

Title: **Errors in NP-030054 which need resolution**

Source: **Ericsson**

Attachments: Revised CR to 24.229 on Signalling PDP Context Indication to Core Network

Included is a revised version of the CR to 24.229 according to Ericsson understanding of the relationship between the 2 flags.

Terms used:

- IMS Signalling flag: the one defined via the PCO
- Signalling indication flag: defined via the QoS IE and new addition

24.229 CR

- Current specification combines the two flags as only option and changes existing definition of what is a general purpose PDP context.
- It also makes the QoS signalling indication only existing with the IMS signalling flag. We believe the RAN and SA2 CRs do not do that.
- It does not allow the operator policy based handling of the QoS as described in the 23.060 CR last SA2 meeting which allows explicit handling of the Signalling indication (accept/reject etc.) without any interaction with IMS signalling flag.
- It completely eliminates the possibility from the UE to use IMS signalling flag to restrict traffic without actually getting or needing higher priority QoS. That is NOT correction, rather change of functionality for Rel 5 IMS.
- This IMS Signalling flag is transferred/marked in the Charging record from the GGSN and that today is independent of the Signalling indication. If we don't allow the IMS signalling flag to be set independent of QoS one then we do not have a general handling of the filters and charging.
- IMS signalling flag puts filters in GGSN (static) that apply independent of the QoS as such the current text is not correct.
- We do not have UE behaviour specified when the GGSN rejects/downgrades. Will/Can UE reattempt the session without the QoS and if so then we need appropriate code for the UE going from GGSN via GTP. Our understanding is that the UE should be able to attempt IMS session with only IMS signalling flag set and thus may not get prioritised handling but do get the static filters applied to it.
- The signalling indication can be applied to other services like RTSP and we would like that not precluded. Even though general-purpose PDP context is defined in IMS specs, wrong definition of it can prevent in future for this to be reused.
- Original CR from CN1 did not change the note below, which makes the CR inconsistent with what was added.
- This is our proposal, but depending on what happens in SA2, further changes are to be expected for 24.229 as well.

CHANGE REQUEST

✎
24.229 CR 321
✎
rev
2
✎
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

Title:	✎ Signalling PDP Context Indication to Core Network		
Source:	✎ Ericsson Vodafone		
Work item code:	✎ IMS-CCR	Date:	✎ 03/02/2003
Category:	✎ F	Release:	✎ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	R96	(GSM Phase 2) (Release 1996)
	A (corresponds to a correction in an earlier release)	R97	(Release 1997)
	B (addition of feature),	R98	(Release 1998)
	C (functional modification of feature)	R99	(Release 1999)
	D (editorial modification)	Rel-4	(Release 4)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .	Rel-5	(Release 5)
		Rel-6	(Release 6)

Reason for change:	✎ Currently the RAN cannot determine the difference between Interactive traffic and IMS signalling traffic. This may limit the reliability/speed of IMS signalling and have other negative effects. In order for the RAN to determine that the traffic is IMS signalling, the core network needs to know at PDP context activation time. In order to achieve this, a flag is added to the QoS IE in the UE to CN signalling. The GPRS procedures in 24.229 need to be aligned with this.
Summary of change:	✎ It is stated that when requesting a dedicated signalling PDP context, the UE shall set the Signalling Indication flag in the QoS IE.
Consequences if not approved:	✎ IMS signalling may be handled poorly leading to a poor customer perception of IMS.

Clauses affected:	✎ 9.2.1										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;"></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;"></td> </tr> </table>	Y	N	Y						Other core specifications	✎ 25.413, 23.107 CR134r2, 24.008 CR738r2
Y	N										
Y											
		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.

9.2.1 PDP context activation and P-CSCF discovery

Prior to communication with the IM CN subsystem, the UE shall:

- a) perform a GPRS attach procedure;
- b) establish a PDP context used for SIP signalling according to the APN and GGSN selection criteria described in 3GPP TS 23.060 [4] and 3GPP TS 27.060 [10A]. This PDP context shall remain active throughout the period the UE is connected to the IM CN subsystem, i.e. from the initial registration and at least until the deregistration. As a result, the PDP context provides the UE with information that makes the UE able to construct an IPv6 address;

The UE shall choose one of the following options when performing establishment of this PDP context:

- I. A dedicated PDP context for ~~SIP~~IMS signalling:
 1. [A dedicated PDP context for IMS signalling without special priority:](#)

The UE shall indicate to the GGSN that this is a PDP context intended to carry IM CN subsystem-related signalling only by setting the IM CN Subsystem Signalling Flag.

The UE may also use this PDP context for DNS and DHCP signalling according to the static packet filters as described in 3GPP TS 29.061 [11];
 2. [A dedicated PDP context for IMS signalling with prioritised handling](#)

[In order to request a dedicated PDP context for IMS signalling with prioritised handling over the radio interface, the UE shall set the IM CN Subsystem Signalling Flag in the PCO IE and set the Signalling Indication flag in the OoS IE.](#)

[The UE may also use this PDP context for DNS and DHCP signalling according to the static packet filters as described in 3GPP TS 29.061 \[11\].](#)

[The Signalling Indication flag is used to indicate to the SGSN and GGSN that the PDP context should be optimised for IMS signalling.](#)

[If the Signalling Indication Flag is set, then based on the operator policy the PDP context may be accepted or not by the GGSN. The handling of the operator policy and treatment of the PDP context towards the UE is described in 3GPP TS 29.061 \[11\].](#)
- II. A general-purpose PDP context:

The UE may decide to use a general-purpose PDP Context to carry IM CN subsystem-related signaling. The UE shall indicate to the GGSN that this is a general-purpose PDP context by not setting the IM CN Subsystem Signalling Flag.

The UE may ~~carry~~transmit both signalling and media on the general-purpose PDP context.

[If the Signalling Indication Flag is set for a general-purpose PDP Context, then based on the operator policy the PDP context may be accepted or not by the GGSN. The handling of the operator policy and treatment of the PDP context towards the UE is described in 3GPP TS 29.061 \[11\].](#)

The UE indicates the IM CN Subsystem Signalling Flag to the GGSN within the Protocol Configuration Options IE of the ACTIVATE PDP CONTEXT REQUEST message or ACTIVATE SECONDARY PDP CONTEXT REQUEST message. Upon successful signalling PDP context establishment the UE receives an indication from GGSN in the form of IM CN Subsystem Signalling Flag within the Protocol Configuration Options IE. If the flag is not received, the UE shall consider the PDP context as a general-purpose PDP context.

NOTE 1: Indication of successful signalling PDP context establishment is needed for the case when the GGSN does not receive the IM CN Subsystem Signalling Flag from the SGSN. Consequently, it acknowledges a request for activating a PDP Context without an IM CN Subsystem Signalling Flag. The UE will then regard it as a general-purpose PDP context instead of as a dedicated PDP context for SIP signalling as initially requested by the UE.

~~Detailed description of how~~The coding of the IM CN Subsystem Signalling Flag ~~is carried~~ in the Protocol Configuration Options IE and of the Signalling Indication flag in the QoS IE is ~~provided~~ specified in 3GPP TS 24.008 [8].

NOTE 2: A general-purpose PDP Context may carry both IM CN subsystem signaling and media, in case the media does not need to be authorized by Service Based Local Policy mechanisms defined in 3GPP TS 29.207 [12] and the media stream is not mandated by the P-CSCF to be carried in a separate PDP Context.

c) acquire a P-CSCF address(es).

The methods for P-CSCF discovery are:

I. Employ Dynamic Host Configuration Protocol for IPv6 (DHCPv6) draft-ietf-dhc-dhcpv6 [40], the DHCPv6 options for SIP servers draft-ietf-sip-dhcpv6 [41] and if needed DNS after PDP context activation.

The UE shall either:

- in the DHCP query, request a list of SIP server domain names of P-CSCF(s) and the list of Domain Name Servers (DNS); or
- request a list of SIP server IPv6 addresses of P-CSCF(s).

II. Transfer P-CSCF address(es) within the PDP context activation procedure.

The UE shall indicate the request for a P-CSCF address to the GGSN within the Protocol Configuration Options IE of the ACTIVATE PDP CONTEXT REQUEST message or ACTIVATE SECONDARY PDP CONTEXT REQUEST message.

If the GGSN provides the UE with a list of P-CSCF IPv6 addresses in the ACTIVATE PDP CONTEXT ACCEPT message or ACTIVATE SECONDARY PDP CONTEXT ACCEPT message, the UE shall assume that the list is prioritised with the first address within the Protocol Configuration Options IE as the P-CSCF address with the highest priority.

The UE can freely select method I or II for P-CSCF discovery. In case several P-CSCF addresses are provided to the UE, the selection of P-CSCF address shall be performed according to the resolution of host name as indicated in RFC 3261 [26]. If sufficient information for P-CSCF address selection is not available, selection of the P-CSCF address by the UE is implementation specific.

If the UE is designed to use I above, but receives P-CSCF address(es) according to II, then the UE shall either ignore the received address(es), or use the address(es) in accordance with II, and not proceed with the DHCP request according to I.

The UE may request a DNS Server IPv6 address(es) via draft-ietf-dhc-dhcpv6-26 [40] or by the Protocol Configuration Options IE when activating a PDP context according to 3GPP TS 27.060 [10A].

Detailed description of how the request and response for IPv6 address(es) for DNS server(s) and list of P-CSCF address(es) are carried in the Protocol Configuration Options IE is provided in 3GPP TS 24.008 [8].