3GPP TSG CN Plenary Meeting #18 **NP-020560**
4th - 6th December 2002. New Orleans, USA.

Source: **TSG CN WG 1**

Title: **CRs to Rel-5 on Work Item IMS-CCR towards 24.229,- pack 3**

Agenda item: **8.1**

Document for: **APPROVAL**

Introduction:

This document contains **10** CRs, **Rel-5** Work Item **"IMS-CCR"**, that have been agreed by **TSG CN WG1**, and are forwarded to TSG CN Plenary meeting #18 for approval.

Spec	CR #	Rev	CAT	Rel	Tdoc Title	Meeting	TDoc #	C_Version
24.229	217	1	F	Rel-5	S-CSCF handling of subscription to the users registration-state event	N1-26	N1-022086	5.2.0
24.229	218	1	F	Rel-5	Determination of MO or MT in I-CSCF	N1-26	N1-022102	5.2.0
24.229	220		F	Rel-5	Definition of the NAI and RTCP abbreviations	N1-26	N1-021944	5.2.0
24.229	222	4	F	Rel-5	Go related error codes in the UE	N1-27	N1-022495	5.2.0
24.229	223	1	F	Rel-5	Clarifications on CCF/ECF addresses	N1-26	N1-022120	5.2.0
24.229	225	2	F	Rel-5	Clarifications on dedicated PDP Context for IMS signaling	N1-26	N1-022156	5.2.0
24.229	228	3	F	Rel-5	Clarifications on the use of charging correlation information	N1-27	N1-022425	5.2.0
24.229	232	1	F	Rel-5	Expires information in REGISTER response	N1-26	N1-022095	5.2.0
24.229	235	2	C	Rel-5	Indication of successful establishment of Dedicated Signalling PDP context to the UE	N1-26	N1-022129	5.2.0
24.229	237		F	Rel-5	P-CSCF sending 100 (Trying) Response for reINVITE	N1-26	N1-021998	5.2.0

3GPP TSG-CN1 Meeting #26 ***Tdoc N1-022086***
Miami Beach, Florida, USA, 23 – 27 September 2002

CR-Form-v7

CHANGE REQUEST

⌘ **24.229** **CR** **217** ⌘ **rev** **1** ⌘ Current version: **5.2.0** ⌘

*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:	⌘	S-CSCF handling of subscription to the users registration-state event
Source:	⌘	Lucent Technologies, Siemens
Work item code:	⌘	IMS-CCR
Date:	⌘	15/09/2002
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:	⌘	Current text will not insure that the authenticated user can only subscribe to its own registration-state event.
Summary of change:	⌘	Additional text that indicates that the S-CSCF will insure that the authenticated user can only subscribe to its own registration-state event.
Consequences if not approved:	⌘	Deficient specification.

Clauses affected:	⌘	5.4.2.1.1

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

Other comments:	⌘	Revision 1 removes the restriction on subscription to registration-state event that was proposed in original CR.

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.

5.4.2.1.1 Subscription to the event providing registration state

When an incoming SUBSCRIBE request addressed to S-CSCF arrives containing the Event header with the reg event package, the S-CSCF shall:

1) check if, based on the local policy, the request was generated by an user who is authorised to subscribe to this user registration states, and;

NOTE 1: The user and the P-CSCF to which this user is attached to will always be able to subscribe to the registration state of this users. Additionally the subscription to this users registration state might e.g. also be allowed for specific Application Servers.

2) generate a 2xx response acknowledging the SUBSCRIBE request and indicating that the authorised subscription was successful. Furthermore, the response shall include:

- an Expires header which either contains the same or a decreased value as the Expires in SUBSCRIBE request; and
- a Contact header which is an identifier generated within the S-CSCF that will help to correlate refreshes for the SUBSCRIBE.

Afterwards the S-CSCF shall perform the procedures for notification about registration state as described in subclause 5.4.2.1.2.

3GPP TSG-CN1 Meeting #26 ***Tdoc N1-022102***
Miami Beach, Florida, USA, 23 – 27 September 2002

CR-Form-v7

CHANGE REQUEST

⌘ **24.229** **CR** **218** ⌘ **rev** **1** ⌘ Current version: **5.2.0** ⌘

*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:	⌘	Determination of MO or MT in I-CSCF
Source:	⌘	Lucent Technologies
Work item code:	⌘	IMS-CCR
Date:	⌘	15/09/2002
Category:	⌘	**F**
Release:	⌘	*Rel-5*

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R96	*(Release 1996)*
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R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The RFC3261 does not allow header parameter in SIP URL placed in the Record-Route and Route headers.
Summary of change:	⌘	Removal of header parameter as direction mechanissm in I-CSCF. In addition, removal of some redundant text.
Consequences if not approved:	⌘	Incorrect usage of SIP.

Clauses affected:	⌘	5.3.2.1 and 5.3.3.1			
		Y	**N**		
Other specs affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Revision 1 introduces changes requested by the CN1.			

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5.3.2 Further initial requests

5.3.2.1 Normal procedures

The I-CSCF may behave as a stateful proxy for further initial requests.

When the I-CSCF receives an initial request, that does not contain a Route header, the I-CSCF shall start the user location query procedure to the HSS as specified in 3GPP TS 29.228 [14] for the called user, indicated in the Request-URI. Prior to performing the user location query procedure to the HSS, the I-CSCF decides which HSS to query, possibly as a result of a query to the Subscription Locator Functional (SLF) entity as specified in 3GPP TS 29.228 [14].

Upon successful user location query, when the response contains the URL of the assigned S-CSCF, the I-CSCF shall:

~~1) if present, remove its own SIP URL from the topmost Route header;~~

1~~2~~) insert the URL received from the HSS as the topmost Route header;

2~~3~~) store the value of the icid parameter received in the P-Charging-Vector header and retain the icid parameter in the P-Charging-Vector header. If no icid parameter was found, then create a new, globally unique value for the icid parameter and insert it into the P-Charging-Vector header;

3~~4~~) apply the procedures as described in subclause 5.3.3 if topology hiding is required; and

4~~5~~) forward the request based on the topmost Route header.

Upon successful user location query, when the response contains information about the required S-CSCF capabilities, the I-CSCF shall:

1) select a S-CSCF according to the method described in 3GPP TS 29.228 [14];

2) insert the URL of the selected S-CSCF as the topmost Route header field value;

3) execute the procedure described in step 2 and 3 in the above paragraph (upon successful user location query, when the response contains the URL of the assigned S-CSCF); and

4) forward the request to the selected S-CSCF.

Upon an unsuccessful user location query when the response from the HSS indicates that the user does not exist, the I-CSCF shall return an appropriate unsuccessful SIP response. This response may be a 404 (Not found) or 604 (Does not exist anywhere) in the case the user is not a user of the home network.

Upon an unsuccessful user location query when the response from the HSS indicates that the user is not registered and no services are provided for such a user, the I-CSCF shall return an appropriate unsuccessful SIP response. This response may be a 480 (Temporarily unavailable) if the user is recognized as a valid user, but is not registered at the moment and it does not have services for unregistered users.

When the I-CSCF receives an initial request, that contains a single Route header pointing to itself, the I-CSCF shall determine from the entry in the Route header whether it needs to do HSS query or hiding. In case HSS query is needed, then the procedures described for the case when there is no Route header present shall be performed. If the I-CSCF determines that hiding must be performed, then the THIG functionality in I-CSCF received an outgoing initial request for which topology hiding has to be applied, and the I-CSCF shall:

1) remove its own SIP URL from the topmost Route header;

2) perform the procedures described in subclause 5.3.3; and

3) route the request based on the Request-URI header field.

When the I-CSCF receives an initial request containing more than one Route header, the I-CSCF shall:

1) remove its own SIP URL from the topmost Route header;

2) apply the procedures as described in subclause 5.3.3; and

3) forward the request based on the topmost Route header. ~~if present, or based on the Request-URI, in case no topmost Route header is available.~~

NOTE: In accordance with SIP the I-CSCF can add its own routeable SIP URL to the top of the Record-Route header to any request, independently of whether it is an initial request, or whether topology hiding is performed. The P-CSCF will ignore any Record-Route header that is not in the initial request of a dialog.

When the I-CSCF receives a response to an initial request (e.g. 183 or 2xx), the I-CSCF shall store the values from the P-Charging-Function-Addresses header, if present. If the next hop is outside of the current network, then the I-CSCF shall remove the P-Charging-Function-Addresses header prior to forwarding the message.

5.3.3.1 General

The following procedures shall only be applied if topology hiding is required by the network. The network requiring topology hiding is called the hiding network.

NOTE: Requests and responses are handled independently therefore no state information is needed for that purpose within an I-CSCF(THIG).

All headers which reveal topology information, such as Via, Route, Record-Route, P-Service-Route, shall be subject to topology hiding.

Upon receiving an incoming REGISTER request for which topology hiding has to be applied and which includes a Path header, the I-CSCF(THIG) shall add the routeable SIP URL of an I-CSCF(THIG) to the top of the Path header. The inserted SIP URL may include an indicator that identifies the direction of subsequent requests received by the I-CSCF. This indicator may e.g., be a unique header parameter, a username or a dedicated port. Any subsequent request that includes this indicator (in the Route header) or arrives at the dedicated port indicates that the request was sent by the S-CSCF toward the P-CSCF.

Upon receiving an incoming initial request for which topology hiding has to be applied and which includes a Record-Route header, the I-CSCF(THIG) shall add its own routeable SIP URL to the top of the Record-Route header.

Upon receiving an outgoing initial request for which topology hiding has to be applied and which includes P-Charging-Function-Addresses header, the I-CSCF(THIG) shall remove the P-Charging-Function-Addresses header prior to forwarding the message.

3GPP TSG-CN1 Meeting #26 ***Tdoc N1-021944***
Miami Beach, Florida, USA, 23 – 27 September 2002

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CHANGE REQUEST

⌘ **24.229** **CR** **220** ⌘ **rev** **-** ⌘ Current version: **5.2.0** ⌘

*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:	⌘	Definition of the NAI and RTCP abbreviations
Source:	⌘	Lucent Technologies
Work item code:	⌘	IMS-CCR
Date:	⌘	15/09/2002
Category:	⌘	**F**
Release:	⌘	*Rel-5*

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C *(functional modification of feature)*
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R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The abbreviation NAI and RTCP is used in 24.229 but is not defined in the abbreviation section of 24.229.
Summary of change:	⌘	Add the abbreviation " NAI and RTCP " to the abbreviation section of 24.229.
Consequences if not approved:	⌘	Inconsistency in 24.229.

Clauses affected:	⌘	3.2			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

1xx	A status-code in the range 101 through 199, and excluding 100
2xx	A status-code in the range 200 through 299
AS	Application Server
APN	Access Point Name
AUTN	Authentication TokeN
B2BUA	Back-to-Back User Agent
BGCF	Breakout Gateway Control Function
c	conditional
CCF	Charging Collection Function
CDR	Charging Data Record
CK	Ciphering Key
CN	Core Network
CSCF	Call Session Control Function
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
DTD	Document Type Definition
ECF	Event Charging Function
GCID	GPRS Charging Identifier
GGSN	Gateway GPRS Support Node
GPRS	General Packet Radio Service
i	irrelevant
I-CSCF	Interrogating CSCF
ICID	IM CN subsystem Charging Identifier
IK	Integrity Key
IM	IP Multimedia
IMS	IP Multimedia core network Subsystem
IMSI	International Mobile Subscriber Identity
IOI	Inter Operator Identifier
IP	Internet Protocol
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
ISC	IP multimedia Subsystem Service Control
ISIM	IMS Suscriber Identity Module
m	mandatory
MAC	Message Authentication Code
MGCF	Media Gateway Control Function
MGW	Media Gateway
MRFC	Multimedia Resource Function Controller
MRFP	Multimedia Resource Function Processor
PDP	Packet Data Protocol
PLMN	Public Land Mobile Network
PSTN	Public Switched Telephone Network
n/a	not applicable
NAI	Netework Access Identifier
o	optional
P-CSCF	Proxy CSCF
PDU	Protocol Data Unit
RAND	RANDom challenge
RES	RESponse
RTCP	Real-time Transport Control Protocol
RTP	Real-time Transport Protocol
S-CSCF	Serving CSCF
SDP	Session Description Protocol
SGSN	Serving GPRS Support Node
SIP	Session Initiation Protocol

SLF	Subscription Locator Function
SQN	SeQuence Number
UA	User Agent
UAC	User Agent Client
UAS	User Agent Server
UE	User Equipment
UICC	Universal Integrated Circuit Card
URI	Universal Resource Identifier
URL	Universal Resource Locator
USIM	UMTS Subscriber Identity Module
x	prohibited
XML	eXtensible Markup Language

3GPP TSG-CN1 Meeting #27 ***Tdoc N1-022495***
Bangkok, Thailand, 11 – 15 November 2002

CR-Form-v7

CHANGE REQUEST

⌘ **24.229** **CR** **222** ⌘ **rev** **4** ⌘ Current version: **5.2.0** ⌘

*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 [X] Radio Access Network [ ] Core Network [ ]

Title:	⌘	Go related error codes in the UE
Source:	⌘	Ericsson
Work item code:	⌘	IMS-CCR
Date:	⌘	15/11/2002
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)*
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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:	⌘	Go related error indication from GGSN to UE is carried in the Protocol Configuration Options information element. The actual error codes and their usage need to be specified. As all Go error codes identified at present will lead to the same behaviour in the UE, a generic text for all Go cause codes apply. A reference to 29.207 is provided to point to the 3GPP TS describing the actual Go cause codes. A generic statement concerning the possible update of the remote SIP entity in clause 6 is introduced.
Summary of change:	⌘	Go related error codes and their usage is specified.
Consequences if not approved:	⌘	Action within the UE due to Go specific error codes will remain unspecified.

Clauses affected:	⌘	6.1, 9.2.5

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

⌘

Other comments: ⌘

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********** 1st modification **********

6 Application usage of SDP

6.1 Procedures at the UE

Usage of SDP by the UE:

1. In order to authorize the media streams, the P-CSCF and S-CSCF have to be able to inspect and possibly modify the SDP payloads. Hence, the UE shall not encrypt the SDP payloads.

2. An INVITE request generated by a UE shall contain SDP payload. The SDP payload shall reflect the calling user's terminal capabilities and user preferences for the session. In addition, the calling user shall indicate the desired QoS for the session, using the segmented status type. In an initial INVITE the UE shall indicate that it mandates local QoS and that this precondition is not yet satisfied, i.e. the UE shall include the following preconditions:

   a=des: qos mandatory local sendrecv

   a=curr: qos local none

3. The first 183 (Session Progress) provisional response sent out shall contain the answer for the SDP received in the INVITE. The SDP payload shall reflect the called user's terminal capabilities and user preferences.

4. When UE sends out an 183 (Session Progress) response with SDP payload, it shall request confirmation for the result of the resource reservation at the originating end point.

5. During session establishment procedure, SIP messages shall only contain SDP payload if that is intended to modify the session description.

6. For "video" and "audio" media types that utilize the RTP/RTCP, the UE shall specify the proposed bandwidth for each media stream utilizing the "b=" media descriptor in the SDP. For other media streams the "b=" media descriptor may be included. The value or absence of the "b=" parameter will affect the assigned QoS which is defined in 3GPP TS 29.208 [13].

7. The UE shall include the DTMF media format at the end of the "m=" media descriptor in the SDP for audio media flows that support both audio codec and DTMF payloads in RTP packets as described in RFC 2833 [23].

8. If a PDP context is rejected or modified, the UE shall, if the SDP is affected, update the remote SIP entity according to RFC 3261 [26] and RFC 3311 [29].

********** 2nd modification **********

9 GPRS aspects when connected to the IM CN subsystem

9.1 Introduction

A UE accessing the IM CN subsystem, and the IM CN subsystem itself, utilise the services provided by GPRS to provide packet-mode communication between the UE and the IM CN subsystem.

Requirements for the UE on the use of these packet-mode services are specified in this clause. Requirements for the GGSN in support of this communication are specified in 3GPP TS 29.061 [11] and 3GPP TS 29.207 [12].

9.2 Procedures at the UE

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 signalling:

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 described in 3GPP TS 29.207 [12];

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 both signalling and media on the general-purpose PDP context.

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.

Detailed description of how the IM CN Subsystem Signalling Flag is carried in the Protocol Configuration Options IE is provided in 3GPP TS 24.008 [8].

NOTE: 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 component 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].

9.2.1A Modification of a PDP context used for SIP signalling

The PDP context shall not be modified from a dedicated PDP context for SIP signalling to a general-purpose PDP context or vice versa. The IM CN Subsystem Signalling Flag shall not be set in the Protocol Configuration Options IE of the MODIFY PDP CONTEXT REQUEST message.

The UE shall not indicate the request for a P-CSCF address to the GGSN within the Protocol Configuration Options IE of the MODIFY PDP CONTEXT REQUEST message. The UE shall ignore P-CSCF address(es) if received from the GGSN in the Protocol Configuration Options IE of the MODIFY PDP CONTEXT RESPONSE message.

9.2.1B Re-establishment of the PDP context for signalling

If the dedicated PDP context for SIP signalling is lost due to e.g. a GPRS routeing area update procedure, the UE shall attempt to re-establish the dedicated PDP context for SIP signalling. If this procedure does not succeed, the UE shall deactivate all PDP contexts related to IMS.

9.2.2 Session management procedures

The existing procedures for session management as described in 3GPP TS 24.008 [8] shall apply while the UE is connected to the IM CN subsystem.

9.2.3 Mobility management procedures

The existing procedures for mobility management as described in 3GPP TS 24.008 [8] shall apply while the UE is connected to the IM CN subsystem.

9.2.4 Cell selection and lack of coverage

The existing mechanisms and criteria for cell selection as described in 3GPP TS 25.304 [9] and 3GPP TS 44.018 [20] shall apply while the UE is connected to the IM CN subsystem.

9.2.5 PDP contexts for media

During establishment of a session, the UE establishes data streams(s) for media related to the session. Such data stream(s) may result in activation of additional PDP context(s). Such additional PDP context(s) shall be established as secondary PDP contexts associated to the PDP context used for signalling.

The P-CSCF shall indicate to the UE in SIP/SDP if a separate PDP Context is required for a media component as per procedures defined in 3GPP TS 23.228 [7]. The UE shall establish an additional PDP context for a media component if so indicated by the P-CSCF.

The UE shall pass the authorisation token received from the P-CSCF in the 183 (Session Progress) response to an INVITE request at originating setup or in the INVITE request at terminating setup to the GGSN by inserting it within the Traffic Flow Template IE at PDP Context activation/modification.

In order to identify to the GGSN which flow(s) (identified by m-lines within the SDP) are to be transferred within a particular PDP context, the UE shall set the flow identifier(s) within the Traffic Flow Template IE at PDP Context activation modification. Detailed description of how the flow identifiers are constructed is provided in 3GPP TS 29.207 [12].

Detailed description of how the authorization token and flow identifiers are carried in the Traffic Flow Template IE is provided in 3GPP TS 24.008 [8].

One of the Go interface related error codes may be received by the UE in the ACTIVATE SECONDARY PDP CONTEXT REJECT message or the MODIFY PDP CONTEXT REJECT message. If the UE receives a Go interface related error code, the UE shall either terminate the session or retransmit the message up to 3 times. The Go interface related error codes are further specified in 3GPP TS 29.207 [12].

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Miami Beach, Florida, USA, 23 – 27 September

CR-Form-v7

CHANGE REQUEST

⌘ **24.229** **CR** **223** ⌘ **rev** **1** ⌘ Current version: **5.2.0** ⌘

*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:	⌘	Clarifications on CCF/ECF addresses
Source:	⌘	NEC Corporation
Work item code:	⌘	IMS-CCR
Date:	⌘	17/9/2002
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:	⌘	At the last SA Plenary in September, TS 32.225 is approved as Rel 5. According to TS 32.225, there is a case that charging addresses (CCF/ECF addresses) are localy preconfigured address ~~regardless of existence of Cx interface~~.
Summary of change:	⌘	In subclause.4.5.5 and 7.2.5, it is added that there is a case that CCF and/or ECF addresses are allocated as locally preconfigured addresses.
Consequences if not approved:	⌘	IMS charging mechanism may be implemented wrongly in Rel 5.

Clauses affected:	⌘	4.5.5

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	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.

Start of first change

4.5.5 Charging function addresses

Charging function addresses are distributed to each of the IMS network entities in the home network for one side of the session (either the calling or called side) and are to provide a common location for each entity to send charging information. Charging Collection Function (CCF) addresses are used for offline billing. Event Charging Function (ECF) addresses are used for online billing.

There may be two separate addresses for CCF and ECF addresses populated into the P-Charging-Function-Addresses header of the SIP request or response. The parameters are ccf1, ccf2, ecf1 and ecf2. Only ccf1 is required. The other parameters are optional. The secondary addresses may be included by each IMS network for redundancy purposes.

The CCF addresses and ECF addresses are retrieved from HSS via Cx interface and passed by the S-CSCF to subsequent entities. The charging function addresses are passed from the S-CSCF to IM CN subsystem entities in its home network, but are not passed to the visited network or the UE. When the P-CSCF is allocated in the visited network, then the charging function addresses are obtained by means outside the scope of this document. The AS receives the charging function addresses from the S-CSCF via the ISC interface. CCF and/or ECF addresses may be allocated as locally preconfigured addresses.

~~Note that there is a case that CCF and/or ECF addresses are allocated as locally preconfigured addresses regardless of existence of Cx interface.~~

End of first change

Start of second change

7.2.5 P-Charging-Function-Addresses header

7.2.5.1 Introduction

The P-Charging-Function-Addresses header is the mechanism whereby the S-CSCF may distribute a common set of addresses for charging functions to other network entities within the same network as the S-CSCF. The primary Charging Correlation Function (ccf1) address is a required parameter for offline charging. The secondary CCF address is optional (ccf2). Both the primary and secondary Event Charging Function (ecf1 and ecf2) addresses for online charging are optional. CCF and/or ECF addresses may be allocated as locally preconfigured addresses.

. ~~Note that there is a case that CCF and/or ECF addresses are allocated as locally preconfigured addresses regardless of existence of Cx interface.~~

The S-CSCF inserts the header at the first opportunity when initialising dialogs and with standalone transactions. The header may be included in requests and responses.

End of second change

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CR-Form-v7

CHANGE REQUEST

⌘ **24.229** **CR** **225** ⌘ **rev** **2** ⌘ Current version: **5.2.0** ⌘

*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:	⌘	Clarifications on dedicated PDP Context for IMS signaling
Source:	⌘	NEC Corporation
Work item code:	⌘	IMS-CCR
Date:	⌘	17/9/2002
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:	⌘	In the current 9.2., there is no clear enough description on the proceudre for set up for IMS signaling. 1.Apart from DHCP servers and DNS servers, static packet filters are used for also P-CSCF servers as described in 29.061 so that current description should be changed. For general purpose PDP context, there is no description about that binding information shall be included in the PDP context request. It should be clarified that the inclusion of both binding information and IM CN Subsytem Signalling Flag in PDP Context Request message is not permitted. 2. There is no clear description about that re-establishment of PDP-context is failed, the UE shall deactivate all PDP contexts related to the IMS session by using indication of PDP Context Release procedure.
Summary of change:	⌘	In subclause.9.2, the related sentences are changed accordin to the reason for change as described above.
Consequences if not approved:	⌘	Ambiguity and misalignement remains for set up of PDP Context for IMS signalling, etc.

Clauses affected:	⌘	9.2

Y **N**

Other specs affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:
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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.

Start of change

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 signalling:

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 ~~29.207~~29.061 [~~12~~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 both signalling and media on the general-purpose PDP context.

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.

Detailed description of how the IM CN Subsystem Signalling Flag is carried in the Protocol Configuration Options IE is provided in 3GPP TS 24.008 [8].

NOTE: 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 component 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].

9.2.1A Modification of a PDP context used for SIP signalling

The PDP context shall not be modified from a dedicated PDP context for SIP signalling to a general-purpose PDP context or vice versa. The IM CN Subsystem Signalling Flag shall not be set in the Protocol Configuration Options IE of the MODIFY PDP CONTEXT REQUEST message.

The UE shall not indicate the request for a P-CSCF address to the GGSN within the Protocol Configuration Options IE of the MODIFY PDP CONTEXT REQUEST message. The UE shall ignore P-CSCF address(es) if received from the GGSN in the Protocol Configuration Options IE of the MODIFY PDP CONTEXT RESPONSE message.

9.2.1B Re-establishment of the PDP context for signalling

If the dedicated PDP context for SIP signalling is lost due to e.g. a GPRS routeing area update procedure, the UE shall attempt to re-establish the dedicated PDP context for SIP signalling. If this procedure does not succeed, the UE shall deactivate all PDP contexts established as a result of SIP signalling according to ~~related to IMS~~ the 3GPP TS ~~29.208~~24.008 [~~13~~8].

9.2.2 Session management procedures

The existing procedures for session management as described in 3GPP TS 24.008 [8] shall apply while the UE is connected to the IM CN subsystem.

9.2.3 Mobility management procedures

The existing procedures for mobility management as described in 3GPP TS 24.008 [8] shall apply while the UE is connected to the IM CN subsystem.

9.2.4 Cell selection and lack of coverage

The existing mechanisms and criteria for cell selection as described in 3GPP TS 25.304 [9] and 3GPP TS 44.018 [20] shall apply while the UE is connected to the IM CN subsystem.

9.2.5 PDP contexts for media

During establishment of a session, the UE establishes data streams(s) for media related to the session. Such data stream(s) may result in activation of additional PDP context(s). Such additional PDP context(s) shall be established as secondary PDP contexts associated to the PDP context used for signalling.

The P-CSCF shall indicate to the UE in SIP/SDP if a separate PDP Context is required for a media component as per procedures defined in 3GPP TS 23.228 [7]. The UE shall establish an additional PDP context for a media component if so indicated by the P-CSCF.

The UE shall pass the authorisation token received from the P-CSCF in the 183 (Session Progress) response to an INVITE request at originating setup or in the INVITE request at terminating setup to the GGSN by inserting it within the Traffic Flow Template IE at PDP Context activation/modification.

In order to identify to the GGSN which flow(s) (identified by m-lines within the SDP) are to be transferred within a particular PDP context, the UE shall set the flow identifier(s) within the Traffic Flow Template IE at PDP Context activation modification. Detailed description of how the flow identifiers are constructed is provided in 3GPP TS 29.207 [12].

Detailed description of how the authorization token and flow identifiers are carried in the Traffic Flow Template IE is provided in 3GPP TS 24.008 [8].

End of change

3GPP TSG-CN1 Meeting #26 ***Tdoc N1-022425***
Miami Beach, Florida, USA, 23 – 27 September 2002

was N1-021981, N1-022123, N1-022157

CR-Form-v7

CHANGE REQUEST

⌘ **24.229** **CR** **228** ⌘ **rev** **3** ⌘ Current version: **5.2.0** ⌘

*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:	⌘	Clarifications on the use of charging correlation information
Source:	⌘	NEC Corporation
Work item code:	⌘	IMS-CCR
Date:	⌘	17/9/2002
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:	⌘	At the last SA Plenary in September, several comments were raised from delegates regarding use of charging correlation information. In the current subclause 4.5, structure of the clause is not clear enoufh to understand the use of charging correlation information. There is also misalignment between 24.229 and 29.207/29.208 concerning description of P-CSCF and PDF. In 29.207/29.208, P-CSCF is functionally separated from PDF.
Summary of change:	⌘	In 4.5, restructuring is proposed from the point of use and generation of charging correlation information. Also, description of separation of P-CSCF/PDF is alligned with 29.207/29.208.
Consequences if not approved:	⌘	24.229 remains ambiguous concerning use of charging correlation information and misaligned with 29.207/29.208.

Clauses affected:	⌘	4.5

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

Other comments:	⌘	

How to create CRs using this form:
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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.

Start of first Change

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply.

For the purposes of the present document, the following terms and definitions given in RFC 3261 [26] apply (unless otherwise specified see clause 6).

Back-to-Back User Agent (B2BUA)
Client
Dialog
Final response
Header
Header field
Loose routeing
Method
Option-tag (see RFC 3261 [26] subclause 19.2)
Provisional response
Proxy, proxy server
Redirect server
Registrar
Request
Response
Server
Session
(SIP) transaction
Stateful proxy
Stateless proxy
Status-code (see RFC 3261 [26] subclause 7.2)
Tag (see RFC 3261 [26] subclause 19.3)
User agent client (UAC)
User agent server (UAS)
User agent (UA)

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.002 [2] subclause 4a.7 apply:

Breakout Gateway Control Function (BGCF)
Call Session Control Function (CSCF)
Media Gateway Control Function (MGCF)
Media Resource Function Controller (MRFC)
Subscription Locator Function (SLF)

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.218 [5] subclause 3.1 apply:

Filter criteria
Initial filter criteria

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.228 [7] subclause 4.3.3.1 and subclause 4.6 apply:

Interrogating-CSCF (I-CSCF)
Policy Decision Function (PDF)
Private user identity
Proxy-CSCF (P-CSCF)
Public user identity
Serving-CSCF (S-CSCF)

For the purposes of the present document, the following terms and definitions given in 3GPP TR 21.905 [1] apply:

User Equipment (UE)

End of first Change

Start of second Change

4.5 Charging correlation principles for IM CN subsystems

4.5.1 Overview

This subclause describes charging correlation principles to aid with the readability of charging related procedures in subclause 5. See 3GPP TS 32.200 [16] and 3GPP TS 32.225 [17] for further information on charging.

IM CN subsystem generates and retrieves the following charging correlation information for later use with offline and online charging:

1. IMS Charging Identifier (ICID);
2. Access network information:
   a. GPRS Charging Information;
3. Inter Operator Identifier (IOI);
4. Charging function addresses:
   a. Charging Collection Function (CCF);
   b. Event Charging Function (ECF).

How to use and where to generate the parameters in IM CN subsystems are described further in the subclauses that follow. The charging correlation information is encoded in the P-Charging-Vector header as defined in subclause 7.2. The P-Charging-Vector header contains the following parameters: icid, access network information and ioi. ~~The parameters are described further in the subclauses that follow. The GGSN provides the access network information to the IM CN subsystem, which is the common information used to correlate GGSN CDRs with IM CN subsystem CDRs.~~

The offline and online charging function addresses are encoded in the P-Charging-Function-Addresses as defined in subclause 7.2. The P-Charging-Function-Addresses header contains the following parameters: CCF and ECF.

4.5.2 IMS charging identifier (ICID)

The IMS Charging Identifier (ICID) is the session level data shared among the IMS network entities including ASs in both the calling and called IMS networks.

The first IMS network entity involved in a dialog (session) or standalone (non-session) message will generate the ICID and include it in the icid parameter of the P-Charging-Vector header in the SIP request. See 3GPP TS 32.225 [17] for requirements on the format of ICID. The P-CSCF will generate ICID for mobile originated calls. The I-CSCF will generate ICID for mobile terminated calls if there is no ICID received in the initial request (e.g. the calling party network is another SIP based network). The AS will generate ICID when acting as an originating UA. The MGCF will generate ICID for PSTN/PLMN originated calls. Each entity that processes the SIP request will extract the ICID for possible later use in a charging data records (CDR). The I-CSCF and S-CSCF are also allowed to generate a new ICID for mobile terminated calls received from another network.

There is also an ICID generated by the P-CSCF with a REGISTER request that is passed in a unique instance of P-Charging-Vector header. This ICID is valid for the duration of the registration and is associated with the signalling PDP context.

The icid parameter is included in any requests that include the P-Charging-Vector header. However, the P-Charging-Vector (and ICID) is not passed to the UE.

The ICID is also passed from the P-CSCF/PDF to the GGSN, but the ICID is not passed to the SGSN. The interface supporting this operation is outside the scope of this document.

4.5.3 Access network information

4.5.3.1 General

The access network information are the media component level data shared among the IMS network entities for one side of the session (either the calling or called side). GPRS charging information (GGSN identifier and GCIDs) is an example of access network information.

4.5.3.2 GPRS charging information

The GGSN provides the GPRS charging information to the IM CN subsystem, which is the common information used to correlate GGSN CDRs with IM CN subsystem CDRs.

The GPRS charging information is generated at the first opportunity after the resources are allocated at the GGSN. The GPRS charging ingormation is passed from GGSN to P-CSCF/PDF~~, then from PCF to P-CSCF when P-CSCF is functionally separated from PCF~~. GPRS charging information will be updated with new information during the session as media streams are added or removed. The P-CSCF provides the GPRS charging information to the S-CSCF. The S-CSCF may also pass the information to an Application Server (AS), which may be needed for online pre-pay applications. The GPRS charging information for the originating network is used only within that network, and similarly the GPRS charging information for the terminating network is used only within that network. Thus the GPRS charging information are not shared between the calling and called networks. The GPRS charging information is not passed towards the external ASs from its own network.

The GPRS charging information is populated in the P-Charging-Vector using the gprs-charging-info parameter. The gprs-charging-info parameter contains further parameters: ggsn and gcid. The gcid parameter contains charging identifiers for one or more PDP contexts, or GCID. Each gcid parameter has an identifier assigned by the GGSN (pdp-id parameter), the authorization token used when PDP context was established (auth-token) and an index number (pdpflow-index parameter) to correlate the PDP context with a media stream in the SDP from the SIP signalling. The numbering for the index shall start at 1 and is associated with the 'm' lines in the SDP, where the counting is done from top to bottom.

~~The GPRS charging information is passed at the first opportunity after the resources are allocated at the GGSN. GPRS charging information will be updated with new information during the session as media streams are added or removed.~~

4.5.4 Inter operator identifier (IOI)

The Inter Operator Identifier (IOI) is globally unique identifier to share between operator networks/service providers/content providers. There are two possible instances of IOI to be exchanged between networks/service providers/content providers: one for the originating side, orig-ioi, and one for the terminating side, term-ioi.

The S-CSCF in the originating network populates the orig-ioi parameter of the P-Charging-Vector header in the initial request, which identifies the operator network from which the request originated. Also in the initial request, the term-ioi parameter is left out of the P-Charging-Vector parameter. The S-CSCF in the originating network retrieves the term-ioi parameter from the P-Charging-Vector header within the message sent in response to the initial request, which identifies the operator network from which the response was sent. The MGCF takes responsibility for populating the orig-ioi on behalf of the PSTN/PLMN when a call/session is originated from the PSTN/PLMN.

The S-CSCF in the terminating network retrieves the orig-ioi parameter from the P-Charging-Vector header in the initial request, which identifies the operator network from which the request originated. The S-CSCF in the terminating network populates the term-ioi parameter of the P-Charging-Vector header in the response to the initial request, which identifies the operator network from which the response was sent. IOIs will not be passed along within the network, except when proxied by BGCF and I-CSCF to get to MGCF and S-CSCF. However, IOIs will be sent to AS for accounting purposes.

End of Second Change

3GPP TSG-CN1 Meeting #26 ***Tdoc N1-022095***
Miami Beach, Florida, USA, 23 – 27 September 2002 Revision of N1-021987

CR-Form-v7

CHANGE REQUEST

⌘ **24.229** **CR** **232** ⌘ **rev** **1** ⌘ Current version: **5.2.0** ⌘

*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:	⌘	Expires information in REGISTER response
Source:	⌘	Siemens AG
Work item code:	⌘	IMS-CCR
Date:	⌘	16/09/02
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:	⌘	24.229 describes that REGISTER 200 OK Response includes a EXPIRES header, this is not in accordance with RFC 3261 (section 10.3, bullet 8), where it is stated that the Registrar returns the expires value for each currently registered contact in an parameter of each of these contacts.
Summary of change:	⌘	Changed description of indication of expires information in S-CSCF upon sending a 200 OK Response for a REGISTER request
Consequences if not approved:	⌘	24.229 will not be in-line with RFC 3261

Clauses affected:	⌘	5.4.1.2.2

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

⌘

Other comments:	⌘	If these changes are accepted, they have to be also introduced to 24.228 call flows. This can be done during the general rework of 24.228, that is currently taking place.

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.

5.4.1.2.2 Protected REGISTER

Upon receipt of a REGISTER request with the integrity-protection parameter set to 'yes', the S-CSCF shall:

In the case that there is no authentication currently ongoing for this user (i.e. no timer reg-await-auth is running):

1) identify the user by the public user identity as received in the To header and the private user identity as received in the From header of the REGISTER request;

2) check if the user needs to be reauthenticated.

   The S-CSCF may require authentication of the user for any REGISTER request, and shall always require authentication for registration requests received without integrity protection by the P-CSCF. The information that a REGISTER request was received integrity protected at the P-CSCF may be used as part of the decision to challenge the user.

   If the user needs to be reauthenticated, the S-CSCF shall proceed with the procedures as described for the initial REGISTER in subclause 5.4.1.2.1, beginning with step 4). If the user does not need to be reauthenticated, the S-CSCF shall proceed with the following steps in this paragraph;

3) check whether an Expires timer is included in the REGISTER request and its value. If the Expires header indicates a zero value, the S-CSCF shall perform the deregistration procedures as described in subclause 5.4.1.4. If the Expires header does not indicate zero, the S-CSCF shall proceed with the procedures as described for the second REGISTER in subclause 5.4.1.2, beginning with step 7); and

4) remove the P-Access-Network-Info header and may act upon the contents accordingly.

In the case that a timer reg-await-auth is running for this user the S-CSCF shall:

1) identify the user by the public user identity as received in the To header and the private user identity as received in the username field in the Authorization header of the REGISTER request;

2) check if the Call-ID of the request matches with the Call-ID of the 401 (Unauthorized) response which carried the last challenge. The S-CSCF shall only proceed further if the Call-IDs match.

3) stop timer reg-await-auth;

4) check whether an Authorization header is included, containing:

   - the private user identity of the user in the username field;

   - the algorithm which is AKAv1-MD5 in the algorithm field; and

   - the RES parameter needed for the authentication procedure in the response field.

   The S-CSCF shall only proceed with the following steps in this paragraph if the RES parameter was included;

5) check whether the received RES parameter and the XRES parameter match. The XRES parameter was received from the HSS as part of the Authentication Vector. The S-CSCF shall only proceed with the following steps if RES and XRES are matching;

6) after performing the Cx Server Assignment procedure with the HSS, as described in 3GPP TS 29.229 [15], store the following information in the local data:

   - the list of public user identities associated to the user, including the own public user identity under registration and the implicitly registered due to the received REGISTER request. Each public user identity is identified as either barred or non-barred; and,

   - the user profile(s) of the user including initial Filter Criteria;

   NOTE 1: There might be more than one set of initial Filter Criteria received because some implicitly registered public user identities that are part of the same user's subscription may belong to different service profiles.

7) bind to each non-barred registered public user identity all registered contact information and store the related method tag values from the Contact header for future use;

NOTE 2: There might be more then one contact information available for one public user identity.

NOTE 3: The barred public user identities are not bound to the contact information.

8) check whether a Path header was included in the REGISTER request and construct a list of preloaded Route headers from the list of entries in the Path header. The S-CSCF shall preserve the order of the preloaded Route headers and bind them to the contact information that was received in the REGISTER message;

NOTE 4: If this registration is a reregistration, then a list of pre-loaded Route headers will already exist. The new list replaces the old list.

9) determine the duration of the registration by checking the value of the Expires header in the received REGISTER request. The S-CSCF may reduce the duration of the registration due to local policy or send back a 423 (Interval Too Brief) response specifying the minimum allowed time for registration;

10) store the icid parameter received in the P-Charging-Vector header;

11) remove the P-Access-Network-Info header and may act upon the contents accordingly;

12) create a 200 (OK) response for the REGISTER request, including:

~~- an expiration time in the Expires header, using one value provided within the S-CSCF, and,~~

- the list of received Path headers;

- a P-Associated-URI header containing the list of public user identities that the user is authorized to use. Such a collection of public user identities may or may not be implicitly registered by the network. Using information supplied by the HSS, the P-Associated-URI header will indicate the default public user identity to be used by the P-CSCF in conjunction with the procedures for the P-Asserted-Identity header;

Editor's note: The mechanism for indicating this default public user identity is yet to be agreed.

- a P-Service-Route header containing:

  - the SIP URL identifying the S-CSCF; and,

  - an indication that requests routed via the service route (i.e. from the P-CSCF to the S-CSCF) shall be treated as for the mobile-originating case. This indication may e.g. be in a URI parameter, a character string in the user part or be a port number;

  - if network topology hiding is required a SIP URL identifying an I-CSCF(THIG) as the topmost entry;

13) send the so created 200 (OK) response to the UE;

14) send a third-party REGISTER request, as described in subclause 5.4.1.7, to each Application Server that matches the Filter Criteria from the HSS for the REGISTER event; and,

NOTE 5: If this registration is a reregistration, the Filter Criteria already exists in the local data.

15) handle the user as registered for the duration indicated in the Expires header.

3GPP TSG-CN1 Meeting #26 ***Tdoc N1-022129***
Miami Beach, Florida, USA, 23 – 27 September 2002

CR-Form-v7

CHANGE REQUEST

⌘ **24.229** **CR** **235** ⌘ **rev** **2** ⌘ Current version: **5.2.0** ⌘

*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 [X] Radio Access Network [ ] Core Network [ ]

Title:	⌘	Indication of successful establishment of Dedicated Signalling PDP context to the UE
Source:	⌘	Nokia
Work item code:	⌘	IMS-CCR
Date:	⌘	26/09/2002
Category:	⌘	**C**
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:	⌘	CN1#25 agreed a CR to 24.008 (N1-021704) to solve the problem when the signalling flag is not transferred in Secondary PDP context activation by a Rel-4 SGSN. This decision should be reflected in 24.229 – GPRS procedures in the UE – in order to keep both specifications consistent with each other.
Summary of change:	⌘	The network indicates to the UE when the activation of the dedicated signalling PDP context was successful. An UE not receiving this indication will consider the PDP context as a general purpose PDP context.
Consequences if not approved:	⌘	A PDP context may be charged as a general purpose PDP context while the user believes the PDP context is for free. Inconsistency between 24.008 and 24.229.

Clauses affected:	⌘	9.2.1 PDP context activation and P-CSCF discovery

		Y	N		
Other specs Affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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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 signalling:

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 described in 3GPP TS 29.207 [12];

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 both signalling and media on the general-purpose PDP context.

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: 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 IM CN Subsystem Signalling Flag is carried in the Protocol Configuration Options IE is provided in 3GPP TS 24.008 [8].

NOTE: 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 component 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].

3GPP TSG-CN1 Meeting #26 ***Tdoc N1-021998***
Miami Beach, Florida, USA, 23 – 27 September 2002

CR-Form-v7

CHANGE REQUEST

⌘ **24.229** **CR** **237** ⌘ **rev** **-** ⌘ Current version: **5.2.0** ⌘

*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:	⌘	P-CSCF sending 100 (Trying) Response for reINVITE
Source:	⌘	Siemens AG
Work item code:	⌘	IMS-CCR
Date:	⌘	16/09/02
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
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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:	⌘	24.229 currently not describes that P-CSCF shall send a 100 (Trying) Response to Re-INVITE.
Summary of change:	⌘	Adds sending of 100 (Trying) response to P-CSCF for Re-INVITE
Consequences if not approved:	⌘	Wrong behaviour of P-CSCF, incomplete 24.229

Clauses affected:	⌘	5.2.9.1, 5.2.9.2

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

Other comments: ⌘

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5.2.9 Subsequent requests

5.2.9.1 Mobile-originating case

The P-CSCF shall respond to all reINVITE requests with a 100 (Trying) provisional response.

For a reINVITE request from the UE, when the P-CSCF sends the UPDATE request towards the S-CSCF, the P-CSCF shall include the updated gprs-charging-info parameter in the P-Charging-Vector header. See subclause 5.2.7.4 for further information on the GPRS charging information.

5.2.9.2 Mobile-terminating case

The P-CSCF shall respond to all reINVITE requests with a 100 (Trying) provisional response.

For a reINVITE request destined towards the UE, when the P-CSCF sends 200 (OK) response (to the INVITE request) towards the S-CSCF, the P-CSCF shall include the updated gprs-charging-info parameter in the P-Charging-Vector header. See subclause 5.2.7.4 for further information on the GPRS charging information.