**3GPP TSG-CT WG1 Meeting #131-eC1-21xxxx**

**E-meeting, 19-27 August 2021 *(was C1-214440)***

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| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **24.368** | **CR** | **0054** | **rev** | **1** | **Current version:** | **16.6.0** |  |
|  |
| *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 | **X** | Radio Access Network |  | Core Network |  |

|  |
| --- |
|  |
| ***Title:***  | Handling of T3402 to ensure IMS voice availability |
|  |  |
| ***Source to WG:*** | China Telecom, Qualcomm Incorporated |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | ING\_5GS |  | ***Date:*** | 2021-08-23 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-17 |
|  | *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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
|  |  |
| ***Reason for change:*** | The following issue has been observed in actual network deployments (see DP C1-214162 for more details):**Pre-conditions:*** The UE’s usage setting is “voice-centric”
* The network’s configuration is as follows:
* In 5GS, VoNR is not supported, and IMS voice is provided via EPS fallback
* There is no 2G/3G (spectrum has been re-farmed)
* There is no other PLMN available in the area

**Problem scenario:**1. The UE attempts to attach in EPS but is in a coverage hole and thus fails to attach 5 times in a row, which triggers the UE to start timer T3402 and disable the E-UTRA capability (see TS 24.301 subclauses 5.5.1.2.6 / 5.5.1.3.6). Since the UE has not yet been able to attach in EPS, the UE has not yet received a specific T3402 value for the registration area and thus uses the default value of 12 min for T3402 (see TS 23.401 subclauses 5.3.6 and 10.2)
2. The UE moves to 5GS, performs registration and indicates that S1 mode is disable in the REGISTRATION REQUEST message
3. Since the network only supports voice via EPS fallback in 5GS and the UE has indicated that the S1 mode capability is disabled, the network indicates “IMS voice over 3GPP access is not supported” in the REGISTRATION ACCEPT message
4. Since the UE is voice-centric, receiving “IMS voice over 3GPP access is not supported” in the REGISTRATION ACCEPT message triggers the UE to disable the N1 mode capability (see TS 24.501 subclause 4.3.2)
5. The UE attempts to find 2G/3G and cannot find it since it is not available
6. The UE re-enables N1 mode (based on implementation trigger) and camps in 5GS
7. The UE is unable to make any MO call / receive any MT call for as long as T3402 is still running

To mitigate this issue, it is proposed to update handling of this scenario as follows:If feature “No E-UTRA Disabling In 5GS” is enabled based on a UE configuration parameter stored in the ME or in the USIM, the UE does not not disable the E-UTRA capability when the attach attempt counter or tracking area updating attempt counter reaches 5 and the UE selects an NG-RAN cell. |
|  |  |
| ***Summary of change:*** | UE configuration parameter “NoEUTRADisablingIn5GS” was added to the NAS MO. |
|  |  |
| ***Consequences if not approved:*** | The UE will be out of voice service even if good EPS coverage becomes available. |
|  |  |
| ***Clauses affected:*** | 4, 5.10zt (New), Annex A |
|  |  |
|  | **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:*** |  |

\*\*\* First change \*\*\*

# 4 NAS configuration MO

The NAS configuration MO is used to manage configuration parameters related to NAS functionality for a UE supporting provisioning of such information. The presence and format of the non-access stratum configuration file on the USIM is specified in 3GPP TS 31.102 [6].

The MO identifier is: urn:oma:mo:ext-3gpp-nas-config:1.0.

The OMA DM Access Control List (ACL) property mechanism (see OMA-ERELD-DM-V1\_2 [2]) may be used to grant or deny access rights to OMA DM servers in order to modify nodes and leaf objects of the NAS configuration MO.

The following nodes and leaf objects are possible in the NAS configuration MO as described in figure 4-1:



Figure 4-1: The NAS configuration Management Object (1 of 3)



Figure 4-2: The NAS configuration Management Object (2 of 3)



Figure 4-3: The NAS configuration Management Object (3 of 3)

\*\*\* Next change \*\*\*

## 5.10zt *<X>*/NoEUTRADisablingIn5GS

The NoEUTRADisablingIn5GS leaf indicates whether E-UTRA Disabling In 5GS is disabled or enabled. If E-UTRA Disabling In 5GS is enabled, the UE shall not disable the E-UTRA capability upon starting timer T3402 when the attach attempt counter or tracking area updating attempt counter reaches 5 and the UE selects an NG-RAN cell.

- Occurrence: ZeroOrOne

- Format: bool

- Access Types: Get, Replace

- Values: 0, 1

0 Indicates that No E-UTRA Disabling In 5GS is disabled, see 3GPP TS 24.301 [5]

1 Indicates that No E-UTRA Disabling In 5GS is enabled, see 3GPP TS 24.301 [5]

The default value 0 applies if this leaf is not provisioned.

\*\*\* Next change \*\*\*

 Annex A (informative):
NAS 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.

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

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 <DFTitle>UE radio configuration asosciated with the RCI encoded as specified in TS 36.331.</DFTitle>

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 <DDFName/>

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 <Node>

 <NodeName>UERadioConfigNR</NodeName>

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 <DFTitle>UE radio configuration asosciated with the RCI encoded as specified in TS 38.331.</DFTitle>

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 <DFTitle>List of RLOS allowed MCCs.</DFTitle>

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 <DFTitle> List of RLOS allowed MCCs.</DFTitle>

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 </DFProperties>

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 <Node>

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 <DFTitle>Configuration parameters regarding a UE operating in SNPN access operation mode.</DFTitle>

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 <NodeName></NodeName>

 <DFProperties>

 <AccessType>

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 </DFFormat>

 <Occurrence>

 <OneOrMore/>

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 <Scope>

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 <DFTitle>List of {SNPN identifier, configuration parameters regarding 3GPP PS data off for a UE in the SNPN identified by the SNPN identifier, configured UE retry wait time value for a UE in the SNPN identified by the SNPN identifier}.</DFTitle>

 <DFType>

 <DDFName/>

 </DFType>

 </DFProperties>

 <Node>

 <NodeName>SNPN\_identifier</NodeName>

 <DFProperties>

 <AccessType>

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 </AccessType>

 <DFFormat>

 <chr/>

 </DFFormat>

 <Occurrence>

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 </Occurrence>

 <DFTitle>SNPN identifier for which the 3GPP\_PS\_data\_off leaf or SM\_RetryWaitTime leaf is applicable.</DFTitle>

 <DFType>

 <MIME>text/plain</MIME>

 </DFType>

 </DFProperties>

 </Node>

 <NodeName>3GPP\_PS\_data\_off</NodeName>

 <DFProperties>

 <AccessType>

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 </AccessType>

 <DFFormat>

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 </DFFormat>

 <Occurrence>

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 <Scope>

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 </Scope>

 <DFTitle>Configuration parameters regarding 3GPP PS data off for a UE in the SNPN identified by the SNPN\_identifier leaf.</DFTitle>

 <DFType>

 <DDFName/>

 </DFType>

 </DFProperties>

 <Node>

 <NodeName>Exempted\_service\_list</NodeName>

 <DFProperties>

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 <Occurrence>

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 <Scope>

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 <DFTitle>List of services which are exempted of 3GPP PS data off for a UE in the SNPN identified by the SNPN\_identifier leaf.</DFTitle>

 <DFType>

 <DDFName/>

 </DFType>

 </DFProperties>

 <Node>

 <NodeName>Device\_management\_over\_PS</NodeName>

 <DFProperties>

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 <Occurrence>

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 </Occurrence>

 <Scope>

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 </Scope>

 <DFTitle>Device management over PS which is a 3GPP PS data off exempt service for a UE in the SNPN identified by the SNPN\_identifier leaf.</DFTitle>

 <DFType>

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 <Node>

 <NodeName>Bearer\_independent\_protocol</NodeName>

 <DFProperties>

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 <Occurrence>

 <ZeroOrOne/>

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 <Scope>

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 <DFTitle>Bearer\_independent\_protocol which is a 3GPP PS data off exempt service for a UE in the SNPN identified by the SNPN\_identifier leaf.</DFTitle>

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 <MIME>text/plain</MIME>

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 <Node>

 <NodeName>SM\_RetryWaitTime</NodeName>

 <DFProperties>

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 </DFFormat>

 <Occurrence>

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 <DFTitle> SM\_RetryWaitTime for a UE in the SNPN identified by the SNPN\_identifier leaf</DFTitle>

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 <Node>

 <NodeName>Timer\_T3245\_Behaviour</NodeName>

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 <Occurrence>

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 <DFTitle> Timer\_T3245\_Behaviour for a UE in the SNPN identified by the SNPN\_identifier leaf</DFTitle>

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 <Occurrence>

 <ZeroOrOne/>

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 <DFTitle> NoEUTRADisablingIn5GS.</DFTitle>

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 <AccessType>

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 <Occurrence>

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 <DFTitle>A collection of all extension objects.</DFTitle>

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 <DDFName/>

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</MgmtTree>

\*\*\* End of changes \*\*\*