

**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

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**Introduction:**

This document contains 9 CRs, **Rel-5 to Work Item "IMS-CCR"**, that have been agreed by **TSG CN WG1**, and are forwarded to TSG CN Plenary meeting #20 for approval.

Spec	CR	Rev	Cat	Phase	Subject	Version-Current	Version-New	Meeting-2nd-Level	Doc-2nd-Level
24.229	348	1	F	Rel-5	Format of Tel URL in P-Asserted-Id	5.4.0	5.5.0	N1-29	N1-030510
24.229	349		F	Rel-5	Delete Note on header stripping/SDP manipulation	5.4.0	5.5.0	N1-29	N1-030387
24.229	354	1	F	Rel-5	Clarifications on using DNS procedures	5.4.0	5.5.0	N1-29	N1-030520
24.229	356	4	F	Rel-5	Addition of procedures at the AS for SDP	5.4.0	5.5.0	N1-30	N1-030942
24.229	357	1	F	Rel-5	Usage of P-Associated-URI	5.4.0	5.5.0	N1-29	N1-030499
24.229	359	1	F	Rel-5	Network-initiated deregistration at UE and P-CSCF	5.4.0	5.5.0	N1-29	N1-030501
24.229	360	2	F	Rel-5	Barred identities	5.4.0	5.5.0	N1-29	N1-030550
24.229	365	1	F	Rel-5	PDP contex subject to SBLP cannot be reused by other IMS sessions	5.4.0	5.5.0	N1-29	N1-030513
24.229	368	1	F	Rel-5	User authentication failure cleanups	5.4.0	5.5.0	N1-29	N1-030506

## CHANGE REQUEST

⌘ **24.229 CR 348** ⌘ rev **1** ⌘ Current version: **5.4.0** ⌘

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

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

<b>Title:</b>	⌘ Format of Tel URL in P-Asserted-ID		
<b>Source:</b>	⌘ Siemens		
<b>Work item code:</b>	⌘ IMS-CCR	<b>Date:</b>	⌘ 24/03/2003
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ <b>5</b>
	<i>Use one of the following categories:</i> <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		<i>Use one of the following releases:</i> <b>2</b> (GSM Phase 2) <b>R96</b> (Release 1996) <b>R97</b> (Release 1997) <b>R98</b> (Release 1998) <b>R99</b> (Release 1999) <b>Rel-4</b> (Release 4) <b>Rel-5</b> (Release 5) <b>Rel-6</b> (Release 6)

<b>Reason for change:</b>	⌘ Guarantee that MGCF obtains internationally unique E.164 number in P-Asserted-Identity Header. The MGCF is not capable to identify the appropriate country codes in all cases. Although the HSS uses internationally unique E.164 numbers, it is not guranteed that these numbers are also inserted in the P-Asserted-Identity Header. For instance, the UE may use a national phone number as preferred Identity, and the P-CSCF could consider this number valid.
<b>Summary of change:</b>	⌘ Note for the UE is included that network proceduers require an international public telecommunication number
<b>Consequences if not approved:</b>	⌘ MO Calls with national phone numbers may lead to calling line ID feature not working when call is towards BICC/ISUP network.

<b>Clauses affected:</b>	⌘ 5.1.2.A.1, 2, 3.1										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications Test specifications O&M Specifications	⌘
Y	N										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<input type="checkbox"/>	<input checked="" type="checkbox"/>										
<b>Other comments:</b>	⌘										

**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.

\*\*\*\* 1<sup>st</sup> Change \*\*\*\*

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## 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".
- [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 Gs 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".
- [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".
- [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] draft-ietf-sip-refer-05 (June 2002): "The REFER method".

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

- [37] RFC 3420 (November 2002): "Internet Media Type message/sipfrag".
- [38] draft-ietf-sip-scvrtdisco-01 (August 2002): "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-10 (May 2002): "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-dhcpv6-26 (June 2002): "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-dhcpv6-00 (April 2002): "DHCPv6 options for 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] draft-ietf-mmusic-reservation-flows-01.txt (October 2002): "Mapping of Media Streams to Resource Reservation Flows".

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

- [55] RFC 3486 (February 2003): "Compressing the Session Initiation Protocol (SIP)"
- [56] [ITU-T Recommendation E.164: "The international public telecommunication numbering plan"](#).

\*\*\*\* next Change \*\*\*\*

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## 3 Definitions and abbreviations

### 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 routing**  
**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)  
**Target Refresh Request**  
**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**  
**Initial request**  
**Standalone transaction**  
**Subsequent request**

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)**

For the purposes of the present document, the following terms and definitions given in RFC 2401 [20A] Appendix A apply:

**Security association**

NOTE: A number of different security associations exist within the IM CN subsystem. Within this document the term specifically applies to the security association that exists between the UE and the P-CSCF, as this is the only security association that has direct impact on SIP.

[For the purposes of the present document, the following terms and definitions given in ITU-T E.164 \[56\] apply:](#)

[International public telecommunication number](#)

\*\*\*\* next Change \*\*\*\*

### 5.1.2A.1 Mobile-originating case

The procedures of this subclause are general to all requests and responses, except those for the REGISTER method.

In accordance with RFC 3325 [34] the UE may insert a P-Preferred-Identity header in any initial request for a dialog or request for a standalone transaction as a hint for creation of an asserted identity within the IM CN subsystem. The UE may include any of the following in the P-Preferred-Identity header:

- a public user identity stored in the USIM which has been registered by the user;
- a public user identity returned in a registration-state event package of a NOTIFY request as a result of an implicit registration that was not subsequently deregistered or has expired; or
- any other public user identity which the user has assumed by mechanisms outside the scope of this specification to have a current registration.

NOTE 1: The temporary public user identity specified in subclause 5.1.1.1 is not a public user identity suitable for use in the P-Preferred-Identity header.

[NOTE 2: Procedures in the network require international public telecommunication numbers when telephone numbers are used in P-Preferred-Identity Header.](#)

Where privacy is required, in any initial request for a dialog or request for a standalone transaction, the UE shall set the From header to "Anonymous".



## CHANGE REQUEST

⌘ **24.229 CR 349** ⌘ rev **-** ⌘ Current version: **5.4.0** ⌘

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

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

<b>Title:</b>	⌘ Delete Note on header stripping/SDP manipulation		
<b>Source:</b>	⌘ Siemens		
<b>Work item code:</b>	⌘ IMS-CCR	<b>Date:</b>	⌘ 24/03/2003
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ <b>5</b>
	<i>Use one of the following categories:</i> <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="http://www.3gpp.org/ftp/Specs/24.229/24.229-TR-21.900">TR 21.900</a> .		<i>Use one of the following releases:</i> <b>2</b> (GSM Phase 2) <b>R96</b> (Release 1996) <b>R97</b> (Release 1997) <b>R98</b> (Release 1998) <b>R99</b> (Release 1999) <b>Rel-4</b> (Release 4) <b>Rel-5</b> (Release 5) <b>Rel-6</b> (Release 6)

<b>Reason for change:</b>	⌘ In the General chapter of 24.229 it is still stated that the P-CSCF in some situations modifies SDP and strips header. This is no longer valid.
<b>Summary of change:</b>	⌘ Delete the parts that state the P-CSCF modifies SDP and strips headers.
<b>Consequences if not approved:</b>	⌘ Inconsistent specification

<b>Clauses affected:</b>	⌘ 4.1						
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Other core specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Test specifications	<input checked="" type="checkbox"/>	⌘				
<input checked="" type="checkbox"/>							
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> O&M Specifications	<input checked="" type="checkbox"/>	⌘				
<input checked="" type="checkbox"/>							
<b>Other comments:</b>	⌘						

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## 4 General

### 4.1 Conformance of IM CN subsystem entities to SIP, SDP and other protocols

SIP defines a number of roles which entities can implement in order to support capabilities. These roles are defined in annex A.

Each IM CN subsystem functional entity using an interface at the Gm reference point, the Mg reference point, the Mi reference point, the Mj reference point, the Mk reference point, the Mm reference point, the Mr reference point and the Mw reference point, and also using the IP multimedia Subsystem Service Control (ISC) Interface, shall implement SIP, as defined by the referenced specifications in Annex A, and in accordance with the constraints and provisions specified in annex A, according to the following roles.

The Gm reference point, the Mg reference point, the Mi reference point, the Mj reference point, the Mk reference point, the Mm reference point and the Mw reference point are defined in 3GPP TS 23.002 [2].

The Mr reference point is defined in 3GPP TS 23.228 [7].

The ISC interface is defined in 3GPP TS 23.228 [7] subclause 4.2.4.

- The User Equipment (UE) shall provide the User Agent (UA) role, with the exceptions and additional capabilities to SIP as described in subclause 5.1, with the exceptions and additional capabilities to SDP as described in subclause 6.1, and with the exceptions and additional capabilities to SigComp as described in subclause 8.1. The UE shall also provide the access dependent procedures described in subclause 9.2.
- The P-CSCF shall provide the proxy role, with the exceptions and additional capabilities to SIP as described in subclause 5.2, with the exceptions and additional capabilities to SDP as described in subclause 6.2, and with the exceptions and additional capabilities to SigComp as described in subclause 8.2. Under certain circumstances as described in subclause 5.2, the P-CSCF shall provide the UA role with the additional capabilities, as follows:
  - a) when acting as a subscriber to or the recipient of event information; and
  - b) when performing P-CSCF initiated dialog-release the P-CSCF shall provide the UA role, even when acting as a proxy for the remainder of the dialog.
- The I-CSCF shall provide the proxy role, with the exceptions and additional capabilities as described in subclause 5.3.
- The S-CSCF shall provide the proxy role, with the exceptions and additional capabilities as described in subclause 5.4, and with the exceptions and additional capabilities to SDP as described in subclause 6.3. Under certain circumstances as described in subclause 5.4, the S-CSCF shall provide the UA role with the additional capabilities, as follows:
  - a) the S-CSCF shall also act as a registrar. When acting as a registrar, or for the purposes of executing a third-party registration, the S-CSCF shall provide the UA role;
  - b) as the notifier of event information the S-CSCF shall provide the UA role;
  - c) when providing a messaging mechanism by sending the MESSAGE method, the S-CSCF shall provide the UA role; and
  - d) when performing S-CSCF initiated dialog release the S-CSCF shall provide the UA role, even when acting as a proxy for the remainder of the dialog.
- The MGCF shall provide the UA role, with the exceptions and additional capabilities as described in subclause 5.5, and with the exceptions and additional capabilities to SDP as described in subclause 6.4.
- The BGCF shall provided the proxy role, with the exceptions and additional capabilities as described in subclause 5.6.

- The AS, acting as terminating UA, or redirect server (as defined in 3GPP TS 23.218 [5] subclause 9.1.1.1), shall provide the UA role, with the exceptions and additional capabilities as described in subclause 5.7.2.
- The AS, acting as originating UA (as defined in 3GPP TS 23.218 [5] subclause 9.1.1.2), shall provide the UA role, with the exceptions and additional capabilities as described in subclause 5.7.3.
- The AS, acting as a SIP proxy (as defined in 3GPP TS 23.218 [5] subclause 9.1.1.3), shall provided the proxy role, with the exceptions and additional capabilities as described in subclause 5.7.4.
- The AS, performing 3rd party call control (as defined in 3GPP TS 23.218 [5] subclause 9.1.1.4), shall provide the UA role, with the exceptions and additional capabilities as described in subclause 5.7.5.
- The AS, receiving third-party registration requests, shall provide the UA role, with the exceptions and additional capabilities as described in subclause 5.7.
- The MRFC shall provide the UA role, with the exceptions and additional capabilities as described in subclause 5.8, and with the exceptions and additional capabilities to SDP as described in subclause 6.5.

NOTE 1: Annex A can change the status of requirements in referenced specifications. Particular attention is drawn to table A.4 and table A.162 for capabilities within referenced SIP specifications, and to table A.317 and table A.328 for capabilities within referenced SDP specifications. The remaining tables build on these initial tables.

NOTE 2: The allocated roles defined in this clause are the starting point of the requirements from the IETF SIP specifications, and are then the basis for the description of further requirements. Some of these extra requirements formally change the proxy role into a B2BUA. ~~Thus, for example, a P-CSCF is a B2BUA in that it inspects and may modify SDP message bodies, and terminates Record-Route headers on behalf of the UA, but it~~ In all other respects other than those more completely described in subclause 5.2 ~~it a P-CSCF~~ implements proxy requirements. Despite being a B2BUA a P-CSCF does not implement UA requirements from the IETF RFCs, except as indicated in this specification, e.g., relating to registration event subscription.

CR-Form-v7

## CHANGE REQUEST

⌘ **24.229 CR 354** ⌘ rev **1** ⌘ Current version: **5.4.0** ⌘

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

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

<b>Title:</b>	⌘ Clarifications on using DNS procedures		
<b>Source:</b>	⌘ NEC Corporation, Nokia		
<b>Work item code:</b>	⌘ IMS-CCR	<b>Date:</b>	⌘ 24/03/2003
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		2 (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
	<b>B</b> (addition of feature),		R97 (Release 1997)
	<b>C</b> (functional modification of feature)		R98 (Release 1998)
	<b>D</b> (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ draft-ietf-sip-dhcpv6 draft-ietf-sip-dhcpv6 already describes the procedures for DNS usage after discovery of a SIP server. In order not to reproduce the dependencies listed in draft-ietf-sip-dhcpv6, the reference to DNS is crossed out.
<b>Summary of change:</b>	⌘ The P-CSCF discovery should not mention DNS, as this is already described in draft-ietf-sip-dhcpv6 ..
<b>Consequences if not approved:</b>	⌘ DNS deleted from P-CSCF discovery procedure.

<b>Clauses affected:</b>	⌘ 9.2.1										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> </table>	Y	N	⌘	X	⌘	X	⌘	X	Other core specifications	⌘
Y	N										
⌘	X										
⌘	X										
⌘	X										
		Test specifications									
		O&M Specifications									
<b>Other comments:</b>	⌘										

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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 and only 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];

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

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

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

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

The methods for P-CSCF discovery are:

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

The UE shall either:

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

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

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

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

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

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

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

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

**End of change**



## CHANGE REQUEST

⌘ **24.229 CR 356** ⌘ rev **4** ⌘ Current version: **5.4.0** ⌘

For [HELP](#) on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

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

<b>Title:</b>	⌘ Addition of procedures at the AS for SDP		
<b>Source:</b>	⌘ NEC Corporation		
<b>Work item code:</b>	⌘ IMS-CCR	<b>Date:</b>	⌘ 12/05/2003
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ Rel-5
	<i>Use one of the following categories:</i> <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		<i>Use one of the following releases:</i> <b>2</b> (GSM Phase 2) <b>R96</b> (Release 1996) <b>R97</b> (Release 1997) <b>R98</b> (Release 1998) <b>R99</b> (Release 1999) <b>Rel-4</b> (Release 4) <b>Rel-5</b> (Release 5) <b>Rel-6</b> (Release 6)

<b>Reason for change:</b>	⌘ AS can initiate or terminate INVITE with SDP when acting as originating UA, terminating UA or third party call control roll. However, currently there is no description on procedures for SDP at the AS. This document is postponed from the previous meeting.
<b>Summary of change:</b>	⌘ It s proposed that the new subclause 6. 6 that specifies the SDP dependency on the service provided, and points to annex A.3. Subclause 4.1 is also modified accordingly.
<b>Consequences if not approved:</b>	⌘ There still remains inconsistency between specifications and implementations

<b>Clauses affected:</b>	⌘ 4.1, 6.6										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Y</td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;"> </td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;"> </td> <td style="padding: 2px;">N</td> </tr> <tr> <td style="padding: 2px;"> </td> <td style="padding: 2px;">N</td> </tr> </table>	Y	N		N		N		N	Other core specifications	⌘
	Y	N									
		N									
	N										
	N										
		Test specifications	⌘								
		O&M Specifications	⌘								
<b>Other comments:</b>	⌘										

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## Start of first Change

## Start of first Change

### 4.1 Conformance of IM CN subsystem entities to SIP, SDP and other protocols

SIP defines a number of roles which entities can implement in order to support capabilities. These roles are defined in annex A.

Each IM CN subsystem functional entity using an interface at the Gm reference point, the Mg reference point, the Mi reference point, the Mj reference point, the Mk reference point, the Mm reference point, the Mr reference point and the Mw reference point, and also using the IP multimedia Subsystem Service Control (ISC) Interface, shall implement SIP, as defined by the referenced specifications in Annex A, and in accordance with the constraints and provisions specified in annex A, according to the following roles.

The Gm reference point, the Mg reference point, the Mi reference point, the Mj reference point, the Mk reference point, the Mm reference point and the Mw reference point are defined in 3GPP TS 23.002 [2].

The Mr reference point is defined in 3GPP TS 23.228 [7].

The ISC interface is defined in 3GPP TS 23.228 [7] subclause 4.2.4.

- The User Equipment (UE) shall provide the User Agent (UA) role, with the exceptions and additional capabilities to SIP as described in subclause 5.1, with the exceptions and additional capabilities to SDP as described in subclause 6.1, and with the exceptions and additional capabilities to SigComp as described in subclause 8.1. The UE shall also provide the access dependent procedures described in subclause 9.2.
- The P-CSCF shall provide the proxy role, with the exceptions and additional capabilities to SIP as described in subclause 5.2, with the exceptions and additional capabilities to SDP as described in subclause 6.2, and with the exceptions and additional capabilities to SigComp as described in subclause 8.2. Under certain circumstances as described in subclause 5.2, the P-CSCF shall provide the UA role with the additional capabilities, as follows:
  - a) when acting as a subscriber to or the recipient of event information; and
  - b) when performing P-CSCF initiated dialog-release the P-CSCF shall provide the UA role, even when acting as a proxy for the remainder of the dialog.
- The I-CSCF shall provide the proxy role, with the exceptions and additional capabilities as described in subclause 5.3.
- The S-CSCF shall provide the proxy role, with the exceptions and additional capabilities as described in subclause 5.4, and with the exceptions and additional capabilities to SDP as described in subclause 6.3. Under certain circumstances as described in subclause 5.4, the S-CSCF shall provide the UA role with the additional capabilities, as follows:
  - a) the S-CSCF shall also act as a registrar. When acting as a registrar, or for the purposes of executing a third-party registration, the S-CSCF shall provide the UA role;
  - b) as the notifier of event information the S-CSCF shall provide the UA role;
  - c) when providing a messaging mechanism by sending the MESSAGE method, the S-CSCF shall provide the UA role; and
  - d) when performing S-CSCF initiated dialog release the S-CSCF shall provide the UA role, even when acting as a proxy for the remainder of the dialog.
- The MGCF shall provide the UA role, with the exceptions and additional capabilities as described in subclause 5.5, and with the exceptions and additional capabilities to SDP as described in subclause 6.4.
- The BGCF shall provided the proxy role, with the exceptions and additional capabilities as described in subclause 5.6.

- The AS, acting as terminating UA, or redirect server (as defined in 3GPP TS 23.218 [5] subclause 9.1.1.1), shall provide the UA role, with the exceptions and additional capabilities as described in subclause 5.7.2, and with the exceptions and additional capabilities to SDP as described in subclause 6.6.
- The AS, acting as originating UA (as defined in 3GPP TS 23.218 [5] subclause 9.1.1.2), shall provide the UA role, with the exceptions and additional capabilities as described in subclause 5.7.3, and with the exceptions and additional capabilities to SDP as described in subclause 6.6.
- The AS, acting as a SIP proxy (as defined in 3GPP TS 23.218 [5] subclause 9.1.1.3), shall provided the proxy role, with the exceptions and additional capabilities as described in subclause 5.7.4.
- The AS, performing 3rd party call control (as defined in 3GPP TS 23.218 [5] subclause 9.1.1.4), shall provide the UA role, with the exceptions and additional capabilities as described in subclause 5.7.5, and with the exceptions and additional capabilities to SDP as described in subclause 6.6.
- The AS, receiving third-party registration requests, shall provide the UA role, with the exceptions and additional capabilities as described in subclause 5.7.
- The MRFC shall provide the UA role, with the exceptions and additional capabilities as described in subclause 5.8, and with the exceptions and additional capabilities to SDP as described in subclause 6.5.

NOTE 1: Annex A can change the status of requirements in referenced specifications. Particular attention is drawn to table A.4 and table A.162 for capabilities within referenced SIP specifications, and to table A.317 and table A.328 for capabilities within referenced SDP specifications. The remaining tables build on these initial tables.

NOTE 2: The allocated roles defined in this clause are the starting point of the requirements from the IETF SIP specifications, and are then the basis for the description of further requirements. Some of these extra requirements formally change the proxy role into a B2BUA. Thus, for example, a P-CSCF is a B2BUA in that it inspects and may modify SDP message bodies, and terminates Record-Route headers on behalf of the UA, but in all other respects other than those more completely described in subclause 5.2 it implements proxy requirements. Despite being a B2BUA a P-CSCF does not implement UA requirements from the IETF RFCs, except as indicated in this specification, e.g., relating to registration event subscription.

## End of first Change

## Start of second Change

### 6.6 Procedures at the AS

Since an AS may provide a wide range of different services, procedures for the SDP usage for an AS acting as originating UA, terminating UA or third party call control role are dependent on the service provided to the UA and on the capabilities on the remote UA. There is no special requirements regarding the usage of the SDP, except the requirements for the SDP capabilities described in the following paragraphs and clause A.3.

1. Providing that an INVITE request generated by an AS contains SDP payload, the AS has the capability of reflecting the originating AS's capabilities, desired QoS and precondition requirements for the session in the SDP payload.
2. When the AS sends a 183 (Session Progress) response with SDP payload including one or more "m=" media types, it has the capability of requesting confirmation for the result of the resource reservation at the originating endpoint.

## End of second Change

**3GPP TSG-CN1 Meeting #29**  
**Sophia-Antipolis, France, 31 March – 04 April 2003**

**Tdoc N1-030499**  
 was: N1-030407

CR-Form-v7

**CHANGE REQUEST**

⌘ **24.229 CR 357** ⌘ rev **1** ⌘ Current version: **5.4.0** ⌘

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

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

<b>Title:</b>	⌘ Usage of P-Associated-URI		
<b>Source:</b>	⌘ Nokia		
<b>Work item code:</b>	⌘ IMS-CCR	<b>Date:</b>	⌘ 20/03/03
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ Rel-5
Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		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:** ⌘ First URI in P-Associated-URI header must be registered in order to allow the UE to subscribe to the registration state event package, if the URI used for registration was barred.

P-CSCF shall not use the previously registered URI for subscription to registration state event package, but the save default URI, as the registered one might be barred.

In addition to that a small change was made, to section 5.1.1.4, as the Service-Route needs to be updated at the UE whenever it is newly received in a 200 (OK) for REGISTER. See draft-ietf-sip-scvrtdisco-03, section 6.1)

**Summary of change:** ⌘

- UE shall use topmost URI of P-Associated-URI for subscription to registration state event package, if the previously explicitly registered URI was barred
- UE shall update Service-Route whenever it is received in a 200 (OK) for REGISTER (applies also to re-registrations).
- P-CSCF shall use the saved default identity of the user in the To-header / Request-URI of the SUBSCRIBE for the users registration state information

**Consequences if not approved:** ⌘ UE might not be able to subscribe to registration state event package after initial registration (in case of barred user identity being used for registration)

**Clauses affected:** ⌘ 5.1.1.2, 5.1.1.3, 5.1.1.4, 5.2.3, 5.4.1.2.2

<b>Other specs</b>	⌘	Y	N	Other core specifications	⌘
			X		

<b>affected:</b>	<input checked="" type="checkbox"/>	Test specifications	
	<input checked="" type="checkbox"/>	O&M Specifications	
<b>Other comments:</b>	⌘		

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## FIRST CHANGE - UE

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### 5.1.1.2 Initial registration

The UE can register a public user identity at any time that a valid PDP context exists. However, the UE shall only initiate a new registration procedure when it has received a final response from the registrar for the ongoing registration, or the previous REGISTER request has timed out.

A REGISTER request may be integrity protected using IK, see 3GPP TS 33.203 [19], derived as a result of an earlier registration.

The public user identity to be registered can be extracted either from the ISIM application, if present, on the UICC or derived from the USIM, according to the procedures described in subclause 5.1.1.1A. A public user identity may be input by the end user.

On sending a REGISTER request, the UE shall populate the header fields as follows:

- a) the Authorization header, with the username field, set to the value of the private user identity;
- b) the From header set to the SIP URI that contains the public user identity to be registered;
- c) the To header set to the SIP URI that contains the public user identity to be registered;
- d) the Contact header set to include SIP URI(s) containing the IP address of the UE in the hostport parameter or FQDN. If the protected port value that is bound to the security association is known by the UE, that shall be also included in the hostport parameter;

NOTE 1: If the UE specifies its FQDN in the host parameter in the Contact header, then it has to ensure that the given FQDN will resolve (e.g., by reverse DNS lookup) to the IP address that is bound to the security association.

- e) the Expires header, or the expires parameter within the Contact header, set to the value of 600 000 seconds as the value desired for the duration of the registration;

NOTE 2: The registrar (S-CSCF) might decrease the duration of the registration in accordance with network policy. Registration attempts with a registration period of less than a predefined minimum value defined in the registrar will be rejected with a 423 (Interval Too Brief) response.

- f) a Request-URI set to the SIP URI of the domain name of the home network;

- g) the Security-Client header field set to specify the security mechanism the UE supports, the IPSec layer algorithms the UE supports and the parameters needed for the security association setup. For further details see 3GPP TS 33.203 [19] and RFC 3329 [48];
- h) the Supported header containing the option tag "path"; and
- i) if a security association exists, a P-Access-Network-Info header that contains information concerning the access network technology and, if applicable, the cell ID (see subclause 7.2A.4).

The UE shall extract or derive from the UICC a public user identity, the private user identity, and the domain name to be used in the Request-URI in the registration, according to the procedures described in subclause 5.1.1.1A.

On receiving the 200 (OK) response to the REGISTER request, the UE shall

- a) store the expiration time of the registration for the public user identities found in the To header value; ~~The UE shall also~~
- b) store the list of URIs contained in the P-Associated-URI header value. This list contains the URIs that are associated to the registered public user identity.
- c) store as the default public user identity the first URI on the list of URIs present in the P-Associated-URI header;
- d) ~~The list contains also the identity under registration, unless this identity is barred~~ treat the identity under registration as a barred public user identity, if it is not included in the P-Associated-URI header; and;
- e) ~~In order to build a proper preloaded Route header value for new dialogs, the UE shall also~~ store the list of Service-Route headers contained in the Service-Route header, in order to build a proper preloaded Route header value for new dialogs.

When a 401 (Unauthorized) response to a REGISTER is received the UE shall behave as described in subclause 5.1.1.5.1.

On receiving a 423 (Interval Too Brief) too brief response to the REGISTER request, the UE shall:

- send another REGISTER request populating the Expires header or the expires parameter with an expiration timer of at least the value received in the Min-Expires header of the 423 (Interval Too Brief) response.

### 5.1.1.3 Initial subscription to the registration-state event package

Upon receipt of a 2xx response to the initial registration, the UE shall subscribe to the reg event package for the public user identity registered at the users registrar (S-CSCF) as described in draft-ietf-sipping-reg-event-00 [43].

The UE shall use the the default public user identiy for subscription to the registration-state event package, if the public user identity that was used for initial registration is a barred public user identity. The UE may use either the default public user identity or the public user identity used for initial registration for the subscription to the registration-state event package, if the initial public user identity that was used for initialia registration is not barred.

On sending a SUBSCRIBE request, the UE shall populate the header fields as follows:

- a) a Request URI set to the resource to which the UE wants to be subscribed to, i.e. to a SIP URI that contains the public user identity used for the subscription;
- b) a From header set to a SIP URI that contains the public user identity used for the subscription;
- c) a To header set to a SIP URI that contains the public user identity used for the subscription;
- d) an Event header set to the "reg" event package;
- e) an Expires header, or an expires parameter within the Contact header, set to 600 000 seconds as the value desired for the duration of the subscription; and
- f) a P-Access-Network-Info header that contains information concerning the access network technology and, if applicable, the cell ID (see subclause 7.2A.4).

Upon receipt of a 2xx response to the SUBSCRIBE request, the UE shall store the information for the established dialog and the expiration time as indicated in the Expires header of the received response.

The UE shall automatically refresh the subscription by the reg event package 600 seconds before the expiration time for a previously registered public user identity, unless continued subscription is not required. If the expiration time, as indicated in the Expires header of the 2xx response to the SUBSCRIBE request is less than 600 seconds, the UE shall refresh the subscription when half of the expiration time has elapsed and continued subscription of the public user identity is still required.

#### 5.1.1.4 User-initiated re-registration

The UE can reregister a previously registered public user identity at any time.

The UE shall reregister the public user identity 600 seconds before the expiration time of a previous registration, unless either the user or the application within the UE has determined that a continued registration is not required. If the registration period indicated from the S-CSCF is less than 600 seconds, the UE shall reregister when half of the registration period has expired.

The UE shall integrity protect the REGISTER request using IK, see 3GPP TS 33.203 [19], derived as a result of an earlier registration, if IK is available.

On sending a REGISTER request, the UE shall populate the header fields as follows:

- a) an Authorization header, with the username field set to the value of the private user identity;
- b) a From header set to the SIP URI that contains the public user identity to be registered;
- c) a To header set to the SIP URI that contains the public user identity to be registered;
- d) a Contact header set to include SIP URI(s) that contain(s) in the hostport parameter the IP address of the UE or FQDN and protected port value bound to the security association;

NOTE 1: If the UE specifies its FQDN in the host parameter in the Contact header, then it has to ensure that the given FQDN will resolve (e.g., by reverse DNS lookup) to the IP address that is bound to the security association.

- e) an Expires header, or an expires parameter within the Contact header, set to 600 000 seconds as the value desired for the duration of the registration;

NOTE 2: The registrar (S-CSCF) might decrease the duration of the registration in accordance with network policy. Registration attempts with a registration period of less than a predefined minimum value defined in the registrar will be rejected with a 423 (Interval Too Brief) response.

- f) a Request-URI set to the SIP URI of the domain name of the home network;
- g) a Security-Client header field, set to specify the security mechanism it supports, the IPSec layer algorithms it supports and the parameters needed for the security association setup. For further details see 3GPP TS 33.203 [19] and RFC 3329 [48];

NOTE 3: The 401 (Unauthorized) challenge sent back by the S-CSCF to the UE as a response to the REGISTER request is piggybacked by the P-CSCF to insert the Security-Server header field in it. The S-CSCF authenticates the UE, while the P-CSCF negotiates and sets up the security association with the UE during the same registration procedure.

- h) the Supported header containing the option tag "path"; and
- i) the P-Access-Network-Info header that contains information concerning the access network technology and, if applicable, the cell ID (see subclause 7.2A.4).

The UE shall extract or derive from the UICC a public user identity, the private user identity, and the domain name to be used in the Request-URI in the registration, according to the procedures described in subclause 5.1.1.1A.

On receiving the 200 (OK) response to the REGISTER request, the UE shall

a) store the new expiration time of the registration for this public user identity found in the To header value;

ba) ~~The UE shall also~~ store the list of URIs contained in the P-Associated-URI header value. This list contains the URIs that are associated to the registered public user identity;



c) ~~store the list of Service-Route headers contained in the Service-Route header, in order to build a proper preloaded Route header value for new dialogs.~~

When a 401 (Unauthorized) response to a REGISTER is received the UE shall behave as described in subclause 5.1.1.5.1.

On receiving a 423 (Interval Too Brief) response to the REGISTER request, the UE shall:

- send another REGISTER request populating the Expires header or the expires parameter with an expiration timer of at least the value received in the Min-Expires header of the 423 (Interval Too Brief) response.

---

## SECOND CHANGE – P-CSCF

---

### 5.2.3 Subscription to the user's registration-state event package

Upon receipt of a 200 (OK) response to the initial REGISTER request of an user, the P-CSCF shall subscribe to the reg event package at the users registrar (S-CSCF) as described in draft-ietf-sipping-reg-event-00 [43]. The P-CSCF shall:

- 1) generate a SUBSCRIBE request with the following elements:
  - a Request-URI set to the resource to which the P-CSCF wants to be subscribed to, i.e. to a SIP URI that contains the default public user identity of the user;
  - a From header set to the P-CSCF's SIP URI;
  - a To header, set to a SIP URI that contains the default public user identity ~~that was previously registered of~~ the user;
  - an Event header set to the "reg" event package; and
  - an Expires header set to a value higher then the Expires header indicated in the 200 (OK) response to the REGISTER request; and
- 2) determine the I-CSCF of the home network (e.g., by using DNS services);

before sending the SUBSCRIBE request to that I-CSCF, according to the procedures of RFC 3261 [26].

Upon receipt of a 2xx response to the SUBSCRIBE request, the P-CSCF shall store the information for the so established dialog and the expiration time as indicated in the Expires header of the received response.

The P-CSCF shall automatically refresh the subscription by the reg event package 600 seconds before the expiration time for a previously registered public user identity, unless continued subscription is not required. If the expiration time, as indicated in the Expires header of the 2xx response to the SUBSCRIBE request is less that 600 seconds, the P-CSCF shall refresh the subscription when half of the expiration time has elapsed and continued subscription of the public user identity is still required.

---

## THIRD AND LAST CHANGE – S-CSCF

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### 5.4.1.2.2 Protected REGISTER

Upon receipt of a REGISTER request with the integrity-protection parameter in the Authorization header set to 'yes', the S-CSCF shall identify the user by the public user identity as received in the To header and the private user identity as received in the Authorization header of the REGISTER request, and:

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

- 1) 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; and

- 2) 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 check whether the public user identity received in the To header is already registered. If it is not registered, the S-CSCF shall proceed with the procedures as described for the second REGISTER request in subclause 5.4.1.2.2, beginning with step 5. Otherwise, the S-CSCF shall proceed with the procedures as described for the second REGISTER request in subclause 5.4.1.2, beginning with step 6).

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

- 1) 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.
- 2) stop timer reg-await-auth;
- 3) check whether an Authorization header is included, containing:
  - a) the private user identity of the user in the username field;
  - b) the algorithm which is AKAv1-MD5 in the algorithm field; and
  - c) 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;

- 4) 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;
- 5) 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:
  - a) 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,
  - b) 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.

- 6) 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 than one contact information available for one public user identity.

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

- 7) 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.

- 8) 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;
  - 9) store the icid parameter received in the P-Charging-Vector header;
  - 10) create a 200 (OK) response for the REGISTER request, including:
    - a) the list of received Path headers;
    - b) a P-Associated-URI header containing the list of public user identities that the user is authorized to use. The first URI in the list of public user identities supplied by the HSS to the S-CSCF will indicate the default public user identity to be used by the S-CSCF. [The public user identity indicated as the default public user identity must be an already registered public user identity.](#) The S-CSCF shall place the default public user identity as a first entry in the list of URIs present in the P-Associated-URI header. The default public user identity will be used by the P-CSCF in conjunction with the procedures for the P-Asserted-Identity header, as described in subclause 5.2.6.3. The S-CSCF shall not add a barred public user identity to the list of URIs in the P-Associated-URI header;
    - c) a Service-Route header containing:
      - the SIP URL identifying the S-CSCF containing an indication that requests routed via the service route (i.e. from the P-CSCF to the S-CSCF) are treated as for the mobile-originating case. This indication may e.g. be in a URL parameter, a character string in the user part of the URL or be a port number in the URL; and,
      - if network topology hiding is required a SIP URL identifying an I-CSCF(THIG) as the topmost entry;
  - 11) send the so created 200 (OK) response to the UE;
  - 12) 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.
- 13) handle the user as registered for the duration indicated in the Expires header.

## CHANGE REQUEST

⌘ 24.229 CR CR 359 ⌘ rev 1 ⌘ Current version: 5.3.0 ⌘

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

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

<b>Title:</b>	⌘ Network-initiated deregistration at UE and P-CSCF		
<b>Source:</b>	⌘ Nokia		
<b>Work item code:</b>	⌘ IMS-CCR	<b>Date:</b>	⌘ 24/03/2003
<b>Category:</b>	⌘ F	<b>Release:</b>	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> 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 be found in 3GPP <a href="#">TR 21.900</a> .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ Minor clarifications to the text
<b>Summary of change:</b>	⌘ It has been clarified that the removal of the security association does not involve any SIP signalling, but it is rather an internal procedure.
<b>Consequences if not approved:</b>	⌘ TS open for misinterpretation.

<b>Clauses affected:</b>	⌘ 5.1.1.7, 5.2.5.2										
<b>Other specs affected:</b>	<table border="1"> <tr> <td>Y</td> <td>N</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications	⌘
Y	N										
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		Test specifications									
		O&M Specifications									
<b>Other comments:</b>	⌘										

### 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.

\*\*\*\*\* 1<sup>st</sup> change \*\*\*\*\*

### 5.1.1.7 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 5.1.1.3, including one or more <registration> element(s) with the state attribute set to "terminated" and the event attribute set to "rejected" or "deactivated", the UE shall remove all registration details relating to these public user identities. In case of a "deactivated" event attribute, the UE shall start the reregistration procedure as described in subclause 5.1.1.4.

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 contains the value of "terminated", the UE shall ~~remove~~ delete the security associations towards the P-CSCF after the server transaction (as defined in RFC 3261 [26]) pertaining to the NOTIFY request terminates.

NOTE 1: Deleting a security association is an internal procedure of the UE and does not involve any SIP procedures.

NOTE ~~1~~2: If the security association towards the P-CSCF is removed, then the UE considers the subscription to the registration event package terminated (i.e. as if the UE had sent a SUBSCRIBE request with an Expires header containing a value of zero, or a NOTIFY request was received with Subscription-State header containing the value of "terminated").

NOTE ~~2~~3: 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.

\*\*\*\*\* 2<sup>nd</sup> change \*\*\*\*\*

### 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), the P-CSCF shall ~~remove~~ delete the security associations towards the UE.

NOTE: 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.

## CHANGE REQUEST

# 24.229 CR CR360 # rev 2- # Current version: 5.4.0 #

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

**Proposed change affects:** UICC apps#  ME  Radio Access Network  Core Network

<b>Title:</b>	# Barred identities		
<b>Source:</b>	# Nokia		
<b>Work item code:</b>	# IMS-CCR	<b>Date:</b>	# 24/03/2003
<b>Category:</b>	# <b>F</b>	<b>Release:</b>	# Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)		2 (GSM Phase 2)
	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
	<b>B</b> (addition of feature),		R97 (Release 1997)
	<b>C</b> (functional modification of feature)		R98 (Release 1998)
	<b>D</b> (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

<b>Reason for change:</b>	# Clarifications that some procedures are only the result of a network misbehaviour
<b>Summary of change:</b>	# A note has been added and the check of the From header field has been removed.
<b>Consequences if not approved:</b>	# Bug remains in the TS

<b>Clauses affected:</b>	# 5.4.3.2										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications	#
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<input type="checkbox"/>	<input checked="" type="checkbox"/>										
		Test specifications									
		O&M Specifications									
<b>Other comments:</b>	#										

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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.



### 5.4.3.2 Requests initiated by the served user

When the S-CSCF receives from the 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 P-Asserted-Identity ~~or From~~ header fields of the request or not. In case ~~any of~~ the said header fields contains a barred public user identity for the user, then the S-CSCF shall reject the request by generating a 403 (Forbidden) response. The response may include a Warning header containing the warn-code 399. Otherwise, continue with the rest of the steps;

NOTE: If the P-Asserted-Identity header field contains a barred public user identity, then the message has been received, either directly or indirectly, from a non-compliant entity which should have had generated the content with a non-barred public user identity.

- 2) remove its own SIP URL from the topmost Route header;
- 3) 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 Application Server in response to a previously sent request;
- 4) check whether the initial request matches the initial filter criteria based on a public user identity in the P-Asserted-Identity header, the S-CSCF shall forward this request to that application server, then check for matching of the next following filter criteria of lower priority, and apply the filter criteria on the SIP method received from the previously contacted application server as described in 3GPP TS 23.218 [5] subclause 6.4. Depending on the result of the previous process, the S-CSCF may contact one or more application server(s) before processing the outgoing Request-URI. In case of contacting one or more application server(s) the S-CSCF shall:
  - a) insert the AS URL to be contacted into the Route header as the topmost entry followed by its own URL populated as specified in the subclause 5.4.3.4; and
  - b) if the AS is located outside the trust domain then the S-CSCF shall remove the P-Access-Network-Info header field and its values in the request; if the AS is located within the trust domain, then the S-CSCF shall retain the P-Access-Network-Info header field and its values in the request that is forwarded to the AS;
- 5) 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. Optionally, the S-CSCF may generate a new, globally unique icid and insert the new value in the icid parameter of the P-Charging-Vector header when forwarding the message. If the S-CSCF creates a new icid, then it is responsible for maintaining the two icid values in the subsequent messaging;
- 6) insert an orig-ioi parameter into the P-Charging-Vector header. The S-CSCF shall set the orig-ioi parameter to a value that identifies the sending network. The S-CSCF shall not include the term-ioi parameter;
- 7) 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 AS;
- 8) in the case where the S-CSCF has knowledge of an associated tel-URI for a SIP URL contained in the received P-Asserted-Identity header, add a second P-Asserted-Identity header containing this tel-URI;
- 9) if the outgoing Request-URI is a TEL URL, the S-CSCF shall translate the E.164 address (see RFC 2806 [22]) to a globally routeable SIP URL using an ENUM/DNS translation mechanism with the format specified in RFC 2916 [24]. Databases aspects of ENUM are outside the scope of the present document. If this translation fails, the request may be forwarded to a BGCF or any other appropriate entity (e.g a MRFC to play an announcement) in the originator's home network or the S-CSCF may send an appropriate SIP response to the originator;
- 10) determine the destination address (e.g. DNS access) using the URL placed in the topmost Route header if present, otherwise based on the Request-URI;
- 11) if network hiding is needed due to local policy, put the address of the I-CSCF (THIG) to the topmost route header;

- 12) in case of an initial request for a dialog the S-CSCF shall create a Record-Route header containing its own SIP URL and save the necessary Record-Route header fields and the Contact header from the request in order to release the dialog when needed;
- 13) in case the request is forwarded to the destination network (either via an I-CSCF(THIG) or directly), remove the P-Access-Network-Info header; and
- 14) route the request based on SIP routing procedures.

CR-Form-v7

## CHANGE REQUEST

⌘ **24.229** CR **365** ⌘ rev **1** ⌘ Current version: **5.4.0** ⌘

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

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

<b>Title:</b>	⌘ PDP context subject to SBLP cannot be reused by other IMS sessions		
<b>Source:</b>	⌘ Ericsson		
<b>Work item code:</b>	⌘ IMS-CCR	<b>Date:</b>	⌘ 01/04/2003
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ Rel-5
	Use <u>one</u> of the following categories: <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		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)

<b>Reason for change:</b>	⌘ SA2 has now stated in the reply LS to N1-030319 (N1-030420) that a PDP context cannot be re-used when the context is activated due to SBLP.  “SA WG2 is pleased to confirm to CN WG3 that the working assumption “a PDP context used by an IMS session subject to SBLP cannot be reused by other IMS sessions” in Rel-5 is acceptable to SA WG2.”  It is clarified in 24.229 that in such situations, the PDP context must be deactivated when the SIP session is terminated		
<b>Summary of change:</b>	⌘ The PDP context must be deactivated when the SIP session is terminated		
<b>Consequences if not approved:</b>	⌘ 24.229 is not complete. Incorrect implementation may occur without clarifications.		

<b>Clauses affected:</b>	⌘ 9.2.5.1A										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;">⌘</td> <td style="text-align: center;">X</td> </tr> </table> Other core specifications Test specifications O&M Specifications	Y	N	⌘	X	⌘	X	⌘	X	⌘	
Y	N										
⌘	X										
⌘	X										
⌘	X										
<b>Other comments:</b>	⌘										

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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.

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## 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 as described in 3GPP TS 29.061 [11];

II. A general-purpose PDP context:

The UE may decide to use a general-purpose PDP Context to carry IM CN subsystem-related signaling. The UE shall indicate to the GGSN that this is a general-purpose PDP context by not setting the IM CN Subsystem Signalling Flag. The UE may carry 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 1: Indication of successful signalling PDP context establishment is needed for the case when the GGSN does not receive the IM CN Subsystem Signalling Flag from the SGSN. Consequently, it acknowledges a request for activating a PDP Context without an IM CN Subsystem Signalling Flag. The UE will then regard it as a general-purpose PDP context instead of as a dedicated PDP context for SIP signalling as initially requested by the UE.

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

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

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

The methods for P-CSCF discovery are:

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

The UE shall either:

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

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

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

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

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

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

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

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

### 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 routing 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 the 3GPP TS 24.008 [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

### 9.2.5.1 General requirements

The UE shall establish different PDP contexts for media streams that belong to different SIP sessions.

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.

#### 9.2.5.1A Activation or modification of PDP contexts for media

If the UE receives indication within the SDP according to draft-ietf-mmusic-reservation-flows-01 [54] that media stream(s) belong to group(s), the media stream(s) shall be set up on separate PDP contexts according to the indication of grouping. The UE may freely group media streams to PDP context(s) in case no indication of grouping is received from the P-CSCF.

The UE can receive a media authorization token in the P-Media-Authorization header from the P-CSCF according to RFC 3313 [31]. The UE shall, if a media authorization token is received in the P-Media-Authorization header when a SIP session is initiated, establish separate PDP context(s) for the media. If a media authorization token is received in subsequent messages for the same SIP session, the UE shall:

- use the existing PDP context(s) for media;
- modify the existing PDP context(s) for media; or
- establish additional PDP context(s) for media.

The UE shall transparently pass the media authorization 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. The UE shall signal it by inserting it within the Traffic Flow Template IE in the ACTIVATE SECONDARY PDP CONTEXT REQUEST message or the MODIFY PDP CONTEXT REQUEST message.

To identify to the GGSN which flow(s) (identified by m-lines within the SDP) that are transferred within a particular PDP context, the UE shall set the flow identifier(s) within the Traffic Flow Template IE in the ACTIVATE SECONDARY PDP CONTEXT REQUEST message or the MODIFY PDP CONTEXT REQUEST message. Detailed description of how the flow identifiers are constructed is provided in 3GPP TS 29.207 [12].

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

If the UE receives several media authorization tokens from the P-CSCF within the same SIP request or response, the first instance of the media authorization token shall be sent to the GGSN, and subsequent instances are discarded by the UE.

[The UE shall not re-use a PDP context for other SIP sessions when the session has an associated media authorization token. The UE shall deactivate the PDP context when the SIP session that provided the media authorization token is](#)

terminated. When no media authorization token is used for a SIP session, the UE may reuse the PDP context between different SIP sessions.

The UE shall not include the IM CN Subsystem Signalling Flag when a PDP context for media is established or modified.

### 9.2.5.2 Special requirements applying to forked responses

Since the UE does not know that forking has occurred until a second, provisional response arrives, the UE sets up the PDP context(s) as required by the initial response received. If a subsequent provisional response is received, different alternative actions may be performed depending on the requirements in the SDP answer:

- 1) **the bearer requirements of the subsequent SDP can be accommodated by the existing PDP context(s).** The UE performs no activation or modification of PDP contexts.
- 2) **the subsequent SDP introduces different QoS requirements or additional IP flows.** The UE modifies the existing PDP context(s), if necessary, according to subclause 9.2.5.1A.
- 3) **the subsequent SDP introduces one or more additional IP flows.** The UE establishes additional PDP context(s) according to subclause 9.2.5.1A.

NOTE 1: When several forked responses are received, the resources requested by the UE is are the “logical OR” of the resources indicated in the multiple responses to avoid allocation of unnecessary resources. The UE does not request more resources than proposed in the original INVITE request.

NOTE 2: When service-based local policy is applied, the UE receives the same authorization token for all forked requests/responses related to the same SIP session.

When a final answer is received for one of the early dialogues, the UE proceeds to set up the SIP session. The UE shall release all the unneeded radio/bearer resources. Therefore, upon the reception of a first final 200 (OK) response for the INVITE request (in addition to the procedures defined in RFC 3261 [26] subclause 13.2.2.4), the UE shall:

- 1) in case PDP context(s) were established or modified as a consequence of the INVITE request and forked provisional responses that are not related to the accepted 200 (OK) response, delete the PDP context(s) or modify the delete the PDP context(s) back to their original state.

### 9.2.5.3 Unsuccessful situations

One of the Go interface related error codes can 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 three times. The Go interface related error codes are further specified in 3GPP TS 29.207 [12].



CR-Form-v7

## CHANGE REQUEST

⌘ **24.229 CR 368** ⌘ rev **1** ⌘ Current version: **5.4.0** ⌘

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

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

<b>Title:</b>	⌘ User authentication failure cleanups		
<b>Source:</b>	⌘ Ericsson		
<b>Work item code:</b>	⌘ IMS-CCR	<b>Date:</b>	⌘ 01/04/2003
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ Rel-5
	<i>Use one of the following categories:</i> <b>F</b> (correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (addition of feature), <b>C</b> (functional modification of feature) <b>D</b> (editorial modification) Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		<i>Use one of the following releases:</i> <b>2</b> (GSM Phase 2) <b>R96</b> (Release 1996) <b>R97</b> (Release 1997) <b>R98</b> (Release 1998) <b>R99</b> (Release 1999) <b>Rel-4</b> (Release 4) <b>Rel-5</b> (Release 5) <b>Rel-6</b> (Release 6)

<b>Reason for change:</b>	⌘ Corrections of the user authentication failure cases due to changes in SA3.  Changes due to S3-020555 is proposed Changes due to S3-020558 is already incorporated  The corresponding SA3 documents can be found in attached N1-022452.  a minor clarification, moving the text for description of deriving IMPU, IMPI and domain name is also added. This change was agreed in CN1#28, but was removed at that time due to conflict with the proposed CR on IMS support for SIM.  The CR also incorporates a clarification that ISIM application will take precedence over the USIM application if both are included on the UICC. This change is introduced as a result of LS N1-0300331 from SA3.
<b>Summary of change:</b>	⌘ Alignment with late changes in SA3 for user authentication failure.
<b>Consequences if not approved:</b>	⌘ Stage 2 and stage 3 are not alligned

<b>Clauses affected:</b>	⌘ 5.1.1.1A, 5.1.1.2, 5.1.1.4, 5.1.1.5.1, 5.1.1.6										
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications Test specifications O&M Specifications	⌘
Y	N										
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<input type="checkbox"/>	<input checked="" type="checkbox"/>										

**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.

\*\*\*\*\* **Proposed change** \*\*\*\*\*

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## 5 Application usage of SIP

### 5.1 Procedures at the UE

#### 5.1.1 Registration and authentication

##### 5.1.1.1 General

The UE shall register public user identities (see table A.4/1 and dependencies on that major capability).

In case a UE registers several public user identities at different points in time, the procedures to re-register, deregister and subscribe to the registration-state event package for these public user identities can remain uncoordinated in time.

##### 5.1.1.1A Parameters contained in the UICC

If there is an ISIM and a USIM application on a UICC, then the ISIM application shall always be used for IMS authentication, as described in 3GPP TS 33.203 [19].

In case the UE is loaded with a UICC that contains the ISIM application, it will be preconfigured with all the necessary parameters to initiate the registration to the IM CN subsystem. These parameters include:

- the private user identity;
- one or more public user identities; and
- the home network domain name used to address the SIP REGISTER request

In case the UE is loaded with a UICC that does not contain the ISIM application, the UE shall:

- generate a private user identity;
- generate a temporary public user identity; and
- generate a home network domain name to address the SIP REGISTER request to.

All these three parameters are derived from the IMSI parameter in the USIM, according to the procedures described in 3GPP TS 23.003 [3]. If the UICC does not contain the ISIM application, the UE shall derive new values every time the UICC is changed, and shall discard existing values if the UICC is removed.

The temporary public user identity is only used in REGISTER requests. After a successful registration, the UE will get the associated public user identities, and the UE may use any of them in subsequent non-REGISTER messages.

The UE shall not reveal to the user the temporary public user identity if the temporary public user identity is barred. The temporary public user identity is not barred if received by the UE in the P-Associated-URI header.

##### 5.1.1.2 Initial registration

The UE can register a public user identity at any time that a valid PDP context exists. However, the UE shall only initiate a new registration procedure when it has received a final response from the registrar for the ongoing registration, or the previous REGISTER request has timed out.

A REGISTER request may be integrity protected using IK, see 3GPP TS 33.203 [19], derived as a result of an earlier registration.

The UE shall extract or derive from the UICC a public user identity, the private user identity, and the domain name to be used in the Request-URI in the registration, according to the procedures described in subclause 5.1.1.1A. ~~The public~~

~~user identity to be registered can be extracted either from the ISIM application, if present, on the UICC or derived from the USIM, according to the procedures described in subclause 5.1.1.1A.~~ A public user identity may be input by the end user.

On sending a REGISTER request, the UE shall populate the header fields as follows:

- a) the Authorization header, with the username field, set to the value of the private user identity;
- b) the From header set to the SIP URI that contains the public user identity to be registered;
- c) the To header set to the SIP URI that contains the public user identity to be registered;
- d) the Contact header set to include SIP URI(s) containing the IP address of the UE in the hostport parameter or FQDN. If the protected port value that is bound to the security association is known by the UE, that shall be also included in the hostport parameter;

NOTE 1: If the UE specifies its FQDN in the host parameter in the Contact header, then it has to ensure that the given FQDN will resolve (e.g., by reverse DNS lookup) to the IP address that is bound to the security association.

- e) the Expires header, or the expires parameter within the Contact header, set to the value of 600 000 seconds as the value desired for the duration of the registration;

NOTE 2: The registrar (S-CSCF) might decrease the duration of the registration in accordance with network policy. Registration attempts with a registration period of less than a predefined minimum value defined in the registrar will be rejected with a 423 (Interval Too Brief) response.

- f) a Request-URI set to the SIP URI of the domain name of the home network;
- g) the Security-Client header field set to specify the security mechanism the UE supports, the IPSec layer algorithms the UE supports and the parameters needed for the security association setup. For further details see 3GPP TS 33.203 [19] and RFC 3329 [48];
- h) the Supported header containing the option tag "path"; and
- i) if a security association exists, a P-Access-Network-Info header that contains information concerning the access network technology and, if applicable, the cell ID (see subclause 7.2A.4).

~~The UE shall extract or derive from the UICC a public user identity, the private user identity, and the domain name to be used in the Request-URI in the registration, according to the procedures described in subclause 5.1.1.1A.~~

On receiving the 200 (OK) response to the REGISTER request, the UE shall store the expiration time of the registration for the public user identities found in the To header value. The UE shall also store the list of URIs contained in the P-Associated-URI header value. This list contains the URIs that are associated to the registered public user identity. The list contains also the identity under registration, unless this identity is barred. In order to build a proper preloaded Route header value for new dialogs, the UE shall also store the list of Service Route headers contained in the Service-Route header.

When a 401 (Unauthorized) response to a REGISTER is received the UE shall behave as described in subclause 5.1.1.5.1.

On receiving a 423 (Interval Too Brief) too brief response to the REGISTER request, the UE shall:

- send another REGISTER request populating the Expires header or the expires parameter with an expiration timer of at least the value received in the Min-Expires header of the 423 (Interval Too Brief) response.

### 5.1.1.3 Initial subscription to the registration-state event package

Upon receipt of a 2xx response to the initial registration, the UE shall subscribe to the reg event package for the public user identity registered at the users registrar (S-CSCF) as described in draft-ietf-sipping-reg-event-00 [43].

On sending a SUBSCRIBE request, the UE shall populate the header fields as follows:

- a) a Request URI set to the resource to which the UE wants to be subscribed to, i.e. to a SIP URI that contains the public user identity;

- b) a From header set to a SIP URI that contains the public user identity;
- c) a To header set to a SIP URI that contains the public user identity;
- d) an Event header set to the "reg" event package;
- e) an Expires header, or an expires parameter within the Contact header, set to 600 000 seconds as the value desired for the duration of the subscription; and
- f) a P-Access-Network-Info header that contains information concerning the access network technology and, if applicable, the cell ID (see subclause 7.2A.4).

Upon receipt of a 2xx response to the SUBSCRIBE request, the UE shall store the information for the established dialog and the expiration time as indicated in the Expires header of the received response.

The UE shall automatically refresh the subscription by the reg event package 600 seconds before the expiration time for a previously registered public user identity, unless continued subscription is not required. If the expiration time, as indicated in the Expires header of the 2xx response to the SUBSCRIBE request is less than 600 seconds, the UE shall refresh the subscription when half of the expiration time has elapsed and continued subscription of the public user identity is still required.

#### 5.1.1.4 User-initiated re-registration

The UE can reregister a previously registered public user identity at any time.

The UE shall reregister the public user identity 600 seconds before the expiration time of a previous registration, unless either the user or the application within the UE has determined that a continued registration is not required. If the registration period indicated from the S-CSCF is less than 600 seconds, the UE shall reregister when half of the registration period has expired.

The UE shall integrity protect the REGISTER request using IK, see 3GPP TS 33.203 [19], derived as a result of an earlier registration, if IK is available.

[The UE shall extract or derive from the UICC a public user identity, the private user identity, and the domain name to be used in the Request-URI in the registration, according to the procedures described in subclause 5.1.1.1A.](#)

On sending a REGISTER request, the UE shall populate the header fields as follows:

- a) an Authorization header, with the username field set to the value of the private user identity;
- b) a From header set to the SIP URI that contains the public user identity to be registered;
- c) a To header set to the SIP URI that contains the public user identity to be registered;
- d) a Contact header set to include SIP URI(s) that contain(s) in the hostport parameter the IP address of the UE or FQDN and protected port value bound to the security association;

NOTE 1: If the UE specifies its FQDN in the host parameter in the Contact header, then it has to ensure that the given FQDN will resolve (e.g., by reverse DNS lookup) to the IP address that is bound to the security association.

- e) an Expires header, or an expires parameter within the Contact header, set to 600 000 seconds as the value desired for the duration of the registration;

NOTE 2: The registrar (S-CSCF) might decrease the duration of the registration in accordance with network policy. Registration attempts with a registration period of less than a predefined minimum value defined in the registrar will be rejected with a 423 (Interval Too Brief) response.

- f) a Request-URI set to the SIP URI of the domain name of the home network;
- g) a Security-Client header field, set to specify the security mechanism it supports, the IPSec layer algorithms it supports and the parameters needed for the security association setup. For further details see 3GPP TS 33.203 [19] and RFC 3329 [48];

NOTE 3: The 401 (Unauthorized) challenge sent back by the S-CSCF to the UE as a response to the REGISTER request is piggybacked by the P-CSCF to insert the Security-Server header field in it. The S-CSCF authenticates the UE, while the P-CSCF negotiates and sets up the security association with the UE during the same registration procedure.

- h) the Supported header containing the option tag "path"; and
- i) the P-Access-Network-Info header that contains information concerning the access network technology and, if applicable, the cell ID (see subclause 7.2A.4).

~~The UE shall extract or derive from the UICC a public user identity, the private user identity, and the domain name to be used in the Request-URI in the registration, according to the procedures described in subclause 5.1.1.1A.~~

On receiving the 200 (OK) response to the REGISTER request, the UE shall store the new expiration time of the registration for this public user identity found in the To header value. The UE shall also store the list of URIs contained in the P-Associated-URI header value. This list contains the URIs that are associated to the registered public user identity.

When a 401 (Unauthorized) response to a REGISTER is received the UE shall behave as described in subclause 5.1.1.5.1.

On receiving a 423 (Interval Too Brief) response to the REGISTER request, the UE shall:

- send another REGISTER request populating the Expires header or the expires parameter with an expiration timer of at least the value received in the Min-Expires header of the 423 (Interval Too Brief) response.

### 5.1.1.5 Authentication

#### 5.1.1.5.1 General

Authentication is achieved via the registration and re-registration procedures. When the network requires authentication or re-authentication of the UE, the UE will receive a 401 (Unauthorized) response to the REGISTER request.

On receiving a 401 (Unauthorized) response to the REGISTER request, the UE shall:

- extract the RAND and AUTN parameters;
- check the validity of a received authentication challenge, as described in 3GPP TS 33.203 [19] i.e. the locally calculated XMAC must match the MAC parameter derived from the AUTN part of the challenge; and the SQN parameter derived from the AUTN part of the challenge must be within the correct range; and
- check the existence of the Security-Server header as described in RFC 3329 [48]. If the header is not present, the UE shall send a new REGISTER request.

In the case that the 401 (Unauthorized) response to the REGISTER request is deemed to be valid the UE shall:

- calculate the RES parameter and derive the keys CK and IK from RAND as described in 3GPP TS 33.203 [19];
- set up the security association based on the static list it received in the 401 (Unauthorized) and its capabilities sent in the Security-Client header in the REGISTER request. The UE shall set up the security association using the most preferred mechanism and algorithm returned by the P-CSCF and supported by the UE and using CK and IK as shared keys; and
- send another REGISTER request using the derived IK to integrity protect the message. The header fields are populated as defined for the initial request, with the addition that the UE shall include an Authorization header containing the private user identity and the authentication challenge response (RES parameter), as described in RFC 3310 [49]. Instead of the Security-Client header the UE shall insert the Security-Verify header into the request, by mirroring in it the content of the Security-Server header received in the 401 (Unauthorized) response. The Call-ID of the integrity protected REGISTER request which carries RES must be the same as the Call-ID of the 401 (Unauthorized) response which carried the challenge.

On receiving the 200 (OK) for the integrity protected REGISTER request, the UE shall start using the security association the 200 (OK) was protected with.

Whenever the 200 (OK) response is not received after a time-out, the UE shall consider the registration to have failed. The UE shall delete the new security associations it was trying to establish, and use the old security association. [The UE should send an unprotected REGISTER message according to the procedure specified in subclause 5.1.1.2 if the UE considers the security association to be no longer active at the P-CSCF.](#)

In the case that the 401 (Unauthorized) response is deemed to be invalid then the UE shall behave as defined in subclause 5.1.1.5.3.

#### 5.1.1.5.2 Network-initiated re-authentication

Upon receipt of a NOTIFY request on the dialog which was generated during subscription to the reg event package as described in subclause 5.1.1.3, including one or more <registration> element(s) with the state attribute set to "active" and the event attribute set to "shortened" for a public user identity, the UE shall use the expiry attribute within the <contact> element to adjust the expiration time for that public user identity and start the re-authentication procedures at the appropriate time (see subclause 5.1.1.4) by initiating a reregistration as described in subclause 5.1.1.4.

#### 5.1.1.5.3 Abnormal cases

If, in a 401 (Unauthorized) response, either the MAC or SQN is incorrect the UE shall respond with a further REGISTER indicating to the S-CSCF that the challenge has been deemed invalid as follows:

- in the case where the UE deems the MAC parameter to be invalid the subsequent REGISTER request shall contain no response parameter (e.g. no RES or AUTS);
- in the case where the UE deems the SQN to be out of range, the subsequent REGISTER request shall contain the AUTS parameter (see 3GPP TS 33.102 [18]).

A UE shall only respond to two consecutive invalid challenges. The UE may attempt to register with the network again after an implementation specific time. The REGISTER request shall be protected with the existing keys (CK and IK) if available, see 3GPP TS 33.203 [19].

#### 5.1.1.6 Mobile-initiated deregistration

The UE can deregister a previously registered public user identity at any time.

The UE shall integrity protect the REGISTER request using IK, see 3GPP TS 33.203 [19], derived as a result of an earlier registration, if IK is available.

[The UE shall extract or derive from the UICC a public user identity, the private user identity, and the domain name to be used in the Request-URI in the registration, according to the procedures described in subclause 5.1.1.1A.](#)

On sending a REGISTER request, the UE shall populate the header fields as follows:

- a) the Authorization header, with the username field, set to the value of the private user identity;
- b) the From header set to the SIP URI that contains the public user identity to be deregistered;
- c) the To header set to the SIP URI that contains the public user identity to be deregistered;
- d) the Contact header set to either the value of "\*" or SIP URI(s) that contain(s) in the hostport parameter the IP address of the UE or FQDN and protected port value bound to the security association;
- e) the Expires header, or the expires parameter of the Contact header, set to the value of zero, appropriate to the deregistration requirements of the user;
- f) a Request-URI set to the SIP URI of the domain name of the home network; and
- g) a P-Access-Network-Info header that contains information concerning the access network technology and, if applicable, the cell ID (see subclause 7.2A.4).

~~The UE shall extract or derive from the UICC a public user identity, the private user identity, and the domain name to be used in the Request-URI in the registration, according to the procedures described in subclause 5.1.1.1A.~~

On receiving the 200 (OK) response to the REGISTER request, the UE shall remove all registration details relating to this public user identity.

The UE shall release all dialogs prior to deregistering the last registered public user identity.

If there are no more public user identities registered, the UE shall delete the security associations and related keys it may have towards the P-CSCF.

If all public user identities are deregistered and the security association is removed, then the UE shall consider subscription to the reg event package cancelled (i.e. as if the UE had sent a SUBSCRIBE request with an Expires header containing a value of zero).

NOTE: When the UE has received the 200 (OK) for the REGISTER request of the last registered public user identity, the UE removes the security association established between the P-CSCF and the UE. Therefore further SIP signalling (e.g. the NOTIFY containing the deregistration event) will not reach the UE.

### 5.1.1.7 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 5.1.1.3, including one or more <registration> element(s) with the state attribute set to "terminated" and the event attribute set to "rejected" or "deactivated", the UE shall remove all registration details relating to these public user identities. In case of a "deactivated" event attribute, the UE shall start the reregistration procedure as described in subclause 5.1.1.4.

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 contains the value of "terminated", the UE shall remove the security associations towards the P-CSCF after the server transaction (as defined in RFC 3261 [26]) pertaining to the NOTIFY request terminates.

NOTE 1: If the security association towards the P-CSCF is removed, then the UE considers the subscription to the registration event package terminated (i.e. as if the UE had sent a SUBSCRIBE request with an Expires header containing a value of zero, or a NOTIFY request was received with Subscription-State header containing the value of "terminated").

NOTE 2: 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.