3GPP TSG CN Plenary Meeting #12
Stockholm, Sweden, 13th - 15th June 2001

Tdoc NP-010309

Source: TSG CN WG2

Title: CRs on R97 - Rel4 Work Item "CAMEL2" and "CAMEL3"

Agenda item: 7.1

Document for: APPROVAL

<u>**Introduction:**</u>

This document contains 4 CRs on R97 - Rel-4,   Work Item "CAMEL2" and "CAMEL3" that have been agreed by TSG CN WG2, and are forwarded to TSG CN Plenary meeting #12 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
03.78	A161	1	N2-010379	R97	Mapping of Call Forwarding parameters from CAP-Connect to ISUP-IAM and CAP-InitialDP	F	6.8.0
03.78	A162	1	N2-010380	R98	Mapping of Call Forwarding parameters from CAP-Connect to ISUP-IAM and CAP-InitialDP	A	7.5.0
23.078	288	1	N2-010381	R99	Mapping of Call Forwarding parameters from CAP-Connect to ISUP-IAM and CAP-InitialDP	F	3.8.0
23.078	289	1	N2-010382	Rel-4	Mapping of Call Forwarding parameters from CAP-Connect to ISUP-IAM and CAP-InitialDP	A	4.0.0

CR-Form-v3

CHANGE REQUEST

⌘	**03.78** CR **A161**	⌘ rev **1** ⌘	Current version:	**6.8.0**	⌘

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

Title:	⌘	Mapping of Call Forwarding parameters from CAP-Connect to ISUP-IAM and CAP-InitialDP
Source:	⌘	CN2
Work item code: ⌘	CAMEL2	*Date:* ⌘ 14th of May 2001
Category:	⌘ **F (essential correction)**	*Release:* ⌘ R97

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.

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:	⌘	The Redirecting Number and Redirection Information parameters are mandatory parameters in a CF O-BCSM (MF column). However, they are not available in all cases. If the SCP sends a CAP-Connect operation to a T-BCSM without these parameters, and these parameters were not received from ISUP, then the MSC/SSP shall not send these parameters. It is already stated that non-present Connect parameters are not modified by the MSC. A good way of avoiding problem situation is to set "O-CSI-applicable" parameter to FALSE in the Connect operation. However, this can not be relied on.
Summary of change: ⌘		CAMEL2 shall have a word of warning. CAMEL3 onwards the parameters shall be conditional.
Consequences if not approved:	⌘	Possible interworking problems.

Clauses affected:	⌘	
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

**** For Your Information   ****

8.2   Handling of mobile originated calls

…

8.2.1   Handling of mobile originated calls in the originating MSC

…

8.2.1.3   Actions of the MSC on receipt of Int_Connect

The MSC continues processing with modified call parameters. The MSC shall transparently modify the call parameters with the received information. The MSC then sends a PROGRESS message to the MS. Call parameters which are not included in the Int_Connect message are unchanged.

Signalling limitations or regulatory requirements may require the Calling Partys Category, Generic Number, Original Called Party Number and Redirecting Party ID to be ignored or modified.

The network signalling system shall indicate that this is an internal network number.

The MSC sets the O-CSI suppression parameter, sends a Send Info For Outgoing Call to the VLR and waits in state Wait_For_MO_Call_Result.

****   For Your Information   ****

8.3.1.4   Action of the GMSC on receipt of Int_Connect

If the Destination Number received from the gsmSCF (via the gsmSSF) is the same as the ISUP Called party number, i.e. the MSISDN, the following parameters, if received, are used to overwrite the corresponding ISUP parameters (for mapping see GSM 09.78 [5]): Calling Partys Category and Generic Number. If received, the Announcement Suppression Indicator is stored. The further processing is described in subclause 8.3.1.3 with the addition that the Announcement Suppression indicator, if stored, is sent to the HLR in the Send_Routeing_Info message.

If:

-    the Destination Number received from the gsmSCF (via the gsmSSF) is not the same as the stored ISUP Called party number, i.e. the MSISDN; and

-    a CUG active indication was received from the HLR ; and

-    CUG information was received in the ISUP_IAM for the incoming call,

then an exception event is reported to the process gsmSSF, an ISUP_Release is sent to the originating exchange and all resources are released.

Otherwise the following parameters, if received, are used to overwrite the corresponding ISUP parameters (for mapping see GSM 09.78 [5]): Destination Number, Calling Partys Category, Generic Number, Original Called Party ID, Redirecting Party ID, Announcement Suppression Indicator, and Redirection Information. Call parameters that are not included in the Int_Connect message are unchanged.

As a network operator option loop prevention mechanisms may cause the redirection information to be ignored or modified (e.g., if the Redirection counter has been decreased).

Signalling limitations or regulatory requirements may require the Calling Partys Category, Generic Number, Original Called Party Number and Redirecting Party ID to be ignored or modified.

The network signalling system shall indicate that this is an internal network number.

****   For Your Information, 09.78 annex A.2   ****

A.2   Connect operation

On receipt of a Connect operation from the gsmSCF the called party number used for routing is derived from the destinationRoutingAddress (see Table A.2). If the triggering of the CAMEL service was made for a mobile terminating or forwarded call, an ACM message shall be sent to the preceding exchange. The encoding of the backward call indicators in the ACM is specified in GSM 09.12 [23].

Table A.2 illustrates the mapping of parameters received in the Connect operation to parameters sent in the IAM message to the succeeding exchange. Parameters which were received in the IAM and are not replaced by parameters of the Connect operation are treated according to the normal procedures.

On sending of the IAM the awaiting address complete timer is started. If the timer expires the call is released in both directions and an appropriate indication is returned to the calling subscriber.

Table A.2

CAP operation Connect (Note 1)	ISUP message IAM
destinationRoutingAddress	Called party number
originalCalledPartyID	Original called number
callingPartysCategory	Calling party's category
redirectingPartyID	Redirecting number
redirectionInformation	Redirection information
genericNumbers	Generic number (Note 2)

NOTE 1:   Optional parameters may be absent, i.e. they are only mapped, if received.

NOTE 2:   The set of generic numbers received in the genericNumbers parameter is mapped to the appropriate number of Generic Number parameters in the ISUP IAM. This shall be performed irrespective of the value of the screening indicator in the ISUP calling party number.

****   For Your Information   ****

8.5.1   Procedure CAMEL_CF_MSC_INIT: handling of Int_Connect

The received parameters are used to overwrite the corresponding ISUP parameters (for mapping see GSM 09.78 [5]. Call parameters which are not included in the Int_Connect message are unchanged.

An a network operator option, loop prevention mechanisms may cause the redirection information to be ignored or modified (e.g., if the Redirection counter has been decreased).

Signalling limitations or regulatory requirements may require the Calling Partys Category, Generic Number, Original Called Party Number and Redirecting Party ID to be ignored or modified.

The network signalling system shall indicate that this is an internal network number.

**** FIRST MODIFIED SECTION   ****

9.1.5   Initial DP

9.1.5.1   Description

This IF is generated by the gsmSSF when a trigger is detected at a DP in the BCSM, to request instructions from the gsmSCF.

9.1.5.2   Information Elements

The following information elements are required:

Information element name	MO	MF	MT	Description
Additional Calling Party Number	-	C	C	The calling party number provided by the access signalling system of the calling user.
Bearer Capability	M	C	C	This IE indicates the type of the bearer capability connection to the user.
Called Party Number	-	M	M	This IE contains the number used to identify the called party in the forward direction.
Called Party BCD Number	M	-	-	This IE contains the number used to identify the called party in the forward direction. The number contained in this IE shall be identical to the number received over the access network. It may e.g. include service selection information, such as ∗ and # digits, or carrier selection information dialled by the subscriber.
Calling Party Number	M	C	C	This IE carries the calling party number to identify the calling party or the origin of the call.
Calling Partys Category	M	C	C	Indicates the type of calling party (e.g., operator, pay phone, ordinary subscriber).
(continued)				

(concluded)

Information element name	MO	MF	MT	Description
Call Reference Number	M	M	M	This IE may be used by the gsmSCF for inclusion in a network optional gsmSCF call record. It has to be coupled with the identity of the MSC which allocated it in order to define unambiguously the identity of the call. For MO calls, the call reference number is set by the serving VMSC and included in the MO call record. For MT calls, the call reference number is set by the GMSC and included in the RCF call record in the GMSC and in the MT call record in the terminating MSC. For CF calls, the call reference number is set by the GMSC and included in the CF record in the forwarding MSC.
Event Type BCSM	M	M	M	This IE indicates the armed BCSM DP event (i.e., Collected_Info and Terminating_Attempt_Authorised), resulting in the Initial DP IF.
Ext-Basic Service Code	C	C	C	This IE indicates the type of basic service i.e., teleservice or bearer service.
High Layer Compatibility	C	C	C	This IE indicates the type of the high layer compatibility, which will be used to determine the ISDN-teleservice of a connected ISDN terminal.
IMSI	M	M	M	This IE identifies the mobile subscriber.
IP SSP Capabilities	C	C	C	This IE indicates which SRF resources are supported within the gsmSSF and are available. If this IE is absent, this indicates that no gsmSRF is attached and available.
Location Information	M	-	C	This IE is described in the next table.
Location Number	M	C	C	For mobile originated calls this IE represents the location of the calling party. For all other call scenarios this IE contains the location number received in incoming ISUP signalling.
MSC Address	M	M	M	For MO calls, the MSC Address carries the international E.164 address of the serving VMSC. For MT calls, the MSC Address Address carries the international E.164 address of the GMSC. For CF calls, the MSC Address carries the international E.164 address of the forwarding MSC.
GMSC Address	-	M	-	For CF calls, the GMSC Address carries the international E.164 address of the GMSC.

(continued)

(concluded)

Information element name	MO	MF	MT	Description
NA Carrier Information	C	C	C	The content of this IE is described in the next table. The IE may normally be sent when the VPLMN and the HPLMN of the subscriber are both North American. For MO calls, this IE shall contain any carrier that was dialed by the calling subscriber. If no carrier was dialed, the IE shall contain the calling subscriber's subscribed carrier. For MT calls, the IE shall contain the carrier subscribed to by the called subscriber.For MF calls, the IE shall contain the carrier subscribed to by the forwarding subscriber.
Original Called Party ID	-	C	C	This IE carries the dialled digits if the call has met call forwarding on the route to the gsmSSF.
Redirecting Party ID	-	M	C	This IE indicates the directory number the call was redirected from. The service designer shall note that this parameter may not be available if the MF case is initiated with the Connect operation to a T-BCSM without Redirecting Party ID.
Redirection Information	-	M	C	It contains forwarding related information, such as redirection counter. The service designer shall note that this parameter may not be available if the MF case is initiated with the Connect operation to a T-BCSM without Redirection Information.
Service Key	M	M	M	This IE identifies for the gsmSCF the requested set of one or more CAMEL services. It is used to address the correct application/SLP within the gsmSCF.
Subscriber State	-	-	C	This IE indicates the status of the MS. The states are: - CAMELBusy: The MS is engaged on a transaction for a mobile originating or terminated circuit-switched call. - NetworkDeterminedNotReachable: The network can determine from its internal data that the MS is not reachable. - AssumedIdle: The state of the MS is neither "CAMELBusy" nor "NetworkDeterminedNotReachable". - Not provided from VLR.
Time And Timezone	M	M	M	This IE contains the time that the gsmSSF was triggered, and the time zone the gsmSSF resides in.
GSM Forwarding Pending	-	-	C	This parameter indicates that a forwarded-to-number was received and the call will be forwarded due to GSM supplementary service call forwarding in the GMSC.

M Mandatory (The IE shall always be sent)

C Conditional (The IE shall be sent, if available)

- Not applicable

Location Information contains the following information:

Information element name	MO	MF	MT	Description
Location Number	-	-	C	See GSM 03.18 [3].
CellIdOrLAI	M	-	C	See GSM 03.18 [3].
Geographical Information	C	-	C	See GSM 03.18 [3].
Age Of Location Information	M	-	C	See GSM 03.18 [3].
VLR number	M	-	C	See GSM 03.18 [3].

M Mandatory (The IE shall always be sent)

C Conditional (The IE shall be sent, if available)

- Not applicable

NA Carrier Information contains the following information:

Information element name	MO	MF	MT	Description
NA Carrier Identification Code	M	M	M	This IE uniquely identifies a North American long distance carrier.
NA Carrier Selection Information	M	M	M	This IE indicates the way the carrier was selected e.g.: – dialled – subscribed

M Mandatory (The IE shall always be sent)

**** UNMODIFIED SECTION   ****

9.2.5   Connect

9.2.5.1   Description

This IF is used to request the gsmSSF to perform the call processing actions to route a call to a specific destination. To do so, the gsmSSF may use destination information from the calling party and existing call set-up information depending on the information provided by the gsmSCF.

9.2.5.2   Information Elements

The following information elements are required:

Information element name	MO	MF	MT	Description
Alerting Pattern	-	-	O	This parameter indicates the kind of Alerting Pattern to be applied.
Calling Partys Category	O	O	O	This IE indicates the type of calling party (e.g., operator, pay phone, ordinary subscriber).
Destination Routing Address	M	M	M	This IE contains the called party number towards which the call is to be routed.
Generic Number	O	O	O	This IE contains the generic number. Its used to convey the additional calling party number, which e.g. could be used to modify the calling line ID presented to the called user.
NA Carrier Information	O	O	O	This IE is described in the next table.
NA Originating Line Information	O	O	O	This IE identifies the type of number in the NA Charge Number (e.g. subscriber versus PLMN operator number).
NA Charge Number	O	O	O	This IE identifies the chargeable number for the usage of a North American carrier.
O-CSI Applicable	-	-	O	This IE indicates that the O-CSI, if present shall be applied on the outgoing leg.
Original Called Party ID	O	O	O	This IE carries the dialled digits if the call has met call forwarding on route to the gsmSSF or is forwarded by the gsmSCF.
Redirecting Party ID	O	O	O	This IE indicates the directory number the call was redirected from.
Redirection Information	O	O	O	This IE contains forwarding related information, such as redirecting counter.
Suppression Of Announcements	-	-	O	This IE indicates that announcements or tones generated as a result of unsuccessful call setup shall be suppressed.

O   Optional (Service logic dependent)

-    Not applicable

NA Carrier Information contains the following information:

Information element name	MO	MF	MT	Description
NA Carrier Identification Code	M	M	M	This IE uniquely identifies a North American long distance carrier.
NA Carrier Selection Information	M	M	M	This IE indicates the way the carrier was selected e.g.: – dialled – subscribed

M   Mandatory (The IE shall always be sent)

CR-Form-v3

CHANGE REQUEST

| ⌘ | **03.78** CR **A162** | ⌘ rev **1** ⌘ | Current version: | **7.5.0** | ⌘ |

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

Title: ⌘	Mapping of Call Forwarding parameters from CAP-Connect to ISUP-IAM and CAP-InitialDP	
Source: ⌘	CN2	
Work item code: ⌘	CAMEL2	**Date:** ⌘ 14th of May 2001
Category: ⌘	**A**	**Release:** ⌘ R98

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.

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: ⌘	The Redirecting Number and Redirection Information parameters are mandatory parameters in a CF O-BCSM (MF column). However, they are not available in all cases. If the SCP sends a CAP-Connect operation to a T-BCSM without these parameters, and these parameters were not received from ISUP, then the MSC/SSP shall not send these parameters. It is already stated that non-present Connect parameters are not modified by the MSC.

A good way of avoiding problem situation is to set "O-CSI-applicable" parameter to FALSE in the Connect operation. However, this can not be relied on. |
| **Summary of change:** ⌘ | CAMEL2 shall have a word of warning. CAMEL3 onwards the parameters shall be conditional. |
| **Consequences if not approved:** ⌘ | Possible interworking problems. |

Clauses affected: ⌘	
Other specs affected: ⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments: ⌘	

****   For Your Information   ****

8.2   Handling of mobile originated calls

…

8.2.1   Handling of mobile originated calls in the originating MSC

…

8.2.1.3   Actions of the MSC on receipt of Int_Connect

The MSC continues processing with modified call parameters. The MSC shall transparently modify the call parameters with the received information. The MSC then sends a PROGRESS message to the MS. Call parameters which are not included in the Int_Connect message are unchanged.

Signalling limitations or regulatory requirements may require the Calling Partys Category, Generic Number, Original Called Party Number and Redirecting Party ID to be ignored or modified.

The network signalling system shall indicate that this is an internal network number.

The MSC sets the O-CSI suppression parameter, sends a Send Info For Outgoing Call to the VLR and waits in state Wait_For_MO_Call_Result.

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****   For Your Information   ****

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8.3.1.4   Action of the GMSC on receipt of Int_Connect

If the Destination Number received from the gsmSCF (via the gsmSSF) is the same as the ISUP Called party number, i.e. the MSISDN, the following parameters, if received, are used to overwrite the corresponding ISUP parameters (for mapping see GSM 09.78 [5]): Calling Partys Category and Generic Number. If received, the Announcement Suppression Indicator is stored. The further processing is described in subclause 8.3.1.3 with the addition that the Announcement Suppression indicator, if stored, is sent to the HLR in the Send_Routeing_Info message.

If:

- the Destination Number received from the gsmSCF (via the gsmSSF) is not the same as the stored ISUP Called party number, i.e. the MSISDN; and

- a CUG active indication was received from the HLR ; and

- CUG information was received in the ISUP_IAM for the incoming call,

then an exception event is reported to the process gsmSSF, an ISUP_Release is sent to the originating exchange and all resources are released.

Otherwise the following parameters, if received, are used to overwrite the corresponding ISUP parameters (for mapping see GSM 09.78 [5]): Destination Number, Calling Partys Category, Generic Number, Original Called Party ID, Redirecting Party ID, Announcement Suppression Indicator, and Redirection Information. Call parameters that are not included in the Int_Connect message are unchanged.

As a network operator option loop prevention mechanisms may cause the redirection information to be ignored or modified (e.g., if the Redirection counter has been decreased).

Signalling limitations or regulatory requirements may require the Calling Partys Category, Generic Number, Original Called Party Number and Redirecting Party ID to be ignored or modified.

The network signalling system shall indicate that this is an internal network number.

****   For Your Information, 09.78 annex A.2   ****

A.2   Connect operation

On receipt of a Connect operation from the gsmSCF the called party number used for routing is derived from the destinationRoutingAddress (see Table A.2). If the triggering of the CAMEL service was made for a mobile terminating or forwarded call, an ACM message shall be sent to the preceding exchange. The encoding of the backward call indicators in the ACM is specified in GSM 09.12 [23].

Table A.2 illustrates the mapping of parameters received in the Connect operation to parameters sent in the IAM message to the succeeding exchange. Parameters which were received in the IAM and are not replaced by parameters of the Connect operation are treated according to the normal procedures.

On sending of the IAM the awaiting address complete timer is started. If the timer expires the call is released in both directions and an appropriate indication is returned to the calling subscriber.

Table A.2

CAP operation Connect (Note 1)	ISUP message IAM
destinationRoutingAddress	Called party number
originalCalledPartyID	Original called number
callingPartysCategory	Calling party's category
redirectingPartyID	Redirecting number
redirectionInformation	Redirection information
genericNumbers	Generic number (Note 2)

NOTE 1: Optional parameters may be absent, i.e. they are only mapped, if received.

NOTE 2: The set of generic numbers received in the genericNumbers parameter is mapped to the appropriate number of Generic Number parameters in the ISUP IAM. This shall be performed irrespective of the value of the screening indicator in the ISUP calling party number.

8.5.1   Procedure CAMEL_CF_MSC_INIT: handling of Int_Connect

The received parameters are used to overwrite the corresponding ISUP parameters (for mapping see GSM 09.78 [5]. Call parameters which are not included in the Int_Connect message are unchanged.

An a network operator option, loop prevention mechanisms may cause the redirection information to be ignored or modified (e.g., if the Redirection counter has been decreased).

Signalling limitations or regulatory requirements may require the Calling Partys Category, Generic Number, Original Called Party Number and Redirecting Party ID to be ignored or modified.

The network signalling system shall indicate that this is an internal network number.

**** FIRST MODIFIED SECTION   ****

9.1.5   Initial DP

9.1.5.1   Description

This IF is generated by the gsmSSF when a trigger is detected at a DP in the BCSM, to request instructions from the gsmSCF.

9.1.5.2   Information Elements

The following information elements are required:

Information element name	MO	MF	MT	Description
Additional Calling Party Number	-	C	C	The calling party number provided by the access signalling system of the calling user.
Bearer Capability	M	C	C	This IE indicates the type of the bearer capability connection to the user.
Called Party Number	-	M	M	This IE contains the number used to identify the called party in the forward direction.
Called Party BCD Number	M	-	-	This IE contains the number used to identify the called party in the forward direction. The number contained in this IE shall be identical to the number received over the access network. It may e.g. include service selection information, such as ∗ and # digits, or carrier selection information dialled by the subscriber.
Calling Party Number	M	C	C	This IE carries the calling party number to identify the calling party or the origin of the call.
Calling Partys Category	M	C	C	Indicates the type of calling party (e.g., operator, pay phone, ordinary subscriber).
(continued)				

(concluded)

Information element name	MO	MF	MT	Description
Call Reference Number	M	M	M	This IE may be used by the gsmSCF for inclusion in a network optional gsmSCF call record. It has to be coupled with the identity of the MSC which allocated it in order to define unambiguously the identity of the call. For MO calls, the call reference number is set by the serving VMSC and included in the MO call record. For MT calls, the call reference number is set by the GMSC and included in the RCF call record in the GMSC and in the MT call record in the terminating MSC. For CF calls, the call reference number is set by the GMSC and included in the CF record in the forwarding MSC.
Event Type BCSM	M	M	M	This IE indicates the armed BCSM DP event (i.e., Collected_Info and Terminating_Attempt_Authorised), resulting in the Initial DP IF.
Ext-Basic Service Code	C	C	C	This IE indicates the type of basic service i.e., teleservice or bearer service.
High Layer Compatibility	C	C	C	This IE indicates the type of the high layer compatibility, which will be used to determine the ISDN-teleservice of a connected ISDN terminal.
IMSI	M	M	M	This IE identifies the mobile subscriber.
IP SSP Capabilities	C	C	C	This IE indicates which SRF resources are supported within the gsmSSF and are available. If this IE is absent, this indicates that no gsmSRF is attached and available.
Location Information	M	-	C	This IE is described in the next table.
Location Number	M	C	C	For mobile originated calls this IE represents the location of the calling party. For all other call scenarios this IE contains the location number received in incoming ISUP signalling.
MSC Address	M	M	M	For MO calls, the MSC Address carries the international E.164 address of the serving VMSC. For MT calls, the MSC Address Address carries the international E.164 address of the GMSC. For CF calls, the MSC Address carries the international E.164 address of the forwarding MSC.
GMSC Address	-	M	-	For CF calls, the GMSC Address carries the international E.164 address of the GMSC.

(continued)

(concluded)

Information element name	MO	MF	MT	Description
NA Carrier Information	C	C	C	The content of this IE is described in the next table. The IE may normally be sent when the VPLMN and the HPLMN of the subscriber are both North American. For MO calls, this IE shall contain any carrier that was dialed by the calling subscriber. If no carrier was dialed, the IE shall contain the calling subscriber's subscribed carrier. For MT calls, the IE shall contain the carrier subscribed to by the called subscriber.For MF calls, the IE shall contain the carrier subscribed to by the forwarding subscriber.
Original Called Party ID	-	C	C	This IE carries the dialled digits if the call has met call forwarding on the route to the gsmSSF.
Redirecting Party ID	-	M	C	This IE indicates the directory number the call was redirected from. The service designer shall note that this parameter may not be available if the MF case is initiated with the Connect operation to a T-BCSM without Redirecting Party ID.
Redirection Information	-	M	C	It contains forwarding related information, such as redirection counter. The service designer shall note that this parameter may not be available if the MF case is initiated with the Connect operation to a T-BCSM without Redirection Information.
Service Key	M	M	M	This IE identifies for the gsmSCF the requested set of one or more CAMEL services. It is used to address the correct application/SLP within the gsmSCF.
Subscriber State	-	-	C	This IE indicates the status of the MS. The states are: - CAMELBusy: The MS is engaged on a transaction for a mobile originating or terminated circuit-switched call. - NetworkDeterminedNotReachable: The network can determine from its internal data that the MS is not reachable. - AssumedIdle: The state of the MS is neither "CAMELBusy" nor "NetworkDeterminedNotReachable". - Not provided from VLR.
Time And Timezone	M	M	M	This IE contains the time that the gsmSSF was triggered, and the time zone the gsmSSF resides in.
GSM Forwarding Pending	-	-	C	This parameter indicates that a forwarded-to-number was received and the call will be forwarded due to GSM supplementary service call forwarding in the GMSC.

M   Mandatory (The IE shall always be sent)

C   Conditional (The IE shall be sent, if available)

-   Not applicable

Location Information contains the following information:

Information element name	MO	MF	MT	Description
Location Number	-	-	C	See GSM 03.18 [3].
CellIdOrLAI	M	-	C	See GSM 03.18 [3].
Geographical Information	C	-	C	See GSM 03.18 [3].
Age Of Location Information	M	-	C	See GSM 03.18 [3].
VLR number	M	-	C	See GSM 03.18 [3].

M   Mandatory (The IE shall always be sent)

C   Conditional (The IE shall be sent, if available)

-   Not applicable

NA Carrier Information contains the following information:

Information element name	MO	MF	MT	Description
NA Carrier Identification Code	M	M	M	This IE uniquely identifies a North American long distance carrier.
NA Carrier Selection Information	M	M	M	This IE indicates the way the carrier was selected e.g.: – dialled – subscribed

M   Mandatory (The IE shall always be sent)

**** UNMODIFIED SECTION   ****

9.2.5   Connect

9.2.5.1   Description

This IF is used to request the gsmSSF to perform the call processing actions to route a call to a specific destination. To do so, the gsmSSF may use destination information from the calling party and existing call set-up information depending on the information provided by the gsmSCF.

9.2.5.2   Information Elements

The following information elements are required:

Information element name	MO	MF	MT	Description
Alerting Pattern	-	-	O	This parameter indicates the kind of Alerting Pattern to be applied.
Calling Partys Category	O	O	O	This IE indicates the type of calling party (e.g., operator, pay phone, ordinary subscriber).
Destination Routing Address	M	M	M	This IE contains the called party number towards which the call is to be routed.
Generic Number	O	O	O	This IE contains the generic number. Its used to convey the additional calling party number, which e.g. could be used to modify the calling line ID presented to the called user.
NA Carrier Information	O	O	O	This IE is described in the next table.
NA Originating Line Information	O	O	O	This IE identifies the type of number in the NA Charge Number (e.g. subscriber versus PLMN operator number).
NA Charge Number	O	O	O	This IE identifies the chargeable number for the usage of a North American carrier.
O-CSI Applicable	-	-	O	This IE indicates that the O-CSI, if present shall be applied on the outgoing leg.
Original Called Party ID	O	O	O	This IE carries the dialled digits if the call has met call forwarding on route to the gsmSSF or is forwarded by the gsmSCF.
Redirecting Party ID	O	O	O	This IE indicates the directory number the call was redirected from.
Redirection Information	O	O	O	This IE contains forwarding related information, such as redirecting counter.
Suppression Of Announcements	-	-	O	This IE indicates that announcements or tones generated as a result of unsuccessful call setup shall be suppressed.

O   Optional (Service logic dependent)

-    Not applicable

NA Carrier Information contains the following information:

Information element name	MO	MF	MT	Description
NA Carrier Identification Code	M	M	M	This IE uniquely identifies a North American long distance carrier.
NA Carrier Selection Information	M	M	M	This IE indicates the way the carrier was selected e.g.: – dialled – subscribed

M   Mandatory (The IE shall always be sent)

CR-Form-v3

CHANGE REQUEST

| ⌘ | **23.078** CR **288** | ⌘ | rev | **1** | ⌘ | Current version: | **3.8.0** | ⌘ |

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

Title:	⌘	Mapping of Call Forwarding parameters from CAP-Connect to ISUP-IAM and CAP-InitialDP
Source:	⌘	CN2
Work item code: ⌘	CAMEL3	*Date:* ⌘ 14th of May 2001
Category:	⌘	**F (essential correction)**	*Release:* ⌘ R99

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.

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:	⌘	The Redirecting Number and Redirection Information parameters are mandatory parameters in a CF O-BCSM (MF column). However, they are not available in all cases. If the SCP sends a CAP-Connect operation to a T-BCSM without these parameters, and these parameters were not received from ISUP, then the MSC/SSP shall not send these parameters. It is already stated that non-present Connect parameters are not modified by the MSC. A good way of avoiding problem situation is to set "O-CSI-applicable" parameter to FALSE in the Connect operation. However, this can not be relied on.
Summary of change: ⌘		CAMEL2 shall have a word of warning. CAMEL3 onwards the parameters shall be conditional.
Consequences if not approved:	⌘	Possible interworking problems.

Clauses affected:	⌘	
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

****   For Your Information, 29.078 annex A.3   ****

A.3   Connect operation

On receipt of a Connect operation from the gsmSCF the called party number used for routing is derived from the destinationRoutingAddress (see Table A.3). If the triggering of the CAMEL service was made for a mobile terminating or forwarded call, an ACM message shall be sent to the preceding exchange. The encoding of the backward call indicators in the ACM is specified in 3GPP TS 09.12 [51].

Table A.3 illustrates the mapping of parameters received in the Connect operation to parameters sent in the IAM message to the succeeding exchange. Parameters which were received in the IAM and are not replaced by parameters of the Connect operation are treated according to the normal procedures.

On sending of the IAM the awaiting address complete timer is started. If the timer expires the call is released in both directions and an appropriate indication is returned to the calling subscriber.

Table A.3

CAP operation Connect (Note 1)	ISUP message IAM
destinationRoutingAddress	Called party number
originalCalledPartyID	Original called number
CallingPartysCategory	Calling party's category
RedirectingPartyID	Redirecting number
RedirectionInformation	Redirection information
genericNumbers	Generic number (Note 2)
ServiceInteractionIndicatorTwo	See Table A.4

NOTE 1: Optional parameters may be absent, i.e. they are only mapped, if received.

NOTE 2: The set of generic numbers received in the genericNumbers parameter is mapped to the appropriate number of Generic Number parameters in the ISUP IAM. This shall be performed irrespective of the value of the screening indicator in the ISUP calling party number.

Table A.4– Mapping of the CAP Connect and ContinueWithArgument operation serviceInteractionIndicatorsTwo to ISUP

Table A.4

CAP ServiceInteractionIndicators	ISUP parameter in	
	ACM/CPG/CON/ANM/REL	IAM
Call to be diverted indicator – call diversion allowed (default) – call diversion not allowed	---	Call diversion treatment indicators parameter Call to be diverted indicator – no indication – call diversion allowed – call diversion not allowed
Conference at DLE accept. ind. – accept conference request (default) – reject conference request	---	Conference treatment indicators parameter Conference acceptance ind. – no indication – accept conference request – reject conference request
Calling party restriction indicator - no IN impact (default) - presentation restricted	---	**Calling party number address presentation restricted indicator** - no impact - presentation restricted
Conference at OLE accept. ind. – accept conference request (default) – reject conference request	**ACM/CPG/CON/ANM: Conference treatment indicators parameter** Conference acceptance ind. – no indication – accept conference request – reject conference request	---
Call completion treatment indicator - accept CCBS service request (default) - reject CCBS service request	**REL, busy cause** Diagnostig field – CCBS possible – CCBS not possible	---
Connected number treatment indicator – no IN impact – presentation restricted – present called IN number – present called IN number restricted	Note 3	

NOTE 3:

If 'no IN impact' was received in the CAP serviceInteractionIndicatorsTwo (connected number treatment indicator), then a connected number parameter and a generic number parameter 'additional connected number' are passed on unchanged.

If 'presentation restricted' was received in the CAP serviceInteractionIndicatorsTwo, then

 a) If a connected number parameter has been received in the ANM or CON message, the address presentation restricted indicator is set to 'presentation restricted'.

 b) If a generic number parameter 'additional connected number' has been received in the ANM or CON message, the address presentation restricted indicator is set to 'presentation restricted'.

 c) If a redirection number parameter has been received, a redirection number restriction parameter is sent in the ANM message with bits AB set to 'presentation restricted'.

If 'present called IN number' was received in the CAP serviceInteractionIndicatorsTwo, then

 a) If a connected number parameter has been received in the ANM or CON message, the connected number parameter is modified as follows:

 nature of address indicator and numbering plan indicator are encoded as received in the called party number of the IAM message,

 address presentation restricted indicator: 00 (presentation allowed),

 address signals: as received in the called party number and possible subsequent number parameters, until the ACM message was sent.

b) A generic number parameter 'additional connected number' is deleted from the message, if applicable,

c) A redirection number parameter is deleted from the relevant messages, if applicable.

If 'present called IN number restricted' was received in the CAP serviceInteractionIndicatorsTwo, then

a) If a connected number parameter has been received in the ANM or CON message, the connected number parameter is modified as follows:

nature of address indicator and numbering plan indicator are encoded as received in the called party number of the IAM message,

address presentation restricted indicator: 01 (presentation restricted),

address signals: as received in the called party number and possible subsequent number parameters, until the ACM message was sent.

b) A generic number parameter 'additional connected number' is deleted from the message, if applicable,

c) A redirection number parameter is deleted from the relevant messages, if applicable.

****   FIRST MODIFIED SECTION   ****

4.6.1.5   Initial DP

4.6.1.5.1   Description

This IF is generated by the gsmSSF when a trigger is detected at a DP in the BCSM, to request instructions from the gsmSCF.

4.6.1.5.2   Information Elements

The following information elements are required:

Information element name	MO	MF	MT	VT	Description
Additional Calling Party Number	-	C	C	C	The calling party number provided by the access signalling system of the calling user.
Bearer Capability	M	C	C	C	This IE indicates the type of the bearer capability connection to the user.
Called Party Number	C	M	M	M	This IE contains the number used to identify the called party in the forward direction. For the MO and MF calls this parameter is used in the case of TDP Route_Select_Failure (this is the destination number used to route the call) and in the case of TDP Busy and TDP No Reply (this is the MSISDN when the destination number used for the call is a MSRN, or in the case of unsuccessful establishment received from the HLR via MAP interface, otherwise it is the number used to route the call). For the VT calls when there is no forwarding pending this is the MSISDN received in the Provide Roaming Number; if the MSISDN is not available, the basic MSISDN is used. For the MT and VT call case when there is call forwarding or call deflection pending, this is the MSISDN, i.e. not the forwarded-to or deflected-to number.
Called Party BCD Number	C	-	-	-	This IE contains the number used to identify the called party in the forward direction. It is used for MO call in all cases except in the case of TDP Route_Select_Failure. For the TDP Collected_Information, the number contained in this IE shall be identical to the number received over the access network. It may e.g. include service selection information, such as ∗ and # digits, or carrier selection information dialled by the subscriber. For the TDP Analysed_Information, the number contained in this IE shall be the dialled number received over the network access or received from a gsmSCF in a CONNECT operation, service selection information, such as * and # digits may be present (see subclause 4.2.1.2.2), carrier selection information dialled by the subscriber is not present.
Calling Party Number	M	C	C	C	This IE carries the calling party number to identify the calling party or the origin of the call.
Calling Partys Category	M	C	C	C	Indicates the type of calling party (e.g., operator, pay phone, ordinary subscriber).
CallGap Encountered	C	C	C	C	This parameter indicates the type of gapping the related call have been subjected to. This parameter shall be present only if a call gapping context is applicable to the initialDP operation.
Call Reference Number	M	M	M	M	This IE may be used by the gsmSCF for inclusion in a network optional gsmSCF call record. It has to be coupled with the identity of the MSC which allocated it in order to define unambiguously the identity of the call. For MO calls, the call reference number is set by the serving VMSC and included in the MO call record. For MT calls, the call reference number is set by the GMSC and included in the RCF call record in the GMSC and in the MT call record in the terminating MSC. For VT calls, the call reference number is set by the GMSC and included in the RCF call record in the GMSC and in the MT call record in the terminating MSC. For CF calls, the call reference number is set by the GMSC and included in the CF record in the forwarding MSC.
Cause	C	C	C	C	This IE indicates the cause specific to the armed BCSM DP event. This IE is applicable to DP Route_Select_Failure and DP T_Busy. The cause may be used by the SCF to decide about the further handling of the call.
Event Type BCSM	M	M	M	M	This IE indicates the armed BCSM DP event, resulting in the Initial DP IF.

Information element name	MO	MF	MT	VT	Description
Ext-Basic Service Code	C	C	C	C	This IE indicates the type of basic service i.e., teleservice or bearer service.
High Layer Compatibility	C	C	C	C	This IE indicates the type of the high layer compatibility, which will be used to determine the ISDN-teleservice of a connected ISDN terminal.
IMSI	M	M	M	M	This IE identifies the mobile subscriber.
IP SSP Capabilities	C	C	C	C	This IE indicates which SRF resources are supported within the gsmSSF and are available. If this IE is absent, this indicates that no gsmSRF is attached and available.
Location Information	M	-	C	M	This IE is described in the next table.
Location Number	M	C	C	C	For mobile originated calls this IE represents the location of the calling party. For all other call scenarios this IE contains the location number received in incoming ISUP signalling.
MSC Address	M	M	M	M	For MO calls, the MSC Address carries the international E.164 address of the serving VMSC. For MT calls, the MSC Address carries the international E.164 address of the GMSC. For VT calls, the MSC Address carries the international E.164 address of the serving VMSC. For CF calls, the MSC Address carries the international E.164 address of the forwarding MSC.
GMSC Address	-	M	-	M	For CF calls, the GMSC Address carries the international E.164 address of the GMSC. For VT calls, the GMSC Address carries the international E.164 address of the GMSC.
Carrier	C	C	C	C	The content of this IE is described in the next table. The IE may be sent when the VPLMN and the HPLMN of the subscriber are both North American. For MO calls, this IE shall contain any carrier that was dialed by the calling subscriber. If no carrier was dialed, the IE shall contain the calling subscriber's subscribed carrier. For MT and VT calls, the IE shall contain the carrier subscribed to by the called subscriber. For CF calls, the IE shall contain the carrier subscribed to by the forwarding subscriber.
Original Called Party ID	-	C	C	C	This IE carries the dialled digits if the call has met call forwarding on the route to the gsmSSF.
Redirecting Party ID	-	C	C	C	This IE indicates the directory number the call was redirected from.
Redirection Information	-	C	C	C	This IE contains forwarding related information, such as redirection counter.
Service Key	M	M	M	M	This IE indicates to the gsmSCF the requested CAMEL Service. It is used to address the required application/SLP within the gsmSCF.
Subscriber State	-	-	C	C	This IE indicates the status of the MS. The states are: - CAMELBusy: The MS is engaged on a transaction for a mobile originating or terminated circuit-switched call. - NetworkDeterminedNotReachable: The network can determine from its internal data that the MS is not reachable. - AssumedIdle: The state of the MS is neither "CAMELBusy" nor "NetworkDeterminedNotReachable". - Not provided from VLR.
Time And Timezone	M	M	M	M	This IE contains the time that the gsmSSF was triggered, and the time zone the gsmSSF resides in.
GSM Forwarding Pending	-	-	C	C	This parameter indicates that a forwarded-to-number was received and the call will be forwarded due to GSM supplementary service call forwarding in the GMSC/VMSC. This parameter is present in the following cases: - When the FTN is received from the HLR prior to triggering in the Terminating_Attempt_Authorised DP. - When a conditional call forwarding or call deflection is invoked in the GMSC/MSC, and T_Busy or T_No_answer is reported as a TDP.

Information element name	MO	MF	MT	VT	Description
Service Interaction Indicators Two	C	C	C	C	This IE is sent if it is received in the ISUP message or due to previous CAMEL processing. The IE is described in a table below.
CUG Index	C	-	-	-	See 3GPP TS 23.085 [9] for details of this IE.
CUG Interlock Code	C	C	C	C	See 3GPP TS 23.085 [9] for details of this IE. The latest available data shall be used, i.e., if the CUG data which had been obtained in the ISUP IAM or from the VLR has been modified by the previous Connect or Continue With Argument IF, this modified data shall be used.
Outgoing Access Indicator	C	C	C	C	See 3GPP TS 23.085 [9] for details of this IE. In the MO case this IE is received from the VLR.

M   Mandatory (The IE shall always be sent).

C   Conditional (The IE shall be sent, if available).

-   Not applicable.

Location Information is defined in 3GPP TS 23.018 [3]. The following differences apply:

Information element name	MO	MF	MT	VT	Description
Location Number	-	-	C	C	See 3GPP TS 23.018 [3].
Service area ID	C2	-	C2	C2	See 3GPP TS 23.018 [3].
Cell ID	C2	-	C2	C2	See 3GPP TS 23.018 [3].
Geographical information	C	-	C	C	See 3GPP TS 23.018 [3].
Geodetic information	C	-	C	C	See 3GPP TS 23.018 [3].
VLR number	M	-	C	M	See 3GPP TS 23.018 [3].
Age Of location information	M	-	C	C	See 3GPP TS 23.018 [3].
Current Location Retrieved	-	-	-	-	Not applicable
Location area ID	C2	-	C2	C2	See 3GPP TS 23.003 [37].
Selected LSA Identity	C1	-	C1	C1	This IE indicates the LSA identity associated with the current position of the MS. Shall be present if the LSA ID in the subscriber data matches the LSA ID of the current cell. In the case of multiple matches the LSA ID with the highest priority shall be sent. See 3GPP TS 23.073 [23].

M   Mandatory (The IE shall always be sent).

C   Conditional (The IE shall be sent, if available. Further conditions are in the description column.).

C1 Conditional (The IE shall be sent, if available and SoLSA is supported).

C2 Conditional (One and only one of the three conditional IEs shall be sent).

-   Not applicable.

Carrier contains the following information:

Information element name	MO	MF	MT	VT	Description
Carrier Identification Code	M	M	M	M	This IE uniquely identifies a North American long distance carrier.
Carrier Selection Information	M	M	M	M	This IE indicates the way the carrier was selected e.g.: – dialled – subscribed

M   Mandatory (The IE shall always be sent).

Service Interaction Indicators Two contains the following information:

Information element name	MO	MF	MT	VT	Description
Forward Service Interaction Indicator	C	C	C	C	This IE is described in a table below.
HOLD Treatment Indicator	C	-	-	C	This IE indicates whether the CAMEL subscriber can invoke HOLD for the call.
CW Treatment Indicator	C	-	-	C	This IE indicates whether CW can be applied for a call to the CAMEL subscriber whilst this call is ongoing.
ECT Treatment Indicator	C	-	-	C	This IE indicates whether the call leg can become part of an ECT call initiated by the calling subscriber.

C   Conditional (The IE shall be sent, if available).

-   Not applicable.

Forward Service Interaction Indicator contains the following information:

Information element name	MO	MF	MT	VT	Description
Conference Treatment Indicator	C	C	C	C	This IE indicates whether the call leg can become part of a MPTY call initiated by the called subscriber.
Call Diversion Treatment Indicator	C	C	C	C	This IE indicates whether the call can be forwarded using the Call Forwarding or Call Deflection Supplementary Services.

C   Conditional (The IE shall be sent, if available).

**** UNMODIFIED SECTION   ****

4.6.2.6   Connect

4.6.2.6.1   Description

This IF is used to request the gsmSSF to perform the call processing actions to route a call to a specific destination. To do so, the gsmSSF may use destination information from the calling party and existing call set-up information depending on the information provided by the gsmSCF.

4.6.2.6.2   Information Elements

The following information elements are required:

Information element name	MO	MF	MT	VT	Description
Alerting Pattern	-	-	O	O	This parameter indicates the kind of Alerting Pattern to be applied.
Calling Partys Category	O	O	O	O	This IE indicates the type of calling party (e.g., operator, pay phone, ordinary subscriber).
Destination Routing Address	M	M	M	M	This IE contains the called party number towards which the call is to be routed.
Generic Number	O	O	O	O	This IE contains the generic number. Its used to convey the additional calling party number, which e.g. could be used to modify the calling line ID presented to the called user.
Carrier	O	O	O	O	This IE is described in the next table.
NA Originating Line Information	O	O	O	O	This IE identifies the type of number in the Charge Number (e.g. subscriber versus PLMN operator number).
Charge Number	O	O	O	O	This IE identifies the chargeable number for the usage of a North American carrier.
O-CSI Applicable	-	-	O	O	This IE indicates that the O-CSI, if present shall be applied on the outgoing leg.
Original Called Party ID	O	O	O	O	This IE carries the dialled digits if the call has met call forwarding on route to the gsmSSF or is forwarded by the gsmSCF.
Redirecting Party ID	O	O	O	O	This IE indicates the directory number the call was redirected from.
Redirection Information	O	O	O	O	This IE contains forwarding related information, such as redirecting counter.
Suppression Of Announcements	-	-	O	O	This IE indicates that announcements or tones generated as a result of unsuccessful call setup shall be suppressed.
Service Interaction Indicators Two	O	O	O	O	This IE is described in a table below.
CUG Interlock Code	O	O	O	O	See 3GPP TS 23.085 [9] for details of this IE.
Outgoing Access Indicator	O	O	O	O	See 3GPP TS 23.085 [9] for details of this IE.

   O   Optional (Service logic dependent).

   -   Not applicable.

   Carrier contains the following information:

Information element name	MO	MF	MT	VT	Description
Carrier Identification Code	M	M	M	M	This IE uniquely identifies a North American long distance carrier.
Carrier Selection Information	M	M	M	M	This IE indicates the way the carrier was selected e.g.: – dialled – subscribed

   M   Mandatory (The IE shall always be sent).

Service Interaction Indicators Two contains the following information:

Information element name	MO	MF	MT	VT	Description
Forward Service Interaction Indicator	O	O	O	O	This IE is described in a table below.
Backward Service Interaction Indicator	O	O	O	O	This IE is described in a table below.
HOLD Treatment Indicator	O	-	-	O	This IE indicates whether the CAMEL subscriber can invoke HOLD for the call.
CW Treatment Indicator	O	-	-	O	This IE indicates whether CW can be applied for a call to the CAMEL subscriber whilst this call is ongoing.
ECT Treatment Indicator	O	-	-	O	This IE indicates whether the call leg can become part of an ECT call initiated by the CAMEL subscriber.
Connected number treatment indicator	O	O	O	O	This IE indicates the treatment of the connected number at the originating side.
Non-CUG Call	O	O	O	O	This IE indicates that no parameters for CUG should be used for the call (i.e. the call should be a non-CUG call).

O   Optional (Service logic dependent).

-    Not applicable.

NOTE: Non-CUG Call shall not be present if at least one of CUG Interlock Code and Outgoing Access Indicator are present in the Information Flow.

Forward Service Interaction Indicator contains the following information:

Information element name	MO	MF	MT	VT	Description
Conference Treatment Indicator	O	O	O	O	This IE indicates whether the call leg can become part of a MPTY call initiated by the called subscriber.
Call Diversion Treatment Indicator	O	O	O	O	This IE indicates whether the call can be forwarded using the Call Forwarding or Call Deflection Supplementary Services.
Calling Party Restriction Indicator	O	-	-	-	This IE indicates whether the CLI shall be marked as Restricted by CAMEL action for the call.

O   Optional (Service logic dependent).

-    Not applicable.

Backward Service Interaction Indicator contains the following information:

Information element name	MO	MF	MT	VT	Description
Conference Treatment Indicator	O	O	O	O	This IE indicates if the call leg can become part of a MPTY call initiated by the calling subscriber.
Call Completion Treatment Indicator	O	O	O	O	This IE indicates whether a CCBS request can be made for the call. See also 3GPP TS 23.093 [38] for description.

O   Optional (Service logic dependent).

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CHANGE REQUEST

| ⌘ | **23.078** CR **289** | ⌘ | rev | **1** | ⌘ | Current version: | **4.0.0** | ⌘ |

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

Title:	⌘	Mapping of Call Forwarding parameters from CAP-Connect to ISUP-IAM and CAP-InitialDP
Source:	⌘	CN2
Work item code: ⌘	CAMEL3	**Date:** ⌘ 14th of May 2001
Category:	⌘ **A**	**Release:** ⌘ Rel-4

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.

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:	⌘	The Redirecting Number and Redirection Information parameters are mandatory parameters in a CF O-BCSM (MF column). However, they are not available in all cases. If the SCP sends a CAP-Connect operation to a T-BCSM without these parameters, and these parameters were not received from ISUP, then the MSC/SSP shall not send these parameters. It is already stated that non-present Connect parameters are not modified by the MSC.

A good way of avoiding problem situation is to set "O-CSI-applicable" parameter to FALSE in the Connect operation. However, this can not be relied on. |
| **Summary of change:** ⌘ | CAMEL2 shall have a word of warning.
CAMEL3 onwards the parameters shall be conditional. | |
| **Consequences if not approved:** | ⌘ | Possible interworking problems. |

Clauses affected:	⌘			
Other specs affected:	⌘	☐ Other core specifications	⌘	
		☐ Test specifications		
		☐ O&M Specifications		
Other comments:	⌘			

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**** FIRST MODIFIED SECTION   ****

</div>

4.6.1.5   Initial DP

4.6.1.5.1   Description

This IF is generated by the gsmSSF when a trigger is detected at a DP in the BCSM, to request instructions from the gsmSCF.

4.6.1.5.2   Information Elements

The following information elements are required:

Information element name	MO	MF	MT	VT	Description
Additional Calling Party Number	-	C	C	C	The calling party number provided by the access signalling system of the calling user.
Bearer Capability	M	C	C	C	This IE indicates the type of the bearer capability connection to the user.
Called Party Number	C	M	M	M	This IE contains the number used to identify the called party in the forward direction. For the MO and MF calls this parameter is used in the case of TDP Route_Select_Failure (this is the destination number used to route the call) and in the case of TDP Busy and TDP No Reply (this is the MSISDN when the destination number used for the call is a MSRN, or in the case of unsuccessful establishment received from the HLR via MAP interface, otherwise it is the number used to route the call). For the VT calls when there is no forwarding pending this is the MSISDN received in the Provide Roaming Number; if the MSISDN is not available, the basic MSISDN is used. For the MT and VT call case when there is call forwarding or call deflection pending, this is the MSISDN, i.e. not the forwarded-to or deflected-to number.
Called Party BCD Number	C	-	-	-	This IE contains the number used to identify the called party in the forward direction. It is used for MO call in all cases except in the case of TDP Route_Select_Failure. For the TDP Collected_Information, the number contained in this IE shall be identical to the number received over the access network. It may e.g. include service selection information, such as ∗ and # digits, or carrier selection information dialled by the subscriber. For the TDP Analysed_Information, the number contained in this IE shall be the dialled number received over the network access or received from a gsmSCF in a CONNECT operation, service selection information, such as * and # digits may be present (see subclause 4.2.1.2.2), carrier selection information dialled by the subscriber is not present.
Calling Party Number	M	C	C	C	This IE carries the calling party number to identify the calling party or the origin of the call.
Calling Partys Category	M	C	C	C	Indicates the type of calling party (e.g., operator, pay phone, ordinary subscriber).
CallGap Encountered	C	C	C	C	This parameter indicates the type of gapping the related call have been subjected to. This parameter shall be present only if a call gapping context is applicable to the initialDP operation.
Call Reference Number	M	M	M	M	This IE may be used by the gsmSCF for inclusion in a network optional gsmSCF call record. It has to be coupled with the identity of the MSC which allocated it in order to define unambiguously the identity of the call. For MO calls, the call reference number is set by the serving VMSC and included in the MO call record. For MT calls, the call reference number is set by the GMSC and included in the RCF call record in the GMSC and in the MT call record in the terminating MSC. For VT calls, the call reference number is set by the GMSC and included in the RCF call record in the GMSC and in the MT call record in the terminating MSC. For CF calls, the call reference number is set by the GMSC and included in the CF record in the forwarding MSC.
Cause	C	C	C	C	This IE indicates the cause specific to the armed BCSM DP event. This IE is applicable to DP Route_Select_Failure and DP T_Busy. The cause may be used by the SCF to decide about the further handling of the call.
Event Type BCSM	M	M	M	M	This IE indicates the armed BCSM DP event, resulting in the Initial DP IF.

Information element name	MO	MF	MT	VT	Description
Ext-Basic Service Code	C	C	C	C	This IE indicates the type of basic service i.e., teleservice or bearer service.
High Layer Compatibility	C	C	C	C	This IE indicates the type of the high layer compatibility, which will be used to determine the ISDN-teleservice of a connected ISDN terminal.
IMSI	M	M	M	M	This IE identifies the mobile subscriber.
IP SSP Capabilities	C	C	C	C	This IE indicates which SRF resources are supported within the gsmSSF and are available. If this IE is absent, this indicates that no gsmSRF is attached and available.
Location Information	M	-	C	M	This IE is described in the next table.
Location Number	M	C	C	C	For mobile originated calls this IE represents the location of the calling party. For all other call scenarios this IE contains the location number received in incoming ISUP signalling.
MSC Address	M	M	M	M	For MO calls, the MSC Address carries the international E.164 address of the serving VMSC. For MT calls, the MSC Address carries the international E.164 address of the GMSC. For VT calls, the MSC Address carries the international E.164 address of the serving VMSC. For CF calls, the MSC Address carries the international E.164 address of the forwarding MSC.
GMSC Address	-	M	-	M	For CF calls, the GMSC Address carries the international E.164 address of the GMSC. For VT calls, the GMSC Address carries the international E.164 address of the GMSC.
Carrier	C	C	C	C	The content of this IE is described in the next table. The IE may be sent when the VPLMN and the HPLMN of the subscriber are both North American. For MO calls, this IE shall contain any carrier that was dialed by the calling subscriber. If no carrier was dialed, the IE shall contain the calling subscriber's subscribed carrier. For MT and VT calls, the IE shall contain the carrier subscribed to by the called subscriber. For CF calls, the IE shall contain the carrier subscribed to by the forwarding subscriber.
Original Called Party ID	-	C	C	C	This IE carries the dialled digits if the call has met call forwarding on the route to the gsmSSF.
Redirecting Party ID	-	C	C	C	This IE indicates the directory number the call was redirected from.
Redirection Information	-	C	C	C	This IE contains forwarding related information, such as redirection counter.
Service Key	M	M	M	M	This IE indicates to the gsmSCF the requested CAMEL Service. It is used to address the required application/SLP within the gsmSCF.
Subscriber State	-	-	C	C	This IE indicates the status of the MS. The states are: - CAMELBusy: The MS is engaged on a transaction for a mobile originating or terminated circuit-switched call. - NetworkDeterminedNotReachable: The network can determine from its internal data that the MS is not reachable. - AssumedIdle: The state of the MS is neither "CAMELBusy" nor "NetworkDeterminedNotReachable". - Not provided from VLR.
Time And Timezone	M	M	M	M	This IE contains the time that the gsmSSF was triggered, and the time zone the gsmSSF resides in.
GSM Forwarding Pending	-	-	C	C	This parameter indicates that a forwarded-to-number was received and the call will be forwarded due to GSM supplementary service call forwarding in the GMSC/VMSC. This parameter is present in the following cases: - When the FTN is received from the HLR prior to triggering in the Terminating_Attempt_Authorised DP. - When a conditional call forwarding or call deflection is invoked in the GMSC/MSC, and T_Busy or T_No_answer is reported as a TDP.

Information element name	MO	MF	MT	VT	Description
Service Interaction Indicators Two	C	C	C	C	This IE is sent if it is received in the ISUP message or due to previous CAMEL processing. The IE is described in a table below.
CUG Index	C	-	-	-	See 3GPP TS 23.085 [9] for details of this IE.
CUG Interlock Code	C	C	C	C	See 3GPP TS 23.085 [9] for details of this IE. The latest available data shall be used, i.e., if the CUG data which had been obtained in the ISUP IAM or from the VLR has been modified by the previous Connect or Continue With Argument IF, this modified data shall be used.
Outgoing Access Indicator	C	C	C	C	See 3GPP TS 23.085 [9] for details of this IE. In the MO case this IE is received from the VLR.

M Mandatory (The IE shall always be sent).

C Conditional (The IE shall be sent, if available).

- Not applicable.

Location Information is defined in 3GPP TS 23.018 [3]. The following differences apply:

Information element name	MO	MF	MT	VT	Description
Location Number	-	-	C	C	See 3GPP TS 23.018 [3].
Service area ID	C2	-	C2	C2	See 3GPP TS 23.018 [3].
Cell ID	C2	-	C2	C2	See 3GPP TS 23.018 [3].
Geographical information	C	-	C	C	See 3GPP TS 23.018 [3].
Geodetic information	C	-	C	C	See 3GPP TS 23.018 [3].
VLR number	M	-	C	M	See 3GPP TS 23.018 [3].
Age Of location information	M	-	C	C	See 3GPP TS 23.018 [3].
Current Location Retrieved	-	-	-	-	Not applicable
Location area ID	C2	-	C2	C2	See 3GPP TS 23.003 [37].
Selected LSA Identity	C1	-	C1	C1	This IE indicates the LSA identity associated with the current position of the MS. Shall be present if the LSA ID in the subscriber data matches the LSA ID of the current cell. In the case of multiple matches the LSA ID with the highest priority shall be sent. See 3GPP TS 23.073 [23].

M Mandatory (The IE shall always be sent).

C Conditional (The IE shall be sent, if available. Further conditions are in the description column.).

C1 Conditional (The IE shall be sent, if available and SoLSA is supported).

C2 Conditional (One and only one of the three conditional IEs shall be sent).

- Not applicable.

Carrier contains the following information:

Information element name	MO	MF	MT	VT	Description
Carrier Identification Code	M	M	M	M	This IE uniquely identifies a North American long distance carrier.
Carrier Selection Information	M	M	M	M	This IE indicates the way the carrier was selected e.g.: – dialled – subscribed

M Mandatory (The IE shall always be sent).

Service Interaction Indicators Two contains the following information:

Information element name	MO	MF	MT	VT	Description
Forward Service Interaction Indicator	C	C	C	C	This IE is described in a table below.
HOLD Treatment Indicator	C	-	-	C	This IE indicates whether the CAMEL subscriber can invoke HOLD for the call.
CW Treatment Indicator	C	-	-	C	This IE indicates whether CW can be applied for a call to the CAMEL subscriber whilst this call is ongoing.
ECT Treatment Indicator	C	-	-	C	This IE indicates whether the call leg can become part of an ECT call initiated by the calling subscriber.

C   Conditional (The IE shall be sent, if available).

-   Not applicable.

Forward Service Interaction Indicator contains the following information:

Information element name	MO	MF	MT	VT	Description
Conference Treatment Indicator	C	C	C	C	This IE indicates whether the call leg can become part of a MPTY call initiated by the called subscriber.
Call Diversion Treatment Indicator	C	C	C	C	This IE indicates whether the call can be forwarded using the Call Forwarding or Call Deflection Supplementary Services.

C   Conditional (The IE shall be sent, if available).

**** UNMODIFIED SECTION   ****

4.6.2.6   Connect

4.6.2.6.1   Description

This IF is used to request the gsmSSF to perform the call processing actions to route a call to a specific destination. To do so, the gsmSSF may use destination information from the calling party and existing call set-up information depending on the information provided by the gsmSCF.

4.6.2.6.2   Information Elements

The following information elements are required:

Information element name	MO	MF	MT	VT	Description
Alerting Pattern	-	-	O	O	This parameter indicates the kind of Alerting Pattern to be applied.
Calling Partys Category	O	O	O	O	This IE indicates the type of calling party (e.g., operator, pay phone, ordinary subscriber).
Destination Routing Address	M	M	M	M	This IE contains the called party number towards which the call is to be routed.
Generic Number	O	O	O	O	This IE contains the generic number. Its used to convey the additional calling party number, which e.g. could be used to modify the calling line ID presented to the called user.
Carrier	O	O	O	O	This IE is described in the next table.
NA Originating Line Information	O	O	O	O	This IE identifies the type of number in the Charge Number (e.g. subscriber versus PLMN operator number).
Charge Number	O	O	O	O	This IE identifies the chargeable number for the usage of a North American carrier.
O-CSI Applicable	-	-	O	O	This IE indicates that the O-CSI, if present shall be applied on the outgoing leg.
Original Called Party ID	O	O	O	O	This IE carries the dialled digits if the call has met call forwarding on route to the gsmSSF or is forwarded by the gsmSCF.
Redirecting Party ID	O	O	O	O	This IE indicates the directory number the call was redirected from.
Redirection Information	O	O	O	O	This IE contains forwarding related information, such as redirecting counter.
Suppression Of Announcements	-	-	O	O	This IE indicates that announcements or tones generated as a result of unsuccessful call setup shall be suppressed.
Service Interaction Indicators Two	O	O	O	O	This IE is described in a table below.
CUG Interlock Code	O	O	O	O	See 3GPP TS 23.085 [9] for details of this IE.
Outgoing Access Indicator	O	O	O	O	See 3GPP TS 23.085 [9] for details of this IE.

   O Optional (Service logic dependent).

   -   Not applicable.

   Carrier contains the following information:

Information element name	MO	MF	MT	VT	Description
Carrier Identification Code	M	M	M	M	This IE uniquely identifies a North American long distance carrier.
Carrier Selection Information	M	M	M	M	This IE indicates the way the carrier was selected e.g.: – dialled – subscribed

   M Mandatory (The IE shall always be sent).

Service Interaction Indicators Two contains the following information:

Information element name	MO	MF	MT	VT	Description
Forward Service Interaction Indicator	O	O	O	O	This IE is described in a table below.
Backward Service Interaction Indicator	O	O	O	O	This IE is described in a table below.
HOLD Treatment Indicator	O	-	-	O	This IE indicates whether the CAMEL subscriber can invoke HOLD for the call.
CW Treatment Indicator	O	-	-	O	This IE indicates whether CW can be applied for a call to the CAMEL subscriber whilst this call is ongoing.
ECT Treatment Indicator	O	-	-	O	This IE indicates whether the call leg can become part of an ECT call initiated by the CAMEL subscriber.
Connected number treatment indicator	O	O	O	O	This IE indicates the treatment of the connected number at the originating side.
Non-CUG Call	O	O	O	O	This IE indicates that no parameters for CUG should be used for the call (i.e. the call should be a non-CUG call).

O   Optional (Service logic dependent).

-    Not applicable.

NOTE: Non-CUG Call shall not be present if at least one of CUG Interlock Code and Outgoing Access Indicator are present in the Information Flow.

Forward Service Interaction Indicator contains the following information:

Information element name	MO	MF	MT	VT	Description
Conference Treatment Indicator	O	O	O	O	This IE indicates whether the call leg can become part of a MPTY call initiated by the called subscriber.
Call Diversion Treatment Indicator	O	O	O	O	This IE indicates whether the call can be forwarded using the Call Forwarding or Call Deflection Supplementary Services.
Calling Party Restriction Indicator	O	-	-	-	This IE indicates whether the CLI shall be marked as Restricted by CAMEL action for the call.

O   Optional (Service logic dependent).

-    Not applicable.

Backward Service Interaction Indicator contains the following information:

Information element name	MO	MF	MT	VT	Description
Conference Treatment Indicator	O	O	O	O	This IE indicates if the call leg can become part of a MPTY call initiated by the calling subscriber.
Call Completion Treatment Indicator	O	O	O	O	This IE indicates whether a CCBS request can be made for the call. See also 3GPP TS 23.093 [38] for description.

O   Optional (Service logic dependent).