Packet Activity IRI Reporting – TS 33.107

Spec: 3GPP TS 33.107v5.3.0

Release: Rel-5

Source: Telcordia Technologies and Federal Bureau of
           Investigation

Document for: Discussion & Action.

Summary

Similar to wireline systems, wireless systems establish a communication path across the accessing system from the subject's device to a network before communication between a subject and an associate can begin. Currently, the establishment or release of this communication path is reported via the BEGIN and END Intercept-Related Information (IRI) records, respectively. These IRI records identify when an intercept subject has established or ended the ability to communicate over a communication path. After a communication path is established by a wireless accessing system between the subject device(s) and the network, the interception subject can communicate with an associate over the connecting path.

Packet activity detection and IRI reporting is a mechanism for identifying the IRI associated with packets sent by or to the interception subject. Currently TS 33.107 and 33.108 do not support such a capability. In general, there are two general forms of interception orders, one which entitles LEAs to receive IRI and another that entitles the receipt of both IRI and communication content.   In performing IRI type interception, one of the key pieces of information is the identification of the communicating parties. Right now TS 33.108 will not provide this information (it will only report that a PDP context has been setup or not and the network endpoint of the PDP context). It will not identify the IRI for the communicating parties of the packets being exchanged.

When delivery of only IRI is authorized and in the absence of packet activity detection and IRI reporting, LEAs will be missing critical information to which they are entitled. The omission from TS 33.107 and TS 33.108 of any capability for reporting IRI associated with packets (e.g., IP addresses, protocol, port numbers) sent or received by the interception subject (either on a per-packet or on an aggregate basis) fails to meet law enforcement's legitimate needs for acquiring lawfully authorized information.

This contribution provides proposed changes to TS 33.107 to support the Packet Activity Dection and IRI reporting capability.

CR-Form-v7

CHANGE REQUEST

⌘ **33.107 CR CRNum** ⌘**rev** **-** ⌘ Current version: **5.3.0** ⌘

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: ⌘	Changes to TS 33.107 to support Packet Activity IRI Reporting.	
Source: ⌘	Telcordia Technologies and Federal Bureau of Investigation	
Work item code:⌘	Security	**Date:** ⌘ 24/09/2002
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: ⌘	To meet LEA needs to identify the IRI for the communicating parties of the packets being exchanged. Currently this LEA need has not been met.
Summary of change:⌘	Text is being added to the specification to address the need to support the capability to detect and report IRI related to packets received from or sent to the interception subject.
Consequences if not approved: ⌘	The standard will not be able to support lawful interception needs that require identification of all IRI.

Clauses affected: ⌘	7.3, 7.3.2, and 7.4.10

	Y	N		
Other specs affected: ⌘	X		Other core specifications ⌘	TS 33.108
			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) 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.
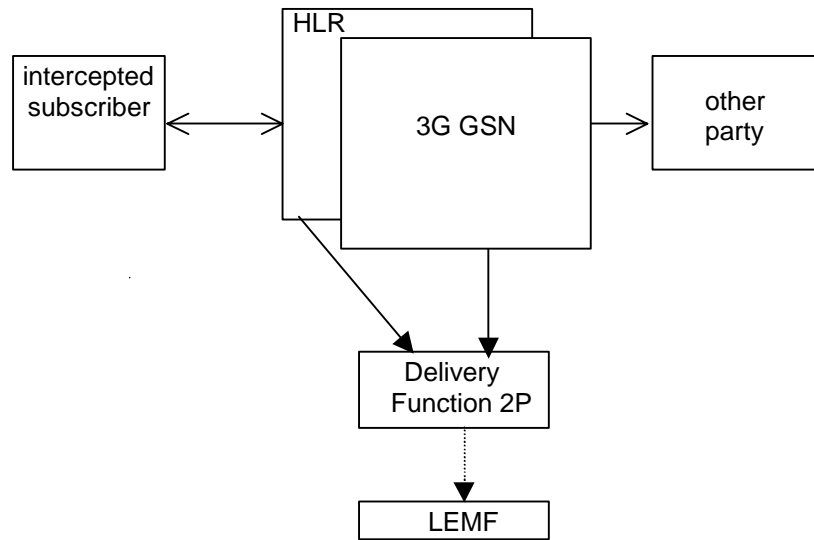
7.3 Provision of Intercept Related Information

Intercept Related Information (Events) are necessary at the Mobile Station Attach, Mobile Station Detach, PDP Context Activation, Start of intercept with PDP context active, PDP Context Deactivation, RA update, Packet Activity IRI reporting (PAIR), and SMS events.

Figure 21 shows the general case of transfer of intercept related information to the DF2. If an event for / from a mobile subscriber occurs, the 3G GSN sends the relevant data to the DF2.

See section 7A for multi-media Intercept Related Information produced at the CSCF.

Figure 21: Provision of Intercept Related Information

Figure 22 shows how IRI will be reported for the packet activity detection capability (i.e., transfer of intercept related information to the DF2 for packet activity IRI reporting). In this case the 3G GSN simply detects the transfer of packets, intercepts the packets and delivers the intercepted packets to the DF3 as contents. DF3 in turn performs the IRI generation for packet activity detection and reporting and transfers the IRI to the DF2 via the X4-interface (see Section 7.5).
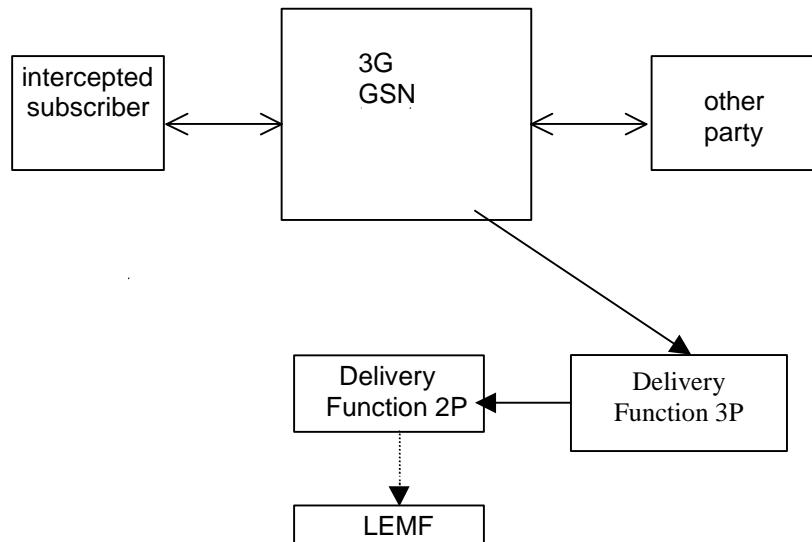
Figure 22: Provision of Intercept Related Information for Packet Activity IRI Reporting

*** SECOND CHANGE ***

7.3.2   Structure of the events

There are ~~eight~~ tendifferent 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, or the DF3 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.

1 **The following events are applicable to the HLR:**

2 - Roaming.

3 **The following events are applicable to the DF3:**

4 - Packet Activity IRI Reporting (PAIR).

5

6 A set of fields as shown below is used to generate the events. The events transmit the information from the 3G GSN, or
7 HLR, or DF3 to DF2. This set of fields as shown below can be extended in the 3G GSN, or HLR, or DF3, if this is
8 necessary as a national option. DF2 can extend this information if this is necessary as a national option e.g. a unique
9 number for each surveillance warrant.

10 **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, PAD-IR.
Event date Date of the event generation in the 3G GSN, or the HLR, or DF3.
Event time Time of the event generation in the 3G GSN, or the HLR, or DF3.
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.
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 Identifier Unique 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).
Packet Count Count of the number of packets detected over the packet activity reporting interval.
Packet Activity Report Type

The packet activity report type indicates the reason (e.g., count threshold reached) for generation of the packet activity report
Originating Address Address of the source of the IP packet.
Destination Address Address of the destination of the IP packet.
Transport Protocol Information The transport protocol information includes the set of observed triplets (transport protocol [e.g., TCP], originating transport port number, and destination transport port number) over the packet activity reporting interval.

*** THIRD CHANGE ***

7.4.10   PAD-IR

The Packet Activity IRI reporting event is initiated at the 3G GSN as content interception. The actual event information is generated by the DF3 and provides a summary of the interception subject packets detected over a given time interval. The fields will be delivered to the DF2, if available, using the DF2 to DF3 communications link described in Section 7.5. Note that the following information would be considered DF2 to DF3 data:

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
Packet Count (if applicable)
Packet Activity Report Type (if applicable)
Originating Address (if applicable)
Destination Address (if applicable)
Transport Protocol Information (if applicable)
IAs (if applicable)

Page: 2
[H1] Document numbers are allocated by the Working Group Secretary.

Page: 2
[H2] Enter the specification number in this box. For example, 04.08 or 31.102. Do not prefix the number with anything . i.e. do not use "TS", "GSM" or "3GPP" etc.

Page: 2
[H3] Enter the CR number here. This number is allocated by the 3GPP support team. It consists of at least three digits, padded with leading zeros if necessary.

Page: 2
[H4] Enter the revision number of the CR here. If it is the first version, use a "-".

Page: 2
[H5] Enter the version of the specification here. This number is the version of the specification to which the CR will be applied if it is approved. Make sure that the latest version of the specification (of the relevant release) is used when creating the CR. If unsure what the latest version is, go to http://www.3gpp.org/specs/specs.htm.

Page: 2
[H6] For help on how to fill out a field, place the mouse pointer over the special symbol closest to the field in question.

Page: 2
[H7] Mark one or more of the boxes with an X.

Page: 2
[H8] SIM / USIM / ISIM applications.

Page: 2
[H9] Enter a concise description of the subject matter of the CR. It should be no longer than one line. Do not use redundant information such as "Change Request number xxx to 3GPP TS xx.xxx".

Page: 2
[H10] Enter the source of the CR. This is either (a) one or several companies or, (b) if a (sub)working group has already reviewed and agreed the CR, then list the group as the source.

Page: 2
[H11] Enter the acronym for the work item which is applicable to the change. This field is mandatory for category F, B & C CRs for release 4 and later. A list of work item acronyms can be found in the 3GPP work plan. See http://www.3gpp.org/ftp/information/work_plan/ .
The list is also included in a MS Excel file included in the zip file containing the CR cover sheet template.

Page: 2
[H12] Enter the date on which the CR was last revised. Format to be interpretable by English version of MS Windows ® applications, e.g. 19/02/2002.

Page: 2
[H13] Enter a single letter corresponding to the most appropriate category listed below. For more detailed help on interpreting these categories, see the Technical Report 21.900 "TSG working methods".

Page: 2
[H14] Enter a single release code from the list below.

Page: 2
[H15] Enter text which explains why the change is necessary.

Page: 2

[H16] Enter text which describes the most important components of the change. i.e. How the change is made.

Page: 2

[H17] Enter here the consequences if this CR was to be rejected. It is necessary to complete this section only if the CR is of category "F" (i.e. correction).

Page: 2

[H18] Enter the number of each clause which contains changes.

Page: 2

[H19] Tick "yes" box if any other specifications are affected by this change. Else tick "no". You MUST fill in one or the other.

Page: 2

[H20] List here the specifications which are affected or the CRs which are linked.

Page: 2

[H21] Enter any other information which may be needed by the group being requested to approve the CR. This could include special conditions for it's approval which are not listed anywhere else above.

Page: 2

[H22] This is an example of pop-up text.