**3GPP TSG-CT WG1 Meeting #137-eC1-22xxxx**

**E-Meeting, 18th – 26th August 2022 rev of C1-224720**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.501** | **CR** | **4495** | **rev** | **1** | **Current version:** | **17.7.1** |  |
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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 | **x** | Radio Access Network |  | Core Network | **x** |

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| ***Title:*** | Additional parameter with generic UE configuration update procedure | | | | | | | | | |
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| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eNS\_Ph2 | | | | |  | ***Date:*** | | | 2022-08-11 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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 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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | With the generic UE configuration update procedure for the rejected NSSAI, a parameter with the back-off timer value can be provided to the UE along with the “rejected NSSAI for the maximum number of UEs reached”.  However, this is not fully clear for the procedure and needs to be clarified. | | | | | | | | |
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| ***Summary of change:*** | | Add back-off timer value for rejected NSSAI for the maximum number of UEs reached as a parameter to generic UE configuration update procedure. | | | | | | | | |
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| ***Consequences if not approved:*** | | Unclear specification leading to late implementations of the parameter | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.4.4.1, 5.4.4.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \* \* \* \*

#### 5.4.4.1 General

The purpose of this procedure is to:

a) allow the AMF to update the UE configuration for access and mobility management-related parameters decided and provided by the AMF by providing new parameter information within the command;

b) request the UE to perform a registration procedure for mobility and periodic registration update towards the network to update access and mobility management-related parameters decided and provided by the AMF (see subclause 5.5.1.3);

c) deliver the UAV authorization information to the UE, as described in 3GPP TS 23.256 [6AB]; or

d) update the PEIPS assistance information in the UE (see subclause 5.3.25).

This procedure is initiated by the network and can only be used when the UE has an established 5GMM context, and the UE is in 5GMM-CONNECTED mode. When the UE is in 5GMM-IDLE mode, the AMF may use the paging or notification procedure to initiate the generic UE configuration update procedure. The AMF can request a confirmation response in order to ensure that the parameter has been updated by the UE.

This procedure shall be initiated by the network to assign a new 5G-GUTI to the UE after:

a) a successful service request procedure invoked as a response to a paging request from the network and before the:

1) release of the N1 NAS signalling connection; or

2) suspension of the N1 NAS signalling connection due to user plane CIoT 5GS optimization i.e. before the UE and the AMF enter 5GMM-IDLE mode with suspend indication; or

b) the AMF receives an indication from the lower layers that it has received the NGAP UE context resume request message as specified in 3GPP TS 38.413 [31] for a UE in 5GMM-IDLE mode with suspend indication and this resumption is a response to a paging request from the network, and before the:

1) release of the N1 NAS signalling connection; or

2) suspension of the N1 NAS signalling connection due to user plane CIoT 5GS optimization i.e. before the UE and the AMF enter 5GMM-IDLE mode with suspend indication.

If the service request procedure was triggered due to 5GSM downlink signalling pending, the procedure for assigning a new 5G-GUTI can be initiated by the network after the transport of the 5GSM downlink signalling.

The following parameters are supported by the generic UE configuration update procedure without the need to request the UE to perform the registration procedure for mobility and periodic registration update:

a) 5G-GUTI;

b) TAI list;

c) Service area list;

d) Network identity and time zone information (Full name for network, short name for network, local time zone, universal time and local time zone, network daylight saving time);

e) LADN information;

f) Rejected NSSAI;

g) void;

h) Operator-defined access category definitions;

i) SMS indication;

j) "CAG information list";

k) UE radio capability ID;

l) 5GS registration result;

m) Truncated 5G-S-TMSI configuration;

n) T3447 value;

o) "list of PLMN(s) to be used in disaster condition";

p) disaster roaming wait range;

q) disaster return wait range;

r) PEIPS assistance information;

s) Priority indicator; and

t) back-off timer value associated with rejected NSSAI for the maximum number of UEs reached.

The following parameters can be sent to the UE with or without a request to perform the registration procedure for mobility and periodic registration update:

a) Allowed NSSAI;

b) Configured NSSAI;

c) Network slicing subscription change indication; or

d) NSSRG information.

The following parameters are sent to the UE with a request to perform the registration procedure for mobility and periodic registration update:

a) MICO indication;

b) UE radio capability ID deletion indication; and

c) Additional configuration indication.

The following parameters can be included in the Service-level-AA container IE to be sent to the UE without a request to perform the registration procedure for mobility and periodic registration update:

a) Service-level device ID;

b) Service-level-AA payload type;

c) Service-level-AA payload; or

d) Service-level-AA response.

The following parameters are sent over 3GPP access only:

a) LADN information;

b) MICO indication;

c) TAI list;

d) Service area list;

e) "CAG information list";

f) UE radio capability ID;

g) UE radio capability ID deletion indication;

h) Truncated 5G-S-TMSI configuration;

i) Additional configuration indication;

j) T3447 value; and

k) Service-level-AA container.

The following parameters are managed and sent per access type i.e., independently over 3GPP access or non-3GPP access:

a) Allowed NSSAI;

b) Rejected NSSAI (when the NSSAI is rejected for the current registration area or is rejected for the maximum number of UEs reached);

b1) back.off timer value associated with rejected S-NSSAI for the maximum number of UEs reached; and

c) If the UE is not registered to the same PLMN or SNPN over 3GPP and non-3GPP access:

- 5G-GUTI;

- Network identity and time zone information;

- Rejected NSSAI (when the NSSAI is rejected for the current PLMN or SNPN or rejected for the failed or revoked NSSAA);

- Configured NSSAI;

- NSSRG information;- SMS indication;

- 5GS registration result; and

- PEIPS assistance information.

If the UE is registered to the same PLMN or SNPN over 3GPP and non-3GPP access, the following parameters are managed commonly and sent over 3GPP access or non-3GPP access:

a) 5G-GUTI;

b) Network identity and time zone information;

c) Rejected NSSAI (when the NSSAI is rejected for the current PLMN or SNPN or rejected for the failed or revoked NSSAA);

d) Configured NSSAI;

e) SMS indication; and

f) 5GS registration result;

g) "list of PLMN(s) to be used in disaster condition";

h) disaster roaming wait range;

i) disaster return wait range;

j) PEIPS assistance information; and

k) NSSRG information;



Figure 5.4.4.1.1: Generic UE configuration update procedure

\* \* \* Next Change \* \* \* \*

#### 5.4.4.2 Generic UE configuration update procedure initiated by the network

The AMF shall initiate the generic UE configuration update procedure by sending the CONFIGURATION UPDATE COMMAND message to the UE.

The AMF shall in the CONFIGURATION UPDATE COMMAND message either:

a) include one or more of the following parameters: 5G-GUTI, TAI list, allowed NSSAI that may include the mapped S-NSSAI(s), LADN information, service area list, MICO indication, NITZ information, configured NSSAI that may include the mapped S-NSSAI(s), rejected S-NSSAI(s) in the Rejected NSSAI IE or in the Extended rejected NSSAI IE, network slicing subscription change indication, operator-defined access category definitions, SMS indication, service gap time value, "CAG information list", UE radio capability ID, 5GS registration result, UE radio capability ID deletion indication, truncated 5G-S-TMSI configuration, T3447 value, "list of PLMN(s) to be used in disaster condition", disaster roaming wait range, disaster return wait range, PEIPS assistance information or the priority indicator, back-off timer value associated with rejected S-NSSAI for the maximum number of UEs reached;

b) include the Configuration update indication IE with the Registration requested bit set to "registration requested"; or

c) include a combination of both a) and b).

If the UE is registering or registered for onboarding services in SNPN, the serving SNPN shall not provide the configured NSSAI, the allowed NSSAI or the rejected NSSAI to the UE.

If the UE supports extended rejected NSSAI, the rejected S-NSSAI(s) shall be included in the Extended rejected NSSAI IE. Otherwise the rejected S-NSSAI(s) shall be included in the Rejected NSSAI IE.

If an acknowledgement from the UE is requested, the AMF shall indicate "acknowledgement requested" in the Acknowledgement bit of the Configuration update indication IE in the CONFIGURATION UPDATE COMMAND message and shall start timer T3555. Acknowledgement shall be requested for all parameters except when only NITZ is included.

To initiate parameter re-negotiation between the UE and network, the AMF shall indicate "registration requested" in the Registration requested bit of the Configuration update indication IE in the CONFIGURATION UPDATE COMMAND message.

NOTE 1: Generic UE configuration update procedure can be initiated by the AMF for updating the emergency number list, the extended emergency number list or both by indicating "registration requested" in the Registration requested bit of the Configuration update indication IE in the CONFIGURATION UPDATE COMMAND message to the UE.

If a new allowed NSSAI information or AMF re-configuration of supported S-NSSAIs requires an AMF relocation, the AMF shall indicate "registration requested" in the Registration requested bit of the Configuration update indication IE and include the Allowed NSSAI IE in the CONFIGURATION UPDATE COMMAND message.

If the AMF includes a new allowed NSSAI in the CONFIGURATION UPDATE COMMAND message and the subscription information includes the NSSRG information, then the S-NSSAIs of the allowed NSSAI shall be associated with at least one common NSSRG value.

If the AMF includes a new configured NSSAI in the CONFIGURATION UPDATE COMMAND message and the new configured NSSAI requires an AMF relocation as specified in 3GPP TS 23.501 [8], the AMF shall indicate "registration requested" in the Registration requested bit of the Configuration update indication IE in the message.

If the AMF includes a new configured NSSAI in the CONFIGURATION UPDATE COMMAND message, the subscription information includes the NSSRG information, and the UE has set the NSSRG bit in the 5GMM capability IE of the REGISTRATION REQUEST message to:

a) "NSSRG supported", then the AMF shall include the NSSRG information in the CONFIGURATION UPDATE COMMAND message; or

b) "NSSRG not supported", then the configured NSSAI shall include one or more S-NSSAIs each of which is associated with all the NSSRG value(s) of the default S-NSSAI(s), or the configured NSSAI shall include, based on the indication received from the UDM as specified in 3GPP TS 23.501 [8], all subscribed S-NSSAIs even if these S-NSSAIs do not share any common NSSRG value.

If the CONFIGURATION UPDATE COMMAND message is initiated only due to changes to the allowed NSSAI and these changes require the UE to initiate a registration procedure, but the AMF is unable to determine an allowed NSSAI for the UE as specified in 3GPP TS 23.501 [8], then the CONFIGURATION UPDATE COMMAND message shall indicate "registration requested" in the Registration requested bit of the Configuration update indication IE, and shall not contain any other parameters.

If:

- the AMF needs to enforce a change in the restriction on the use of enhanced coverage or use of CE mode B as described in subclause 5.3.18; or

- the AMF decides to inform a UE in 5GMM-CONNECTED mode and registered for disaster roaming services, that a disaster condition is no longer applicable;

NOTE 1A: The case of the AMF triggering a generic UE configuration update procedure to inform a UE registered for disaster roaming services that a disaster condition is no longer applicable, is only applicable for a UE already in 5GMM-CONNECTED mode.

the AMF shall indicate "registration requested" in the Registration requested bit of the Configuration update indication IE and "release of N1 NAS signalling connection not required" in the Signalling connection maintain request bit of the Additional configuration indication IE in the CONFIGURATION UPDATE COMMAND message.

If a network slice-specific authentication and authorization procedure for an S-NSSAI is completed as a:

a) success, the AMF shall include this S-NSSAI in the allowed NSSAI over the same access of the requested S-NSSAI; or

b) failure, the AMF shall include this S-NSSAI in the rejected NSSAI for the failed or revoked NSSAA with the rejection cause "S-NSSAI not available due to the failed or revoked network slice-specific authentication and authorization" over either 3GPP access or non-3GPP access.

If authorization is revoked for an S-NSSAI that is in the current allowed NSSAI for an access type, the AMF shall:

a) provide a new allowed NSSAI to the UE, excluding the S-NSSAI for which authorization is revoked; and

b) provide a new rejected NSSAI for the failed or revoked NSSAA, including the S-NSSAI in the rejected NSSAI for which the authorization is revoked, with the rejection cause "S-NSSAI not available due to the failed or revoked network slice-specific authentication and authorization".

The allowed NSSAI and the rejected NSSAI shall be included in the CONFIGURATION UPDATE COMMAND message to reflect the result of the procedures subject to network slice-specific authentication and authorization.

NOTE 2: If there are multiple S-NSSAIs subject to network slice-specific authentication and authorization, it is implementation specific if the AMF informs the UE about the outcome of the procedures in one or more CONFIGURATION UPDATE COMMAND messages.

If the AMF includes the Network slicing indication IE in the CONFIGURATION UPDATE COMMAND message with the Network slicing subscription change indication set to "Network slicing subscription changed", and changes to the allowed NSSAI require the UE to initiate a registration procedure, but the AMF is unable to determine an allowed NSSAI for the UE as specified in 3GPP TS 23.501 [8], then the CONFIGURATION UPDATE COMMAND message shall additionally indicate "registration requested" in the Registration requested bit of the Configuration update indication IE and shall not include an allowed NSSAI.

If EAC mode is activated for an S-NSSAI, the AMF shall perform NSAC for the S-NSSAI subject to NSAC before such S-NSSAI is included in the allowed NSSAI in the CONFIGURATION UPDATE COMMAND message. If EAC mode is deactivated for an S-NSSAI, the AMF shall perform NSAC for the S-NSSAI subject to NSAC after such S-NSSAI is included in the allowed NSSAI in the CONFIGURATION UPDATE COMMAND message.

If the UE supports extended rejected NSSAI and the AMF determines that maximum number of UEs reached for one or more S-NSSAI(s) in the allowed NSSAI as specified in subclause 4.6.2.5, the AMF shall include the rejected NSSAI containing one or more S-NSSAIs with the rejection cause "S-NSSAI not available due to maximum number of UEs reached" in the Extended rejected NSSAI IE in the CONFIGURATION UPDATE COMMAND message. In addition, the AMF may include a back-off timer value for each S-NSSAI with the rejection cause "S-NSSAI not available due to maximum number of UEs reached" included in the Extended rejected NSSAI IE of the CONFIGURATION UPDATE COMMAND message. To avoid that large numbers of UEs simultaneously initiate deferred requests, the network should select the value for the backoff timer for each S-NSSAI for the informed UEs so that timeouts are not synchronised.

If the UE does not indicate support for extended rejected NSSAI and the maximum number of UEs has been reached, the AMF should include the rejected NSSAI containing one or more S-NSSAIs with the rejection cause "S-NSSAI not available in the current registration area" in the Rejected NSSAI IE and should not include these S-NSSAIs in the allowed NSSAI in the CONFIGURATION UPDATE COMMAND message. In addition, the AMF may based on the network policies start a local implementation specific timer for the UE per rejected S-NSSAI and upon expiration of the local implementation specific timer, the AMF may remove the rejected S-NSSAI from the rejected NSSAI and update to the UE by initiating the generic UE configuration update procedure.

NOTE 3: Based on network policies, the AMF can include the S-NSSAI(s) for which the maximum number of UEs has been reached in the rejected NSSAI with rejection causes other than "S-NSSAI not available in the current registration area".

If the UE has set the NSAG bit to "NSAG supported" in the 5GMM capability IE of the REGISTRATION REQUEST message, the AMF may include the NSAG information IE in the CONFIGURATION UPDATE COMMAND message.

If the AMF needs to update the LADN information, the AMF shall include the LADN information in the LADN information IE of the CONFIGURATION UPDATE COMMAND message.

If the AMF needs to update the "CAG information list", the AMF shall include the CAG information list IE or the Extended CAG information list IE in the CONFIGURATION UPDATE COMMAND message.

NOTE 4: If the UE supports extended CAG information list, the CAG information list can be included either in the CAG information list IE or Extended CAG information list IE.

If the UE does not support extended CAG information list, the CAG information list shall not be included in the Extended CAG information list IE.

If the AMF needs to update the "CAG information list", the UE has an emergency PDU session, and the AMF can determine that the UE is in

a) a CAG cell and none of the CAG-ID(s) supported by the CAG cell is included in the "allowed CAG list" for the current PLMN in the updated "CAG information list"; or

b) a non-CAG cell and the entry for the current PLMN in the updated "CAG information list" includes an "indication that the UE is only allowed to access 5GS via CAG cells";

the AMF may indicate to the SMF to perform a local release of:

a) all non-emergency single access PDU sessions associated with 3GPP access;

b) all MA PDU sessions without a PDN connection established as a user-plane resource and without user plane resources established on non-3GPP access; and

c) the 3GPP access user plane resources of all those MA PDU sessions with user plane resources established on both accesses.

The AMF shall not indicate to the SMF to release the emergency PDU session. If the AMF indicated to the SMF to perform a local release of:

a) all single access non-emergency PDU sessions associated with 3GPP access;

b) all MA PDU sessions without a PDN connection established as a user-plane resource and without user plane resources established on non-3GPP access; and

c) the 3GPP access user plane resources of all those MA PDU sessions with user plane resources established on both accesses;

the network shall behave as if the UE is registered for emergency services over 3GPP access and shall set the 5GS registration result IE value to "Registered for emergency services" in the CONFIGURATION UPDATE COMMAND message.

If the AMF is initiating the generic UE configuration update procedure to indicate to a UE which is registered for disaster roaming services, and which has an ongoing emergency PDU session, that the UE is registered for emergency services as described in subclause 4.24, the AMF shall set the 5GS registration result IE value to "Registered for emergency services" in the CONFIGURATION UPDATE COMMAND message.

If the AMF:

- updated the "CAG information list" to remove one or more CAG-ID(s) in the Allowed CAG list for the serving PLMN or an equivalent PLMN; or

- updated the "CAG information list" to set the "indication that the UE is only allowed to access 5GS via CAG cells" for the serving PLMN or an equivalent PLMN which was not set before,

then upon completion of the configuration update procedure and if the UE does not have an emergency PDU session, the AMF shall initiate the release of the N1 NAS signalling connection according to subclause 5.3.1.3.

If the AMF needs to update the truncated 5G-S-TMSI configuration for a UE in NB-N1 mode using control plane CIoT 5GS optimization, the AMF shall include the Truncated 5G-S-TMSI configuration IE in the CONFIGURATION UPDATE COMMAND message.

If the AMF includes a UE radio capability ID deletion indication IE in the CONFIGURATION UPDATE COMMAND message, the AMF shall indicate "registration requested" in the Registration requested bit of the Configuration update indication IE.

If the AMF needs to redirect the UE to EPC as described in subclause 4.8.4A.2, the AMF shall indicate "registration requested" in the Registration requested bit of the Configuration update indication IE and "release of N1 NAS signalling connection not required" in the Signalling connection maintain request bit of the Additional configuration indication IE in the CONFIGURATION UPDATE COMMAND message.

If the UE is not in NB-N1 mode and the UE supports RACS, the AMF may include either a UE radio capability ID IE or a UE radio capability ID deletion indication IE in the CONFIGURATION UPDATE COMMAND message.

During an established 5GMM context, the network may send none, one, or more CONFIGURATION UPDATE COMMAND messages to the UE. If more than one CONFIGURATION UPDATE COMMAND message is sent, the messages need not have the same content.

Upon receipt of the result of the UUAA-MM procedure from the UAS-NF, the AMF shall include:

a) the service-level-AA response with the SLAR field set to:

1) "Service level authentication and authorization was successful" if the AMF detects the UUAA-MM procedure has succeeded; or

2) "Service level authentication and authorization was not successful or service level authorization is revoked" if the AMF detects the UUAA-MM procedure has failed;

b) if the CAA-Level UAV ID is provided by the UAS-NF, the service-level device ID with the value set to the CAA-Level UAV ID; and;

c) if the UUAA authorization payload is received from the UAS-NF:

1) the service-level-AA payload type, with the values set to "UUAA payload"; and

2) the service-level-AA payload, with the value set to the UUAA payload;

in the Service-level-AA container IE of the CONFIGURATION UPDATE COMMAND message.

NOTE 5: UAS security information can be included in the UUAA payload by the USS as specified in 3GPP TS 33.256 [24B].

NOTE 6: If the AMF receives the HTTP code set to "4xx" or "5xx" as specified in 3GPP TS 29.500 [20AA] or the AMF detects that the UUAA-MM failure as specified in 3GPP TS 29.256 [21B], then the AMF considers the UUAA-MM procedure has failed.

If the AMF needs to deliver to the UE the UUAA revocation notification received from the UAS-NF, the AMF shall include the service-level-AA response with SLAR set to "Service level authentication and authorization was not successful or service level authorization is revoked" in the Service-level-AA container IE of the CONFIGURATION UPDATE COMMAND message.

If the UE supports MINT, the AMF may include the List of PLMNs to be used in disaster condition IE in the CONFIGURATION UPDATE COMMAND message.

If the UE supports MINT, the AMF may include the Disaster roaming wait range IE in the CONFIGURATION UPDATE COMMAND message.

If the UE supports MINT, the AMF may include the Disaster return wait range IE in the CONFIGURATION UPDATE COMMAND message.

NOTE 7: The AMF can determine the content of the "list of PLMN(s) to be used in disaster condition", the value of the disaster roaming wait range and the value of the disaster return wait range based on the network local configuration.

If the UE supports and the network supports and accepts the use of the PEIPS assistance information, and the AMF needs to update the PEIPS assistance information, the AMF may include the PEIPS assistance information in the Updated PEIPS assistance information IE of the CONFIGURATION UPDATE COMMAND message.

If the AMF needs to inform the UE that the use of access identity 1 is valid or is no longer valid, the AMF informs the UE by setting the MPS indicator bit of the Priority indicator IE to "Access identity 1 valid" or "Access identity 1 not valid" respectively, in the CONFIGURATION UPDATE COMMAND message. Based on operator policy, the AMF sets the MPS indicator bit in the CONFIGURATION UPDATE COMMAND message based on the MPS priority information in the user's subscription context obtained from the UDM.

\* \* \* End of Changes \* \* \* \*