**3GPP TSG-CT WG1 Meeting #141eC1-232323**

**Online 17– 21 April 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.501** | **CR** | **5246** | **rev** | **1** | **Current version:** | **18.2.1** |  |
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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:*** | Deregistration procedure and access type | | | | | | | | | |
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| ***Source to WG:*** | Samsung | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GProtoc18 | | | | |  | ***Date:*** | | | 2023-04-18 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
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| ***Reason for change:*** | | Collision case of UE initiated procedure and netowrk initiated procedure need to be clarified for the following case  1) When UE sends deregistration request indicating access type 3GPPA with switch off over 3GPPA and network and the network receives a DEREGISTRATION REQUEST message with "switch off" indication, before the network-initiated de-registration procedure for both 3GPPA and non-3GPPA, both procedure is assumed completed.  c) De-registration procedure collision  If the network receives a DEREGISTRATION REQUEST message with "switch off" indication, before the network-initiated de-registration procedure has been completed, both procedures shall be considered completed.  UE side, only 3GPPA is de-registered, but at the network side both access de-registered due to above highligted text. Ideally, UE network sould de-register UE for the 3GPPA only  2) If network initiate normal de-registration for the 3GPPA and non-3GPPA with re-registration required and UE initiated de-registration for 3GPPA In this case, UE is not doing re-registration on non-3GPPA due to below highlighted text.Ideally, UE shall do the re-registration on non-3GPPA  Otherwise:  - If the UE receives a DEREGISTRATION REQUEST message before the UE-initiated de-registration procedure has been completed, it shall treat the message as specified in subclause 5.5.2.3.2 with the following modification:  - If the DEREGISTRATION REQUEST message received by the UE contains de-registration type "re-registration required", and the UE-initiated de-registration procedure is with de-registration type "normal de-registration", the UE need not initiate the registration procedure for initial registration.  Thus for different access type case in collision scenario, UE and network shall consider the access type for the de-registration | | | | | | | | |
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| ***Summary of change:*** | | For collision case of different access types indicated by UE and network, the UE and network shall consider access type for the de-registration and further action | | | | | | | | |
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| ***Consequences if not approved:*** | | Collision case handling when UE and network initiated deregistraion procedure indicate different access type is not available. | | | | | | | | |
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| ***Clauses affected:*** | | 5.5.2.2.6, 5.5.2.3.5 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **N** |  | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **N** |  | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | | **N** |  | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\* \* \* First Change \* \* \* \*

##### 5.5.2.2.6 Abnormal cases in the UE

The following abnormal cases can be identified:

a) Lower layer failure or release of the N1 NAS signalling connection before reception of DEREGISTRATION ACCEPT message.

The de-registration procedure shall be aborted and the UE proceeds as follows:

1) if the de-registration procedure was performed due to disabling of 5GS services, the UE shall enter the 5GMM-NULL state; or

2) if the de-registration type "normal de-registration" was requested for reasons other than disabling of 5GS services, the UE shall enter the 5GMM-DEREGISTERED state.

b) The lower layers indicate that the access attempt is barred.

The UE shall not start the de-registration signalling procedure. The UE stays in the current serving cell and applies the normal cell reselection process. Receipt of the access barred indication shall not trigger the selection of a different core network type (EPC or 5GCN).

The UE may perform a local de-registration either immediately or after an implementation-dependent time.

The de-registration signalling procedure is started, if still needed, when the lower layers indicate that the barring is alleviated for the access category with which the access attempt was associated.

ba) The lower layers indicate that:

1) access barring is applicable for all access categories except categories 0 and 2 and the access category with which the access attempt was associated is other than 0 and 2; or

2) access barring is applicable for all access categories except category 0 and the access category with which the access attempt was associated is other than 0.

If the DEREGISTRATION REQUEST message has not been sent, the UE shall proceed as specified for case b. If the DEREGISTRATION REQUEST message has been sent, the UE shall proceed as specified for case a.

c) T3521 timeout.

If the de-registration procedure was performed based on conditions specified in 3GPP TS 23.122 [5] annex C, on the expiry of timer T3521 the de-registration procedure shall be aborted and the UE shall locally release the established N1 NAS signalling connection and enter the 5GMM-DEREGISTERED state.

Otherwise, on the first four expiries of the timer, the UE shall retransmit the DEREGISTRATION REQUEST message and shall reset and restart timer T3521. On the fifth expiry of timer T3521, the de-registration procedure shall be aborted and the UE proceeds as follows:

1) if the de-registration procedure was performed due to disabling of 5GS services, the UE shall enter the 5GMM-NULL state; or

2) if the de-registration type "normal de-registration" was requested for reasons other than disabling of 5GS services, the UE shall enter the 5GMM-DEREGISTERED state.

d) De-registration procedure collision.

De-registration containing de-registration type "switch off":

- If the UE receives a DEREGISTRATION REQUEST message before the UE-initiated de-registration procedure has been completed, this message shall be ignored and the UE-initiated de-registration procedure shall continue.

Otherwise:

- If the UE receives a DEREGISTRATION REQUEST message before the UE-initiated de-registration procedure has been completed, it shall treat the message as specified in subclause 5.5.2.3.2 with the following modification:

- If the DEREGISTRATION REQUEST message received by the UE contains de-registration type "re-registration required", and the UE-initiated de-registration procedure is with de-registration type "normal de-registration":

- If the access type included in the DEREGISTRATION REQUEST message sent by the UE is same as access type sent by the network, the UE need not initiate the registration procedure for initial registration.

- If the access type included in the DEREGISTRATION REQUEST message sent by the UE is not same as access type sent by the network, the UE shall initiate the registration procedure for initial registration for the access type not indicated in the DEREGISTRATION REQUEST message sent by the UE but indicated by the network

e) De-registration and 5GMM common procedure collision.

De-registration containing de-registration type "switch off":

- If the UE receives a message used in a 5GMM common procedure before the de-registration procedure has been completed, this message shall be ignored and the de-registration procedure shall continue.

Otherwise:

- If the UE receives a message used in a 5GMM common procedure before the de-registration procedure has been completed, both the 5GMM common procedure and the de-registration procedure shall continue; or

- If the UE receives a DL NAS TRANSPORT message containing payload container type "Service-level-AA container" before the de-registration procedure has been completed, this message shall be ignored and the de-registration procedure shall continue.

f) Change in the current TAI.

If that the current TAI is not in the stored TAI list before the UE-initiated de-registration procedure is completed, the UE proceeds as follows:

1) if the de-registration procedure was initiated for reasons other than removal of the USIM, the UE is to be switched off or due to the last Tsor-cm timer expiry or stopped (see 3GPP TS 23.122 [5]), the de-registration procedure shall be aborted and re-initiated after successfully performing a registration procedure for mobility or periodic update used for mobility (i.e. the 5GS registration type IE set to "mobility registration updating" in the REGISTRATION REQUEST message); or

2) if the de-registration procedure was initiated due to removal of the USIM or the UE is to be switched off or due to the last Tsor-cm timer expiry or stopped (see 3GPP TS 23.122 [5]), the UE shall abort the de-registration procedure, perform a local de-registration and enter the state 5GMM-DEREGISTERED.

g) Transmission failure of DEREGISTRATION REQUEST message indication with change in the current TAI.

If the current TAI is not in the TAI list, the UE proceeds as follows:

1) if the de-registration procedure was initiated for reasons other than removal of the USIM ,the UE is to be switched off or due to the last Tsor-cm timer expiry or stopped (see 3GPP TS 23.122 [5]), the de-registration procedure shall be aborted and re-initiated after successfully performing a registration procedure for mobility or periodic update; or

2) if the de-registration procedure was initiated due to removal of the USIM or the UE is to be switched off or due to the last Tsor-cm timer expiry or stopped (see 3GPP TS 23.122 [5]), the UE shall abort the de-registration procedure, perform a local de-registration and enter the state 5GMM-DEREGISTERED.

If the current TAI is still part of the TAI list, the UE shall restart the de-registration procedure.

h) Transmission failure of DEREGISTRATION REQUEST message indication without change in the current TAI.

The UE shall restart the de-registration procedure.

i) The lower layers indicate that the RRC connection has been suspended.

De-registration containing de-registration type "switch off":

- The UE may perform a local de-registration either immediately or after an implementation-dependent time.

Otherwise:

- The UE shall wait for an implementation-dependent time and shall restart the de-registration procedure, if still needed, upon expiry of the implementation-dependent time.

For the cases a, f, g and i:

- Timer T3521 shall be stopped if still running.

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

##### 5.5.2.3.5 Abnormal cases in the network side

The following abnormal cases can be identified:

a) T3522 time-out

On the first expiry of the timer, the network shall retransmit the DEREGISTRATION REQUEST message and shall start timer T3522. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3522, the de-registration procedure shall be aborted. The network shall change to the state 5GMM-DEREGISTERED for the access type which the de-registration procedure is intended for.

b) Lower layer failure

The de-registration procedure is aborted. The network shall change to the state 5GMM-DEREGISTERED for the access type which the de-registration procedure is intended for.

c) De-registration procedure collision

If the network receives a DEREGISTRATION REQUEST message with "switch off" indication, before the network-initiated de-registration procedure has been completed:

- If the access type included in the DEREGISTRATION REQUEST message sent by the UE is same as access type sent by the network, both procedures shall be considered completed.

- If the access type included in the DEREGISTRATION REQUEST message sent by the UE is not same as access type sent by the network, the network shall consder UE Initiated de-registration completed. The network shall re-initiate the de-registration procedure, if required, for the access type not indicated in the DEREGISTRATION REQUEST message sent by the UE.

If the network receives a DEREGISTRATION REQUEST message without "switch off" indication, before the network-initiated de-registration procedure has been completed, the network shall send a DEREGISTRATION ACCEPT message to the UE.

d) De-registration and registration procedure for initial registration collision

If the network receives a REGISTRATION REQUEST message indicating either "initial registration" or "emergency registration" in the 5GS registration type IE before the network-initiated de-registration procedure has been completed, the network shall abort the de-registration procedure and the registration procedure shall be progressed after the PDU sessions associated with the access type the REGISTRATION REQUEST message is sent over have been deleted.

NOTE 1: The above collision case is valid if the DEREGISTRATION REQUEST message indicates the access type over which the initial registration procedure is attempted otherwise both the procedures are progressed.

e) De-registration and registration procedure for mobility and periodic registration update collision

If the network sent a DEREGISTRATION REQUEST message without 5GMM cause value #11, #12, #13 or #15 and the network receives a REGISTRATION REQUEST message indicating either "mobility registration updating" or "periodic registration updating" in the 5GS registration type IE before the network-initiated de-registration procedure has been completed, the de-registration procedure shall be progressed, i.e. the REGISTRATION REQUEST message shall be ignored.

If the network sent a DEREGISTRATION REQUEST message with 5GMM cause value #11, #12, #13 or #15 and the network receives a REGISTRATION REQUEST message indicating either "mobility registration updating" or "periodic registration updating" in the 5GS registration type IE before the network-initiated de-registration procedure has been completed, the de-registration procedure shall be aborted and the registration procedure shall be progressed.

NOTE 2: The above collision case is valid if the DEREGISTRATION REQUEST message indicates the access type over which the mobility and periodic registration procedure is attempted otherwise both the procedures are progressed.

f) De-registration and service request procedure collision

If the network receives a SERVICE REQUEST message or a CONTROL PLANE SERVICE REQUEST message before the network-initiated de-registration procedure has been completed (e.g. the DEREGISTRATION REQUEST message is pending to be sent to the UE), the network shall progress the de-registration procedure.

NOTE 3: The above collision case is valid if the DEREGISTRATION REQUEST message indicates the access type over which the service request procedure is attempted otherwise both the procedures are progressed.

g) De-registration requested for a UE not supporting CAG due to CAG restrictions

Based on operator policy, if the network-initiated de-registration procedure is triggered for a UE not supporting CAG due to CAG restrictions, the network shall send the DEREGISTRATION REQUEST message including a 5GMM cause value other than the 5GMM cause #76 (Not authorized for this CAG or authorized for CAG cells only).

NOTE 4: 5GMM cause #7 (5GS services not allowed), 5GMM cause #11 (PLMN not allowed), 5GMM cause #27 (N1 mode not allowed), 5GMM cause #73 (Serving network not authorized) can be used depending on the subscription of the UE and whether the UE roams or not.

\* \* \* End Change \* \* \* \*