

3GPP TSG SA#25
13th – 16th September 2004

SP-040698

CR-Form-v7
<h2 style="margin: 0;">CHANGE REQUEST</h2>
⌘ 22.078 CR 177 ⌘ rev - ⌘ Current version: 6.5.0 ⌘

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:	⌘ Support of User-to-User Information (UII) in CAMEL		
Source:	⌘ Nortel Networks, Siemens		
Work item code:	⌘ TEI6	Date:	⌘ 15/9/2004
Category:	⌘ B	Release:	⌘ Rel-6
	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) Rel-6 (Release 6)

Reason for change:	⌘ User-to-User Signalling Service 1(UUS1) is used to pass Function Numbers and other application-related data within GSM-R based networks. For IN-based Railway applications there is a need to pass this data to the SCP in the CAMEL InitialDP operation.
Summary of change:	⌘ Add a paragraph for CAMEL interaction with the User-to-User Signalling Supplementary Service
Consequences if not approved:	⌘ IN-based Railway services related to originating Function Numbers and other applications such as enhanced Location Dependent Addressing (eLDA) will be difficult to implement using CAMEL. Operators may have to resort to proprietary solutions that restrict multi-vendor interoperability.

Clauses affected:	⌘ 18.8.4, 18.12(new)										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 20px;">Y</td> <td style="width: 20px;">N</td> </tr> <tr> <td>X</td> <td></td> </tr> <tr> <td></td> <td>X</td> </tr> <tr> <td></td> <td>X</td> </tr> </table> Other core specifications Test specifications O&M Specifications	Y	N	X			X		X	⌘	23.078, 29.078, 29.002
Y	N										
X											
	X										
	X										
Other comments:	⌘										

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

***** First Modified Section *****

18 Interactions with supplementary services

18.1 General

This subclause defines the interactions between supplementary services and the CAMEL feature. However, it should be noted that the most effective way to control those service interactions is through managing the provisioning of services. Where possible, subscribers provisioned with services using the CAMEL feature shall not be provisioned with services having an adverse interaction with the CAMEL based services. Supplementary services shall be assumed not to have any knowledge of CAMEL based services.

In general, call independent supplementary service operations (registration, erasure, activation, deactivation and interrogation) are not modified by CAMEL. The exceptions to this for CAMEL phase 2 and later are the call forwarding services, described in subclause 18.3..

18.2 Line Identification

18.2.1 Calling Line Identification Presentation (CLIP)

The CSE shall be able to create or modify an additional calling line identity (additional calling party number) which is presented to the called subscriber via the CLIP supplementary service. There shall be no restriction to the format of the additional calling line identity determined by the CSE.

The CSE shall not be able to modify the calling line identity (calling party number).

18.2.2 Calling Line Identification Restriction (CLIR)

The CSE shall be able to send to the IPLMN/VPLMN an instruction that the presentation indicator of the calling party number shall be set to "Presentation Restricted".

18.2.3 Connected Line Identification Presentation (COLP)

No interaction. The CSE shall not be able to change the connected line identity.

The CSE shall be able to send an indication that the identity returned to the calling subscriber's serving PLMN as the connected number shall be the called IN number.

18.2.4 Connected Line Identification Restriction (COLR)

The CSE shall be able to send to the VPLMN/IPLMN:

- An indication that the presentation indicator of the connected number shall be set to "presentation restricted", or
- An indication that the presentation indicator of the called IN number shall be set to "presentation restricted" (this is coupled with the indication that the identity returned to the calling subscriber's serving PLMN as the connected number shall be the called IN number), or
- An indication that the presentation indicator of the called IN number shall be set to "presentation allowed" (this is coupled with the indication that the identity returned to the calling subscriber's serving PLMN as the connected number shall be the called IN number).

18.3 Call Forwarding

For the registration of call forwarding supplementary services the network shall accept any forwarded to number for a subscriber who is provided with a TIF-CSI. In this case the HPLMN shall treat the forwarded-to number transparently at the time of registration, i.e. it shall not perform validity checks or translate the format of the number. The forwarding PLMN shall treat the forwarded-to number transparently when the call forwarding service is invoked. The CSE may modify the forwarded-to number within the MO CAMEL Service provided for the subscriber when the call forwarding service is invoked.

NOTE: Network operators should ensure that the TIF-CSI is provided only to subscribers who are provided with an MO CAMEL service which is capable of translating the registered forwarded-to number.

If the forwarding PLMN does not support CAMEL phase 2, the HPLMN shall consider the call forwarding service as not registered if the forwarded-to number is not stored in international format.

NOTE: If the served subscriber requires invocation of call forwarding services even when the forwarding PLMN does not support CAMEL phase 2, she has to register a forwarded-to number in E.164 international format.

NOTE: Network operators should be aware that unpredictable service behaviour could be experienced if the service events for 'Busy', 'Not Reachable' or 'No Answer' are activated when the corresponding conditional call forwarding supplementary service is active.

18.3.1 Call Forwarding Unconditional (CFU)

The Call Forwarding Unconditional service will be invoked after any terminating CAMEL based service. A forwarded call resulting from a Call Forwarding supplementary service may cause invocation of mobile originated CAMEL based services.

18.3.2 Call Forwarding on Busy (CFB)

As for Call Forwarding Unconditional (see subclause 18.3.1).

18.3.3 Call Forwarding on No Reply (CFNRy)

As for Call Forwarding Unconditional (see subclause 18.3.1).

18.3.4 Call Forwarding on Not Reachable (CFNRc)

As for Call Forwarding Unconditional (see subclause 18.3.1).

18.4 Call Completion

18.4.1 Call Hold (CH)

For both originating and terminating calls, the Call Hold service is invoked after the CAMEL feature is invoked. A call created when a call has been put on hold may be subject to the CAMEL feature in the same way as a normal mobile originating call.

When a call is established, the CSE shall be able to instruct the VPLMN of the served subscriber whether to prohibit Call Hold.

18.4.2 Call Waiting (CW)

Incoming, waiting calls are treated by the CSE in the same way as mobile terminating calls which encounter an idle subscriber.

When a call is established the CSE shall be able to instruct the VPLMN of the served subscriber whether to prohibit Call Waiting for any additional MT calls for the duration of the established call.

18.5 Multi Party (MPTY)

A MultiParty call may include one or more call legs subject to CAMEL based services.

If a call leg is subject to CAMEL based services the CSE shall be able to instruct the VPLMN of the served subscriber whether to prohibit the inclusion of that leg in a MultiParty call.

18.6 Closed User Group (CUG)

When a terminating call with CUG information is received for a CAMEL marked subscriber, if the terminating CAMEL based service attempts to modify the called party number then:

- If the called subscriber subscribes to CUG then the IPLMN shall release the call to the calling party;
- If the called subscriber does not subscribe to CUG then the IPLMN shall continue the call establishment to the modified called party number.

For an MO call, an MF call, or an MT call subject to CAMEL forwarding, with CUG information, the CSE shall be able to instruct the VPLMN/IPLMN to:

- Continue the call establishment with the original CUG information, or
- Use modified CUG information for that call, or
- Remove CUG information from the call (i.e. continue the call as a non-CUG call).

For an MT call which is not subject to CAMEL forwarding, the CSE shall not be able to modify the CUG information for the call.

When an MT call with CUG information is received for a CAMEL marked subscriber, if the terminating CAMEL based service attempts to modify the called party number then:

- If the called subscriber subscribes to CUG then the VPLMN shall release the call to the calling party;
- If the called subscriber does not subscribe to CUG then the VPLMN shall continue the call establishment to the destination defined by the modified called party number.

18.7 Advice of Charge (AoC)

Advice of Charge is not guaranteed to operate correctly for calls subject to CAMEL phase 1 based services. It is recommended that subscribers are not provisioned with Advice of Charge and any CAMEL based service for which there is an adverse interaction.

If CAMEL phase 2 or higher is supported and the phase 2 or higher charging function "CSE controlled e-values" is used, the VPLMN shall use the received e-values from the CSE for the purpose of the AoC supplementary service. Once the VPLMN has received e-values from the CSE, only CSE provided e-values are applicable for this call. The e-values shall be sent by the VPLMN to the MS only if the served subscriber is provided with the AoC supplementary service according to TS 22.068. CAMEL phase 3 or higher allows the CSE to modify e-values for MO and MT calls.

18.8 Call Barring

NOTE: CAMEL may be used to establish forwarded-legs and CAMEL based re-routing-legs which violate conditional outgoing call barring and ODB services. Network operators should take care to avoid problems which may arise because of this interaction.

18.8.1 Barring of all outgoing calls

18.8.1.1 Mobile originated calls

No interaction. The Barring of all outgoing calls supplementary service will be invoked. Thus, originating CAMEL based services will not be invoked.

18.8.1.2 Forwarded Calls

No interaction. If the Barring of all outgoing calls supplementary service is active and operative, it shall prevent the registration or activation of Call Forwarding as specified in TS 22.082.

18.8.1.3 Mobile Originated Short Message Service

No interaction. The Barring of all outgoing calls supplementary service will be invoked. No CAMEL service for Mobile Originated SMS will be invoked.

18.8.2 Barring of outgoing international calls

18.8.2.1 Mobile originated calls

. Any originating CAMEL based services shall be invoked before the Barring of outgoing international calls supplementary service.

18.8.2.2 Forwarded Calls

For CAMEL phase 1 based services there shall be no interaction. In this case, the interaction between call forwarding and call barring is not modified by CAMEL. This means that the interaction is applied prior to the invocation of call forwarding. When call forwarding is invoked (possibly with originating CAMEL services in the forwarding leg) then the VPLMN or IPLMN shall not apply outgoing call barring services.

For CAMEL Phase 2 or higher, if the served subscriber is provided with TIF-CSI the network shall not check the interaction of call forwarding services with this barring program, i.e.

- The registration or activation of Call Forwarding is accepted even if this barring program is active and operative;
- The activation of this barring program is accepted even if a Call Forwarding supplementary service is active.

When Call Forwarding is invoked (possibly with originating CAMEL services in the forwarding leg) the VPLMN or IPLMN shall not invoke outgoing Call Barring services.

The following note applies to CAMEL phase 1 only

NOTE: This behaviour means that CAMEL may be used to establish forwarded-legs which violate conditional outgoing call barring and ODB services. Network operators should take care to avoid problems which may arise because of this interaction.

18.8.2.3 Mobile Originated Short Message Service

The CAMEL Service for Mobile Originated SMS shall be invoked before the Barring of outgoing international calls supplementary service.

18.8.3 Barring of outgoing international calls except those directed to the HPLMN country

As for Barring of outgoing international calls (see subclause 18.8.2).

18.8.4 Barring of all incoming calls

18.8.4.1 Mobile Terminated calls

No interaction. The Barring of all incoming calls supplementary service shall be invoked. Thus, terminating CAMEL based services will not be invoked.

18.8.4.2 Mobile Terminated Short Message Service

No interaction. The Barring of all incoming calls supplementary service shall be invoked. No CAMEL service for Mobile Terminated SMS will be invoked.

18.8.5 Barring of incoming calls when roaming

Same as Barring of all incoming calls (see subclause 18.8.4).

18.9 Explicit Call Transfer (ECT)

One or both legs of an ECT call may be subject to CAMEL based services.

If a call leg is subject to CAMEL based services the CSE shall be able to instruct the VPLMN of the served subscriber whether to prohibit the inclusion of that leg in an explicitly transferred call.

18.10 Completion of Call to Busy Subscriber (CCBS)

When a call is established the CSE shall be able to instruct the VPLMN/IPLMN whether Subscriber A is prohibited from activating a CCBS request if a subsequent "CCBS possible" indication is received from the destination network or the terminating served subscriber is busy.

18.11 Call Deflection

When an MT call is established the CSE shall be able to instruct the VPLMN of the served subscriber whether to prohibit Call Deflection.

18.12 User-to-User Signalling (UUS)

[User-to-User Service activation requests and User-to-User Information received in call control messages may be passed to the CSE.](#)

***** End of Document *****

CHANGE REQUEST

⌘ **22.078 CR 178** ⌘ rev **-** ⌘ Current version: **7.0.0** ⌘

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Work item code:	⌘ TEI7	Date:	⌘ 15/9/2004
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			Rel-6 (Release 6)

Reason for change:	⌘ User-to-User Signalling Service 1(UUS1) is used to pass Function Numbers and other application-related data within GSM-R based networks. For IN-based Railway applications there is a need to pass this data to the SCP in the CAMEL InitialDP operation.
Summary of change:	⌘ Add a paragraph for CAMEL interaction with the User-to-User Signalling Supplementary Service
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In general, call independent supplementary service operations (registration, erasure, activation, deactivation and interrogation) are not modified by CAMEL. The exceptions to this for CAMEL phase 2 and later are the call forwarding services, described in subclause 18.3..

18.2 Line Identification

18.2.1 Calling Line Identification Presentation (CLIP)

The CSE shall be able to create or modify an additional calling line identity (additional calling party number) which is presented to the called subscriber via the CLIP supplementary service. There shall be no restriction to the format of the additional calling line identity determined by the CSE.

The CSE shall not be able to modify the calling line identity (calling party number).

18.2.2 Calling Line Identification Restriction (CLIR)

The CSE shall be able to send to the IPLMN/VPLMN an instruction that the presentation indicator of the calling party number shall be set to "Presentation Restricted".

18.2.3 Connected Line Identification Presentation (COLP)

No interaction. The CSE shall not be able to change the connected line identity.

The CSE shall be able to send an indication that the identity returned to the calling subscriber's serving PLMN as the connected number shall be the called IN number.

18.2.4 Connected Line Identification Restriction (COLR)

The CSE shall be able to send to the VPLMN/IPLMN:

- An indication that the presentation indicator of the connected number shall be set to "presentation restricted", or
- An indication that the presentation indicator of the called IN number shall be set to "presentation restricted" (this is coupled with the indication that the identity returned to the calling subscriber's serving PLMN as the connected number shall be the called IN number), or
- An indication that the presentation indicator of the called IN number shall be set to "presentation allowed" (this is coupled with the indication that the identity returned to the calling subscriber's serving PLMN as the connected number shall be the called IN number).

18.3 Call Forwarding

For the registration of call forwarding supplementary services the network shall accept any forwarded to number for a subscriber who is provided with a TIF-CSI. In this case the HPLMN shall treat the forwarded-to number transparently at the time of registration, i.e. it shall not perform validity checks or translate the format of the number. The forwarding PLMN shall treat the forwarded-to number transparently when the call forwarding service is invoked. The CSE may modify the forwarded-to number within the MO CAMEL Service provided for the subscriber when the call forwarding service is invoked.

NOTE: Network operators should ensure that the TIF-CSI is provided only to subscribers who are provided with an MO CAMEL service which is capable of translating the registered forwarded-to number.

If the forwarding PLMN does not support CAMEL phase 2, the HPLMN shall consider the call forwarding service as not registered if the forwarded-to number is not stored in international format.

NOTE: If the served subscriber requires invocation of call forwarding services even when the forwarding PLMN does not support CAMEL phase 2, she has to register a forwarded-to number in E.164 international format.

NOTE: Network operators should be aware that unpredictable service behaviour could be experienced if the service events for 'Busy', 'Not Reachable' or 'No Answer' are activated when the corresponding conditional call forwarding supplementary service is active.

18.3.1 Call Forwarding Unconditional (CFU)

The Call Forwarding Unconditional service will be invoked after any terminating CAMEL based service. A forwarded call resulting from a Call Forwarding supplementary service may cause invocation of mobile originated CAMEL based services.

18.3.2 Call Forwarding on Busy (CFB)

As for Call Forwarding Unconditional (see subclause 18.3.1).

18.3.3 Call Forwarding on No Reply (CFNRy)

As for Call Forwarding Unconditional (see subclause 18.3.1).

18.3.4 Call Forwarding on Not Reachable (CFNRc)

As for Call Forwarding Unconditional (see subclause 18.3.1).

18.4 Call Completion

18.4.1 Call Hold (CH)

For both originating and terminating calls, the Call Hold service is invoked after the CAMEL feature is invoked. A call created when a call has been put on hold may be subject to the CAMEL feature in the same way as a normal mobile originating call.

When a call is established, the CSE shall be able to instruct the VPLMN of the served subscriber whether to prohibit Call Hold.

18.4.2 Call Waiting (CW)

Incoming, waiting calls are treated by the CSE in the same way as mobile terminating calls which encounter an idle subscriber.

When a call is established the CSE shall be able to instruct the VPLMN of the served subscriber whether to prohibit Call Waiting for any additional MT calls for the duration of the established call.

18.5 Multi Party (MPTY)

A MultiParty call may include one or more call legs subject to CAMEL based services.

If a call leg is subject to CAMEL based services the CSE shall be able to instruct the VPLMN of the served subscriber whether to prohibit the inclusion of that leg in a MultiParty call.

18.6 Closed User Group (CUG)

When a terminating call with CUG information is received for a CAMEL marked subscriber, if the terminating CAMEL based service attempts to modify the called party number then:

- If the called subscriber subscribes to CUG then the IPLMN shall release the call to the calling party;
- If the called subscriber does not subscribe to CUG then the IPLMN shall continue the call establishment to the modified called party number.

For an MO call, an MF call, or an MT call subject to CAMEL forwarding, with CUG information, the CSE shall be able to instruct the VPLMN/IPLMN to:

- Continue the call establishment with the original CUG information, or
- Use modified CUG information for that call, or
- Remove CUG information from the call (i.e. continue the call as a non-CUG call).

For an MT call which is not subject to CAMEL forwarding, the CSE shall not be able to modify the CUG information for the call.

When an MT call with CUG information is received for a CAMEL marked subscriber, if the terminating CAMEL based service attempts to modify the called party number then:

- If the called subscriber subscribes to CUG then the VPLMN shall release the call to the calling party;
- If the called subscriber does not subscribe to CUG then the VPLMN shall continue the call establishment to the destination defined by the modified called party number.

18.7 Advice of Charge (AoC)

Advice of Charge is not guaranteed to operate correctly for calls subject to CAMEL phase 1 based services. It is recommended that subscribers are not provisioned with Advice of Charge and any CAMEL based service for which there is an adverse interaction.

If CAMEL phase 2 or higher is supported and the phase 2 or higher charging function "CSE controlled e-values" is used, the VPLMN shall use the received e-values from the CSE for the purpose of the AoC supplementary service. Once the VPLMN has received e-values from the CSE, only CSE provided e-values are applicable for this call. The e-values shall be sent by the VPLMN to the MS only if the served subscriber is provided with the AoC supplementary service according to TS 22.068. CAMEL phase 3 or higher allows the CSE to modify e-values for MO and MT calls.

18.8 Call Barring

NOTE: CAMEL may be used to establish forwarded-legs and CAMEL based re-routing-legs which violate conditional outgoing call barring and ODB services. Network operators should take care to avoid problems which may arise because of this interaction.

18.8.1 Barring of all outgoing calls

18.8.1.1 Mobile originated calls

No interaction. The Barring of all outgoing calls supplementary service will be invoked. Thus, originating CAMEL based services will not be invoked.

18.8.1.2 Forwarded Calls

No interaction. If the Barring of all outgoing calls supplementary service is active and operative, it shall prevent the registration or activation of Call Forwarding as specified in TS 22.082.

18.8.1.3 Mobile Originated Short Message Service

No interaction. The Barring of all outgoing calls supplementary service will be invoked. No CAMEL service for Mobile Originated SMS will be invoked.

18.8.2 Barring of outgoing international calls

18.8.2.1 Mobile originated calls

. Any originating CAMEL based services shall be invoked before the Barring of outgoing international calls supplementary service.

18.8.2.2 Forwarded Calls

For CAMEL phase 1 based services there shall be no interaction. In this case, the interaction between call forwarding and call barring is not modified by CAMEL. This means that the interaction is applied prior to the invocation of call forwarding. When call forwarding is invoked (possibly with originating CAMEL services in the forwarding leg) then the VPLMN or IPLMN shall not apply outgoing call barring services.

For CAMEL Phase 2 or higher, if the served subscriber is provided with TIF-CSI the network shall not check the interaction of call forwarding services with this barring program, i.e.

- The registration or activation of Call Forwarding is accepted even if this barring program is active and operative;
- The activation of this barring program is accepted even if a Call Forwarding supplementary service is active.

When Call Forwarding is invoked (possibly with originating CAMEL services in the forwarding leg) the VPLMN or IPLMN shall not invoke outgoing Call Barring services.

The following note applies to CAMEL phase 1 only

NOTE: This behaviour means that CAMEL may be used to establish forwarded-legs which violate conditional outgoing call barring and ODB services. Network operators should take care to avoid problems which may arise because of this interaction.

18.8.2.3 Mobile Originated Short Message Service

The CAMEL Service for Mobile Originated SMS shall be invoked before the Barring of outgoing international calls supplementary service.

18.8.3 Barring of outgoing international calls except those directed to the HPLMN country

As for Barring of outgoing international calls (see subclause 18.8.2).

18.8.4 Barring of all incoming calls

18.8.4.1 Mobile Terminated calls

No interaction. The Barring of all incoming calls supplementary service shall be invoked. Thus, terminating CAMEL based services will not be invoked.

18.8.4.2 Mobile Terminated Short Message Service

No interaction. The Barring of all incoming calls supplementary service shall be invoked. No CAMEL service for Mobile Terminated SMS will be invoked.

18.8.5 Barring of incoming calls when roaming

Same as Barring of all incoming calls (see subclause 18.8.4).

18.9 Explicit Call Transfer (ECT)

One or both legs of an ECT call may be subject to CAMEL based services.

If a call leg is subject to CAMEL based services the CSE shall be able to instruct the VPLMN of the served subscriber whether to prohibit the inclusion of that leg in an explicitly transferred call.

18.10 Completion of Call to Busy Subscriber (CCBS)

When a call is established the CSE shall be able to instruct the VPLMN/IPLMN whether Subscriber A is prohibited from activating a CCBS request if a subsequent "CCBS possible" indication is received from the destination network or the terminating served subscriber is busy.

18.11 Call Deflection

When an MT call is established the CSE shall be able to instruct the VPLMN of the served subscriber whether to prohibit Call Deflection.

18.12 User-to-User Signalling (UUS)

[User-to-User Service activation requests and User-to-User Information received in call control messages may be passed to the CSE.](#)

***** End of Document *****