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CR-Form-v7

CHANGE REQUEST

⌘ **22.032** **CR** **CRNum** ⌘ **rev** **-** ⌘ Current version: **5.0.0** ⌘

*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:	⌘	Application of IST to PS services
Source:	⌘	Vodafone
Work item code:	⌘	***Date:*** ⌘ 05/07/2002
Category:	⌘	**F** ***Release:*** ⌘ Rel-5

Use one 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 one 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:	⌘	IST functionality for PS services is already described in the ODB specification (22.041) and the necessary stage 3 functionality is available in MAP. However, it is necessary to provide a complete description of the IST feature for PS services in the IST specifications themselves.
Summary of change:	⌘	Existing sections are renamed to make it clear that they refer to IST for CS services. A new section is added on IST for PS services. The section on security requirements between the HPLMN and VPLMN is deleted because this work was covered under the network domain security work. There is a minor change to Annex A to reflect the fact that IST is applicable to both GSM and UMTS.
Consequences if not approved:	⌘	Incomplete specification of the IST feature could lead to incorrect implementation.

Clauses affected:	⌘	1, 3.1, 4, 5, Annex A

		Y	N			
Other specs affected:	⌘	X		Other core specifications	⌘	23.035
				Test specifications		
				O&M Specifications		

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 Scope

This Technical Specification specifies the stage 1 description of the Immediate Service Termination (IST) service which provides the means for the HPLMN to terminate all the activities of an HPLMN subscriber in a VPLMN.

The purpose of this network feature is to enable the HPLMN to control the activities of its subscribers, particularly while they are roaming. If the HPLMN decides (based upon information received via Fraud Information Gathering System (FIGS) or other systems) that a roaming subscriber is behaving in a fraudulent or suspicious manner, the HPLMN can terminate all activities of the subscriber, including calls (including transferred and diverted calls) that are in progress and GPRS PDP contexts.

This procedure can also be used to terminate all the activities of a subscriber when the subscription has ended.

The primary aim is to enable service providers/network operators to use IST to reduce the amount of money that they lose because of roaming fraud.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] TR 21.905: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Vocabulary for 3GPP Specifications".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this specification the following definitions apply:

subscriber activities: subscriber activities that must be terminated. These can be call related events (e.g. call set-up, call termination) or the invocation of call related and call independent supplementary services (e.g. Call Hold, Call Waiting, Call Transfer, Call Forwarding, Unstructured Supplementary Service Data (USSD)). Subscriber activities also include PS service events.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] and the following abbreviations apply:

IST Immediate Service Termination
FIGS Fraud Information Gathering System

4 ~~Immediate Service Termination (IST)~~IST for CS services

4.1 Description

It shall be possible for the Home Public Land Mobile Network (HPLMN) to instruct any PLMN to terminate immediately all the CS activities of a specified HPLMN subscriber.

Immediate Service Termination (IST) is controlled by the HPLMN and can be triggered only by the HPLMN ~~only~~.

A subscriber shall be specified by the International Mobile Subscriber Identity (IMSI).

For subscribers that are marked as subscribed to a CAMEL-based service, IST shall be possible using Customised Application for Mobile network Enhanced Logic (CAMEL).

IST shall also be possible for subscribers who are not marked as subscribed to any CAMEL-based service ~~(see Annex A)~~.

4.2 Applicability

This network feature applies to all subscribed CS Bearer Services and Teleservices of the subscriber, except for emergency calls.

4.3 Normal procedure

The HPLMN will normally direct a request for IST for a particular subscriber to the current Visited PLMN (VPLMN) of that subscriber and the PLMN visited by the subscriber immediately prior to visiting the current VPLMN

NOTE: In practice, the IST command will be sent to individual Mobile-services Switching Centres (MSCs), and not to “VPLMNs” as a whole (but such detail is for Stage 2 and not Stage 1). IST will therefore be sent to all MSCs in which the subscriber has (or may have) an active call, as logged by the HPLMN. These MSCs may be confined to the current VPLMN or may include MSC(s) in the PLMN visited by the subscriber immediately prior to visiting the current VPLMN (or PLMNs visited even earlier).

The VPLMN shall confirm receipt of the IST command.

The VPLMN shall then terminate all activities of that subscriber in the VPLMN including ongoing calls and forwarded, deflected and transferred calls. The call records of calls terminated by the operation of IST shall contain a field indicating that the call terminated because of the operation of IST.

The VPLMN shall then confirm to the HPLMN that all CS subscriber activities in that VPLMN have been terminated.

If the specified subscriber has no CS activities in the VPLMN then the VPLMN shall inform the HPLMN of this.

4.4 Exception procedures

If, after sending an IST command to a VPLMN, the HPLMN does not receive a positive acknowledgement from the VPLMN indicating receipt and comprehension of the IST command, the HPLMN should assume that the VPLMN does not support IST.

5 IST for PS services

5.1 Description

It shall be possible for the Home Public Land Mobile Network (HPLMN) to instruct any PLMN to terminate immediately all PS activities of a specified HPLMN subscriber.

It shall be possible for the HPLMN to instruct any PLMN to terminate immediately the activities of a specified HPLMN subscriber associated with one or several specified access points that are within the HPLMN or that are within the roamed to Visited PLMN (VPLMN).

Immediate Service Termination (IST) is controlled by the HPLMN and can be triggered only by the HPLMN.

A subscriber shall be specified by the International Mobile Subscriber Identity (IMSI).

5.2 Applicability

This network feature applies to all PS activities of the subscriber.

5.3 Normal procedure

The HPLMN will direct a request for IST for a particular subscriber to the current Visited PLMN (VPLMN) of that subscriber.

NOTE: In practice, the IST command will be sent to the individual Serving GPRS Support Node (SGSN) at which the subscriber is registered, and not to "VPLMNs" as a whole (but such detail is for Stage 2 and not Stage 1).

The VPLMN shall confirm receipt of the IST command.

The VPLMN shall then terminate all activities of that subscriber in the VPLMN or all activities associated with the specified access points. The charging records of PS services terminated by the operation of IST shall contain a field indicating that the service terminated because of the operation of IST.

The VPLMN shall then confirm to the HPLMN that all subscriber activities or subscriber activities associated with the specified access points in that VPLMN have been terminated.

If the specified subscriber has no activities in the VPLMN then the VPLMN shall inform the HPLMN of this.

5.4 Exception procedures

If, after sending an IST command to a VPLMN, the HPLMN does not receive a positive acknowledgement from the VPLMN indicating receipt and comprehension of the IST command, the HPLMN should assume that the VPLMN does not support IST.

~~5 Security requirements between HPLMN and VPLMN~~

~~It is expected that there will be a need for authentication and confidentiality of the communication made between PLMNs.~~

~~These issues are for study under other work items within the SMG10 work programme.~~

Annex A (Informative): Normal procedure

IST has been defined to work in co-ordination with existing GSM and UMTS facilities.

1) The HPLMN changes the subscriber's entry in the HLR to prevent the resumption of activity in the HPLMN and VPLMN after IST has terminated all subscriber activity.

2) The HPLMN sends a MAP "Cancel Location" command to the VLR to prevent the resumption of activity by the subscriber within the VPLMN without reference to the HPLMN.

3) The HPLMN sends an IST command to the VPLMN, (possibly a specific MAP message).

4) The VPLMN confirms receipt and comprehension of the command.

5) The VPLMN terminates all activities of the subscriber indicated by the command.

6) The VPLMN confirms to the HPLMN that all subscriber activities have been terminated.