

3GPP TSG CN Plenary Meeting #19
12th – 14th March 2003 Birmingham, UK.

NP-030108

Source: TSG CN WG4
Title: Small Technical Enhancements and Improvements on CSSPLIT
Agenda item: 8.8
Document for: APPROVAL

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
23.205	039	1	N4-030275	Rel-5	Bearer Release for Iu CS on IP	F	5.4.0
29.232	053		N4-030107	Rel-5	Update to 3GPP – clarification of IuUP Initialisation handling	F	5.4.0
29.232	054	1	N4-030278	Rel-5	Update to 3GPP – addition of reference to SDU format definition for Nb interface	F	5.4.0

CHANGE REQUEST

⌘ **23.205 CR 039** ⌘ rev **1** ⌘ Current version: **5.4.0** ⌘

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

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	⌘ Bearer Release for lu CS on IP		
Source:	⌘ CN4		
Work item code:	⌘ TEI5	Date:	⌘ 18/12/2002
Category:	⌘ F	Release:	⌘ Rel-5
	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)
			Rel-6 (Release 6)

Reason for change:	⌘ At CN4 #17, CR's were approved to introduce the special handling in the BICSCN for the case where lu CS is on IP. However, it was noted in the discussion of the documents related to the subject that the Bearer Release procedures included in 23.205 were not entirely applicable to the lu CS on IP case, and that the required changes to reflect this were not included in the approved CRs.
	Specifically, for the luCS on IP case, the Bearer Release procedures and the Bearer Released messages are not required as these will be taken care of by the standard IP Release Termination procedures.
Summary of change:	⌘ New section (7.5) for Bearer Release procedures applicable to lu CS on IP
Consequences if not approved:	⌘ Appears that the Bearer Release procedures are applicable to the luCS on IP case – could result in misoperation. These are actually redundant.

Clauses affected:	⌘ 7.5 (new section)						
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications	⌘
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
	<input checked="" type="checkbox"/>	Test specifications					
	<input checked="" type="checkbox"/>	O&M Specifications					
Other comments:	⌘						

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7 Call Clearing

***** Text removed for brevity *****

7.5 Call Clearing for Iu Interface on IP

Procedures for Call Clearing where the Iu Interface is over IP are as described in sections 7.1 to 7.4, with the exception that the Bearer Release procedures and the Bearer Released message procedures are not sent. For Iu Interface on IP, the standard Release Termination procedures for IP are used to clear the MGW termination bearer.

Example

Figure 7.x shows the network model for a network initiated clearing of the mobile call when IP transport is used on the Iu interface. The 'squared' line represents the call control signalling. The 'dotted' line represents the bearer. The MSC server releases one context with two bearer terminations in the MGW. Bearer termination T1 is used for the bearer towards RNC/BSC and bearer termination T2 is used for the bearer towards succeeding MGW.

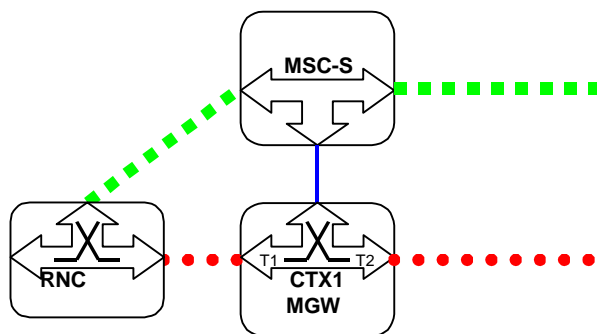
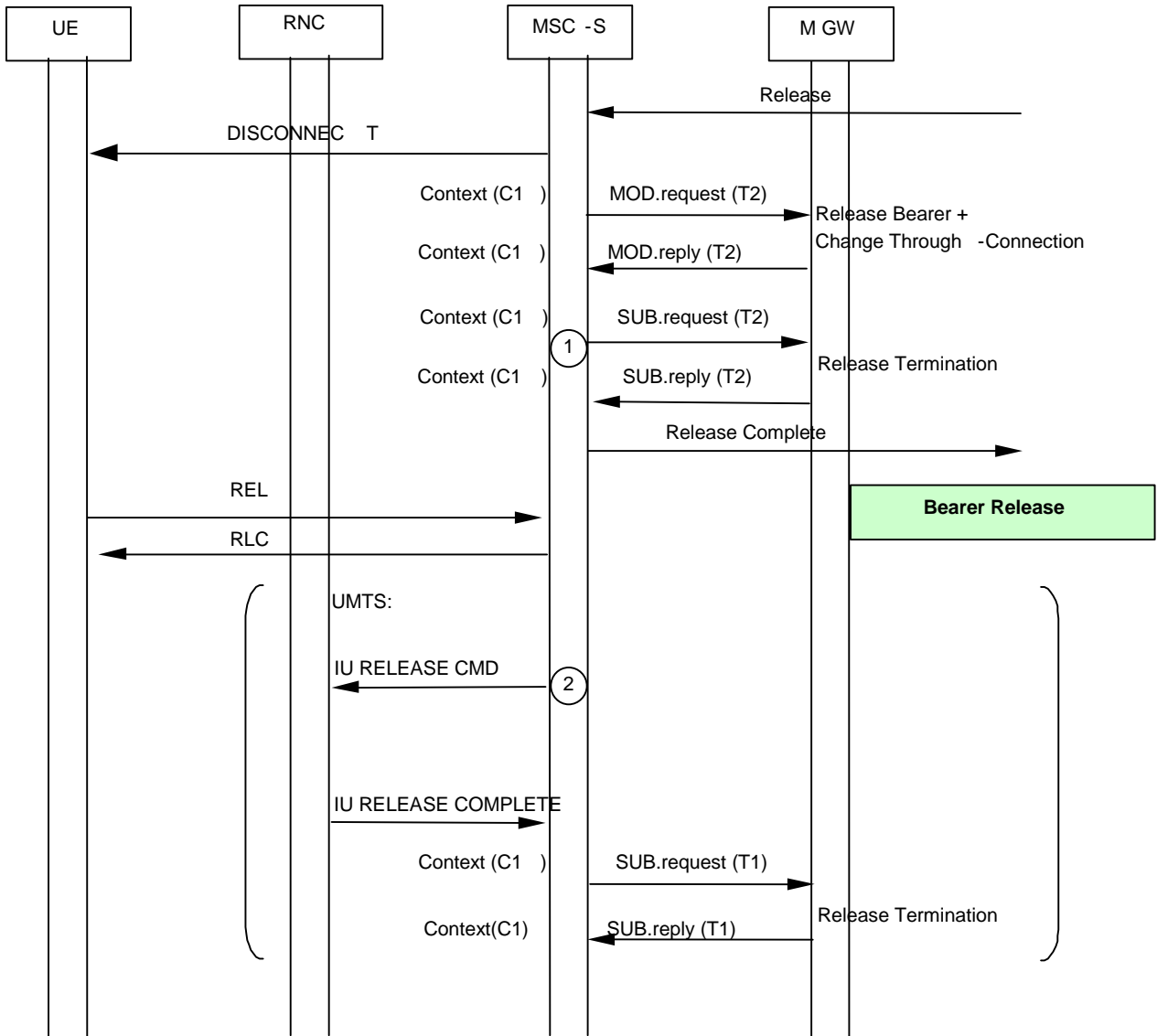


Figure 7.x Network Initiated Call Clearing (Network model)

Figure 7.y shows the message sequence example for the network initiated clearing of a mobile call when IP transport is used on the Iu Interface. In the example when the call clearing indication is received from the preceding/succeeding node, MSC server indicates that network bearer can be released and to release the network side bearer termination. After the release of the network side bearer termination the MSC server indicates to the preceding/succeeding node that call clearing has been completed. The MSC server initiates call clearing towards the UE and requests release of the radio resource. After the response of the radio resource release is received then the MSC server requests release of the access side bearer termination.



[Figure 7.y Network Initiated Call Clearing \(message sequence chart\)](#)

CHANGE REQUEST

⌘ **29.232 CR 053** ⌘ rev **-** ⌘ Current version: **5.4.0** ⌘

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

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	⌘ Update to 3GUP – clarification of luUP Initialisation handling		
Source:	⌘ CN4		
Work item code:	⌘ TEI5	Date:	⌘ 30/01/03
Category:	⌘ F	Release:	⌘ Rel-5
	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)	
		Rel-6 (Release 6)	

Reason for change:	⌘ In some places where the luUP initialisation is received it is not clear when a subsequent outgoing initialisation or internal signalling of the incoming Initialisation should occur
Summary of change:	⌘ In the 3GUP package some changes are made to clarify that luUP initialisation may be received or sent and that RFCIs need to be stored at those terminations. Further in the event of SRNS relocation additional terminations are added to the MGW that need to receive RFCI information from the existing luUP terminations.
Consequences if not approved:	⌘ Specification not clear, possible misoperation

Clauses affected:	⌘ 15.1.1.5						
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications	⌘
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
	<input checked="" type="checkbox"/>	Test specifications					
	<input checked="" type="checkbox"/>	O&M Specifications					
Other comments:	⌘						

How to create CRs using this form:

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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.

15.1.1.5 Procedures

The MGW uses this package to indicate to the MGW that the Iu (or Nb) User Plane is used between the RNC (or distant MGW) and the MGW. The package is sent in the Establish bearer, Modify Bearer Characteristics and Prepare bearer procedures. For more information on the User Plane and for a description of 'UP mode of operation', 'UP versions' and 'Delivery of erroneous SDUs' see 3GPP TS 25.415 [4].

The following procedures are valid for UP in Support Mode:

- The MGW shall be able to initiate and respond to the UP control procedures (PDU type 14 frames) independently of the Stream Mode during the call establishment phase, i.e. when not in TrFO.
- Otherwise, during TrFO the MGW shall be able to forward UP control procedures (PDU type 14 frames) received at one termination to the other termination.
- The UP Initialisation procedure is always acknowledged between MGW peers. If an MGW receives a request for a notification for the bearer establishment then the MGW shall not send the notification until after it has [either sent or received](#) the acknowledgement for the UP initialisation.
- The MGW shall always store RFCI parameters against the MGW termination ~~which that~~ received [or that sent](#) the UP initialisation.
- If an MGW has the UP termination property Initialisation Direction = Incoming then it expects to [either receive an Initialisation \(either internally or externally\) or after receiving initialisation information internally send an initialisation \(externally\), based on what occurs first.](#)
- If an MGW has UP termination property Initialisation Direction = Outgoing and interface CN, then it generates a network originated Initialisation PDU.
- If an MGW has UP termination property Initialisation Direction = Outgoing and interface RAN, then it expects to receive an Initialisation externally. It shall not pass the initialisation parameters internally. It may initiate RFCI Value Correction out from this termination.
- If an MGW has two terminations in the same context defined as supporting the UP package and with Initialisation Direction incoming, then when it receives an Initialisation procedure from one side (provided the bearer connection from the other termination to its peer MGW is established) it shall start the UP initialisation procedure towards the peer MGW. The MGW shall perform this procedure independently of the through-connection of the terminations in the context. The MGW shall relay control information from the first initialisation to the UP peer for use at the subsequent initialisation. Also, subsequent control procedures received on one UP shall be relayed to the other UP entity when the two UP entities are connected within the MGW. This behaviour is described in more detail in Annex A.
- If an MGW has one termination with properties "interface = Iu" and "initialisation direction = outgoing" and another termination with property "initialisation direction = Incoming" in the same context, then the MGW shall not forward the UP initialisation from the Incoming termination until it has received a UP initialisation at the "Iu"/"outgoing" side. If the RFCI values stored at the "incoming" termination do not match the RFCI values stored at the "outgoing" Iu side then "RFCI Value Correction" may be performed to the "outgoing" Iu side: The MGW starts UP initialisation with the RFCI values 'relayed' from the "Incoming" side. No "RFCI Value Correction" is permitted at a "incoming" Iu termination or at any Nb termination. [The sending internally of initialisation information shall be made each time there is added a new outgoing termination with properties "interface=Iu" and "initialisation direction=outgoing" \(in order to support SRNS relocation\).](#)
- As an implementation option, "RFCI Value Correction" may be delayed if terminations are not through-connected; it will be triggered by connection modification. Otherwise it shall be performed immediately
- If "RFCI Value Correction" is not performed the MGW shall map the indexes for frames from one side to the RFCI indexes for frames from the other side. This behaviour is described in more detail in Annex A.
- If an MGW has two Iu terminations connected to the same context then the "RFCI Value Correction" is performed by the Outgoing termination.
- If an MGW has two terminations which support the UP package connected to the same context and both RFCI sets match then the MGW may pass frames transparently through the UP entities; no monitoring of the frames is

performed, provided that the terminations are through-connected. This behaviour is described further in Annex A.

- If the MGW is passing frames transparently, no UP monitoring is performed. When the MGW receives an H.248 procedure request which requires interpretation or interaction with the UP, then it shall resume its UP protocol responsibilities, i.e. perform monitoring or termination of the UP protocol.
- If an MGW sends an FP UP initialisation message from a termination, the MGW shall only offer versions of the FP UP, which are given in the property “UP versions” of this termination and which are supported by the MGW for this termination.
- If an MGW receives an FP UP initialisation message at a termination, the MGW shall only positively acknowledge this initialisation message, if versions of the FP UP are offered, which are given in the property “UP versions” and which are supported at the MGW for this termination. In the positive FP UP initialisation acknowledge message, the MGW shall select one of these versions. If none of these versions are offered in the FP UP initialisation message, the MGW shall send a negative FP UP acknowledge message and it shall not forward the initialisation to a possible second FP UP termination in the same context.
- If PCM is used on the Nb then FP UP initialisation shall be performed by the termination with property “Outgoing”. If the termination property is “Incoming” then it shall receive the RFCI’s from its IuFP peer (or from internal MGW termination with IuFP and same codec). If IuFP is defined on another termination in the MGW but the codec is different, i.e. not TrFO then the relaying of RFCI’s shall not be performed. These IuFP peer connection shall be seen as completely separate.

3GPP TSG CN WG4 Meeting #18
 Dublin, Ireland, 10th - 14th February 2003

N4-030278

CR-Form-v7
CHANGE REQUEST
⌘ 29.232 CR 054 ⌘ rev 1 ⌘ Current version: 5.4.0 ⌘

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

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	⌘ Update to 3GUP – addition of reference to SDU format definition for Nb interface		
Source:	⌘ CN4		
Work item code:	⌘ TEI5 Date: ⌘ 2003-01-28		
Category:	⌘ F Release: ⌘ Rel-5 Use <u>one</u> of the following categories: <table style="width: 100%; margin-top: 5px;"> <tr> <td style="width: 50%; vertical-align: top;"> F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) </td> <td style="width: 50%; vertical-align: top;"> 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) Rel-6 (Release 6) </td> </tr> </table> Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification)	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) Rel-6 (Release 6)
F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification)	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) Rel-6 (Release 6)		

Reason for change:	⌘ It is not specified how the initialisation procedure shall be performed on the Nb interface. The Nb User Plane specification (29.415) refers to lu User Plane (25.415) and Mc interface (29.232) for how the Initialisation procedure is performed. On lu interface the initialisation is however sent by the RNC. The RNC gets the essential information to be put in the initialisation procedure from the RANAP protocol (25.413). When MGW performs an initialisation procedure, MGW has to know based on the service what initialisation information shall be used. The initialisation information to be used is described in 3GPP TS 29.007 chapter 11.5 for the CSD services, and in 3GPP TS 26.102 for speech services (AMR and PCM).
Summary of change:	⌘ To add the description of initialisation on Nb with reference to TS 29.007 and 26.102.
Consequences if not approved:	⌘ It is not specified how the MGW shall perform the Initialisation when MGW generates its own initialisation information. This may lead to compatibility problems on the Nb interace.

Clauses affected:	⌘ 2, 15.1.1.5					
Other specs affected:	<table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;"><input type="checkbox"/></td> <td style="padding: 2px;"><input checked="" type="checkbox"/></td> </tr> </table> Other core specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘
Y	N					
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Other comments:	⌘					

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which are n**2References**

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 TS 23.153: "3rd Generation Partnership Project; Technical Specification Group Core Network; Out of Band Transcoder Control - Stage 2"
- [2] 3GPP TS 23.205: "3rd Generation Partnership Project; Technical Specification Group Core Network; Bearer Independent CS Core Network – Stage 2"
- [3] 3GPP TS 24.008: "3rd Generation Partnership Project; Technical Specification Group Core Network; Mobile radio interface layer 3 specification"
- [4] 3GPP TS 25.415: "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; UTRAN Iu interface user plane protocols".
- [5] 3GPP TS 28.062: "3rd Generation Partnership Project; Technical Specification Group Services & System Aspects; In-band Tandem Free Operation (TFO) of Speech Codecs; Stage 3 – Service Description"
- [6] 3GPP TS 29.007: "3rd Generation Partnership Project; Technical Specification Group Core Network; General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)"
- [7] 3GPP TS 29.205: "3rd Generation Partnership Project; Technical Specification Group Core Network; Application of Q.1900 series to Bearer Independent CS Network architecture; Stage 3"
- [8] 3GPP TS 29.415: "3rd Generation Partnership Project; Technical Specification Group Core Network; CN Nb interface user plane protocols".
- [9] 3GPP TS 48.008: "3rd Generation Partnership Project; Technical Specification Group GSM EDGE Radio Access Network; Mobile-services Switching Centre - Base Station System (MSC - BSS) interface; Layer 3 specification".
- [10] ITU-T Recommendation H.248 (06/00): "Media Gateway Control Protocol"
- [11] ITU-T Recommendation Q.2210 (07/96): "Message transfer part level 3 functions and messages using the services of ITU-T Recommendation Q.2140"
- [12] RFC 2960 "Stream Control Transmission Protocol"

- [13] 3GPP TS 29.202: "SS7 signalling transport in core network"
 - [14] ITU-U Recommendation H.248 Annex L, "Error Codes and Service Change Reason Description"
 - [15] ITU-U Recommendation H.248 Annex M.2, "Media Gateway Resource Congestion Handling Package"
 - [16] 3GPP TS 26.103: "Speech codec list for GSM and UMTS"
 - [17] ITU-U Recommendation H.248 Annex F, "Facsimile, Text Conversation and Call Discrimination Packages"
 - [18] 3GPP TS 26.226: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Cellular Text Telephone Modem; General Description"
 - [19] ITU-T Recommendation T.140: "Text conversation protocol for multimedia application"
 - [20] 3GPP TS 25.413: "UTRAN Iu interface RANAP signalling"
 - [21] 3GPP TS 25.414: "UTRAN Iu interface data transport and transport signalling"
 - [22] 3GPP TS 23.078: "Customised Applications for Mobile network Enhanced Logic (CAMEL); Stage 2"
- [x] [3GPP TS 26.102: "3rd Generation Partnership Project; Mandatory speech codec; AMR speech codec; Interface to Iu, Uu and Nb"](#)

15.1.1.5 Procedures

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- Otherwise, during TrFO the MGW shall be able to forward UP control procedures (PDU type 14 frames) received at one termination to the other termination.
- The UP Initialisation procedure is always acknowledged between MGW peers. If an MGW receives a request for a notification for the bearer establishment then the MGW shall not send the notification until after it has sent the acknowledgement for the UP initialisation.
- The MGW shall always store RFCI parameters against the MGW termination which received the UP initialisation.
- If an MGW has the UP termination property Initialisation Direction = Incoming then it expects to receive an Initialisation (either internally or externally).
- If an MGW has UP termination property Initialisation Direction = Outgoing and interface CN, then it generates a network originated Initialisation PDU. [The initialisation information sent by the MGW depends on the service that the bearer supports. For CSD service see 3GPP TS 29.007 \[6\] chapter 11.5. For speech service see 3GPP TS 26.102 \[x\] chapter 8.](#)
- If an MGW has UP termination property Initialisation Direction = Outgoing and interface RAN, then it expects to receive an Initialisation externally. It shall not pass the initialisation parameters internally. It may initiate RFCI Value Correction out from this termination.
- If an MGW has two terminations in the same context defined as supporting the UP package and with Initialisation Direction incoming, then when it receives an Initialisation procedure from one side (provided the bearer connection from the other termination to its peer MGW is established) it shall start the UP initialisation procedure towards the peer MGW. The MGW shall perform this procedure independently of the through-connection of the terminations in the context. The MGW shall relay control information from the first initialisation to the UP peer for use at the subsequent initialisation. Also, subsequent control procedures received on one UP shall be relayed to the other UP entity when the two UP entities are connected within the MGW. This behaviour is described in more detail in Annex A.
- If an MGW has one termination with properties "interface = Iu" and "initialisation direction = outgoing" and another termination with property "initialisation direction = Incoming" in the same context, then the MGW shall not forward the UP initialisation from the Incoming termination until it has received a UP initialisation at the "Iu"/"outgoing" side. If the RFCI values stored at the "incoming" termination do not match the RFCI values stored at the "outgoing" Iu side then "RFCI Value Correction" may be performed to the "outgoing" Iu side: The MGW starts UP initialisation with the RFCI values 'relayed' from the "Incoming" side. No "RFCI Value Correction" is permitted at a "incoming" Iu termination or at any Nb termination.
- As an implementation option, "RFCI Value Correction" may be delayed if terminations are not through-connected; it will be triggered by connection modification. Otherwise it shall be performed immediately.
- If "RFCI Value Correction" is not performed the MGW shall map the indexes for frames from one side to the RFCI indexes for frames from the other side. This behaviour is described in more detail in Annex A.
- If an MGW has two Iu terminations connected to the same context then the "RFCI Value Correction" is performed by the Outgoing termination.
- If an MGW has two terminations which support the UP package connected to the same context and both RFCI sets match then the MGW may pass frames transparently through the UP entities; no monitoring of the frames is performed, provided that the terminations are through-connected. This behaviour is described further in Annex A.

- If the MGW is passing frames transparently, no UP monitoring is performed. When the MGW receives an H.248 procedure request which requires interpretation or interaction with the UP, then it shall resume its UP protocol responsibilities, i.e. perform monitoring or termination of the UP protocol.
- If an MGW sends an FP UP initialisation message from a termination, the MGW shall only offer versions of the FP UP, which are given in the property “UP versions” of this termination and which are supported by the MGW for this termination.
- If an MGW receives an FP UP initialisation message at a termination, the MGW shall only positively acknowledge this initialisation message, if versions of the FP UP are offered, which are given in the property “UP versions” and which are supported at the MGW for this termination. In the positive FP UP initialisation acknowledge message, the MGW shall select one of these versions. If none of these versions are offered in the FP UP initialisation message, the MGW shall send a negative FP UP acknowledge message and it shall not forward the initialisation to a possible second FP UP termination in the same context.
- If PCM is used on the Nb then FP UP initialisation shall be performed by the termination with property “Outgoing”. If the termination property is “Incoming” then it shall receive the RFCI’s from its IuFP peer (or from internal MGW termination with IuFP and same codec). If IuFP is defined on another termination in the MGW but the codec is different, i.e. not TrFO then the relaying of RFCI’s shall not be performed. These IuFP peer connection shall be seen as completely separate.