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CR-Form-v7

CHANGE REQUEST

⌘	**33.107** CR **CRNum**	⌘ **rev**	**1**	⌘	Current version:	**5.4.0**	⌘

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

Proposed change affects: UICC apps⌘ ☐   ME ☐   Radio Access Network ☐   Core Network **X**

Title: ⌘	Essential correction to the LI events generated during inter-SGSN RAU, when PDP context is active

Source: ⌘	S3 LI

Work item code: ⌘	Security		**Date:** ⌘	13.11.2002

Category: ⌘	**F**		**Release:** ⌘	REL-5

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:** ⌘ | Currently, 33.107 and 33.108 do not offer a proper matching of events generated once an inter-SGSN RAU is underway and for a target, which has at least one PDP context active. In case PLMN changes, LEMF would expects a BEGIN record for 'Start of interception with PDP context active' event. Otherwise, the CONTINUE record would be more appropriate.The problem may be solved either in an intercepting GSN, or in a DF/MF.

It is proposed to leave to solution to the implementation. However, in case vendor opts to make the decision in DF/MF, the DF/MF has to receive certain information from the intercepting GSN. The CR proposes to insert an optional information element into the 'Start of interception with PDP context active event', the 'Old Location Information'. |
|---|---|

Summary of change: ⌘	Remove a restriction to send an 'Start of interception with PDP context active' event in case of inter-SGSN change. Besides, a new optional information element, the Old Location Information' is inserted into the 'Start of interception with PDP context active event'.

Consequences if not approved: ⌘	Misalignment of 33.107 with 33.108, ambiguity and inconsistent implementations.

Clauses affected: ⌘	7; 7.4.4; 7.4.9

Other specs affected: ⌘	Y	N		⌘	
	X		Other core specifications	⌘	3GPP TS 33.108
		X	Test specifications		
		X	O&M Specifications		

Other comments: ⌘	

7   Invocation of Lawful Interception for GSN Packet Data services

Figure shows the extract from the reference configuration which is relevant for the invocation of the Lawful Interception of the packet data GSN network.
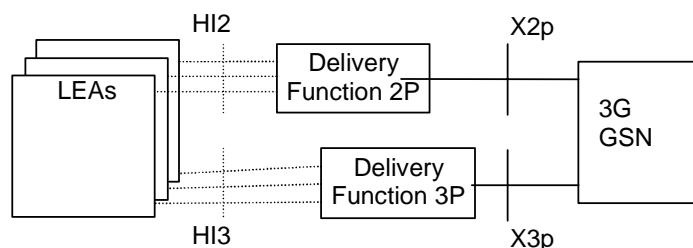

Figure 18: Functional model for Packet Data GSN Network Lawful Interception invocation

The HI2 and HI3 interfaces represent the interfaces between the LEA and two delivery functions. Both interfaces are subject to national requirements. They are included for completeness, but are beyond the scope of this specification. The delivery functions are used:

-    to convert the information on the X2-interface to the corresponding information on the HI2 interface;

-    to distribute the intercept related information to the relevant LEA(s);

-    to distribute the intercept product to the relevant LEA(s).

In case a Packet Data communication is selected based on several identities (MSISDN, IMSI, IMEI,) of the same target, the 3G SGSN and/or, per national option 3G GGSN will deliver CC and IRI only once to the DF2 and DF3. DF2 and DF3 will then distribute the information to the relevant LEAs.

For the delivery of the CC and IRI the 3G SGSN and/or, per national option 3G GGSN provides correlation number and target identity to the DF2 and DF3 which is used there in order to select the different LEAs where the product shall be delivered.

The correlation number is unique in the whole PLMN and is used to correlate CC with IRI and the different IRI's of one PDP context.

The correlation number shall be generated by using existing parameters related to the PDP context.

   NOTE: If interception has been activated for both parties of the Packet Data communication both CC and IRI will be delivered for each party as separate intercept activity.

In case of location dependent interception:

-    for each target, the location dependency check occurs at each Packet Data session establishment or release and at each Routing Area (RA) update to determine permanently the relevant IAs (and deduce, the possible LEAs within these IAs),

-    concerning the IRI:

     -    when an IA is left, a Mobile Station Detach event is sent when changing servicing 3 G GSNs or a RA update event is sent when changing IAs inside the same servicing 3G SGSN to DF2;

     -    when a new IA is entered a RA update event is sent to DF2 and, optionally, a "Start of ~~i~~Interception with ~~Active~~ PDP ~~C~~context active" event for each PDP context;

-    concerning the CC, when crossing IAs, the CC is not sent anymore to the DF3 of the old IA but sent to the DF3 of the new IA.

Both in case of location dependent and location independent interception:

"Start of interception with ~~active~~ PDP context active" event is sent by the new SGSN if an Inter-SGSN RA update procedure ,which involves different PLMNs, takes place for a target, which has at least one active PDP context.

> NOTE: An SGSN can differentiate "Inter PLMN" type of Inter-SGSN RA update procedure from "Intra PLMN" type of Inter-SGSN RA update procedure by inspecting the old RAI parameter, which is being received by the SGSN as part of the procedure (see 3GPP TS 23.060, section 6.9.1.2.2 and 3GPP TS 23.003, section 4.2).

Optionally, it is possible to send "Start of interception with PDP context active" for all cases of inter- SGSN RA update when at least one PDP context is active.

∗∗∗∗∗∗∗ Next Modification ∗∗∗∗∗∗∗

7.3.1 X2-interface

The following information needs to be transferred from the 3G GSN or the HLR to the DF2 in order to allow a DF2 to perform its functionality:

- target identity (MSISDN, IMSI, IMEI);

- events and associated parameters as defined in section 7.3.2 and 7.4 may be provided;

- the target location (if available) or the IAs in case of location dependent interception;

- Correlation number;

- Quality of Service (QoS) identifier.

The IRI should be sent to DF2 using a reliable transport mechanism.

7.3.2 Structure of the events

There are eight different events in which the information is sent to the DF2 if this is required. Details are described in the following section. The events for interception are configurable (if they are sent to DF2) in the 3G GSN or the HLR and can be suppressed in the DF2.

The following events are applicable to 3G SGSN:

- Mobile Station Attach;

- Mobile Station Detach;

- PDP context activation;

- Start of intercept with PDP context active;

- PDP context modification;

- PDP context deactivation;

- RA update;

- SMS.

> NOTE: 3G GGSN interception is a national option. Location information may not be available in this case.

The following events are applicable to the 3G GGSN:

- - PDP context activation;

- - PDP context modification;

- - PDP context deactivation;

- - Start of interception with PDP context active.

The following events are applicable to the HLR:

- - Roaming.

A set of fields as shown below is used to generate the events. The events transmit the information from 3G GSN or HLR to DF2. This set of fields as shown below can be extended in the 3G GSN or HLR, if this is necessary as a national option. DF2 can extend this information if this is necessary as a national option e.g. a unique number for each surveillance warrant.

Table 2: Information Events for Packet Data Event Records

Observed MSISDN MSISDN of the target subscriber (monitored subscriber).
Observed IMSI IMSI of the target subscriber (monitored subscriber).
Observed IMEI IMEI of the target subscriber (monitored subscriber),it shall be checked for each activation over the radio interface.
Event type Description which type of event is delivered: MS attach, MS detach, PDP context activation, Start of intercept with PDP context active, PDP context deactivation, SMS, Serving System, Cell and/or RA update.
Event date Date of the event generation in the 3G GSN or the HLR.
Event time Time of the event generation in the 3G GSN or the HLR. Timestamp shall be generated relative to GSN internal clock.
PDP address The PDP address of the target subscriber. Note that this address might be dynamic.
Access Point Name The APN of the access point. (Typically the GGSN of the other party).
Location Information Location Information is the Service Area Identity (SAI), RAI and/or location area identity that is present at the GSN at the time of event record production.
Old Location Information Location Information of the subscriber before Routing Area Update
PDP Type The used PDP type.
Correlation Number The correlation number is used to correlate CC and IRI.
SMS The SMS content with header which is sent with the SMS-service. The header also includes the SMS-Centre address.
Network Element IdentifierUnique identifier for the element reporting the ICE.
Failed attach reason Reason for failed attach of the target subscriber.
Failed context activation reason Reason for failed context activation of the target subscriber.
IAs The observed Interception Areas.
Session Initiator The initiator of the PDP context activation, deactivation or modification request either the network or the 3G MS.
Initiator SMS indicator whether the SMS is MO or MT.
Deactivation / termination cause The termination cause of the PDP context.
QoS This field indicates the Quality of Service associated with the PDP Context procedure.
Serving System Address Information about the serving system (e.g. serving SGSN number or serving SGSN address).

7.4 Packet Data related events

7.4.1 Mobile Station Attach

For attach an attach-event is generated. When an attach activation is generated from the mobile to servicing 3G G SN this event is generated. These fields will be delivered to the DF2 if available:

Observed MSISDN
Observed IMSI
Observed IMEI
Event Type
Event Time
Event Date
Network Element Identifier
Location Information
Failed attach reason
IAs (if applicable)

7.4.2 Mobile Station Detach

For detach a detach-event is generated, this is for the common (end) detach. These fields will be delivered to the DF2 if available:

Observed MSISDN
Observed IMSI
Observed IMEI
Event Type
Event Time
Event Date
Network Element Identifier
Location Information
IAs (if applicable)

7.4.3 Packet Data PDP context activation

For PDP context activation a PDP context activation-event is generated. When a PDP context activation is generated from the mobile to 3G GSN this event is generated. These fields will be delivered to the DF2 if available:

Observed MSISDN
Observed IMSI
Observed IMEI
PDP address of observed party
Event Type
Event Time
Event Date
Correlation number
Access Point Name
PDP Type
Network Element Identifier
Location Information
Failed context activation reason
IAs (if applicable)
Session Initiator (optional)

7.4.4   Start of interception with PDP context active

This event will be generated if interception for a target is started and if the target has at least one PDP context active. If more then one PDP context are open for each of them an event record is generated. These fields will be delivered to the DF2 if available:

Observed MSISDN
Observed IMSI
Observed IMEI
PDP address of observed party
Event Type
Event Time
Event Date
Correlation number
Access Point Name
PDP Type
Network Element Identifier
Location Information
Old Location Information (optional)
IAs (if applicable)

Presence of the optional Old Location Information field indicates that PDP context was already active~~te~~, and being intercepted. However, the absence of this information does not imply that interception has not started in the old location SGSN for an active PDP context.

7.4.5   Packet Data PDP context deactivation

At PDP context deactivation a PDP context deactivation-event is generated. These fields will be delivered to the DF2 if available:

Observed MSISDN
Observed IMSI
Observed IMEI
PDP address of observed party
Event Type
Event Time
Event Date
Correlation number
Access point name
Network Element Identifier
Location Information
IAs (if applicable)
Deactivation cause

7.4.6   RA update

For each RA update an update-event with the fields about the new location is generated. These fields will be delivered to the DF2 if available:

Observed MSISDN
Observed IMSI
Observed IMEI
Event Type
Event Time
Event Date
Network Element Identifier
Location Information
IAs (if applicable)

7.4.7   SMS

For MO-SMS the event is generated in the 3G SGSN. Dependent on national requirements, event generation shall occur either when the 3G SGSN receives the SMS from the target MS or when the 3G SGSN receives notification that the SMS-Centre successfully receives the SMS; for MT-SMS the event is generated in the 3G SGSN. Dependent on national requirements, event generation shall occur either when the 3G SGSN receives the SMS from the SMS-Centre or when the 3G SGSN receives notification that the target MS successfully received the message. This fields will be delivered to the DF2 if available:

Observed MSISDN
Observed IMSI
Observed IMEI
Event Type
Event Time
Event Date
Network Element Identifier
Location Information
SMS
Initiator
IAs (if applicable)

7.4.8   Packet Data PDP context modification

This event will be generated if interception for a target is started and if the target has at least one PDP context active. These fields will be delivered to the DF2 if available:

Observed MSISDN
Observed IMSI
Observed IMEI
PDP address of observed party
Event Type
Event Time
Event Date
Correlation number
Access Point Name
PDP Type
Network Element Identifier
Location Information
IAs (if applicable)
Session Initiator
QoS

7.4.9   Serving System

The Serving System report event is generated at the HLR, when the HLR has detected that the intercept subject has roamed. The fields will be delivered to the DF2 if available:

Observed MSISDN
Observed IMSI
Observed IMEI
Event Type
Event Time
Event Date
Network Element Identifier
Serving System Address