

Source: TSG CN WG 1
Title: CR to R99 (with mirror CRs) on Work Item Security towards 24.008
Agenda item: 7.2
Document for: APPROVAL

Introduction:

This document contains 3 CRs on R99 including mirror CRs on Work Item "Security", that have been agreed by TSG CN WG1, and are forwarded to TSG CN Plenary meeting #16 for approval.

Spec	CR	Rev	Phase	Subject	Cat	Version Current	Version-New	Meeting-2nd-Level	Doc-2nd-Level
24.008	623	1	R99	Conflicting behaviour when UE receives AUTHENTICATION_REJECT	F	3.11.0	3.12.0	N1-24	N1-021370
24.008	624	1	Rel 4	Conflicting behaviour when UE receives AUTHENTICATION_REJECT	A	4.6.0	4.7.0	N1-24	N1-021371
24.008	625	1	Rel 5	Conflicting behaviour when UE receives AUTHENTICATION_REJECT	A	5.3.0.	5.4.0	N1-24	N1-021372

CR-Form-v5

CHANGE REQUEST

⌘ **24.008 CR 623** ⌘ rev **1** ⌘ Current version: **3.11.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Conflicting behaviour when UE receives AUTHENTICATION_REJECT		
Source:	⌘ Ericsson		
Work item code:	⌘ Security	Date:	⌘ 13 th May 2002
Category:	⌘ F	Release:	⌘ R99
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		REL-4 (Release 4)
			REL-5 (Release 5)

Reason for change:	⌘ Sec. 4.1.1.2.1 and 4.1.1.2.2. state that when the MM side receives AUTHENTICATION_REJECT, the GMM side is also affected. However, in sec. 4.3.2.5. it is stated that on receipt of AUTHENTICATION_REJECT, then "If the MS has a separate ongoing RR connection to a different core network node, it shall consider this separate connection as still being good". This statement in sec. 4.3.2.5. is in direct conflict with what is in sec. 4.1.1.2.1 and 4.1.1.2.2.
Summary of change:	⌘ Delete the conflicting statement in sec. 4.3.2.5
Consequences if not approved:	⌘ It is impossible to implement conflicting requirements.

Clauses affected:	⌘ Sec. 4.3.2.5.
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications
Other comments:	⌘

How to create CRs using this form:

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- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

***** Following Section Provided For Information *****

4.1.1.2.1 GPRS MS operating in mode A or B in a network that operates in mode I

If the network operates in mode I, GPRS MSs that operate in mode A or B and wish to be or are simultaneously IMSI attached for GPRS and non-GPRS services, shall use the combined GPRS attach and the combined and periodic routing area updating procedures instead of the corresponding MM specific procedures IMSI attach and normal and periodic location area updating.

NOTE 1: A GPRS MS operating in mode A or B in a network that operates in mode I, shall perform the combined GPRS attach or routing area update procedure regardless the value of the ATT flag.

If a GPRS MS is operating in mode A or B in a network that operates in mode I the IMSI detach shall be performed by the GMM using the combined GPRS detach procedure

NOTE 2: A GPRS MS operating in mode A or B in a network that operates in mode I, shall perform the combined GPRS detach procedure regardless the value of the ATT flag.

A GPRS MS operating in mode A or B in network that operates in mode I, uses the combined GMM specific procedures in place of the MM specific procedures, so all conditions describing when to trigger a MM specific procedure listed in clauses 4.3 and 4.4 shall not apply.

A GPRS MS operating in mode A or B in a network that operates in mode I should not use any MM timers relating to MM specific procedures, (e.g T3210, T3211, T3212, T3213) except in some error and abnormal cases. If the MM timers are already running, the MS should not react on the expiration of the timers.

NOTE 3: Whenever GMM performs a combined GMM procedure, a GPRS MS enters the MM state MM LOCATION UPDATING PENDING in order to prevent the MM to perform a location update procedure.

If the authentication procedure is performed by MM and the authentication is rejected by the network (i.e upon receive of AUTHENTICATION REJECT), the MS shall in addition set the GPRS update status to GU3 ROAMING NOT ALLOWED and shall, if available, delete the P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number stored. The SIM shall be considered as invalid for GPRS and non-GPRS services until switching off or the SIM is removed. The MS shall abort any GMM procedure and shall enter state GMM-DEREGISTERED.

***** Following Section Provided For Information *****

4.1.1.2.2 GPRS MS operating in mode A or B in a network that operates in mode II or III

If the network operates in mode II or III, a GPRS MSs that operate in mode A or B and wish to be or are simultaneously IMSI attached for GPRS and non-GPRS services, shall use the MM specific procedures listed in clauses 4.3 and 4.4 and the GMM specific procedures listed in clauses 4.7.3, 4.7.4 and 4.7.5. The applicability of periodic location updating is further specified in clause 4.4.2 and the periodic routing area updating is specified in clause 4.7.2.2.

If the authentication procedure is performed by MM and the authentication is rejected by the network (i.e upon receive of AUTHENTICATION REJECT), the MS shall in addition set the GPRS update status to GU3 ROAMING NOT ALLOWED and shall, if available, delete the P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number stored. The SIM shall be considered as invalid for GPRS and non-GPRS services until switching off or the SIM is removed. The MS shall abort any GMM procedure and shall enter state GMM-DEREGISTERED.

***** Next Section Modified *****

4.3.2.5 Authentication not accepted by the network

If authentication fails, i.e. if the response is not valid, the network may distinguish between the two different ways of identification used by the mobile station:

- the TMSI was used;
- the IMSI was used.

If the TMSI has been used, the network may decide to initiate the identification procedure. If the IMSI given by the mobile station then differs from the one the network had associated with the TMSI, the authentication should be restarted with the correct parameters. If the IMSI provided by the MS is the expected one (i.e. authentication has really failed), the network should proceed as described below.

If the IMSI has been used, or the network decides not to try the identification procedure, an AUTHENTICATION REJECT message should be transferred to the mobile station.

After having sent this message, all MM connections in progress (if any) are released and the network should initiate the RR connection release procedure described in clause 3.5. of 04.18 (GSM) or in 3GPP TS 25.331 (UMTS).

Upon receipt of an AUTHENTICATION REJECT message, the mobile station shall set the update status in the SIM to U3 ROAMING NOT ALLOWED, delete from the SIM the stored TMSI, LAI and ciphering key sequence number. The SIM shall be considered as invalid until switching off or the SIM is removed.

If the AUTHENTICATION REJECT message is received in the state IMSI DETACH INITIATED the mobile station shall follow clause 4.3.4.3.

If the AUTHENTICATION REJECT message is received in any other state the mobile station shall abort any MM specific, MM connection establishment or call re-establishment procedure, stop any of the timers T3210 or T3230 (if running), release all MM connections (if any), start timer T3240 and enter the state WAIT FOR NETWORK COMMAND, expecting the release of the RR connection. If the RR connection is not released within a given time controlled by the timer T3240, the mobile station shall abort the RR connection. In both cases, either after a RR connection release triggered from the network side or after a RR connection abort requested by the MS-side, the MS enters state MM IDLE, substate NO IMSI. ~~If the MS has a separate ongoing RR connection to a different core network node, it shall consider this separate connection as still being good.~~

CHANGE REQUEST

⌘ **24.008 CR 624** ⌘ rev **1** ⌘ Current version: **4.6.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Conflicting behaviour when UE receives AUTHENTICATION_REJECT		
Source:	⌘ Ericsson		
Work item code:	⌘ Security	Date:	⌘ 13 th May 2002
Category:	⌘ A	Release:	⌘ Rel 4
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		REL-4 (Release 4)
			REL-5 (Release 5)

Reason for change:	⌘ Sec. 4.1.1.2.1 and 4.1.1.2.2. state that when the MM side receives AUTHENTICATION_REJECT, the GMM side is also affected. However, in sec. 4.3.2.5. it is stated that on receipt of AUTHENTICATION_REJECT, then "If the MS has a separate ongoing RR connection to a different core network node, it shall consider this separate connection as still being good". This statement in sec. 4.3.2.5. is in direct conflict with what is in sec. 4.1.1.2.1 and 4.1.1.2.2.
Summary of change:	⌘ Delete the conflicting statement in sec. 4.3.2.5
Consequences if not approved:	⌘ It is impossible to implement conflicting requirements.

Clauses affected:	⌘ Sec. 4.3.2.5.		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘	
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
Other comments:	⌘		

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- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

***** Following Section Provided For Information *****

4.1.1.2.1 GPRS MS operating in mode A or B in a network that operates in mode I

If the network operates in mode I, GPRS MSs that operate in mode A or B and wish to be or are simultaneously IMSI attached for GPRS and non-GPRS services, shall use the combined GPRS attach and the combined and periodic routing area updating procedures instead of the corresponding MM specific procedures IMSI attach and normal and periodic location area updating.

NOTE 1: A GPRS MS operating in mode A or B in a network that operates in mode I, shall perform the combined GPRS attach or routing area update procedure regardless the value of the ATT flag.

If a GPRS MS is operating in mode A or B in a network that operates in mode I the IMSI detach shall be performed by the GMM using the combined GPRS detach procedure

NOTE 2: A GPRS MS operating in mode A or B in a network that operates in mode I, shall perform the combined GPRS detach procedure regardless the value of the ATT flag.

A GPRS MS operating in mode A or B in network that operates in mode I, uses the combined GMM specific procedures in place of the MM specific procedures, so all conditions describing when to trigger a MM specific procedure listed in clauses 4.3 and 4.4 shall not apply.

A GPRS MS operating in mode A or B in a network that operates in mode I should not use any MM timers relating to MM specific procedures, (e.g T3210, T3211, T3212, T3213) except in some error and abnormal cases. If the MM timers are already running, the MS should not react on the expiration of the timers.

NOTE 3: Whenever GMM performs a combined GMM procedure, a GPRS MS enters the MM state MM LOCATION UPDATING PENDING in order to prevent the MM to perform a location update procedure.

If the authentication procedure is performed by MM and the authentication is rejected by the network (i.e upon receive of AUTHENTICATION REJECT), the MS shall in addition set the GPRS update status to GU3 ROAMING NOT ALLOWED and shall, if available, delete the P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number stored. The SIM shall be considered as invalid for GPRS and non-GPRS services until switching off or the SIM is removed. The MS shall abort any GMM procedure and shall enter state GMM-DEREGISTERED.

***** Following Section Provided For Information *****

4.1.1.2.2 GPRS MS operating in mode A or B in a network that operates in mode II or III

If the network operates in mode II or III, a GPRS MSs that operate in mode A or B and wish to be or are simultaneously IMSI attached for GPRS and non-GPRS services, shall use the MM specific procedures listed in clauses 4.3 and 4.4 and the GMM specific procedures listed in clauses 4.7.3, 4.7.4 and 4.7.5. The applicability of periodic location updating is further specified in clause 4.4.2 and the periodic routing area updating is specified in clause 4.7.2.2.

If the authentication procedure is performed by MM and the authentication is rejected by the network (i.e upon receive of AUTHENTICATION REJECT), the MS shall in addition set the GPRS update status to GU3 ROAMING NOT ALLOWED and shall, if available, delete the P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number stored. The SIM shall be considered as invalid for GPRS and non-GPRS services until switching off or the SIM is removed. The MS shall abort any GMM procedure and shall enter state GMM-DEREGISTERED.

***** Next Section Modified *****

4.3.2.5 Authentication not accepted by the network

If authentication fails, i.e. if the response is not valid, the network may distinguish between the two different ways of identification used by the mobile station:

- the TMSI was used;
- the IMSI was used.

If the TMSI has been used, the network may decide to initiate the identification procedure. If the IMSI given by the mobile station then differs from the one the network had associated with the TMSI, the authentication should be restarted with the correct parameters. If the IMSI provided by the MS is the expected one (i.e. authentication has really failed), the network should proceed as described below.

If the IMSI has been used, or the network decides not to try the identification procedure, an AUTHENTICATION REJECT message should be transferred to the mobile station.

After having sent this message, all MM connections in progress (if any) are released and the network should initiate the RR connection release procedure described in clause 3.5. of 04.18 (GSM) or in 3GPP TS 25.331 (UMTS).

Upon receipt of an AUTHENTICATION REJECT message, the mobile station shall set the update status in the SIM to U3 ROAMING NOT ALLOWED, delete from the SIM the stored TMSI, LAI and ciphering key sequence number. The SIM shall be considered as invalid until switching off or the SIM is removed.

If the AUTHENTICATION REJECT message is received in the state IMSI DETACH INITIATED the mobile station shall follow clause 4.3.4.3.

If the AUTHENTICATION REJECT message is received in any other state the mobile station shall abort any MM specific, MM connection establishment or call re-establishment procedure, stop any of the timers T3210 or T3230 (if running), release all MM connections (if any), start timer T3240 and enter the state WAIT FOR NETWORK COMMAND, expecting the release of the RR connection. If the RR connection is not released within a given time controlled by the timer T3240, the mobile station shall abort the RR connection. In both cases, either after a RR connection release triggered from the network side or after a RR connection abort requested by the MS-side, the MS enters state MM IDLE, substate NO IMSI. ~~If the MS has a separate ongoing RR connection to a different core network node, it shall consider this separate connection as still being good.~~

CHANGE REQUEST

⌘ **24.008 CR 625** ⌘ rev **1** ⌘ Current version: **5.3.0** ⌘

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Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Conflicting behaviour when UE receives AUTHENTICATION_REJECT		
Source:	⌘ Ericsson		
Work item code:	⌘ Security	Date:	⌘ 13 th May 2002
Category:	⌘ A Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction 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.	Release:	⌘ Rel 5 Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ Sec. 4.1.1.2.1 and 4.1.1.2.2. state that when the MM side receives AUTHENTICATION_REJECT, the GMM side is also affected. However, in sec. 4.3.2.5. it is stated that on receipt of AUTHENTICATION_REJECT, then "If the MS has a separate ongoing RR connection to a different core network node, it shall consider this separate connection as still being good". This statement in sec. 4.3.2.5. is in direct conflict with what is in sec. 4.1.1.2.1 and 4.1.1.2.2.
Summary of change:	⌘ Delete the conflicting statement in sec. 4.3.2.5
Consequences if not approved:	⌘ It is impossible to implement conflicting requirements.

Clauses affected:	⌘ Sec. 4.3.2.5.
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications ⌘ <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications
Other comments:	⌘

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- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

***** Following Section Provided For Information *****

4.1.1.2.1 GPRS MS operating in mode A or B in a network that operates in mode I

If the network operates in mode I, GPRS MSs that operate in mode A or B and wish to be or are simultaneously IMSI attached for GPRS and non-GPRS services, shall use the combined GPRS attach and the combined and periodic routing area updating procedures instead of the corresponding MM specific procedures IMSI attach and normal and periodic location area updating.

NOTE 1: A GPRS MS operating in mode A or B in a network that operates in mode I, shall perform the combined GPRS attach or routing area update procedure regardless the value of the ATT flag.

If a GPRS MS is operating in mode A or B in a network that operates in mode I the IMSI detach shall be performed by the GMM using the combined GPRS detach procedure

NOTE 2: A GPRS MS operating in mode A or B in a network that operates in mode I, shall perform the combined GPRS detach procedure regardless the value of the ATT flag.

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NOTE 3: Whenever GMM performs a combined GMM procedure, a GPRS MS enters the MM state MM LOCATION UPDATING PENDING in order to prevent the MM to perform a location update procedure.

If the authentication procedure is performed by MM and the authentication is rejected by the network (i.e upon receive of AUTHENTICATION REJECT), the MS shall in addition set the GPRS update status to GU3 ROAMING NOT ALLOWED and shall, if available, delete the P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number stored. The SIM shall be considered as invalid for GPRS and non-GPRS services until switching off or the SIM is removed. The MS shall abort any GMM procedure and shall enter state GMM-DEREGISTERED.

***** Following Section Provided For Information *****

4.1.1.2.2 GPRS MS operating in mode A or B in a network that operates in mode II or III

If the network operates in mode II or III, a GPRS MSs that operate in mode A or B and wish to be or are simultaneously IMSI attached for GPRS and non-GPRS services, shall use the MM specific procedures listed in clauses 4.3 and 4.4 and the GMM specific procedures listed in clauses 4.7.3, 4.7.4 and 4.7.5. The applicability of periodic location updating is further specified in clause 4.4.2 and the periodic routing area updating is specified in clause 4.7.2.2.

If the authentication procedure is performed by MM and the authentication is rejected by the network (i.e upon receive of AUTHENTICATION REJECT), the MS shall in addition set the GPRS update status to GU3 ROAMING NOT ALLOWED and shall, if available, delete the P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number stored. The SIM shall be considered as invalid for GPRS and non-GPRS services until switching off or the SIM is removed. The MS shall abort any GMM procedure and shall enter state GMM-DEREGISTERED.

***** Next Section Modified *****

4.3.2.5 Authentication not accepted by the network

If authentication fails, i.e. if the response is not valid, the network may distinguish between the two different ways of identification used by the mobile station:

- the TMSI was used;
- the IMSI was used.

If the TMSI has been used, the network may decide to initiate the identification procedure. If the IMSI given by the mobile station then differs from the one the network had associated with the TMSI, the authentication should be restarted with the correct parameters. If the IMSI provided by the MS is the expected one (i.e. authentication has really failed), the network should proceed as described below.

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Upon receipt of an AUTHENTICATION REJECT message, the mobile station shall set the update status in the SIM to U3 ROAMING NOT ALLOWED, delete from the SIM the stored TMSI, LAI and ciphering key sequence number. The SIM shall be considered as invalid until switching off or the SIM is removed.

If the AUTHENTICATION REJECT message is received in the state IMSI DETACH INITIATED the mobile station shall follow clause 4.3.4.3.

If the AUTHENTICATION REJECT message is received in any other state the mobile station shall abort any MM specific, MM connection establishment or call re-establishment procedure, stop any of the timers T3210 or T3230 (if running), release all MM connections (if any), start timer T3240 and enter the state WAIT FOR NETWORK COMMAND, expecting the release of the RR connection. If the RR connection is not released within a given time controlled by the timer T3240, the mobile station shall abort the RR connection. In both cases, either after a RR connection release triggered from the network side or after a RR connection abort requested by the MS-side, the MS enters state MM IDLE, substate NO IMSI. ~~If the MS has a separate ongoing RR connection to a different core network node, it shall consider this separate connection as still being good.~~