Source:　　　　**TSG CN WG 1**

Title:　　　　**CRs to Rel-5 on Work Item IMS-CCR towards 24.229,- pack 2**

Agenda item:　　**8.1**

Document for:　**APPROVAL**

<u>**Introduction:**</u>

This document contains **7** CRs, **Rel-5 to** Work Item **"IMS-CCR"**, that have been agreed by **TSG CN WG1 in CN1#31 meeting**, and are forwarded to TSG CN Plenary meeting #21 for approval.

TDoc #	Tdoc Title	Spec	CR #	Rev	CAT	C_Version	Rel
N1-031276	Subscription termination sent by the S-CSCF	24.229	456	2	F	5.5.0	Rel-5
N1-031032	Subscription termination at the P-CSCF	24.229	457		F	5.5.0	Rel-5
N1-031033	Network -initiated deregistration at P-CSCF	24.229	458		F	5.5.0	Rel-5
N1-031233	Service profile	24.229	461	1	F	5.5.0	Rel-5
N1-031246	Requirements on Preconditions	24.229	466	1	F	5.5.0	Rel-5
N1-031238	Call forwarding cleanup	24.229	467	1	F	5.5.0	Rel-5
N1-031094	Update of references	24.229	468		F	5.5.0	Rel-5

CR-Form-v7

CHANGE REQUEST

| ⌘ | **24.229** CR **456** | ⌘**rev** | **2**
1 | ⌘ | Current version: | **5.5.0** | ⌘ |

*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: ⌘	Subscription termination sent by the S-CSCF	
Source: ⌘	Lucent Technologies	
Work item code:⌘	**IMS-CCR**	***Date:*** ⌘ 10/08/2003
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: ⌘	For a given user, the S-CSCF may be viewed as a dynamically assigned registrar. Once all IMPUs belonging to a given user are de-registered, the S-CSCF is no longer a registrar for the given user. Hence, the S-CSCF must terminate all subscriptions to reg event by setting the Subscribe-event header in the NOTIFY request to "terminated." However, the subclause 5.4.2.1.2 doesn't specify that in the NOTIFY request, upon deregistration of all IMPUs, the Subscription-State header is set to "terminated".
Summary of change:⌘	Indicate that, upon de-registration of all public user identities, the S-CSCF cancels all subscription by setting the Subscription-State header to the value of "terminated" in the NOTIFY request. In addition, indication that the NOTIFY request with the Subscription-State set to "terminated" terminates the subscription at the P-CSCF.
Consequences if not approved: ⌘	Incomplete specification

Clauses affected: ⌘	5.4.1.5 and 5.4.2.1.2

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

Other comments: ⌘	Changes requested by the WG were incorporated.

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.

5.4.1.5 Network-initiated deregistration

Prior to initiating the network-initiated deregistration for the only public user identity currently registered with its associated set of implicitly registered public user identities (i.e. no other is registered) while there are still active multimedia sessions belonging to this user, the S-CSCF shall release all multimedia sessions belonging to this user as described in subclause 5.4.5.1.

When a network-initiated deregistration event occurs for one or more public user identity, the S-CSCF shall send a NOTIFY request to the UE on the dialog which was generated by the UE subscribing to the reg event package. When the S-CSCF receives a final response to the NOTIFY request or upon a timeout, the S-CSCF shall release all remaining dialogs related to the public user identity being deregistered and shall generate a NOTIFY request on all remaining dialogs which have been established due to subscription to the reg event package of that user. For each NOTIFY request, the S-CSCF shall:

1) set the Request-URI and Route header to the saved route information during subscription;

2) set the Event header to the "reg" value;

3) in the body of the NOTIFY request, include as many <registration> elements as many public user identities the S-CSCF is aware of the user owns;

4) set the aor attribute within each <registration> element to one public user identity:

   a) set the <contact> sub-element of each <registration> element to the contact address provided by the UE;

   b) if the public user identity:

      i) has been deregistered then:

         - set the state attribute within the <registration> element to "terminated";b

         - set the state attribute within the <contact> element to "terminated"; and

         - set the event attribute within the <contact> element to "deactivated" if the S-CSCF expects the UE to reregister or "rejected" if the S-CSCF does not expect the UE to reregister; or

      ii) has been kept registered then:

         - set the state attribute within the <registration> element to "active"; and

         - set the state attribute within the <contact> element to "active".

When sending a final NOTIFY request with all <registration> element(s) having their state attribute set to "terminated" (i.e. all public user identities are deregistered), the S-CSCF shall also terminate the subscription to the reg event package by setting the Subscription-State header to the value of "terminated".

The S-CSCF shall only include the non-barred public user identities in the NOTIFY request.

Based on operators' policy the S-CSCF can request of the HSS to either be kept or cleared as the S-CSCF allocated to this subscriber.

Also, the S-CSCF shall send a third-party REGISTER request, as described in subclause 5.4.1.7, to each AS that matches the Filter Criteria from the HSS for the REGISTER event.

5.4.2.1.2 Notification about registration state

If the registration state of one or more public user identities changes, the S-CSCF shall generate a NOTIFY request on all dialogs which have been established due to subscription to the reg event package of that user. For each NOTIFY request, the S-CSCF shall:

1) set the Request-URI and Route header to the saved route information during subscription;

2) set the Event header to the "reg" value;

3) in the body of the NOTIFY request, include as many <registration> elements as many public user identities the S-CSCF is aware of the user owns; and

4) set the aor attribute within each <registration> element to one public user identity:

   a) set the <contact> sub-element of each <registration> element to the contact address provided by the UE; and

   b) if the public user identity:

      I) has been deregistered then:

         - set the state attribute within the <registration> element to "terminated";

         - set the state attribute within the <contact> element to "terminated"; and

         - set the event attribute within the <contact> element to "deactivated", "expired", "unregistered" or "probation" according draft-ietf-sipping-reg-event-00 [43]; or

      II) has been registered then:

         - set the state attribute within the <registration> element to "active";

         - set the state attribute within the <contact> element to "active"; and

         - set the event attribute within the <contact> element to "registered"; or

      III) has been automatically registered:

         - set the state attribute within the <registration> element to "active";

         - set the state attribute within the <contact> element to "active"; and

         - set the event attribute within the <contact> element to "created".

The S-CSCF shall only include the non-barred public user identities in the NOTIFY request.

EXAMPLE: If sip:user1_public1@home1.net is registered, the public user identity sip:user1_public2@home1.net can automatically be registered. Therefore the entries in the body of the NOTIFY request look like:

```
<?xml version="1.0"?>
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo"
            version="0" state="full">
  <registration aor="sip:user1_public1@home1.net" id="as9"
            state="active">
    <contact id="76" state="active" event="registered"
         >sip:[5555::aaa:bbb:ccc:ddd]</contact>
  </registration>
  <registration aor="sip:user1_public2@home1.net" id="as10"
            state="active">
    <contact id="86" state="active" event="created"
         >sip:[5555::aaa:bbb:ccc:ddd]</contact>
  </registration>
</reginfo>
```

When sending a final NOTIFY request with all <registration> element(s) having their state attribute set to "terminated" (i.e. all public user identities have been deregistered or expired), the S-CSCF shall also terminate the subscription to the registration event package by setting the Subscription-State header to the value of "terminated".

The S-CSCF shall only include the non-barred public user identities in the NOTIFY request.

3GPP TSG-CN1 Meeting #31   **Tdoc N1-031032**
Sophia-Antipolis, France, 25 – 29 August 2003

CR-Form-v7

CHANGE REQUEST

| ⌘ | **24.229** CR | **CR 457** | ⌘ **rev** | **-** | ⌘ | Current version: | **5.5.0** | ⌘ |

*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:	⌘	Subscription termination at the P-CSCF
Source:	⌘	Lucent Technologies
Work item code: ⌘	**IMS-CCR**	***Date:*** ⌘ 10/08/2003
Category: ⌘	**F**	***Release:*** ⌘ *Rel-5*

Use one of the following categories:	*Use one of the following releases:*
F *(correction)*	*2 (GSM Phase 2)*
A *(corresponds to a correction in an earlier release)*	*R96 (Release 1996)*
B *(addition of feature),*	*R97 (Release 1997)*
C *(functional modification of feature)*	*R98 (Release 1998)*
D *(editorial modification)*	*R99 (Release 1999)*
Detailed explanations of the above categories can	*Rel-4 (Release 4)*
be found in 3GPP TR 21.900.	*Rel-5 (Release 5)*
	Rel-6 (Release 6)

Reason for change:	⌘	Upon deregistration of all IMPUs, there is no need for the P-CSCF to terminate the subscription to the reg event package for that user by sending a SUBSCRIBE request with an Expires header containing a value of zero. The S-CSCF will terminate all subscriptions to reg event by setting the Subscribe-event header in the NOTIFY request to "terminated".
Summary of change: ⌘		Appropriate text added.
Consequences if not approved:	⌘	Redundant procedure.

Clauses affected:	⌘	5.2.5.1

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

Other comments:	⌘	

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Below is a brief summary:

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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.

5.2.5.1   User-initiated deregistration

When the P-CSCF receives a 200 (OK) response to a REGISTER request (sent according to subclause 5.2.2), it shall check the value of the Expires header field and/or expires parameter in the Contact header field. When the value of the Expires header field or expires parameter equals zero, then the P-CSCF shall:

1) remove the public user identity found in the To header field, and all the associated public user identities, from the registered public user identities list and all related stored information; and

2) check if the user has left any other registered public user identity. When all of the public user identities of a user are deregistered, the P-CSCF shall~~, if the subscription to the reg event package for that user is still alive, terminate the subscription to the reg event package for that user by sending a SUBSCRIBE request with an Expires header containing a value of zero. The P-CSCF shall also remove~~ delete the security associations towards that user after the server transaction (as defined in RFC 3261 [26]) pertaining to this deregistration terminates.

NOTE 1:   Upon receipt of a NOTIFY request with all <registration> element(s) having their state attribute set to "terminated" (i.e. all public user identities are deregistered) and the Subscription-State header set to "terminated", the P-CSCF considers the subscription to the reg event package terminated (i.e. as if the P-CSCF had sent a SUBSCRIBE request with an Expires header containing a value of zero).

NOTE 2~~1~~:There is no requirement to distinguish a REGISTER request relating to a registration from that relating to a deregistration. For administration reasons the P-CSCF may distinguish such requests, however this has no impact on the SIP procedures.

NOTE 3~~2~~:When the P-CSCF has sent the 200 (OK) response for the REGISTER request of the only public user identity currently registered with its associated set of implicitly registered public user identities (i.e. no other is registered), the P-CSCF removes the security association established between the P-CSCF and the UE. Therefore further SIP signalling (e.g. the NOTIFY request containing the deregistration event) will not reach the UE.

CR-Form-v7

CHANGE REQUEST

⌘   **24.229** CR **CR 458** ⌘**rev** **-** ⌘ Current version: **5.5.0** ⌘

*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: ⌘	Network -initiated deregistration at P-CSCF	
Source: ⌘	Lucent Technologies	
Work item code:⌘	**IMS-CCR**	***Date:*** ⌘ 10/08/2003
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 P-CSCF, for network-initiated de-registration, the NOTIFY request sent by the S-CSCF terminates the SA and simultaneously indicate to the P-CSCF that it has been automaticaly de-subscribed to the reg event package. Currently, the existing text in the subclause 5.2.5.2 does not explicitly specify how is the P-CSCF subscription to the reg event package terminated.
Summary of change:⌘	Clearifying text added.
Consequences if ⌘ ***not approved:***	Incopmlete specification.

Clauses affected: ⌘	5.2.5.2

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

Other comments: ⌘	

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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.

5.2.5.2 Network-initiated deregistration

Upon receipt of a NOTIFY request on the dialog which was generated during subscription to the reg event package as described in subclause 5.2.3, including one or more <registration> element(s) with the state attribute set to "terminated" the P-CSCF shall remove all stored information for these public user identities.

Upon receipt of a NOTIFY request with all <registration> element(s) having their state attribute set to "terminated" (i.e. all public user identities are deregistered) and the Subscription-State header set to "terminated", the P-CSCF shall remove the security associations towards the UE.

NOTE 1: When the P-CSCF has removed the security association established between the P-CSCF and the UE, further SIP signalling (e.g. the NOTIFY containing the deregistration event) will not reach the UE.

NOTE 2: When the P-CSCF receives the NOTIFY request with Subscription-State header containing the value of "terminated", the P-CSCF considers the subscription to the reg event package terminated (i.e. as if the P-CSCF had sent a SUBSCRIBE request to the S-CSCF with an Expires header containing a value of zero).

3GPP TSG-CN1 Meeting #31	Tdoc N1-031233
Sophia-Antipolis, France, 25 – 29 August 2003	

CR-Form-v7

CHANGE REQUEST

⌘	**24.229** CR **461**	⌘**rev** **1-**	⌘ Current version:	**5.5.0** ⌘

*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:	⌘	Service profile		
Source:	⌘	Lucent Technologies		
Work item code: ⌘	**IMS-CCR**		**Date:** ⌘	10/08/2003
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 <u>TR 21.900</u>.

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: ⌘	Incorrect statement
Summary of change:⌘	Statement corrected
Consequences if not approved: ⌘	Incorrect statement

Clauses affected:	⌘	5.2.4	

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

Other comments:	⌘	Changes requested by the WG were incorporated

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Below is a brief summary:

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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.

5.2.4 Registration of multiple public user identities

Upon receipt of a 2xx response to the SUBSCRIBE request the P-CSCF shall maintain the generated dialog (identified by the values of the Call-ID, To and From headers).

Upon receipt of a NOTIFY request on the dialog which was generated during subscription to the reg event package, the P-CSCF shall perform the following actions:

- if a state attribute "active", i.e. registered, is received for one or more public user identities, the P-CSCF shall bind the indicated public user identities as registered to the contact information of the user;

- if a state attribute "terminated", i.e. deregistered, is received for one or more public user identities, the P-CSCF shall release all stored information for these public user identities.

NOTE: There may be public user identities which are implicitlyautomatically registered within the registrar (S-CSCF) of the user upon registration of one public user identity. These automatically registered public user identities belong to the same service profile of the user and they are not available at the P-CSCF, i.e. P-CSCF does not know that they have been registered. The here described procedures in this subclause provide a mechanism to inform the P-CSCF about these implicitlyautomatically registered public user identities.

CR-Form-v7

CHANGE REQUEST

| ⌘ | **24.229** CR **466** | ⌘**rev** | **1** | ⌘ | Current version: | **5.5.0** | ⌘ |

*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: ⌘	Requirements on preconditions		
Source: ⌘	Nortel Networks		
Work item code:⌘	IMS-CCR	**Date:** ⌘	15/08/2003
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: ⌘	23.228 section 5.4.8 describes some precondition cases which are possible according to the SIP specifications. "The flows of sections 5.5, 5.6 and 5.7 depict the case where both UEs require confirmation from the other of the fulfilment of the pre-conditions. Other cases are possible according to the SIP specifications. For example, the pre-conditions may already be fulfilled (according to the principles above) when the INVITE is sent, or the UE may not require explicit confirmation from the other SIP endpoint when the pre-conditions are fulfilled. One example of such SIP endpoint is the MGCF used for PSTN interworking. In these cases, one or both of the reservation confirmation messages may not be sent." The description of the MGCF procedures for SDP in 24.229 does not allow for this case since it states the usage of SDP by the MGCF is the same as that for the UE. The UE procedures mandate the UE to indicate that preconditions are not yet satisfied.
Summary of change:⌘	Include exceptions in the MGCF procedures for SDP to state the following: - The MGCF shall indicate the current status of preconditions. - The MGCF shall request a confirmation in the 183 if there are any remaining unfulfilled preconditions.
Consequences if ⌘ **not approved:**	Inconsistency with Stage 2 and unnecessary limitation in MGCFs.

Clauses affected: ⌘	6.4.1, 6.4.2

		Y	N	
Other specs	⌘		X	Other core specifications ⌘

affected:		X	Test specifications	
		X	O&M Specifications	

Other comments:	⌘	

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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.

## 6.4.1	Calls originating from circuit-switched networks

The usage of SDP by the MGCF is the same as its usage by the UE, as defined in the subclause 6.1 and A.3.2, with the following exception:-

-	In an INVITE request generated by a MGCF, the MGCF shall indicate the current status of the precondition.

When sending an SDP, the MGCF shall not include the "i=", "u=", "e=", "p=", "r=", and "z=" descriptors in the SDP, and it shall ignore them when received in the SDP.

When the MGCF generates and sends an INVITE request for a call originating in a circuit-switched network, the MGCF shall:

-	populate the SDP with the codecs supported by the associated MGW (see 3GPP TS 26.235 [10] for the supported codecs); and

-	in order to support DTMF, populate the SDP with MIME subtype "telephone-event" as described in RFC 2833 [23].

When the MGCF receives 183 (Session Progress) response to an INVITE request, the MGCF shall:

-	check that a supported codec has been indicated in the SDP.

## 6.4.2	Calls terminating in circuit-switched networks

The usage of SDP by the MGCF is the same as its usage by the UE, as defined in the subclause 6.1 and A.3.2-, with the following exception:

-	When the MGCF sends a 183 (Session Progress) response with SDP payload, it shall only request confirmation for the result of the resource reservation at the originating end point if there are any remaining unfulfilled preconditions.

When sending an SDP, the MGCF shall not include the "i=", "u=", "e=", "p=", "r=", and "z=" descriptors in the SDP, and it shall ignore them when received in the SDP.

When the MGCF receives an initial INVITE request, the MGCF shall:

-	check for a codec that matches the requested SDP, which may include the MIME subtype "telephone-event" as described in RFC 2833 [23].

When the MGCF generates and sends a 183 (Session Progress) response to an initial INVITE request, the MGCF shall:

-	set SDP indicating the selected codec, which may include the MIME subtype "telephone-event" as described in RFC 2833 [23].

5.4.3.3 Requests terminated at the served user

When the S-CSCF receives, destined for a registered served user, an initial request for a dialog or a request for a standalone transaction, prior to forwarding the request, the S-CSCF shall:

1) determine whether the request contains a barred public user identity in the Request-URI of the request or not. In case the Request URI contains a barred public user identity for the user, then the S-CSCF shall reject the request by generating a 404 (Not Found) response. Otherwise, continue with the rest of the steps;

2) remove its own URI from the topmost Route header;

3) save the Request-URI from the request;

43) check if an original dialog identifier that the S-CSCF previously placed in a Route header is present in the topmost Route header of the incoming request.

 - If present, it indicates an association with an existing dialog, the request has been sent from an AS in response to a previously sent request.

 - If not present, it indicates that the request is visiting the S-CSCF for the first time, and in this case the S-CSCF shall save the Request-URI from the request;

54) check whether the initial request matches the next unexecuted initial filter criteria in the priority order and apply the filter criteria on the SIP method as described in 3GPP TS 23.218 [5] subclause 6.5. If there is a match, then insert the AS URI to be contacted into the Route header as the topmost entry followed by its own URI populated as specified in the subclause 5.4.3.4;

NOTE 1: Depending on the result of the previous process, the S-CSCF may contact one or more AS(s) before processing the outgoing Request-URI.

65) insert a P-Charging-Function-Addresses header field, if not present, populated with values received from the HSS if the message is forwarded within the S-CSCF home network, including towards AS;

76) 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;

87) store the value of the orig-ioi parameter received in the P-Charging-Vector header, if present. The orig-ioi parameter identifies the sending network of the request message. The orig-ioi parameter shall only be retained in the P-Charging-Vector header if the next hop is to an AS;

98) check whether the Request-URI equals to the saved value of the Request-URI. If there is no match, then:

 a) if the request is an INVITE request, save the Contact, CSeq and Record-Route header field values received in the request such that the S-CSCF is able to release the session if needed; and

 b) forward the request based on the Request-URI and skip the following steps;

 If there is a match, then continue with the further steps;

109) in case there are no Route headers in the request, then determine, from the destination public user identity, the list of preloaded routes saved during registration or re-registration, as described in subclause 5.4.1.2. Furthermore, the S-CSCF shall:

 a) build the Route header field with the values determined in the previous step;

 b) determine, from the destination public user identity, the saved Contact URI where the user is reachable saved at registration or reregistration, as described in subclause 5.4.1.2;

 c) build a Request-URI with the contents of the saved Contact URI determined in the previous step; and

 d) insert a P-Called-Party-ID SIP header field including the Request-URI received in the INVITE;

1110) if the request is an INVITE request, save the Contact, CSeq and Record-Route header field values received in the request such that the S-CSCF is able to release the session if needed;

12̶11) optionally, apply any privacy required by RFC 3323 [33] to the P-Asserted-Identity header; and

NOTE 2: The optional procedure above is in addition to any procedure for the application of privacy at the edge of the trust domain specified by RFC 3323 [33].

13̶12) forward the request based on the topmost Route header.

When the S-CSCF receives, destined for an unregistered user, an initial request for a dialog or a request for a standalone transaction, the S-CSCF shall:

1) execute the procedures described in the steps 1, 2, and 3 and 4 in the above paragraph (when the S-CSCF receives, destined for the registered served user, an initial request for a dialog or a request for a standalone transaction);

2) if the S-CSCF does not have the user profile, then initiate the S-CSCF Registration/deregistration notification with the purpose of downloading the relevant user profile (i.e. for unregistered user) and informing the HSS that the user is unregistered, but this S-CSCF will assess triggering of services for the unregistered user, as described in 3GPP TS 29.228 [14]; and

3) execute the procedure described in step 4, 5, 6, 7, 8, 9, 11, and 12 and 13 in the above paragraph (when the S-CSCF receives, destined for the registered served user, an initial request for a dialog or a request for a standalone transaction).

In case that no AS needs to be contacted, then S-CSCF shall return an appropriate unsuccessful SIP response. This response may be a 480 (Temporarily unavailable) and terminate these procedures.

When the S-CSCF receives a 1xx or 2xx response to the initial request for a dialog (whether the user is registered or not), it shall:

1) if the response corresponds to an INVITE request, save the Contact and Record-Route header field values in the response such that the S-CSCF is able to release the session if needed;

2) in the case where the S-CSCF has knowledge of an associated tel-URL for a SIP URI contained in the received P-Asserted-Identity header, the S-CSCF shall add a second P-Asserted-Identity header containing this tel-URL; and

3) in case the response is forwarded to an AS that is located within the trust domain, the S-CSCF shall retain the P-Access-Network-Info header; otherwise, the S-CSCF shall remove the P-Access-Network-Info header.

When the S-CSCF receives a response to a request for a standalone transaction (whether the user is registered or not), in the case where the S-CSCF has knowledge of an associated tel-URL for a SIP URI contained in the received P-Asserted-Identity header, the S-CSCF shall add a second P-Asserted-Identity header containing this tel-URL. In case the response is forwarded to an AS that is located within the trust domain, the S-CSCF shall retain the P-Access-Network-Info header; otherwise, the S-CSCF shall remove the P-Access-Network-Info header.

When the S-CSCF receives the 200 (OK) response for a standalone transaction request, the S-CSCF shall insert a P-Charging-Function-Addresses header populated with values received from the HSS if the message is forwarded within the S-CSCF home network, including towards an AS.

When the S-CSCF receives, destined for a served user, a target refresh request for a dialog, prior to forwarding the request, the S-CSCF shall:

1) remove its own URI from the topmost Route header;

2) if the request is an INVITE request, save the Contact, Cseq and Record-Route header field values received in the request such that the S-CSCF is able to release the session if needed;

3) create a Record-Route header containing its own SIP URI; and

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

When the S-CSCF receives a 1xx or 2xx response to the target refresh request for a dialog (whether the user is registered or not), the S-CSCF shall:

1) if the response corresponds to an INVITE request, save the Record-Route and Contact header field values in the response such that the S-CSCF is able to release the session if needed; and

    2) in case the response is forwarded to an AS that is located within the trust domain, the S-CSCF shall retain the P-Access-Network-Info header; otherwise, the S-CSCF shall remove the P-Access-Network-Info header.

When the S-CSCF receives, destined for the served user, a subsequent request other than target refresh request for a dialog, prior to forwarding the request, the S-CSCF shall:

    1) remove its own URI from the topmost Route header; and

    2) forward the request based on the topmost Route header.

When the S-CSCF receives a response to a a subsequent request other than target refresh request for a dialog, in case the response is forwarded to an AS that is located within the trust domain, the S-CSCF shall retain the P-Access-Network-Info header; otherwise, the S-CSCF shall remove the P-Access-Network-Info header.

3GPP TSG-CN1 Meeting #31   **Tdoc N1-031094**
Sophia-Antipolis, France, 25 – 29 August 2003

CR-Form-v7	

CHANGE REQUEST

⌘	**24.229** CR	**468**	⌘**rev**	**-**	⌘	Current version:	**5.5.0**	⌘

*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 **X**

Title:	⌘	Update of references
Source:	⌘	Ericsson
Work item code: ⌘	IMS-CCR	**Date:** ⌘ 17/08/2003

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:	⌘	New stable RFCs are available. They replace the respective Internet Drafts
Summary of change: ⌘		References are updated throughout the TS to refer to the RFC instead of the Internet Draft
Consequences if not approved:	⌘	The Internet Draft is an unstable specification that stops existing after 6 months. Therefore it won't be possible to find the specification required in the implementation.

Clauses affected:	⌘	2, 6.1, 9.2.1

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

Other comments:	⌘	

First proposed change

2 References

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

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document.*

[1]   3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2]   3GPP TS 23.002: "Network architecture".

[3]   3GPP TS 23.003: "Numbering, addressing and identification".

[4]   3GPP TS 23.060: "General Packet Radio Service (GPRS); Service description; Stage 2".

[4A]   3GPP TS 23.107: "Quality of Service (QoS) concept and architecture".

[5]   3GPP TS 23.218: "IP Multimedia (IM) Session Handling; IM call model".

[6]   3GPP TS 23.221: "Architectural requirements".

[7]   3GPP TS 23.228: "IP multimedia subsystem; Stage 2".

[8]   3GPP TS 24.008: "Mobile radio interface layer 3 specification; Core Network protocols; Stage 3".

[9]   3GPP TS 25.304: "UE Procedures in Idle Mode and Procedures for Cell Reselection in Connected Mode".

[9A]   3GPP TS 25.331: "Radio Resource Control (RRC); Protocol Specification".

[10]   3GPP TS 26.235: "Packet switched conversational multimedia applications; Default codecs".

[10A]   3GPP TS 27.060: "Mobile Station (MS) supporting Packet Switched Services".

[11]   3GPP TS 29.061: "Interworking between the Public Land Mobile Network (PLMN) supporting Packet Based Services and Packet Data Networks (PDN)".

[12]   3GPP TS 29.207: "Policy control over Go interface".

[13]   3GPP TS 29.208: "End to end Quality of Service (QoS) signalling flows".

[14]   3GPP TS 29.228: "IP Multimedia (IM) Subsystem Cx and Dx Interfaces; Signalling flows and message contents".

[15]   3GPP TS 29.229: "Cx and Dx Interfaces based on the Diameter protocol, Protocol details".

[16]   3GPP TS 32.200: "Telecommunication management; Charging management; Charging principles".

[17]   3GPP TS 32.225: "Telecommunication management; Charging management; Charging data description for the IP Multimedia subsystem".

[18]   3GPP TS 33.102: "3G Security; Security architecture".

[19]   3GPP TS 33.203: "Access security for IP based services".

[20]   3GPP TS 44.018: "Mobile radio interface layer 3 specification, Radio Resource Control Protocol".

[20A]   RFC 2401 (November 1998): "Security Architecture for the Internet Protocol".

[20B]   RFC 1594 (March 1994): "FYI on Questions and Answers to Commonly asked "New Internet User" Questions".

[20C]   RFC 2403 (November 1998) "The Use of HMAC-MD5-96 within ESP and AH".

[20D]   RFC 2404 (November 1998) "The Use of HMAC-SHA-1-96 within ESP and AH".

[20E]   RFC 2462 (November 1998): "IPv6 Address Autoconfiguration".

[21]   RFC 2617 (June 1999): "HTTP Authentication: Basic and Digest Access Authentication".

[22]   RFC 2806 (April 2000): "URLs for Telephone Calls".

[23]   RFC 2833 (May 2000): "RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals".

[24]   RFC 2916 (September 2000): "E.164 number and DNS".

[25]   RFC 2976 (October 2000): "The SIP INFO method".

[25A]   RFC 3041 (January 2001): "Privacy Extensions for Stateless Address Autoconfiguration in IPv6".

[26]   RFC 3261 (June 2002): "SIP: Session Initiation Protocol".

[27]   RFC 3262 (June 2002): "Reliability of provisional responses in Session Initiation Protocol (SIP)".

[28]   RFC 3265 (June 2002): "Session Initiation Protocol (SIP) Specific Event Notification".

[29]   RFC 3311 (September 2002): "The Session Initiation Protocol (SIP) UPDATE method".

[30]   RFC 3312 (October 2002): "Integration of resource management and Session Initiation Protocol (SIP)".

[31]   RFC 3313 (January 2003): "Private Session Initiation Protocol (SIP) Extensions for Media Authorization".

[32]   RFC 3320 (March 2002): "Signaling Compression (SigComp)".

[33]   RFC 3323 (November 2002): "A Privacy Mechanism for the Session Initiation Protocol (SIP)".

[34]   RFC 3325 (November 2002): "Private Extensions to the Session Initiation Protocol (SIP) for Network Asserted Identity within Trusted Networks".

[35]   RFC 3327 (December 2002): "Session Initiation Protocol Extension Header Field for Registering Non-Adjacent Contacts".

[36]   RFC 3515 (April 2003): "The Session Initiation Protocol (SIP) REFER method".

[37]   RFC 3420 (November 2002): "Internet Media Type message/sipfrag".

[38]   draft-ietf-sip-scvrtdisco-04 (May 2003): "Session Initiation Protocol Extension Header Field for Service Route Discovery During Registration".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

[39]   draft-ietf-mmusic-sdp-new-~~12~~ 13 (~~March~~ May 2003): "SDP: Session Description Protocol".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

[40]   ~~draft-ietf-dhc-dhcpv6-28 (November 2002)~~ RFC 3315 (July 2003): "Dynamic Host Configuration Protocol for IPv6 (DHCPv6)".

~~Editor's note: The above document cannot be formally referenced until it is published as an RFC.~~

[41] draft-ietf-sip-dhcpv6-01 (November 2002): "DHCPv6 options for SIP servers"RFC 3319 (July 2003): "Dynamic Host Configuration Protocol (DHCPv6) Options for Session Initiation Protocol (SIP) Servers".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

[42] RFC 3485 (February 2003): "The Session Initiation Protocol (SIP) and Session Description Protocol (SDP) static dictionary for Signaling Compression (SigComp)".

[43] draft-ietf-sipping-reg-event-00 (October 2002): "A Session Initiation Protocol (SIP) Event Package for Registrations".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

[44] Void.

[45] Void.

[46] Void.

[47] Void.

[48] RFC 3329 (January 2003): "Security Mechanism Agreement for the Session Initiation Protocol (SIP)".

[49] RFC 3310 (September 2002): "Hypertext Transfer Protocol (HTTP) Digest Authentication Using Authentication and Key Agreement (AKA)".

[50] RFC 3428 (December 2002): "Session Initiation Protocol (SIP) Extension for Instant Messaging".

[51] Void.

[52] RFC 3455 (January 2003): "Private Header (P-Header) Extensions to the Session Initiation Protocol (SIP) for the 3rd-Generation Partnership Project (3GPP)".

[53] RFC 3388 (December 2002): "Grouping of Media Lines in Session Description Protocol".

[54] RFC 3524 (April 2003): "Mapping of Media Streams to Resource Reservation Flows".

[55] RFC 3486 (February 2003): "Compressing the Session Initiation Protocol (SIP)".

[56] draft-ietf-avt-rtcp-bw-05.txt (November 2001): "SDP Bandwidth Modifiers for RTCP Bandwidth".RFC 3556 (July 2003): "Session Description Protocol (SDP) Bandwidth Modifiers for RTP Control Protocol (RTCP) Bandwidth".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

[57] ITU-T Recommendation E.164: "The international public telecommunication numbering plan".

Next proposed change

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 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. The UE shall order the SDP payload with the most preferred codec listed first. In addition, the calling user shall indicate the desired QoS for the session, using the segmented status type. In an initial INVITE request 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. Providing that the INVITE request received by the UE contains an SDP offer including one or more "m=" media descriptions, the first 183 (Session Progress) provisional response that the UE sends, shall contain the answer for the SDP received in the INVITE. The said SDP answer shall reflect the called user's terminal capabilities and user preferences.

4. When the UE sends a 183 (Session Progress) response with SDP payload including one or more "m=" media descriptions, 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 and the "AS" bandwidth modifier in the SDP.

   If the media line in the SDP indicates the usage of RTP/RTCP, in addition to the "AS" bandwidth modifier in the media-level "b=" line, the UE shall include two media-level "b=" lines, one with the "RS" bandwidth modifier and the other with the "RR" bandwidth modifier as described in ~~draft-ietf-avt-rtcp-bw-05~~ RFC 3556 [56] to specify the required bandwidth allocation for RTCP.

   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].

NOTE 1: In a two-party session where both participants are active, the RTCP receiver reports are not sent, therefore, the RR bandwidth modifer will typically get the value of zero.

7. The UE shall include the MIME subtype "telephone-event" in 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. The UE shall inspect the SDP contained in any SIP request or response, looking for possible indications of grouping of media streams according to RFC 3524 [54] and perform the action outlined in subclause 9.2.5.

9. 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].

10. If the UE builds SDP for an INVITE request generated after receiving a 488 (Not Acceptable Here) response, as described in subclause 5.1.3.1, the UE shall include SDP payload containing a subset of the allowed media types, codecs and other parameters from the SDP payload of all 488 (Not Acceptable Here) responses related to the same session establishment attempt (i.e. a set of INVITE requests used for the same session establishment). The UE shall order the codecs in the SDP payload according to the order of the codecs in the SDP payload of the 488 (Not Acceptable Here) response.

NOTE 2: The UE may be attempting a session establishment through multiple networks with different policies and potentially may need to send multiple INVITE requests and receive multiple 488 (Not Acceptable Here) responses from different CSCF nodes. The UE therefore takes into account the SDP contents of all the 488 (Not Acceptable Here) responses received related to the same session establishment when building a new INVITE request.

Next proposed change

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 as described in 3GPP TS 29.061 [11]. The
        UE can also set the Signalling Indication attribute within the QoS IE;

   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 can also set the Signalling Indication attribute within the QoS IE.

   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.

   The encoding of the IM CN Subsystem Signalling Flag within the Protocol Configuration Options IE is
   described in 3GPP TS 24.008 [8].

   The UE can indicate a request for prioritised handling over the radio interface by setting the Signalling
   Indication attribute (see 3GPP TS 23.107 [4A]). The general QoS negotiation mechanism and the encoding of
   the Signalling Indication attribute within the QoS IE are described 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 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) RFC 3315 ~~draft-ietf-dhc-dhcpv6~~ [40], the
        DHCPv6 options for SIP servers ~~draft-ietf-sip-dhcpv6~~ RFC 3319 [41] 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~~ RFC 3315 [40] or by the Protocol Configuration Options IE when activating a PDP context according to 3GPP TS 27.060 [10A].

The encoding of the request and response for IPv6 address(es) for DNS server(s) and list of P-CSCF address(es) within the Protocol Configuration Options IE is described in 3GPP TS 24.008 [8].