS SM procedures for MBMS contexts until the GPRS_SM_MBMS leaf value is set to "0".

5.12A /<X>/EPS_SM_EPS

The EPS_SM_EPS interior node indicates an operator's preference to enable or disable mobile-requested EPS Session Management (SM) procedures for EPS contexts, e.g. UE requested PDN connectivity, UE requested bearer resource modification, UE requested PDN disconnect, as well as provide restriction to EPS services.

The EPS SM procedures for EPS contexts are specified in 3GPP TS 24.301 [7A].

- Occurrence: ZeroOrOne
- Format: bool
- Access Types: Get
- Values: 0, 1
 - 0 – Indicates that mobile-requested EPS SM procedures for EPS contexts are enabled and no restriction to EPS services applies.

- 1 – Indicates that mobile-requested EPS SM procedures for EPS contexts are disabled and restriction to EPS services applies.

When the EPS_SM_EPS leaf value is set to "1", the UE shall proceed as follows:

The UE shall initiate a UE requested PDN connectivity procedure (see 3GPP TS 24.301 [7A]). If the APN leaf exists, the UE shall use the value stored in the APN leaf as the APN in the PDN CONNECTIVITY REQUEST message. Otherwise, the UE shall not include any APN in the PDN CONNECTIVITY REQUEST message.

After successful completion of the UE requested PDN connectivity procedure, if the TrafficMappingInfo interior node exists, the UE shall locally use the information provided by the TrafficMappingInfo (i.e. packet filters) in order to determine the traffic mapping to the EPS context established by the UE requested PDN connectivity procedure. Furthermore, this information shall be used by the UE until the EPS_SM_EPS leaf value is set to "0". The UE is however allowed to temporarily stop to use the traffic mapping information in the following cases:

- upon receipt of an OMA DM notification message indicating that the UE shall initiate an OMA DM session to the OMA DM server that either had set the disable value of the EPS_SM_EPS leaf or is the one stored in the AlertServerID leaf;
- when the UE wishes to either establish an emergency call over IMS (if the IMS_EmergencyCalls value is set to "0") or send an OMA DM generic alert message according to the sub-clause 5.17A.

Later, the UE shall initiate the signalling procedure for UE requested PDN disconnection (see 3GPP TS 24.301 [7A]) of all PDNs but the one which was established by the successful completion of the UE requested PDN connectivity procedure.

Finally, the UE shall not use mobile-requested EPS SM procedures for EPS contexts until the EPS_SM_EPS leaf value is set to "0".

5.12B /<X>/APN

The APN leaf provides the information of an access point name.

- Occurrence: ZeroOrOne
- Format: chr
- Access Types: Get
- Values: <Access point name>

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

EXAMPLE: mycompany.mnc012.mcc340.gprs

5.12C /<X>/TrafficMappingInfo

The TrafficMappingInfo interior node is used to allow configuring the minimum acceptable traffic flow template parameters (packet filters) for EPS context according operator's preference.

- Occurrence: ZeroOrOne
- Format: node
- Access Types: Get
- Values: N/A

NOTE: The information provided by means of the TrafficMappingInfo interior node is only used by the UE when the EPS_SM_EPS leaf value is set to "1".

5.12D /<X>/NumberOfPacketFilters

The APN leaf indicates the number of traffic filters contained in the PacketFilterList leaf.

- Occurrence: One
- Format: int
- Access Types: Get
- Values: <Number of packet filters>

The NumberOfPacketFilters is an unsigned 8 bit integer and the value range is defined as the number of packet filters parameter in the traffic flow template information element (see subclause 10.5.6.12 in 3GPP TS 24.008 [3]).

EXAMPLE: 3 (packet filters)

5.12E /<X>/PacketFilterList

The PacketFilterList leaf provides the information of a variable number of traffic filters.

- Occurrence: One
- Format: int
- Access Types: Get
- Values: <Packet filter list information>

The PacketFilterList is an unsigned 64 bit integer. The bit pattern shall be encoded as the packet filter list parameter in the traffic flow template information element (see subclause 10.5.6.12 in 3GPP TS 24.008 [3]) with the least significant bit in the rightmost position of the integer. Example: If the parameter is encoded into bit 6, 7 & 8 in 3GPP TS 24.008 [3], then it must be encoded into bit 1, 2 & 3 in this leaf.

5.13 /<X>/IMS

The IMS leaf indicates an operator's preference to enable or disable IMS procedures for sending IMS registration request over an IP-CAN bearer established or to be established by GPRS, EPS, I-WLAN, via the cdma2000[®] HRPD to access EPC or fixed broadband (see 3GPP TS 24.229 [7]). Enabling and disabling of IMS procedures for sending IMS registration request in other access technologies is out of scope of this document.

The IMS procedures for sending IMS registration request are specified in 3GPP TS 24.229 [7].

- Occurrence: ZeroOrOne
- Format: bool
- Access Types: Get
- Values: 0, 1

0 – Indicates that IMS procedures for sending IMS registration request are enabled.

1 – Indicates that IMS procedures for sending IMS registration request are disabled.

If the IMS leaf value is set to "1", the following applies for an IP-CAN bearer of GPRS, EPS, I-WLAN, cdma2000[®] HRPD to access EPC or fixed broadband:

- 1) if the UE has already registered a contact address with the IM CN subsystem, containing the IP address of the bearer, then the UE shall initiate the user-initiated deregistration procedure for the contact address;
- 2) the UE shall not send IMS registration requests for a contact address containing the IP address of the bearer; and
- 3) the UE shall not attempt to establish the bearer to be used only for IMS with exception if:

- a) emergency call procedures over IMS are enabled (see subclause 5.18) and the bearer is to be used for IMS emergency registration or IMS emergency session establishment; or
- b) required to be established due to the EPS_SM_EPS leaf set to "1" (see subclause 5.12A).

5.14 /<X>/Text

The Text leaf provides a means for including information that will be displayed by the ME. The information contained in the text leaf should be in the ME selected language, via the OMA DM standard procedure. The information should contain information in order to assist in determining the cause of non-availability of specific services and what to do for example, a text string indicating the disabled service(s) and customer service number(s). An example of possible information to be displayed: "The GPRS service of the handset is currently disabled. For further information, please contact TelServices Help Centre by calling 111 from your handset or +44 7777 111 111 whilst abroad. Alternatively, you may wish to get in touch with us by email at help@telservices.net".

- Occurrence: ZeroOrOne
- Format: chr
- Access Types: Get
- Values: <End-user displayable text string>

When the OMA DM server updates the value of this leaf, the OMA DM server must be configured to ensure that the information provided in the CustomerCareNumbers, described in the sub-clauses 5.15, 5.16 and 5.17, is updated accordingly, i.e. the same customer care service number(s) is(are) provided by the CustomerCareNumbers.

The ME should use and display all the information provided by the Text leaf to inform the end-user about the non-availability of services and/or customer care service number(s). The possible interactions with the end-user are implementation specific.

5.15 /<X>/CustomerCareNumbers/

The CustomerCareNumbers interior node is used to allow a reference to a list of customer care service numbers.

- Occurrence: ZeroOrOne
- Format: node
- Access Types: Get
- Values: N/A

When the OMA DM server updates the values of the CustomerCareNumbers sub-nodes, the OMA DM server must be configured to ensure that the information provided in the Text leaf, described in the sub-clause 5.14, is updated accordingly, i.e. the same customer care service number(s) is(are) provided by the Text leaf.

5.16 /<X>/CustomerCareNumbers/<X>

This run-time node acts as a placeholder for one or more customer care service numbers.

- Occurrence: OneOrMore
- Format: node
- Access Types: Get
- Values: N/A

5.17 /<X>/CustomerCareNumbers/<X>/CustomerCareNumber

The CustomerCareNumber leaf represents one customer care service number. This leaf provides a means for including information about customer care service number which can be used, by the end-user, in determining the cause of non-availability of specific services.

The CustomerCareNumber leaf value shall be either a telephone number according to the E.164 scheme (see ITU-T Rec. E.164 [9]) or nationally-specific operator number, e.g. 191, 150.

- Occurrence: One
- Format: chr
- Access Types: Get
- Values: <Customer care service number>

5.17A /<X>/AlertServerID

The AlertServerID leaf indicates the server identifier for an OMA DM server. This leaf provides a means for informing about the fact that the SDoUE MO has been modified.

The AlertServerID leaf value is used by the UE to send an OMA DM generic alert message (see Enabler Release Definition OMA-ERELD-DM-V1_2 [8]) any time the SDoUE MO is modified by an OMA DM server different than the one indicated by the AlertServerID leaf value.

- Occurrence: ZeroOrOne
- Format: chr
- Access Types: Get
- Values: <Server identifier>

The UE shall send an OMA DM generic alert message immediately after the SDoUE MO has been modified by an OMA DM server different than the one identified by the AlertServerID leaf value. The Type element of the OMA DM generic alert message shall be set to "Reserved-Domain-Name: org.3gpp.SDoUE.changesperformedalert".

5.18 /<X>/ IMS_EmergencyCalls

The IMS_EmergencyCalls interior node indicates an operator's preference to enable or disable emergency call procedures over IMS.

NOTE 1: Disabling of emergency call control procedures over IMS is subject to regional regulatory requirements. Therefore, emergency call control procedures over IMS cannot be disabled in regions where support of them is required (see 3GPP TS 22.011 [2]).

The emergency call procedures over IMS are specified in 3GPP TS 24.229 [7].

- Occurrence: ZeroOrOne
 - Format: bool
 - Access Types: Get
 - Values: 0, 1
- 0 – Indicates that emergency calls over IMS are enabled.
- 1 – Indicates that emergency calls over IMS are disabled.

When the IMS_EmergencyCalls node value is set to "1" and the UE detects being under coverage of a PLMN (identified by Mobile Country Code (MCC) and Mobile Network Code (MNC)) as indicated by any of the stored

Country and Network pairs of nodes (see sub-clauses 5.19, 5.20 and 5.21), then the UE shall initiate the signalling procedure for release of all emergency calls over IMS. Furthermore, the UE shall not use IMS procedures to establish emergency calls until the IMS_EmergencyCalls node value is set to "0" or the UE detects a change of Mobile Country Code (MCC) and Mobile Network Code (MNC) that does not match any of the stored Country and Network pairs of nodes.

NOTE 2: As described by the definition and structure of the SDoUE MO the Country and Network nodes, if existing, constitute a pair of nodes. However, it is possible to indicate only a country/region by means of only setting the value of the Country node.

5.19 /<X>/IMS_EmergencyCalls/<X>

This run-time node acts as a placeholder for one or more Country nodes. Furthermore, this node provides a means for the operator to indicate where emergency call procedures over IMS are disabled (i.e. The IMS_EmergencyCalls value is set to "1").

- Occurrence: ZeroOrMore
- Format: node
- Access Types: Get
- Values: N/A

5.20 /<X>/IMS_EmergencyCalls/<X>/Country

The Country interior node represents one Mobile Country Code (MCC). This node provides a means for including information that can be used to indicate in which MCC the emergency call procedures over IMS are disabled (i.e. The IMS_EmergencyCalls value is set to "1").

The Country node value shall be a Mobile Country Code (MCC) as specified by ITU-T E.212 [10].

- Occurrence: One
- Format: chr
- Access Types: Get
- Values: <Mobile Country Code>

The UE shall only use the information stored in the Country node when emergency call control procedures are disabled (i.e. The IMS_EmergencyCalls value is set to "1").

5.21 /<X>/IMS_EmergencyCalls/<X>/Country/Network

The Network leaf represents one Mobile Network Code (MNC). This leaf provides a means, together with the Country leaf, for including information that can be used to indicate in which MCC and MNC the emergency call procedures over IMS are disabled.

The Network leaf value shall be a Mobile Network Code (MNC) as specified by ITU-T E.212 [10].

- Occurrence: ZeroOrOne
- Format: chr
- Access Types: Get
- Values: <Mobile Network Code>

The UE shall only use the information stored in the Network leaf when emergency call procedures over IMS are disabled (i.e. The IMS_EmergencyCalls value is set to "1"). Furthermore, the UE shall interpret the information stored in the Network leaf, if exists, in conjunction with the corresponding Country node.

5.22 /<X>/Ext

The Ext is an interior node for where the vendor specific information about the SDoUE 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 identified is not defined and can therefore include one or more un-standardized sub-trees.

- Occurrence: ZeroOrOne
- Format: node
- Access Types: Get
- Values: N/A

Annex A (informative): Management Object 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>x</NodeName>
    <DFProperties>
      <AccessType>
        <Get/>
      </AccessType>
      <Description>SDo UE settings</Description>
      <DFFormat>
        <node/>
      </DFFormat>
      <Occurrence>
        <ZeroOrOne/>
      </Occurrence>
      <DFTitle>The SDo UE Management Object.</DFTitle>
      <DFType>
        <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>
      <NodeName>CS_Calls</NodeName>
      <DFProperties>
        <AccessType>
          <Get/>
        </AccessType>
```

```

    <DFFormat>
      <bool/>
    </DFFormat>
  </Occurrence>
  <ZeroOrOne/>
</Occurrence>
<DFTitle>Indication of whether mobile-originated CS calls are enabled.</DFTitle>
<DFType>
  <MIME>text/plain</MIME>
</DFType>
</DFProperties>
</Node>
<Node>
  <NodeName> CS_EmergencyCalls</NodeName>
  <DFProperties>
    <AccessType>
      <Get/>
    </AccessType>
    <DFFormat>
      <bool/>
    </DFFormat>
    <Occurrence>
      <ZeroOrOne/>
    </Occurrence>
    <DFTitle>Indication of whether CS emergency call procedures are enabled.</DFTitle>
    <DFType>
      <MIME>text/plain</MIME>
    </DFType>
  </DFProperties>
  <Node>
    <NodeName></NodeName>
    <DFProperties>
      <AccessType>
        <Get />
      </AccessType>
      <DFFormat>
        <node />
      </DFFormat>
      <Occurrence>
        <ZeroOrMore />
      </Occurrence>
      <DFType>
        <DDFName></DDFName>
      </DFType>
    </DFProperties>
    <Node>
      <NodeName>Country</NodeName>
      <DFProperties>
        <AccessType>
          <Get />
        </AccessType>
        <DFFormat>
          <chr />
        </DFFormat>
        <Occurrence>
          <One />
        </Occurrence>
        <DFTitle>A country or region identified by an Mobile Country Code (MCC).</DFTitle>
        <DFType>
          <MIME>text/plain</MIME>
        </DFType>
      </DFProperties>
    </Node>
  </Node>
</Node>

```

```

    </DFProperties>
  <Node>
    <nodeName>Network</nodeName>
    <DFProperties>
      <AccessType>
        <Get />
      </AccessType>
      <DFFormat>
        <chr />
      </DFFormat>
      <Occurrence>
        <ZeroOrOne />
      </Occurrence>
      <DFTitle>A network code identified by an Mobile Network Code (MNC).</DFTitle>
      <DFType>
        <MIME>text/plain</MIME>
      </DFType>
    </DFProperties>
  </Node>
</Node>
</Node>
</Node>
<Node>
  <nodeName>SupplementaryServices</nodeName>
  <DFProperties>
    <AccessType>
      <Get />
    </AccessType>
    <DFFormat>
      <bool />
    </DFFormat>
    <Occurrence>
      <ZeroOrOne />
    </Occurrence>
    <DFTitle>Indication of whether mobile-originated Supplementary service operations are
enabled.</DFTitle>
    <DFType>
      <MIME>text/plain</MIME>
    </DFType>
  </DFProperties>
</Node>
<Node>
  <nodeName>CS_SMS</nodeName>
  <DFProperties>
    <AccessType>
      <Get />
    </AccessType>
    <DFFormat>
      <bool />
    </DFFormat>
    <Occurrence>
      <ZeroOrOne />
    </Occurrence>
    <DFTitle>Indication of whether mobile-originated SMS via CS is enable.</DFTitle>
    <DFType>
      <MIME>text/plain</MIME>
    </DFType>
  </DFProperties>
</Node>
</Node>

```

```

<NodeName>PS_SMS</NodeName>
<DFProperties>
  <AccessType>
    <Get/>
  </AccessType>
  <DFFormat>
    <bool/>
  </DFFormat>
  <Occurrence>
    <ZeroOrOne/>
  </Occurrence>
  <DFTitle>Indication of whether mobile-originated SMS via PS is enable.</DFTitle>
  <DFType>
    <MIME>text/plain</MIME>
  </DFType>
</DFProperties>
</Node>
<Node>
  <NodeName>CS_LCS</NodeName>
  <DFProperties>
    <AccessType>
      <Get/>
    </AccessType>
    <DFFormat>
      <bool/>
    </DFFormat>
    <Occurrence>
      <ZeroOrOne/>
    </Occurrence>
    <DFTitle>Indication of whether mobile-originated LCS via CS is enable.</DFTitle>
    <DFType>
      <MIME>text/plain</MIME>
    </DFType>
  </DFProperties>
</Node>
<Node>
  <NodeName>PS_LCS</NodeName>
  <DFProperties>
    <AccessType>
      <Get/>
    </AccessType>
    <DFFormat>
      <bool/>
    </DFFormat>
    <Occurrence>
      <ZeroOrOne/>
    </Occurrence>
    <DFTitle>Indication of whether mobile-originated LCS via PS is enable.</DFTitle>
    <DFType>
      <MIME>text/plain</MIME>
    </DFType>
  </DFProperties>
</Node>
<Node>
  <NodeName>GPRS_SM_PDP</NodeName>
  <DFProperties>
    <AccessType>
      <Get/>
    </AccessType>
    <DFFormat>

```

```

        <bool/>
      </DFFormat>
    <Occurrence>
      <ZeroOrOne/>
    </Occurrence>
    <DFTitle>Indication of whether mobile-originated GPRS SM procedures for PDP contexts are
enabled.</DFTitle>
    <DFType>
      <MIME>text/plain</MIME>
    </DFType>
  </DFProperties>
</Node>

<Node>
  <NodeName>GPRS_SM_MBMS</NodeName>
  <DFProperties>
    <AccessType>
      <Get/>
    </AccessType>
    <DFFormat>
      <bool/>
    </DFFormat>
    <Occurrence>
      <ZeroOrOne/>
    </Occurrence>
    <DFTitle>Indication of whether mobile-originated GPRS SM procedures for MBMS contexts are
enabled.</DFTitle>
    <DFType>
      <MIME>text/plain</MIME>
    </DFType>
  </DFProperties>
</Node>

<Node>
  <NodeName>EPS_SM_EPS</NodeName>
  <DFProperties>
    <AccessType>
      <Get/>
    </AccessType>
    <DFFormat>
      <bool/>
    </DFFormat>
    <Occurrence>
      <ZeroOrOne/>
    </Occurrence>
    <DFTitle>Indication of whether mobile-originated EPS SM procedures for EPS contexts are enabled and
restriction to EPS services applies.</DFTitle>
    <DFType>
      <MIME>text/plain</MIME>
    </DFType>
  </DFProperties>
<Node>
  <NodeName>APN</NodeName>
  <DFProperties>
    <AccessType>
      <Get/>
    </AccessType>
    <DFFormat>
      <chr/>
    </DFFormat>
    <Occurrence>
      <ZeroOrOne/>

```

```

    </Occurrence>
    <DFTitle>An access point name.</DFTitle>
    <DFType>
      <MIME>text/plain</MIME>
    </DFType>
  </DFProperties>
</Node>
<Node>
  <NodeName>TrafficMappingInfo</NodeName>
  <DFProperties>
    <AccessType>
      <Get/>
    </AccessType>
    <DFFormat>
      <node/>
    </DFFormat>
    <Occurrence>
      <ZeroOrOne/>
    </Occurrence>
    <DFTitle>Traffic mapping information.</DFTitle>
    <DFType>
      <MIME>text/plain</MIME>
    </DFType>
  </DFProperties>
</Node>
  <NodeName>NumberOfPacketFilters.</NodeName>
  <DFProperties>
    <AccessType>
      <Get/>
    </AccessType>
    <DFFormat>
      <int/>
    </DFFormat>
    <Occurrence>
      <ZeroOrOne/>
    </Occurrence>
    <DFTitle>Number of packet filters.</DFTitle>
    <DFType>
      <MIME>text/plain</MIME>
    </DFType>
  </DFProperties>
</Node>
  <NodeName>PacketFilterList</NodeName>
  <DFProperties>
    <AccessType>
      <Get/>
    </AccessType>
    <DFFormat>
      <chr/>
    </DFFormat>
    <Occurrence>
      <ZeroOrOne/>
    </Occurrence>
    <DFTitle>Packet filter list.</DFTitle>
    <DFType>
      <MIME>text/plain</MIME>
    </DFType>
  </DFProperties>
</Node>
</Node>
</Node>

```



```

<Node>
  <NodeName>IMS</NodeName>
  <DFProperties>
    <AccessType>
      <Get/>
    </AccessType>
    <DFFormat>
      <bool/>
    </DFFormat>
    <Occurrence>
      <ZeroOrOne/>
    </Occurrence>
    <DFTitle>Indication of whether IMS procedures for sending IMS registration request are
enabled.</DFTitle>
    <DFType>
      <MIME>text/plain</MIME>
    </DFType>
  </DFProperties>
</Node>

<Node>
  <NodeName>Text</NodeName>
  <DFProperties>
    <AccessType>
      <Get/>
    </AccessType>
    <DFFormat>
      <chr/>
    </DFFormat>
    <Occurrence>
      <ZeroOrOne/>
    </Occurrence>
    <DFTitle>Information to be displayed by the handset.</DFTitle>
    <DFType>
      <MIME>text/plain</MIME>
    </DFType>
  </DFProperties>
</Node>

<Node>
  <NodeName>CustomerCareNumbers</NodeName>
  <DFProperties>
    <AccessType>
      <Get/>
    </AccessType>
    <DFFormat>
      <node/>
    </DFFormat>
    <Occurrence>
      <ZeroOrOne/>
    </Occurrence>
    <DFTitle>The customer care service numbers.</DFTitle>
    <DFType>
      <MIME>text/plain</MIME>
    </DFType>
  </DFProperties>
<Node>
  <NodeName></NodeName>
  <DFProperties>
    <AccessType>
      <Get />
    </AccessType>
    <DFFormat>

```

```

        <node />
    </DFFormat>
    <Occurrence>
        <OneOrMore />
    </Occurrence>
    <DFType>
        <DDFName></DDFName>
    </DFType>
</DFProperties>
<Node>
    <NodeName>CustomerServiceNumber</NodeName>
    <DFProperties>
        <AccessType>
            <Get />
        </AccessType>
        <DFFormat>
            <chr />
        </DFFormat>
        <Occurrence>
            <One />
        </Occurrence>
        <DFTitle>A customer care service number.</DFTitle>
        <DFType>
            <MIME>text/plain</MIME>
        </DFType>
    </DFProperties>
</Node>
</Node>
</Node>
<Node>
    <NodeName>AlertServerID</NodeName>
    <DFProperties>
        <AccessType>
            <Get/>
        </AccessType>
        <DFFormat>
            <node/>
        </DFFormat>
        <Occurrence>
            <ZeroOrOne/>
        </Occurrence>
        <DFTitle>An OMA DM server identifier for alerting.</DFTitle>
        <DFType>
            <MIME>text/plain</MIME>
        </DFType>
    </DFProperties>
</Node>
<Node>
    <NodeName> IMS_EmergencyCalls</NodeName>
    <DFProperties>
        <AccessType>
            <Get/>
        </AccessType>
        <DFFormat>
            <bool/>
        </DFFormat>
        <Occurrence>
            <ZeroOrOne/>
        </Occurrence>
        <DFTitle>Indication of whether emergency call procedures over IMS are enabled.</DFTitle>
    </DFProperties>
</Node>

```

```

    <DFType>
      <MIME>text/plain</MIME>
    </DFType>
  </DFProperties>
</Node>
  <NodeName></NodeName>
  <DFProperties>
    <AccessType>
      <Get />
    </AccessType>
    <DFFormat>
      <node />
    </DFFormat>
    <Occurrence>
      <ZeroOrMore />
    </Occurrence>
    <DFType>
      <DDFName></DDFName>
    </DFType>
  </DFProperties>
</Node>
  <NodeName>Country</NodeName>
  <DFProperties>
    <AccessType>
      <Get />
    </AccessType>
    <DFFormat>
      <chr />
    </DFFormat>
    <Occurrence>
      <One />
    </Occurrence>
    <DFTitle>A country or region identified by an Mobile Country Code (MCC).</DFTitle>
    <DFType>
      <MIME>text/plain</MIME>
    </DFType>
  </DFProperties>
</Node>
  <NodeName>Network</NodeName>
  <DFProperties>
    <AccessType>
      <Get />
    </AccessType>
    <DFFormat>
      <chr />
    </DFFormat>
    <Occurrence>
      <ZeroOrOne />
    </Occurrence>
    <DFTitle>A network code identified by an Mobile Network Code (MNC).</DFTitle>
    <DFType>
      <MIME>text/plain</MIME>
    </DFType>
  </DFProperties>
</Node>
</Node>
</Node>
</Node>
  <NodeName>Ext</NodeName>
  <!-- The Extension node starts here. -->

```

```
<DFProperties>
  <AccessType>
    <Get/>
  </AccessType>
  <DFFormat>
    <node/>
  </DFFormat>
  <Occurrence>
    <ZeroOrOne/>
  </Occurrence>
  <DFTitle>A collection of all Extension objects.</DFTitle>
  <DFType>
    <DDFName/>
  </DFType>
</DFProperties>
</Node>
</Node>
</MgmtTree>
```

Annex B (informative): Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
2006-03					Rapporteur input framework document agreed at CT1#41.	0.0.0	0.1.0
2006-05					Implementation of CRs agreed at CT1#42: C1-061070	0.1.0	0.2.0
2006-09					Implementation of CRs agreed at CT1#43: C1-061593, C1-061594, C1-061595, C1-061699 Version 1.0.0 created for presentation for information to plenary (TSG CT #33).	0.2.0	1.0.0
2006-11					Implementation of CRs agreed at CT1#44: C1-062133, C1-062410, C1-062411, C1-062412, C1-062413, C1-062504, C1-062505, C1-062506 Editorial changes done. Version 2.0.0 created for presentation for approval to plenary (TSG CT #34).	1.0.0	2.0.0
2006-12					Version 2.0.0 approved in CT#34 as CP-060652; Version 7.0.0 created by MCC	2.0.0	7.0.0
2007-03	CT-35	CP-070150	0001	1	Cleanups and corrections	7.0.0	7.1.0
2007-03	CT-35	CP-070150	0002	1	Behaviour of the UE when Supplementary Services disable	7.0.0	7.1.0
2007-03	CT-35	CP-070150	0003		Management Object (MO) identifier for SDoUE	7.0.0	7.1.0
2007-03	CT-35	CP-070150	0004		Access to the SDoUE MO when in VPLMN	7.0.0	7.1.0
2007-03	CT-35	CP-070150	0005	1	Behaviour of the UE when Emergency Calls disable	7.0.0	7.1.0
2007-06	CT-36	CP-070379	0006	1	Disabling of emergency calls procedures over IMS	7.1.0	7.2.0
2008-03	CT-39	CP-080124	0007		Removal of editors note	7.2.0	7.3.0
2008-03	CT-39	CP-080124	0008		Correction to the GPRS_SM_PDP leaf	7.2.0	7.3.0
2008-12	CT-42				Upgrade to Rel-8	7.3.0	8.0.0
2009-03	CT-43	CP-090120	0009		MO DDF XML bug fix	8.0.0	8.1.0
2009-03	CT-43	CP-090131	0010		Update of SDoUE for EPS	8.0.0	8.1.0
2009-06	CT-44	CP-090424	0012		XML error	8.1.0	8.2.0
2009-12	CT-46				Upgrade to Rel-9	8.2.0	9.0.0
2011-03	CT-51	CP-110197	0013	5	IMS parameter preventing establishment of IP-CAN bearer used only for IMS	9.0.0	10.0.0
2011-12	CT-54	CP-110882	0015		Clarification to GPRS SM and EPS SM procedures	10.0.0	11.0.0
2011-12	CT-54	CP-110882	0016		Correction to allow 3GPP network operators to stop useless signalling over IP-CAN used by 3GPP	10.0.0	11.0.0