3GPP TSG CT Meeting #28 **CP-050060**
1st – 3rd June 2005. Quebec, CANADA.

Source: **TSG CT WG1**

Title: **CRs on Rel-6 WI "IMS2" TSs 24.247, 24.147 and 24.167**

Agenda item: **9.1**

Document for: **APPROVAL**

This document contains 7 **CRs for Rel-6 WI "IMS2"**, that have been agreed by TSG CT WG1 meeting #38 and forwarded to TSG CT Plenary meeting #28 for approval.

TDoc #	Tdoc Title	Spec	CR #	Rev	CAT	C_Ver	WI	Rel
C1-050695	List server - sending requests	24.247	13	1	F	6.1.0	IMS2	Rel-6
C1-050696	Adding of reference TS 26.241 to TS 24.247	24.247	15	1	F	6.1.0	IMS2	Rel-6
C1-050697	Corrections to Message Session Flows to Align with draft-IETF-simple-message-sessions-10	24.247	16	1	F	6.1.0	IMS2	Rel-6
C1-050704	Corrections to TS 24.167 due to comments from OMA DM	24.167	1	1	F	6.0.0	IMS2	Rel-6
C1-050705	Miscellaneous corrections	24.167	2	1	F	6.0.0	IMS2	Rel-6
C1-050706	Removal of APN from the IMS MO	24.167	3	1	F	6.0.0	IMS2	Rel-6
C1-050581	Removal of references related to bootstrapping for the conference service in Release 6	24.147	24		F	6.2.0	IMS2	Rel-6

3GPP TSG-CT1 Meeting #38
Cancun, Mexico, 25-29 April 2005

Tdoc C1-050581

CR-Form-v7.1

CHANGE REQUEST

⌘ **TS 24.147** **CR** **024** ⌘ **rev** **-** ⌘ Current version: **6.2.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [ ] Core Network [X]

Title:	⌘	Removal of references related to bootstrapping for the conference service in Release 6
Source:	⌘	Orange
Work item code:	⌘	IMS2
Date:	⌘	15/04/05
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

Ph2	*(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)*
Rel-7	*(Release 7)*

Reason for change:	⌘	During the last meeting, CN1#37, it was agreed that the conference policy control functionality using the Ut interface is not specified in the Release 6 TS 24.147. However, there are still references to specifications related with the bootstrapping procedure. These references should be removed.
Summary of change:	⌘	The references TS 24.109, RFC 2246 and RFC 3310 related to the bootstrapping procedures are removed from the specification. Furthermore, incorrect references related to the Presence service TS 33.141 and TS 22.141 are removed.
Consequences if not approved:	⌘	Incorrect references in the specification.

Clauses affected:	⌘	2, 3

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

⌘

Other comments:	⌘	

How to create CRs using this form:

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

*** BEGINNING OF THE MODIFICATION ***

2 References

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

[2] 3GPP TS 22.228: "Service requirements for the Internet Protocol (IP) multimedia core network subsystem; Stage 1".

[3] 3GPP TS 23.218: "IP Multimedia (IM) session handling; IM call model; Stage 2".

[4] 3GPP TS 24.228 Release 5: "Signalling flows for the IP multimedia call control based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".

[5] 3GPP TS 24.229: "Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".

[6] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".

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

[8] draft-ietf-sipping-conferencing-framework-03 (October 2004): "A Framework for Conferencing with the Session Initiation Protocol".

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

[9] draft-ietf-sipping-cc-conferencing-05 (October 2004): "Session Initiation Protocol Call Control - Conferencing for User Agents".

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

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

[11] draft-ietf-sipping-conference-package-03 (February 2004): "A Session Initiation Protocol (SIP) Event Package for Conference State".

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

[12] 3GPP TS 29.228: "IP Multimedia (IM) Subsystem Cx and Dx Interfaces; Signalling flows and message contents".

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

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

[15] 3GPP TS 29.208: "End to end Quality of Service (QoS) signalling flows".

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

[17] IETF RFC 3515 (April 2003): "The Session Initiation Protocol (SIP) Refer Method".

[18] ~~3GPP TS 22.141: "Presence service; Stage 1".~~Void.

[19] draft-ietf-sip-callee-caps-03 (December 2003): "Indicating User Agent Capabilities in the Session Initiation Protocol (SIP)".

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

[20] IETF RFC 3892 (September 2004): "The Session Initiation Protocol (SIP) Referred-By Mechanism".

[21] Void.

[22] Void.

[23] Void.

[24] ~~3GPP TS 33.141: "Presence service; Security".~~Void.

[25] ~~3GPP TS 24.109: "Bootstrapping interface (Ub) and Network application function interface (Ua); Protocol details".~~Void.

[26] ~~IETF RFC 2246 (January 1999): "The TLS Protocol Version 1.0".~~Void.

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

[28] Void.

[29] Void.

[30] Void.

[31] Void.

[32] draft-ietf-sipping-config-framework-05 (October 2004): "A Framework for Session Initiation Protocol User Agent Profile Delivery".

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

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 21.905 [1], ~~3GPP TS 22.141 [2]~~ and the following apply:

Conferencing AS: an Application Server that supports functionality specific to a SIP conference focus

The following terms and definitions given in 3GPP TS 23.228 [2] apply (unless otherwise specified):

Public Service Identity
Three-way session

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

IP-Connectivity Access Network (IP-CAN)

The following terms and definitions given in draft-ietf-sipping-conferencing-framework [8] apply (unless otherwise specified):

Conference
Conference-Aware Participant
Conference notification service
Conference Policy
Conference Policy Control Protocol
Conference-Unaware Participant
Conference URI
Focus
Media Policy
Media policy server
Membership Policy
Mixer
Participant
Tightly Coupled Conference

The following terms and definitions given in draft-ietf-sipping-cc-conferencing [9] apply (unless otherwise specified):

Conference Factory URI

For the purposes of the present document, the following terms and definitions given in draft-ietf-sip-callee-caps [19] apply:

Feature parameter

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.002 [2] subclauses 4.1.1.1 and 4a.7 apply:

Call Session Control Function (CSCF)
Home Subscriber Server (HSS)
Media Gateway Control Function (MGCF)
Multimedia Resource Function Controller (MRFC)
Multimedia Resource Function Processor (MRFP)

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
Subsequent request

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

Interrogating-CSCF (I-CSCF)
Policy Decision Function (PDF)
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 3GPP TS 33.141 [24] subclause 3.1 apply:~~

~~**Authentication Proxy**~~

3.2 Abbreviations

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

AMR	Adaptive Multi-Rate
AS	Application Server
CN	Core Network
CSCF	Call Session Control Function
FQDN	Fully Qualified Domain Name
HSS	Home Subscriber Server
I-CSCF	Interrogating CSCF
IM	IP Multimedia
IMS	IP Multimedia CN subsystem
IP	Internet Protocol
IP-CAN	IP-Connectivity Access Network
MGCF	Media Gateway Control Function
MRFC	Multimedia Resource Function Controller
MRFP	Multimedia Resource Function Processor
P-CSCF	Proxy CSCF
PSI	Public Service Identity
S-CSCF	Serving CSCF
SDP	Session Description Protocol
SIP	Session Initiation Protocol
TLS	Transport Layer Security
UE	User Equipment

*** END OF THE MODIFICATION ***

3GPP TSG-CT1 Meeting #38
Cancun, Mexico, 25-29 April 2005

Tdoc C1-050695

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.247** **CR** **013** ⌘ **rev** **1** ⌘ Current version: **6.1.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	List Server - sending requests
Source:	⌘	Lucent Technologies
Work item code:	⌘	IMS2
Date:	⌘	15/04/2005
Category:	⌘	**F**
Release:	⌘	**Rel-6**

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

Ph2	*(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)*
Rel-7	*(Release 7)*

Reason for change:	⌘	1. The subclause 5.3.2.1 in the document 24.247 describing the List Server sending the MESSAGE requests to a predefined list of URIs, does not specify the value for the From header field. 2. Furthermore, the document specifies that the To header field contains the URI of the recipient. Therefore, the recipient will deduct that the MESSAGE request was sent to him/her directly from the sender - rather than concluding that the MESSAGE request was sent to the URI list [e.g. exploder]. To enable the features similar to many existing services in the Internet [e.g. sending a message to the CT1 exploder], it is recommended that the To header field contains the PSI of the URI list.
Summary of change:	⌘	1. Value for the From header specified. 2. Specified that the value of the To headrer will be set to the same value as the To header field that was received. 3. Editorial changes.
Consequences if not approved:	⌘	The services that are currently widely depoyed, i.e sending messages to the exploders, can not be supported by the IMS.

Clauses affected:	⌘	5.3.3.1

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

Other comments: ⌘	

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5.3.3.1 List server originating case

In addition to the procedure specified in 5.3.3.2 the list server shall follow the procedures of 3GPP TS 24.229 [5] subclause 5.7.3 when acting as an originating UA.

The PSI is used to address a predefined list of URIs.

The list server shall send a MESSAGE request to each of the entries in the predefined URPI list. For each of MESSAGE requests the list server shall populate the header fields as followsset:

a) the Request URI and the To header fields set to the URI of one of the entries of the predefined URIdistribution list;

b) the From header field set to the same value as the From header field (excluding the "tag" parameter) that was received in the incoming MESSAGE request;

c) the To header fields set to the same value as the To header field that was received in the incoming MESSAGE request;

db) include the P-Charging-Vector header that includesing:

1) the value of the icid parameter if available; and

2) the value of the orig-ioi parameter if available;

ec) include the P-Charging-Function-Addresses header containing the valuesas received in the incoming MESSAGE request or, if the P-Charging-Function-Addresses header was not received in the incoming MESSAGE request, indicate the values applicable for the list server in the P-Charging-Function-Addresses header; and

fd) include the P-Asserted Identity header and Privacy header containingwith the values as received in the MESSAGE request.;

The handling of the 200 (OK) response shall be in accordance with 3GPP TS 24.229 [5].

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Tdoc C1-050696

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CHANGE REQUEST

⌘ **TS 24.247** **CR** 15 ⌘ **rev** **1** ⌘ Current version: **6.1.0** ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [ ] Core Network [X]

Title:	⌘	Adding of reference TS 26.241 to TS 24.247
Source:	⌘	Ericsson
Work item code:	⌘	IMS2
Date:	⌘	14/04/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

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R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	TS 26.141"IP Multimedia System (IMS) Messaging and Presence; Media formats and codecs" specifies the basic media formats and codecs to be used for IMS messaging and therefore should be referenced by the stage 3 document.
Summary of change:	⌘	The reference is added.
Consequences if not approved:	⌘	An important reference is missing which may lead to incompatible implementatioons

Clauses affected:	⌘	4			
Other specs Affected:	⌘	Y / N	Other core specifications	⌘	
			Test specifications		
			O&M Specifications		
Other comments:	⌘				

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[1] 3GPP TR 21.905: "3G Vocabulary".

[2] 3GPP TS 22.228: " Service requirements for the Internet Protocol (IP) multimedia core network subsystem; Stage 1".

[3] 3GPP TS 23.218: "IP Multimedia (IM) Session Handling; IP Multimedia (IM) call model; Stage 2".

[4] 3GPP TS 24.228 Release 5: "Signalling flows for the IP multimedia call control based on SIP and SDP; Stage 3".

[5] 3GPP TS 24.229: "IP Multimedia Call Control Protocol based on SIP and SDP; Stage 3".

[6] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".

[7] RFC 3261 (March 2002): "SIP: Session Initiation Protocol".

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

[9] draft-ietf-simple-message-sessions-09.txt (October 2004): "The Message Session Relay Protocol".

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

[10] 3GPP TS 24.147: "Conferencing using the IP Multimedia (IM) Core Network (CN) subsystem; Stage 3".

[11] 3GPP TS 22.340: "IP Multimedia System (IMS) messaging; Stage 1".

[12] draft-ietf-sipping-uri-list-message-02 (November 2004): "Multiple-Recipient MESSAGE Requests in the Session Initiation Protocol (SIP)".

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

[13] RFC 3994 (January 2005): "Indication of Message Composition for Instant Messaging".

[14] TS 26.141 " IP Multimedia System (IMS) Messaging and Presence; Media formats and codecs".

4 Messaging overview

The basic services for the IP Multimedia core network Subsystem (IMS), as defined in 3GPP TS 24.229 [5], allow a user to initiate, modify and terminate media sessions using the Session Initiation Protocol, as defined in RFC 3261 [7]. Although these basic mechanisms already allow the exchange of instant messaging information using SIP, this functionality can be extended to provide a richer service within the IMS.

The messaging service within the IM CN subsystem provides the means for a user to send or receive single messages immediately to / from another user and to create and participate in a messaging conference with one ore more other users. Participants to such message based communication may be internal or external to the home network.

When to use an immediate message and when to use a session-based messaging session will depend on the application.

NOTE: Some participants may always use session-based messaging, while others may use immediate messaging or a combination of session-based messaging and immediate messaging dependant of the characteristics of the messaging session. The criteria are implementation and application specific.

For immediate messaging the procedures for page-mode messaging, as defined in RFC 3428 or for session-mode messaging, as defined in draft-ietf-simple-message-sessions are utilized. When to use an page-mode messaging and when to use session-mode messaging session for the purpose of immediate messaging will depend on the application.

For session-based messaging and session-based messaging conferences, the Message Session Relay Protocol (MSRP) is utilized to transport messages.

The architecture for the 3GPP messaging is specified in 3GPP TS 23.228 [6] and 3GPP TS 23.218 [3]. The 3GPP recommended media formats and codecs are specified in 3GPP TS 26.141 [14].

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CHANGE REQUEST

⌘ **TS24.247** **CR** **016** ⌘**rev** **1** ⌘ Current version: **6.1.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☒

Title:	⌘	Corrections to Message Session Flows to align with draft-ietf-simple-message-sessions-10
Source:	⌘	RIM
Work item code:	⌘	IMS2
Date:	⌘	04/18/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
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R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	Current example flows in Annex A are not conformant to draft-ietf-simple-message-sessions-10
Summary of change:	⌘	Flows updated to align with information elements as defined in draft-ietf-simple-message-sessions-10and reference to draft-ietf-simple-message-sessions updated from 09 to 10.
Consequences if not approved:	⌘	Confusion for implementors and potential for misunderstandings leading to incompatibility problems.

Clauses affected:	⌘	2, Annex A

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

⌘

Other comments: ⌘

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[6] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".

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

[9] draft-ietf-simple-message-sessions-~~09~~10.txt (~~October~~ February ~~2004~~2005): "The Message Session Relay Protocol".

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

[10] 3GPP TS 24.147: "Conferencing using the IP Multimedia (IM) Core Network (CN) subsystem; Stage 3".

[11] 3GPP TS 22.340: "IP Multimedia System (IMS) messaging; Stage 1".

[12] draft-ietf-sipping-uri-list-message-02 (November 2004): "Multiple-Recipient MESSAGE Requests in the Session Initiation Protocol (SIP)".

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[13] RFC 3994 (January 2005): "Indication of Message Composition for Instant Messaging".

Annex A (informative): Example signalling flows of messaging service operation

Editor's note: draft-ietf-simple-message-sessions-09.txt contains a TBD for IANA registration of a default MSRP port number to assist with Firewall traversal. This default port number will be assigned by IANA at publication. When the RFC is published the Annex A flow examples need to be updated to show use of the default port number in the a=path attribute and the to-path and from-path headers. Current value in the examples is 3402 and this should be replaced by the IANA assigned default port in both offer and answer.

A.1 Scope of signalling flows

This annex gives examples of signalling flows for conferencing within the IP Multimedia CN Subsystem (IMS) based on the Session Initiation Protocol (SIP), SIP Events, the Session Description Protocol (SDP) and other protocols.

These signalling flows provide detailed signalling flows, which expand on the overview information flows provided in 3GPP TS 23.228 [6].

A.2 Introduction

A.2.1 General

A.2.2 Key required to interpret signalling flows

The key to interpret signalling flows specified in 3GPP TS 24.228 [4] subclause 4.1 applies with the additions specified below.

In order to differentiate between messages for SIP and MSRP, the following notation is used:

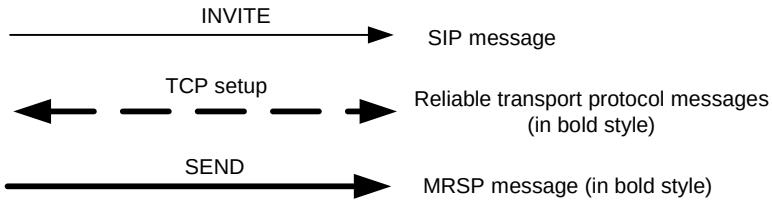


Figure A.2.2-1: Signalling flow notation

A.3 Signalling flows demonstrating immediate messaging

The signalling flow for immediate messaging is shown in subclause 10.6 of 3GPP TS 24.228 [4].

A.4 Signalling flows demonstrating session-based messaging

A.4.1 Introduction

This subclause provides signalling flows for session-based messaging, established both with and without preconditions.

How the signalling flow for session-based messaging looks like depends on the following:

a) at what point in time the IP-CAN for the media component (MSRP) is set up; or

b) whether preconditions and reliable provisional responses are used or not.

A.4.2 Establishing a session for session-based messaging without preconditions

Figure A.4.2-1 shows the establishment of an MSRP session between two users without the usage of preconditions and reliable provisional responses as well as the first message being sent over the established connection.

It is assumed that both the originating UE and terminating UE are using an IP-CAN with a separate bearer for SIP signalling which means that each UE needs to reserve a new IP-CAN bearer for the message session media component prior to sending the first MSRP message.

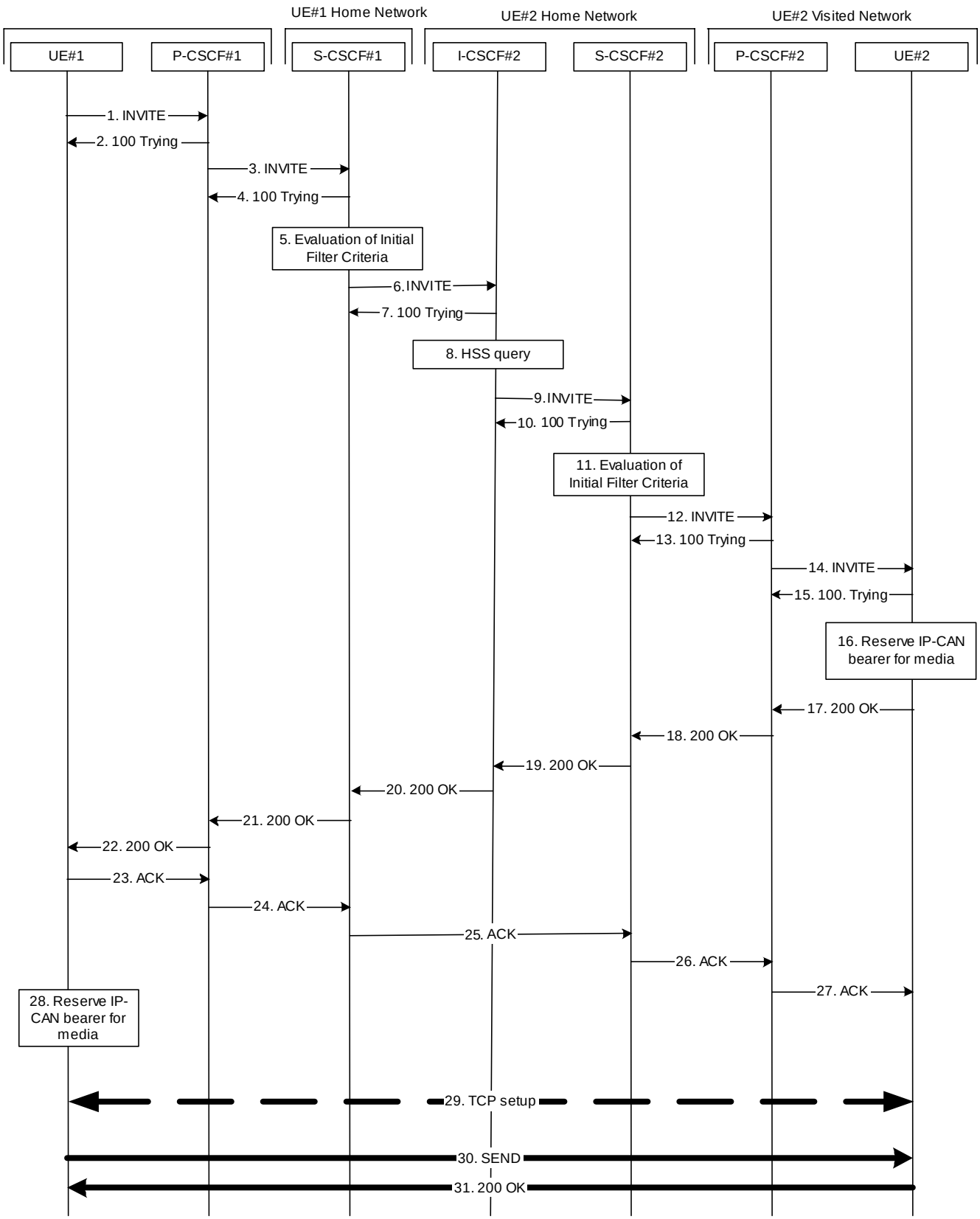


Figure A.4.2-1: Establishment of MSRP session

The details of the signalling flows are as follows:

1. **INVITE request (UE#1 to P-CSCF#1) - see example in table A.4.2-1**

   The originating UE wants to initiate a session-based message session with the terminating UE. The originating UE creates a local MSRP URL, which can be used for the communication between the two user agents. It builds a SDP Offer containing the generated MSRP URL and assigns a local port number for the MSRP communication.

Table A.4.2-1: INVITE request (UE#1 to P-CSCF#1)

```
INVITE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:orig@scscf1.home1.net;lr>
P-Preferred-Identity: "John Doe" <sip:user1_public1@home1.net>
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
Privacy: none
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:user2_public1@home2.net>
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 127 INVITE
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
   port-c=8642; port-s=7531
Contact: <sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp>
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE
Content-Type: application/sdp
Content-Length: (…)

v=0
o=- 2987933615 2987933615 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=message 9999 3402 msrp/tcp *
a=accept-types:message/cpim text/plain text/html
a=path:msrp://[5555::aaa:bbb:ccc:ddd]:3402/s111271;tcp
a=max-size:131072
```

SDP The SDP contains a set of content types supported by UE#1 and desired by the user at UE#1 for this session in the accept-types attribute and indicates the maximum size message that can be receieved by UE#1 in the max-size attribute.

2. **100 (Trying) response (P-CSCF#1 to UE#1) - see example in table A.4.2-2**

   The P-CSCF responds to the INVITE request with a 100 (Trying) response provisional response.

Table A.4.2-2: 100 (Trying) response (P-CSCF#1 to UE#1)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

3. **INVITE request (P-CSCF#1 to S-CSCF#1) - see example in table A.4.2-3**

   The INVITE request is forwarded to the S-CSCF.

Table A.4.2-3: INVITE request (P-CSCF#1 to S-CSCF#1)

```
INVITE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
Route: <sip:orig@scscf1.home1.net;lr>
Record-Route: <sip:pcscf1.visited1.net;lr>
P-Asserted-Identity: "John Doe" <sip:user1_public1@home1.net>
P-Access-Network-Info:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"
Privacy:
From:
To:
Call-ID:
Cseq:
Contact:
Allow:
Content-Type:
Content-Length: (…)

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

4. **100 (Trying) response (S-CSCF#1 to P-CSCF#1) - see example in table A.4.2-4**

   The S-CSCF responds to the INVITE request with a 100 (Trying) response provisional response.

Table A.4.2-4: 100 (Trying) response (S-CSCF#1 to P-CSCF#1)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

5. **Evaluation of initial filter criteria**

   S-CSCF#1 validates the service profile of this subscriber and evaluates the initial filter criterias.

6. **INVITE request (S-CSCF#1 to I-CSCF#2) - see example in table A.41-6**

   S-CSCF#1 forwards the INVITE request to the I-CSCF#2.

Table A.4.2-6: INVITE request (S-CSCF#1 to I-CSCF#2)

```
INVITE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
P-Asserted-Identity: "John Doe" <sip:user1_public1@home1.net>, <tel:+1-212-555-1111>
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"; orig-ioi=home1.net
Privacy:
From:
To:
Call-ID:
Cseq:
Contact:
Allow:
Content-Type:
Content-Length: (...)

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

7. **100 (Trying) response (I-CSCF#2 to S-CSCF#1) - see example in table A.4.2-7**

   I-CSCF#2 sends a 100 (Trying) response provisional response to S-CSCF#1.

Table A.4.2-7: 100 (Trying) response (I-CSCF#2 to S-CSCF#1)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

8. **Cx: User Location Query procedure**

   The I-CSCF sends a query to the HSS to find out the S-CSCF of the called user. The HSS responds with the address of the current S-CSCF for the terminating subscriber.

9. **INVITE request (I-CSCF#2 to S-CSCF#2) – see example in table A.4.2-9**

   I-CSCF#2 forwards the INVITE request to the S-CSCF#2 that will handle the session termination.

Table A.4.2-9: INVITE request (I-CSCF#2 to S-CSCF#2)

```
INVITE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 67
Route: <sip:scscf2.home2.net;lr>
Record-Route:
P-Asserted-Identity:
P-Charging-Vector:
Privacy:
From:
To:
Call-ID:
Cseq:
Contact:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

10. **100 (Trying) response (S-CSCF#2 to I-CSCF#2) – see example in table A.4.2-10**

S-CSCF#2 responds to the INVITE request with a 100 (Trying) response provisional response.

Table A.4.2-10: 100 (Trying) response (S-CSCF#2 to I-CSCF#2)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

11. **Evaluation of initial filter criterias**

S-CSCF#2 validates the service profile of this subscriber and evaluates the initial filter criterias.

12. **INVITE request (S-CSCF#2 to P-CSCF#2) – see example in table A.4.2-12**

S-CSCF#2 forwards the INVITE request, as determined by the termination procedure. S-CSCF#2 remembers (from the registration procedure) the UE Contact address and the next hop CSCF for this UE.

Table A.4.2-12: INVITE request (S-CSCF#2 to P-CSCF#2)

```
INVITE sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
   icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 66
Route: <sip:pcscf2.visited2.net;lr>
Record-Route: <sip:scscf2.home2.net;lr>, <sip:scscf1.home1.net;lr>,
   <sip:pcscf1.visited1.net;lr>
P-Asserted-Identity:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024
Privacy:
From:
To:
Call-ID:
Cseq:
Contact:
Allow:
P-Called-Party-ID: <sip:user2_public1@home2.net>
Content-Type:
Content-Length: (…)

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

13. **100 (Trying) response (P-CSCF#2 to S-CSCF#2) – see example in table A.4.2-13**

S-CSCF#2 receives a 100 (Trying) response provisional response to the INVITE request.

Table A.4.2-13: 100 (Trying) response (P-CSCF#2 to S-CSCF#2)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
   icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

14. **INVITE request (P-CSCF#2 to UE#2) – see example in table A.4.2-14**

P-CSCF#2 forwards the INVITE request to the terminating UE.

Table A.4.2-14: INVITE request (P-CSCF#2 to UE#2)

```
INVITE sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf2.visited2.net:5088;comp=sigcomp;branch=z9hG4bK361k21.1, SIP/2.0/UDP
   scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
   icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 65
Record-Route: <sip:pcscf2.visited2.net:5088;lr;comp=sigcomp>, <sip:scscf2.home2.net;lr>,
   <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
P-Asserted-Identity:
Privacy:
From:
To:
Call-ID:
Cseq:
Contact:
Allow:
P-Called-Party-ID:
Content-Type:
Content-Length: (...)

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

15. **100 (Trying) response (UE#2 to P-CSCF#2) – see example in table A.4.2-15**

    The terminating UE sends a 100 (Trying) response provisional response to P-CSCF#2.

Table A.4.2-15: 100 (Trying) response (UE#2 to P-CSCF#2)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP pcscf2.visited2.net:5088;comp=sigcomp;branch=z9hG4bK361k21.1, SIP/2.0/UDP
   scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
   icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

16. **Reserve IP-CAN bearer for media**

    The terminating UE accepts the message session. The terminating UE reserves an IP-CAN bearer for the message session media component.

17. **200 (OK) response (UE#2 to P-CSCF#2) – see example in table A.4.2-17**

    After reserving an IP-CAN bearer for the message session media component the terminating UE sends a 200 (OK) response for the INVITE request containing SDP that indicates that the terminating UE has accepted the message session and listens on the MSRP TCP port returned in the path attribute in the answer for a TCP SETUP from the originating UE.

Table A.4.2-17: 200 (OK) response (UE#2 to P-CSCF#2)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf2.visited2.net:5088;comp=sigcomp;branch=z9hG4bK361k21.1, SIP/2.0/UDP
   scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
   icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:pcscf2.visited2.net:5088;lr;comp=sigcomp>>, <sip:scscf2.home2.net;lr>,
   <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
Privacy: none
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:user2_public1@home2.net>;tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 127 INVITE
Contact: <sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp>
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE
Content-Type: application/sdp
Content-Length: (…)

v=0
o=- 2987933615 2987933617 IN IP6 5555:: eee:fff:aaa:bbb
s=-
c=IN IP6 5555::eee:fff:aaa:bbb
t=0 0
m=message 9999 3402 msrp/tcp *
a=accept-types:text/plain text/html message/cpim
a=path:msrp://[5555::eee:fff:aaa:bbb]:3402/s234167;tcp
a=max-size:65536
```

SDP The SDP contains the set of offered content types supported by UE#2 and desired by the user at UE#2 for this session in the accept-types attribute and indicates the maximum size message that can be receieved by UE#2 in the max-size attribute.

18. **200 (OK) response (P-CSCF#2 to S-CSCF#2) – see example in table A.4.2-18**

P-CSCF#2 forwards the 200 (OK) response to S-CSCF#2.

Table A.4.2-18: 200 (OK) response (P-CSCF#2 to S-CSCF#2)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
   icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route:
P-Asserted-Identity: John Smith" <sip:user2_public1@home2.net>
Privacy:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"
P-Access-Network-Info:
From:
To:
Call-ID:
CSeq:
Contact:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

19. **200 (OK) response (S-CSCF#2 to I-CSCF#2) – see example in table A.4.2-19**

S-CSCF#2 forwards the 200 (OK) response to I-CSCF#2.

Table A.4.2-19: 200 (OK) response (S-CSCF#2 to I-CSCF#2)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route:
P-Asserted-Identity: "John Smith" <sip:user2_public1@home2.net>, <tel:+1-212-555-2222>
Privacy:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"; orig-ioi=home1.net;
   term-ioi=home2.net
P-Charging-Function-Addresses: ccf=[5555::b99:c88:d77:e66]; ccf=[5555::a55:b44:c33:d22];
   ecf=[5555::1ff:2ee:3dd:4cc]; ecf=[5555::6aa:7bb:8cc:9dd]
From:
To:
Call-ID:
CSeq:
Contact:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

20. **200 (OK) response (I-CSCF#2 to S-CSCF#1) – see example in table A.4.2-20**

I-CSCF#2 forwards the 200 (OK) response to S-CSCF#1.

Table A.4.2-20: 200 (OK) response (I-CSCF#2 to S-CSCF#1)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route:
P-Asserted-Identity:
Privacy: none
P-Charging-Vector:
From:
To:
Call-ID:
CSeq:
Contact:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

21. **200 (OK) response (S-CSCF#1 to P-CSCF#1) – see example in table A.4.2-21**

S-CSCF#1 forwards the 200 (OK) response to P-CSCF#1.

Table A.4.2-21: 200 (OK) response (S-CSCF#1 to P-CSCF#1)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route:
P-Asserted-Identity:
Privacy:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"
From:
To:
Call-ID:
CSeq:
Require:
Contact:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

22. **200 (OK) response (P-CSCF#1 to UE#1) – see example in table A.4.2-22**

P-CSCF#1 forwards the 200 (OK) response to the originating UE.

Table A.4.2-22: 200 (OK) response (P-CSCF#1 to UE#1)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:pcscf2.visited2.net;lr>, <sip:scscf2.home2.net;lr>,
   <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>
P-Asserted-Identity:
Privacy:
From:
To:
Call-ID:
CSeq:
Require:
Contact:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

23. **ACK request (UE#1 to P-CSCF#1) – see example in table A.4.2-23**

The UE responds to the 200 (OK) response with an ACK request sent to the P-CSCF#1.

Table A.4.2-23: ACK request (UE#1 to P-CSCF#1)

```
ACK sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:scscf1.home1.net;lr>,
   <sip:scscf2.home2.net;lr>, <sip:pcscf2.visited2.net;lr>
From: <sip:user1_public1@home1.net>;tag=171828
To: <sip:user2_public1@home2.net>;tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 127 ACK
Content-Length: 0
```

24. **ACK request (P-CSCF#1 to S-CSCF#1) – see example in table A.4.2-24**

The P-CSCF#1 forwards the ACK request to S-CSCF#1.

Table A.4.2-24: ACK request (P-CSCF#1 to S-CSCF#1)

```
ACK sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
P-Access-Network-Info:
Route: <sip:scscf1.home1.net;lr>, <sip:scscf2.home2.net;lr>, <sip:pcscf2.visited2.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Length:
```

25. **ACK request (S-CSCF#1 to S-CSCF#2) - see example in table A.4.2-25**

The S-CSCF#1 forwards the ACK request to the the S-CSCF#2.

Table A.4.2-25: ACK request (S-CSCF#1 to S-CSCF#2)

```
ACK sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
Route: <sip:scscf2.home2.net;lr>, <sip:pcscf2.visited2.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Length:
```

26. **ACK request (S-CSCF#2 to P-CSCF#2) – see example in table A.4.2-26**

S-CSCF#1 forwards the ACK request to P-CSCF#2.

Table A.4.2-26: ACK request (S-CSCF#2 to P-CSCF#2)

```
ACK sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 67
Route: <sip:pcscf2.visited2.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Length:
```

27. **ACK request (P-CSCF#2 to UE#2) – see example in table A.4.2.27**

P-CSCF#2 forwards the ACK request to the terminating UE.

Table A.4.2-27: ACK request (P-CSCF#2 to UE#2)

```
ACK sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf2.visited2.net:5088;comp=sigcomp;branch=z9hG4bK361k21.1, SIP/2.0/UDP
   scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 66
From:
To:
Call-ID:
Cseq:
Content-Length:
```

28. **Reserve IP-CAN bearer for media**

The originating UE reserves an IP-CAN bearer for the message session media component.

29. **TCP setup**

The originating UE establishes a TCP connection using the IP-CAN bearers established in step 16 and step 28 to the host address and the port as specified in the MSRP URL received in the SDP Answer from the terminating UE.

30. **MSRP SEND request (UE#1 to UE#2) – see example in table A.4.2-30**

The originating UE sends the first message over the MSRP session with an MSRP SEND request using the established TCP connection.

Table A.4.2-30: MSRP SEND request (UE#1 to UE#2)

```
MSRP d93kswow SEND
To-path:msrp://[5555::eee:fff:aaa:bbb]:3402/s234167;tcp
From-path:msrp://[5555::aaa:bbb:ccc:ddd]:3402/s111271;tcp
Message-ID: 8822
Byte-Range: 1-77/77
Content-Type: "text/plain"

those are my principles. If you don't like them I have others – Groucho Marx.
-------d93kswow$
```

To-path: The sender's remote path

From-path: The sender's local URL

Message-ID: A unique message ID for MSRP message.

Byte-Range: The Byte Range for this message.

Content-Type: The format of the body of the request.

31. **MSRP 200 (OK) response (UE#2 to UE#1) – see example in table A.4.2-31**

The terminating UE acknowledges the reception of the MSRP SEND request with an MSRP 200 (OK) response using the established TCP connection.

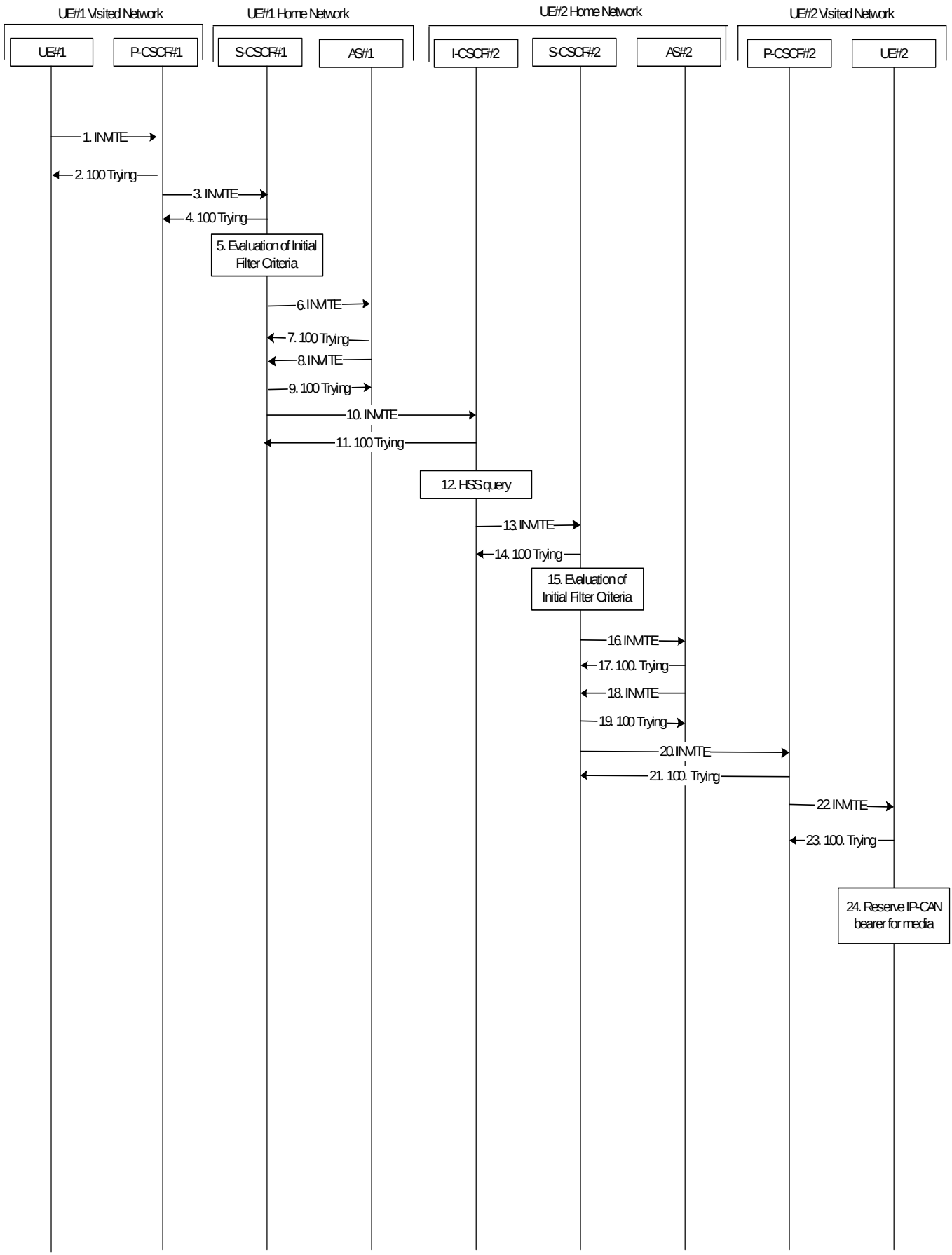
Table A.4.2-31: MSRP 200 (OK) response (UE#2 to UE#1)

```
MSRP d93kswow 200 OK
To-path:msrp://[5555::eee:fff:aaa:bbb]:3333/s234167;tcp
From-path:msrp://[5555::aaa:bbb:ccc:ddd]:3402/s111271;tcp
-------d93kswow$
```

A.4.3 Establishing a session for session-based messaging with Intermediate Nodes

Figure A.4.3-1 shows the establishment of a MSRP session between two users with intermediate nodes being added to the signalling path as well as the first message being sent over the established connection.

It is assumed that both the originating UE and terminating UE are using an IP-CAN with a separate bearer for SIP signalling which means that each UE needs to reserve a new IP-CAN bearer for the message session media component.


UE#1 Visited Network
UE#1 Home Network
UE#2 Home Network
UE#2 Visited Network
UE#1
P-CSCF#1
S-CSCF#1
AS#1
I-CSCF#2
S-CSCF#2
AS#2
P-CSCF#2
UE#2
1. INVITE
2. 100 Trying
3. INVITE
4. 100 Trying
5. Evaluation of Initial Filter Criteria
6. INVITE
7. 100 Trying
8. INVITE
9. 100 Trying
10. INVITE
11. 100 Trying
12. HSS query
13. INVITE
14. 100 Trying
15. Evaluation of Initial Filter Criteria
16. INVITE
17. 100. Trying
18. INVITE
19. 100 Trying
20. INVITE
21. 100. Trying
22. INVITE
23. 100. Trying
24. Reserve IP-CAN bearer for media

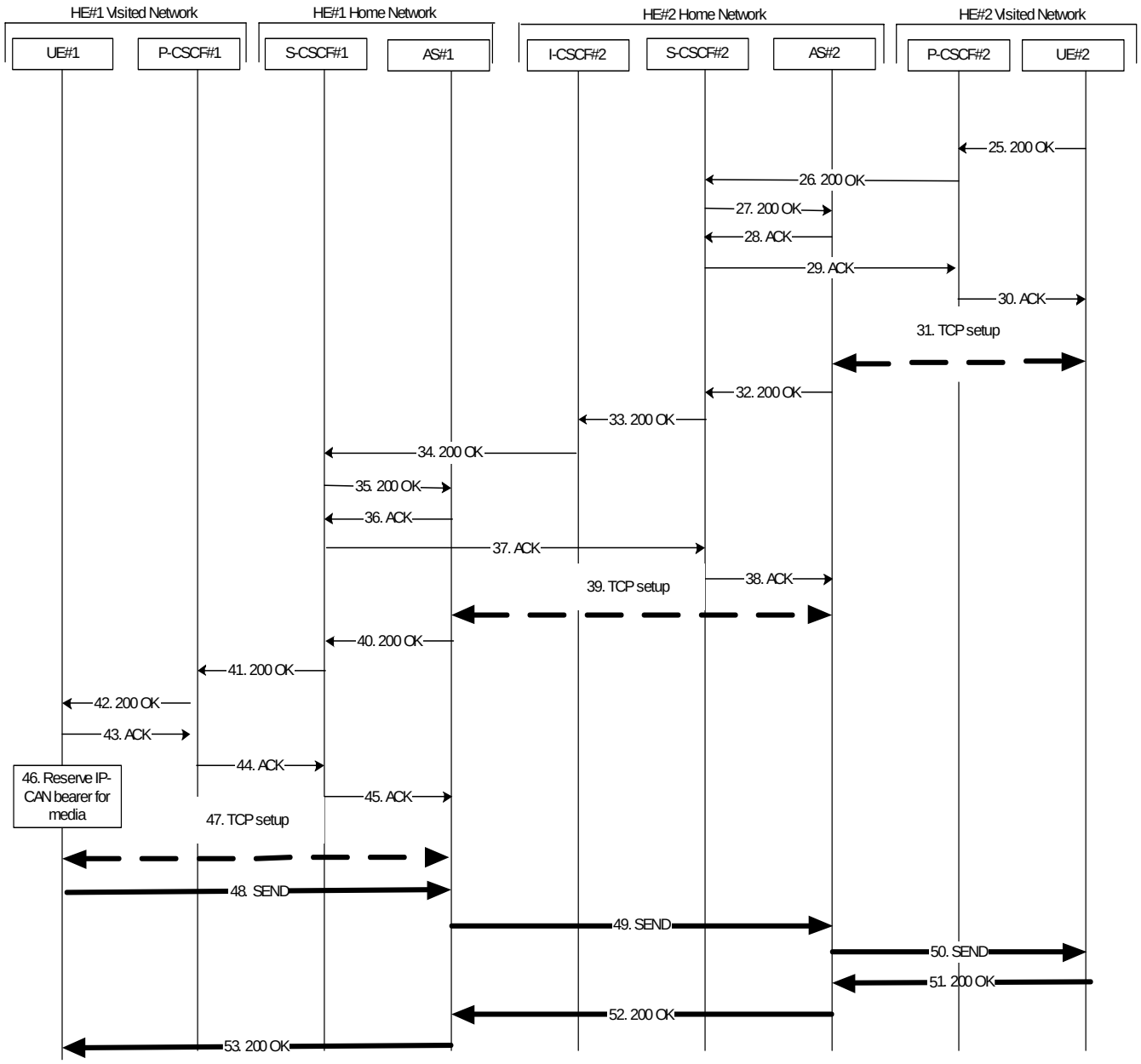


Figure A.4.3-1: Establishment of MSRP session with Intermediate Nodes

Editor's Note: It is FFS if the labelling of the intermediate nodes should be AS or AS/MRFC/MRFP.

The details of the signalling flows are as follows:

1. **INVITE request (UE#1 to P-CSCF#1) - see example in table A.4.3-1**

   The originating UE#1 wants to initiate a session-based message session with the terminating UE#2. UE#1 creates a local MSRP URL, which can be used for the communication between the two user agents. It builds a SDP Offer containing the generated MSRP URL and assigns a local port number for the MSRP communication.

Table A.4.3-1: INVITE request (UE#1 to P-CSCF#1)

```
INVITE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:orig@scscf1.home1.net;lr>
P-Preferred-Identity: "John Doe" <sip:user1_public1@home1.net>
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
Privacy: none
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:user2_public1@home2.net>
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 127 INVITE
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi=87654321; port1=7531
Contact: <sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp>
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE
Content-Type: application/sdp
Content-Length: (…)

v=0
o=- 2987933615 2987933615 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=message 9999 3402 msrp/tcp *
a=accept-types:message/cpim text/plain text/html
a=path:msrp://[5555::aaa:bbb:ccc:ddd]:3402/s111271;tcp
a=max-size:131072
```

SDP The SDP contains the set of content types supported by UE#1 and desired by the user at UE#1 for this session in the accept-types attribute and indicates the maximum size message that can be receieved by UE#1 in the max-size attribute.

2. **100 (Trying) response (P-CSCF#1 to UE#1) - see example in table A.4.3-2**

The P-CSCF responds to the INVITE request with a 100 (Trying) response provisional response.

Table A.4.3-2: 100 (Trying) response (P-CSCF#1 to UE#1)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

3. **INVITE request (P-CSCF#1 to S-CSCF#1) - see example in table A.4.3-3**

The INVITE request is forwarded to the S-CSCF.

Table A.4.3-3: INVITE request (P-CSCF#1 to S-CSCF#1)

```
INVITE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
Route: <sip:orig@scscf1.home1.net;lr>
Record-Route: <sip:pcscf1.visited1.net;lr>
P-Asserted-Identity: "John Doe" <sip:user1_public1@home1.net>
P-Access-Network-Info:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"
Privacy:
From:
To:
Call-ID:
Cseq:
Contact:
Allow:
Content-Type:
Content-Length: (…)

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

4. **100 (Trying) response (S-CSCF#1 to P-CSCF#1) - see example in table A.4.3-4**

   The S-CSCF responds to the INVITE request with a 100 (Trying) response provisional response.

Table A.4.3-4: 100 (Trying) response (S-CSCF#1 to P-CSCF#1)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

5. **Evaluation of initial filter criterias**

   S-CSCF#1 validates the service profile of this subscriber and evaluates the initial filter criterias. For sip:user1_public1@home1.net S-CSCF#2 has origination initial filter criteria with service points of interest of Method = INVITE request and SDP m= 'message' and 'msrp' protocol that informs the S-CSCF to route the INVITE request to the AS sip:as1.home1.net.

6. **INVITE request (S-CSCF#1 to AS#1) - see example in table A.4.3-6**

   S-CSCF#1 forwards the INVITE request to the AS#1.

Table A.4.3-6: INVITE request (S-CSCF#1 to AS#1)

```
INVITE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK344a65.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
Route: <sip:as1.home1.net;lr>, <sip:cb03a0s09a2sdfglkj490333@scscf1.home1.net;lr>
Record-Route: <sip:orig@scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
P-Asserted-Identity: "John Doe" <sip:user1_public1@home1.net>, <tel:+1-212-555-1111>
P-Access-Network-Info:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"; orig-ioi=home1.net
P-Charging-Function-Addresses: ccf=[5555::b99:c88:d77:e66]; ccf=[5555::a55:b44:c33:d22];
   ecf=[5555::1ff:2ee:3dd:4ee]; ecf=[5555::6aa:7bb:8cc:9dd]
Privacy:
From:
To:
Call-ID:
Cseq:
Contact:
Allow:
Content-Type:
Content-Length: (...)

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

7. **100 (Trying) response (AS#1 to S-CSCF#1) - see example in table A.4.3-7**

   AS#1 sends a 100 (Trying) response provisional response to S-CSCF#1.

Table A.4.3-7: 100 (Trying) response (AS#1 to S-CSCF#1)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK344a65.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

   AS#1 establishes a TCP connection using the IP-CAN bearers established in step 1 to the host address and port as specified in the MSRP URL received in the SDP Offer from the originating UE#1.

8. **INVITE request (AS#1 to S-CSCF#1) - see example in table A.4.3-8**

   AS#1 sends a new INVITE request to the S-CSCF#1 with the session attribute containing a unique URL for the AS#1 to receive media on.

Table A.4.3-8: INVITE request (AS#1 to S-CSCF#1)

```
INVITE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP as1.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 70
Route: <sip:cb03a0s09a2sdfglkj490333@scscf1.home1.net;lr>
P-Asserted-Identity: "John Doe" <sip:user1_public1@home1.net>, <tel:+1-212-555-1111>
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=323551024"
Privacy: none
From: <sip:user1_public1@home1.net>; tag=234567
To: <sip:user2_public1@home2.net>
Call-ID: s09a233cbsdfglkj490303a0
Cseq: 278 INVITE
Contact: <sip:[7777::eee:ddd:ccc:aaa]>
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE
Content-Type: application/sdp
Content-Length: (...)

v=0
o=- 2987933620 2987933620 IN IP6 7777::eee:ddd:ccc:aaa
s=-
c=IN IP6 7777::eee:ddd:ccc:aaa
t=0 0
m=message 9999 3927 msrp/tcp *
a=accept-types:message/cpim text/plain text/html
a=path:msrp://[7777::eee:ddd:ccc:aaa]:3927/s222371;tcp
a=max-size:65536
```

SDP The SDP contains the set of offered content types allowed by the policy of network home1 in the accept-types attribute and indicates the maximum size message that can be receieved by UE#1 and allowed by the policy of network home1 in the max-size attribute.

9. **100 (Trying) response (S-CSCF#1 to AS#1) - see example in table A.4.3-9**

S-CSCF#1 sends a 100 (Trying) response provisional response to AS#1.

Table A.4.3-9: 100 (Trying) response (S-CSCF#1 to AS#1)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP as1.home1.net;branch=z9hG4bK240f34.1
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

10. **INVITE request (S-CSCF#1 to I-CSCF#2) – see example in table A.4.3-10**

S-CSCF#1 forwards the INVITE request to the I-CSCF#2. As the S-CSCF#1 does not know whether the I-CSCF at home2.net is a loose router or not, it does not introduce a Route header.

Table A.4.3-10: INVITE request (S-CSCF#1 to I-CSCF#2)

```
INVITE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   as1.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 69
Record-Route: <sip:scscf1.home1.net;lr>
P-Asserted-Identity:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=323551024"; orig-ioi=home1.net
Privacy:
From:
To:
Call-ID:
Cseq:
Contact:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
```

11. **100 (Trying) response (I-CSCF#2 to S-CSCF#1) - see example in table A.4.3-11**

    I-CSCF#2 sends a 100 (Trying) response provisional response to S-CSCF#1.

Table A.4.3-11: 100 (Trying) response (I-CSCF#1 to S-CSCF#1)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   as1.home1.net;branch=z9hG4bK240f34.1
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

12. **Cx: User Location Query procedure**

    The I-CSCF sends a query to the HSS to find out the S-CSCF of the called user. The HSS responds with the address of the current S-CSCF for the terminating subscriber.

13. **INVITE request (I-CSCF#2 to S-CSCF#2) – see example in table A.4.3-13**

    I-CSCF#2 forwards the INVITE request to the S-CSCF#2 that will handle the session termination.

Table A.4.3-13: INVITE request (I-CSCF#2 to S-CSCF#2)

```
INVITE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   as1.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 68
Route: <sip:scscf2.home2.net;lr>
Record-Route:
P-Asserted-Identity:
P-Charging-Vector:
Privacy:
From:
To:
Call-ID:
Cseq:
Contact:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

NOTE: The I-CSCF does not add itself to the Record-Route header, as it has no need to remain in the signalling path once the session is established.

14. **100 (Trying) response (S-CSCF#2 to I-CSCF#2) – see example in table A.4.3-14**

S-CSCF#2 responds to the INVITE request with a 100 (Trying) response provisional response.

Table A.4.3-14: 100 (Trying) response (S-CSCF#2 to I-CSCF#2)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   as1.home1.net;branch=z9hG4bK240f34.1
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

15. **Evaluation of initial filter criterias**

S-CSCF#2 validates the service profile of this subscriber and evaluates the initial filter criterias. For sip:user2_public1@home2.net S-CSCF#2 has termination initial filter criteria with service points of interest of Method = INVITE request and SDP m = 'message' and 'msrp' protocol that informs the S-CSCF to route the INVITE request to the AS sip:as2.home2.net.

16. **INVITE request (S-CSCF#2 to AS#2) – see example in table A.4.3-16**

S-CSCF#2 forwards the INVITE request to AS#2

Table A.4.3-16: INVITE request (S-CSCF#2 to AS#2)

```
INVITE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
   icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   as1.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 67
Route: <sip:as2.home2.net;lr>,<sip:s09a233cbsdfglkj490303a0@scscf2.home2.net;lr>
Record-Route: <sip:scscf2.home2.net;lr>, <sip:scscf1.home1.net;lr>
P-Asserted-Identity:
P-Charging-Vector:
P-Charging-Function-Addresses: ccf=[6666::b99:c88:d77:e66]; ccf=[6666::a55:b44:c33:d22];
   ecf=[6666::1ff:2ee:3dd:4ee]; ecf=[6666::6aa:7bb:8cc:9dd]
Privacy:
From:
To:
Call-ID:
Cseq:
Contact:
Allow:
Content-Type:
Content-Length: (…)

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

17. **100 (Trying) response (AS#2 to S-CSCF#2) – see example in table A.4.3-17**

    S-CSCF#2 receives a 100 (Trying) response provisional response to the INVITE request.

Table A.4.3-17: 100 (Trying) response (AS#2 to S-CSCF#2)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
   icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   as1.home1.net;branch=z9hG4bK240f34.1
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

18. **INVITE request (AS#2 to S-CSCF#2) – see example in table A.4.3-18**

    AS#2 sends a new INVITE request to the S-CSCF#2 with the session attribute containing a unique URL for the AS#2 to receive media on.

Table A.4.3-18: INVITE request (AS#2 to S-CSCF#2)

```
INVITE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP as2.home2.net;branch=z9hG4bK348923.1
Max-Forwards: 70
Route: <sip:s09a233cbsdfglkj490303a0@scscf2.home2.net;lr>
P-Asserted-Identity:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=423551024"
Privacy: none
From: <sip:user1_public1@home1.net>; tag=7871654
To: <sip:user2_public1@home2.net>
Call-ID: 0s09glkj4903a2sdf33cb03a
Cseq: 210 INVITE
Contact: <sip:[9999::ccc:aaa:bbb:ddd]>
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE
Content-Type: application/sdp
Content-Length: (…)

v=0
o=- 2987933630 2987933630 IN IP6 9999::ccc:aaa:bbb:ddd
s=-
c=IN IP6 9999::ccc:aaa:bbb:ddd
t=0 0
m=message 9999 3333 msrp/tcp *
a=accept-types:message/cpim text/plain text/html
a=path:msrp://[9999::ccc:aaa:bbb:ddd]:3333/s317121;tcp
a=max-size:32768
```

SDP The SDP contains the set of offered content types allowed by the policy of network home2 in the accept-types attribute and indicates the maximum size message that can be receieved by UE#1 and allowed by the policy of network home2 in the max-size attribute.

19. **100 (Trying) response (S-CSCF#2 to AS#2) – see example in table A.4.3-19**

S-CSCF#2 receives a 100 (Trying) response provisional response to the INVITE request.

Table A.4.3-19: 100 (Trying) response (S-CSCF#2 to AS#2)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP as2.home2.net;branch=z9hG4bK348923.1
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

20. **INVITE request (S-CSCF#2 to P-CSCF#2) – see example in table A.4.3-20**

S-CSCF#2 forwards the INVITE request, as determined by the termination procedure. S-CSCF#2 remembers (from the registration procedure) the UE Contact address and the next hop CSCF for this UE.

Table A.4.3-20: INVITE request (S-CSCF#2 to P-CSCF#2)

```
INVITE sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
   as2.home2.net;branch=z9hG4bK348923.1
Max-Forwards: 69
Route: <sip:pcscf2.visited2.net;lr>
Record-Route: <sip:scscf2.home2.net;lr>
P-Asserted-Identity:
P-Charging-Vector:
Privacy:
From:
To:
Call-ID:
Cseq:
Contact:
Allow:
P-Called-Party-ID: <sip:user2_public1@home2.net>
Content-Type:
Content-Length: (…)

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

21. **100 (Trying) response (P-CSCF#2 to S-CSCF#2) – see example in table A.4.3-21**

    S-CSCF#2 receives a 100 (Trying) response provisional response to the INVITE request.

Table A.4.3-21: 100 (Trying) response (P-CSCF#2 to S-CSCF#2)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
   as2.home2.net;branch=z9hG4bK348923.1
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

22. **INVITE request (P-CSCF#2 to UE#2) – see example in table A.4.3-22**

    P-CSCF#2 forwards the INVITE request to the terminating UE.

Table A.4.3-22: INVITE request (P-CSCF#2 to UE#2)

```
INVITE sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf2.visited2.net:5088;comp=sigcomp;branch=z9hG4bK361k21.1, SIP/2.0/UDP
   scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
   as2.home2.net;branch=z9hG4bK348923.1
Max-Forwards: 68
Record-Route: <sip:pcscf2.visited2.net:5088;lr;comp=sigcomp>, <sip:scscf2.home2.net;lr>
P-Asserted-Identity:
Privacy:
From:
To:
Call-ID:
Cseq:
Contact:
Allow:
P-Called-Party-ID:
Content-Type:
Content-Length: (...)

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

23. **100 (Trying) response (UE#2 to P-CSCF#2) – see example in table A.4.3-23**

UE#2 sends a 100 (Trying) response provisional response to P-CSCF#2.

Table A.4.3-23: 100 (Trying) response (UE#2 to P-CSCF#2)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP pcscf2.visited2.net:5088;comp=sigcomp;branch=z9hG4bK361k21.1, SIP/2.0/UDP
   scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
   as2.home2.net;branch=z9hG4bK348923.1
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

24. **Reserve IP-CAN bearer for media**

The terminating UE#2 accepts the message session and. UE#2 reserves an IP-CAN bearer for the message session media component.

25. **200 (OK) response (UE#2 to P-CSCF#2) – see example in table A.4.3-25**

After reserving an IP-CAN bearer for the message session media component, the terminating UE#2 sends a 200 (OK) response for the INVITE request containing SDP that indicates that UE#2 has accepted the message session and listens on the MSRP TCP port returned in the path attribute in the answer for a TCP SETUP from AS#2.

Table A.4.3-25: 200 (OK) response (UE#2 to P-CSCF#2)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf2.visited2.net:5088;comp=sigcomp;branch=z9hG4bK361k21.1, SIP/2.0/UDP
   scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
   as2.home2.net;branch=z9hG4bK348923.1
Record-Route: <sip:pcscf2.visited2.net:5088;lr;comp=sigcomp>, <sip:scscf2.home2.net;lr>
Privacy: none
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
From: <sip:user1_public1@home1.net>tag=7871654
To: <sip:user2_public1@home2.net>;tag=999456
Call-ID: 0s09glkj4903a2sdf33cb03a
Cseq: 210 INVITE
Contact: <sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp>
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE
Content-Type: application/sdp
Content-Length: (…)

v=0
o=- 2987933630298793363 0IN IP6 5555::eee:fff:aaa:bbb
s=-
c=IN IP6 5555::eee:fff:aaa:bbb
t=0 0
m=message 9999 3402 msrp/tcp *
a=accept-types:text/plain text/html message/cpim
a=path:msrp://[5555::eee:fff:aaa:bbb]:3402/s417121;tcp
a=max-size:65536
```

SDP The SDP contains the set of offered content types supported by UE#2 and desired by the user at UE#2 for this session in the accept-types attribute and indicates the maximum size message that can be receieved by UE#2 in the max-size attribute.

26. **200 (OK) response (P-CSCF#2 to S-CSCF#2) – see example in table A.4.3-26**

P-CSCF#2 forwards the 200 (OK) response to S-CSCF#2.

Table A.4.3-26: 200 (OK) response (P-CSCF#2 to S-CSCF#2)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
   as2.home2.net;branch=z9hG4bK348923.1
Record-Route:
P-Asserted-Identity: "John Smith" <sip:user2_public1@home2.net>
Privacy:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=423551024"
P-Access-Network-Info:
From:
To:
Call-ID:
CSeq:
Contact:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

27. **200 (OK) response (S-CSCF#2 to AS#2) – see example in table A.4.3-27**

S-CSCF#2 forwards the 200 (OK) response to AS#2.

Table A.4.3-27: 200 (OK) response (S-CSCF#2 to AS#2)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP as2.home2.net;branch=z9hG4bK348923.1
Record-Route:
P-Asserted-Identity: "John Smith" <sip:user2_public1@home2.net>, <tel:+1-212-555-2222>
Privacy:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=423551024"; orig-ioi=home1.net;
   term-ioi=home2.net
From:
To:
Call-ID:
CSeq:
Contact:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

28. **ACK request (AS#2 to S-CSCF#2) – see example in table A.4.3-28**

AS#2 generates a new ACK request and sends it to S-CSCF#2.

Table A.4.3-28: ACK request (AS#2 to S-CSCF#2)

```
ACK sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP as2.home2.net;branch=z9hG4bK348923.1
Max-Forwards: 70
Route: <sip:scscf2.home2.net;lr>, <sip:pcscf2.visited2.net;lr>
From: <sip:user1_public1@home1.net>;tag=7871654
To: <sip:user2_public1@home2.net>;tag=2217770
Call-ID: 0s09glkj4903a2sdf33cb03a
Cseq: 210 ACK
Content-Length: 0
```

29. **ACK request (S-CSCF#2 to P-CSCF#2) – see example in table A.4.3-29**

S-CSCF#1 forwards the ACK request to P-CSCF#2.

Table A.4.3-29: ACK request (S-CSCF#2 to P-CSCF#2)

```
ACK sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
   as2.home2.net;branch=z9hG4bK348923.1
Max-Forwards: 69
Route: <sip:pcscf2.visited2.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Length:
```

30. **ACK request (P-CSCF#2 to UE#2) – see example in table A.4.3.30**

P-CSCF#2 forwards the ACK request to UE#2.

Table A.4.3-30: ACK request (P-CSCF#2 to UE#2)

```
ACK sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf2.visited2.net:5088;comp=sigcomp;branch=z9hG4bK361k21.1, SIP/2.0/UDP
   scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
   as2.home2.net;branch=z9hG4bK348923.1
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
Content-Length:
```

31. **TCP setup**

AS#2 establishes a TCP connection using the IP-CAN bearers established in step 24 to the host address and port as specified in the MSRP URL received in the SDP Answer from UE#2.

32. **200 (OK) response (AS#2 to S-CSCF#2) – see example in table A.4.3-32**

AS#2 generates a 200 (OK) response to S-CSCF#2.

Table A.4.3-32: 200 (OK) response (AS#2 to S-CSCF#2)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK764z87.1, SIP/2.0/UDP
   icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   as1.home1.net;branch=z9hG4bK240f34.1
Record-Route: <sip:scscf2.home2.net;lr>, <sip:scscf1.home1.net;lr>
P-Asserted-Identity: "John Smith" <sip:user2_public1@home2.net>, <tel:+1-212-555-2222>
Privacy:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=323551024"
From: <sip:user1_public1@home1.net>tag=234567
To: <sip:user2_public1@home2.net>;tag=98989823
Call-ID: s09a233cbsdfglkj490303a0
CSeq: 278 INVITE
Contact: <sip:[9999::ccc:aaa:bbb:ddd]>
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE
Content-Type: application/sdp
Content-Length: (…)

v=0
o=- 2987933640 2987933640 IN IP6 9999::ccc:aaa:bbb:ddd
s=-
c=IN IP6 9999::ccc:aaa:bbb:dddt=0 0
m=message 9999 3402 msrp/tcp *
a=accept-types:message/cpim text/plain text/html
a=path:msrp://[9999::ccc:aaa:bbb:ddd]:3402/s317122;tcp
a=max-size:32768
```

SDP The SDP contains the set of answered content types supported by UE#2 in the accept-types attribute and indicates the maximum size message that can be receieved by UE#2 and allowed by the policy of network home2 in the max-size attribute.

33. **200 (OK) response (S-CSCF#2 to I-CSCF#2) – see example in table A.4.3-33**

S-CSCF#2 forwards the 200 (OK) response to I-CSCF#2.

Table A.4.3-33: 200 (OK) response (S-CSCF#2 to I-CSCF#2)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   as1.home1.net;branch=z9hG4bK240f34.1
Record-Route:
P-Asserted-Identity: "John Smith" <sip:user2_public1@home2.net>, <tel:+1-212-555-2222>
Privacy:
P-Charging-Vector: icid-value"AyretyU0dm+6O2IrT5tAFrbHLso=323551024"; orig-ioi=home1.net;
   term-ioi=home2.net
P-Charging-Function-Addresses: ccf=[6666::b99:c88:d77:e66]; ccf=[6666::a55:b44:c33:d22];
   ecf=[6666::1ff:2ee:3dd:4ee]; ecf=[6666::6aa:7bb:8cc:9dd]
From:
To:
Call-ID:
CSeq:
Contact:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

34. **200 (OK) response (I-CSCF#2 to S-CSCF#1) – see example in table A.4.3-34**

    I-CSCF#2 forwards the 200 (OK) response to S-CSCF#1.

Table A.4.3-34: 200 (OK) response (I-CSCF#2 to S-CSCF#1)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   as1.home1.net;branch=z9hG4bK240f34.1
Record-Route:
P-Asserted-Identity:
Privacy: none
P-Charging-Vector:
From:
To:
Call-ID:
CSeq:
Contact:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

35. **200 (OK) response (S-CSCF#1 to AS#1) – see example in table A.4.3-35**

    S-CSCF#1 forwards the 200 (OK) response to AS#1.

Table A.4.3-35: 200 (OK) response (S-CSCF#1 to AS#1)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP as1.home1.net;branch=z9hG4bK240f34.1
Record-Route:
P-Asserted-Identity:
Privacy:
P-Charging-Vector:
P-Charging-Function-Addresses: ccf=[5555::b99:c88:d77:e66]; ccf=[5555::a55:b44:c33:d22];
   ecf=[5555::1ff:2ee:3dd:4ee]; ecf=[5555::6aa:7bb:8cc:9dd]
From:
To:
Call-ID:
CSeq:
Require:
Contact:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

36. **ACK request (AS#1 to S-CSCF#1) - see example in table A.4.3-36**

AS#1 generates an ACK request and sends it to S-CSCF#1.

Table A.4.3-36: ACK request (AS#1 to S-CSCF#1)

```
ACK sip:[9999::ccc:aaa:bbb:ddd] SIP/2.0
Via: SIP/2.0/UDP as1.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 70
Route: <sip:scscf1.home1.net;lr>, <sip:scscf2.home2.net;lr>
From: <sip:user1_public1@home1.net>; tag=234567
To: <sip:user2_public1@home2.net>;tag=98989823
Call-ID: s09a233cbsdfglkj490303a0
Cseq: 278 ACK
Content-Length: 0
```

37. **ACK request (S-CSCF#1 to S-CSCF#2) - see example in table A.4.3-37**

The S-CSCF#1 forwards the ACK request to S-CSCF#2.

Table A.4.3-37: ACK request (S-CSCF#1 to S-CSCF#2)

```
ACK sip:[9999::ccc:aaa:bbb:ddd] SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK344a65.1, SIP/2.0/UDP as1.home1.net;branch=
   z9hG4bK240f34.1
Max-Forwards: 69
Route: <sip:scscf2.home2.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Length:
```

38. **ACK request (S-CSCF#2 to AS#2) - see example in table A.4.3-38**

The S-CSCF#2 forwards the ACK request to the AS#2.

Table A.4.3-38: ACK request (S-CSCF#2 to AS#2)

```
ACK sip:[9999::ccc:aaa:bbb:ddd] SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK344a65.1, SIP/2.0/UDP
   as1.home1.net;branch=z9hG4bK240f34.1
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
Content-Length:
```

39. **TCP setup**

AS#1 establishes a TCP connection to the host address and port as specified in the MSRP URL received in the SDP Answer from the AS#2.

40. **200 (OK) response (AS#1 to S-CSCF#1) – see example in table A.4.3-40**

AS#1 generates a 200 (OK) response and sends it to S-CSCF#1.

Table A.4.3-40: 200 (OK) response (AS#1 to S-CSCF#1)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK344a65.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
P-Asserted-Identity:
Privacy:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"
From: <sip:user1_public1@home1.net>;tag=171828
To: <sip:user2_public1@home2.net>;tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
CSeq: 127 INVITE
Contact: <sip:[7777::eee:ddd:ccc:aaa]>
Allow:
Content-Type:
Content-Length:

v=0
o=- 2987933642 2987933642 IN IP6 7777::eee:ddd:ccc:aaa
s=-
c=IN IP6 7777::eee:ddd:ccc:aaa
t=0 0
m=message 9999 3927 msrp/tcp *
a=accept-types:message/cpim text/plain text/html
a=path:msrp://[7777::eee:ddd:ccc:aaa]:3927/s222372;tcp
a=max-size:32768
```

SDP The SDP contains the set of answered content types supported by UE#2 in the accept-types attribute and indicates the maximum size message that can be receieved by UE#2 and allowed by the policy of network home1 in the max-size attribute.

41. **200 (OK) response (S-CSCF#1 to P-CSCF#1) – see example in table A.4.3-41**

S-CSCF#1 forwards the 200 (OK) response to P-CSCF#1.

Table A.4.3-41: 200 (OK) response (S-CSCF#1 to P-CSCF#1)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route:
P-Asserted-Identity:
Privacy:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"
From:
To:
Call-ID:
CSeq:
Require:
Contact:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

42. **200 (OK) response (P-CSCF#1 to UE#1) – see example in table A.4.3-42**

P-CSCF#1 forwards the 200 (OK) response to UE#1

Table A.4.3-42: 200 (OK) response (P-CSCF#1 to UE#1)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>
P-Asserted-Identity:
Privacy:
From:
To:
Call-ID:
CSeq:
Require:
Contact:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

43. **ACK request (UE#1 to P-CSCF#1) – see example in table A.4.3-43**

The UE responds to the 200 (OK) response with an ACK request sent to the P-CSCF#1.

Table A.4.3-43: ACK request (UE#1 to P-CSCF#1)

```
ACK sip:[7777::eee:ddd:ccc:aaa] SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:scscf1.home1.net;lr>
From: <sip:user1_public1@home1.net>;tag=171828
To: <sip:user2_public1@home2.net>;tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 127 ACK
Content-Length: 0
```

44. **ACK request (P-CSCF#1 to S-CSCF#1) – see example in table A.4.3-44**

The P-CSCF#1 forwards the ACK request to the S-CSCF#1.

Table A.4.3-44: ACK request (P-CSCF#1 to S-CSCF#1)

```
ACK sip:[7777::eee:ddd:ccc:aaa] SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
P-Access-Network-Info:
Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Length:
```

45. **ACK request (S-CSCF#1 to AS#1) - see example in table A.4.3-45**

The S-CSCF#1 forwards the ACK request to AS#1.

Table A.4.3-45: ACK request (S-CSCF#1 to AS#1)

```
ACK sip:[7777::eee:ddd:ccc:aaa] SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK344a65.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
Content-Length:
```

46. **Reserve IP-CAN bearer for media**

UE#1 reserves an IP-CAN bearer for the message session media component.

47. **TCP setup**

Originating UE#1 establishes a TCP connection using the IP-CAN bearers established in step 46 to the host address and port as specified in the MSRP URL received in the SDP Answer from AS#1.

48. **MSRP SEND (UE#1 to AS#1) – see example in table A.4.3-48**

The originating UE sends the first message over the MSRP session with a MSRP SEND request using the established TCP connection.

Table A.4.3-48: MSRP SEND (UE#1 to AS#1)

```
MSRP 34kjf94 SEND
To-path:msrp://[7777::eee:ddd:ccc:aaa]:3927/s222372;tcp
From-path:msrp://[5555::aaa:bbb:ccc:ddd]:3402/s111271;tcp
Message-ID: 8822
Byte-Range: 1-89/89
Content-Type: "text/plain"

I will never be a member of a club that accepts people like me as members – Groucho Marx.
-------34kjf94$
```

To-path: The sender's remote path.

From-path: The sender's local URL.

Message-ID: A unique message ID for MSRP message.

Byte-Range: The Byte Range for this message.

Content-Type: The format of the body of the request.

49. **MSRP SEND (AS#1 to AS#2) – see example in table A.4.3-49**

AS#1 forwards the first MSRP SEND request to AS#2 over the MSRP session using the established TCP connection.

Table A.4.3-49: MSRP SEND (AS#1 to AS#2)

```
MSRP shfsoi3 SEND
To-path:msrp://[9999::ccc:aaa:bbb:ddd]:3333/s317122;tcp
From-path:msrp://[7777::eee:ddd:ccc:aaa]:3927/s222371;tcp
Message-ID: 2832
Byte-Range: 1-89/89
Content-Type: "text/plain"

I will never be a member of a club that accepts people like me as members – Groucho Marx.
-------shfsoi3$
```

To-path: The sender's remote path.

From-path: The sender's local URL.

Message-ID: A unique message ID for MSRP message.

Byte-Range: The Byte Range for this message.

Content-Type: The format of the body of the request.

50. **MSRP SEND (AS#2 to UE#2) – see example in table A.4.3-50**

AS#2 forwards the first MSRP SEND request to UE#2 over the MSRP session using the established TCP connection.

Table A.4.3-50: MSRP SEND (AS#2 to UE#2)

```
MSRP 2oid4sf SEND
To-path:msrp://[5555::eee:fff:aaa:bbb]:3335/s417121;tcp
From-path:msrp://[9999::ccc:aaa:bbb:ddd]:3333/s317121;tcp
Message-ID: 3311
Byte-Range: 1-89/89
Content-Type: "text/plain"

I will never be a member of a club that accepts people like me as members – Groucho Marx.
-------2oid4sf$
```

To-path: The sender's remote path.

From-path: The sender's local URL.

Message-ID: A unique message ID for MSRP message.

Byte-Range: The Byte Range for this message.

Content-Type: The format of the body of the request.

51. **MSRP 200 (OK) response (UE#2 to AS#2) – see example in table A.4.3-51**

The receiving UE#2 acknowledges the reception of the MSRP SEND request with a MSRP 200 (OK) response sent using the established TCP connection.

Table A.4.3-51: MSRP 200 (OK) response (UE#2 to AS#2)

```
MSRP 2oid4sf 200 OK
To-path:msrp://[5555::eee:fff:aaa:bbb]:3335/s417121;tcp
From-path:msrp://[9999::ccc:aaa:bbb:ddd]:3333/s317121;tcp
--------2oid4sf2j32ri3$
```

52. **MSRP 200 (OK) response (AS#2 to AS#1) – see example in table A.4.3-52**

AS#2 acknowledges the reception of the MSRP SEND request with a MSRP 200 (OK) response to AS#1 using the established TCP connection.

Table A.4.3-52: MSRP 200 (OK) response (AS#2 to AS#1)

```
MSRP shfsoi3 200 OK
To-path:msrp://[9999::ccc:aaa:bbb:ddd]:3333/s317122;tcp
From-path:msrp://[7777::eee:ddd:ccc:aaa]:3927/s222371;tcp
-------hfsoi3$
```

53. **MSRP 200 (OK) response (AS#1 to UE#1) – see example in table A.4.3-53**

AS#1 acknowledges the reception of the MSRP SEND request with a MSRP 200 (OK) response to UE#1 sent using the established TCP connection.

Table A.4.3-53: MSRP 200 (OK) response (AS#1 to UE#1)

```
MSRP 34kjf94 200 OK
To-path:msrp://[7777::eee:ddd:ccc:aaa]:3927/s222372;tcp
To-path:msrp://[7777::eee:ddd:ccc:aaa]:3927/s222372;tcp
-------34kjf94$
```

A.4.4 Establishing a session for session-based messaging with preconditions

This signalling flow is not provided as it is the same as the session establishment flows with preconditions in 3GPP TS 24.228 [4] except that the SDP contents are for setting up MSRP sessions over TCP rather than RTP sessions over UDP.

A.5 Flows demonstrating session-based messaging conferences

A.5.1 User connecting into a messaging conference

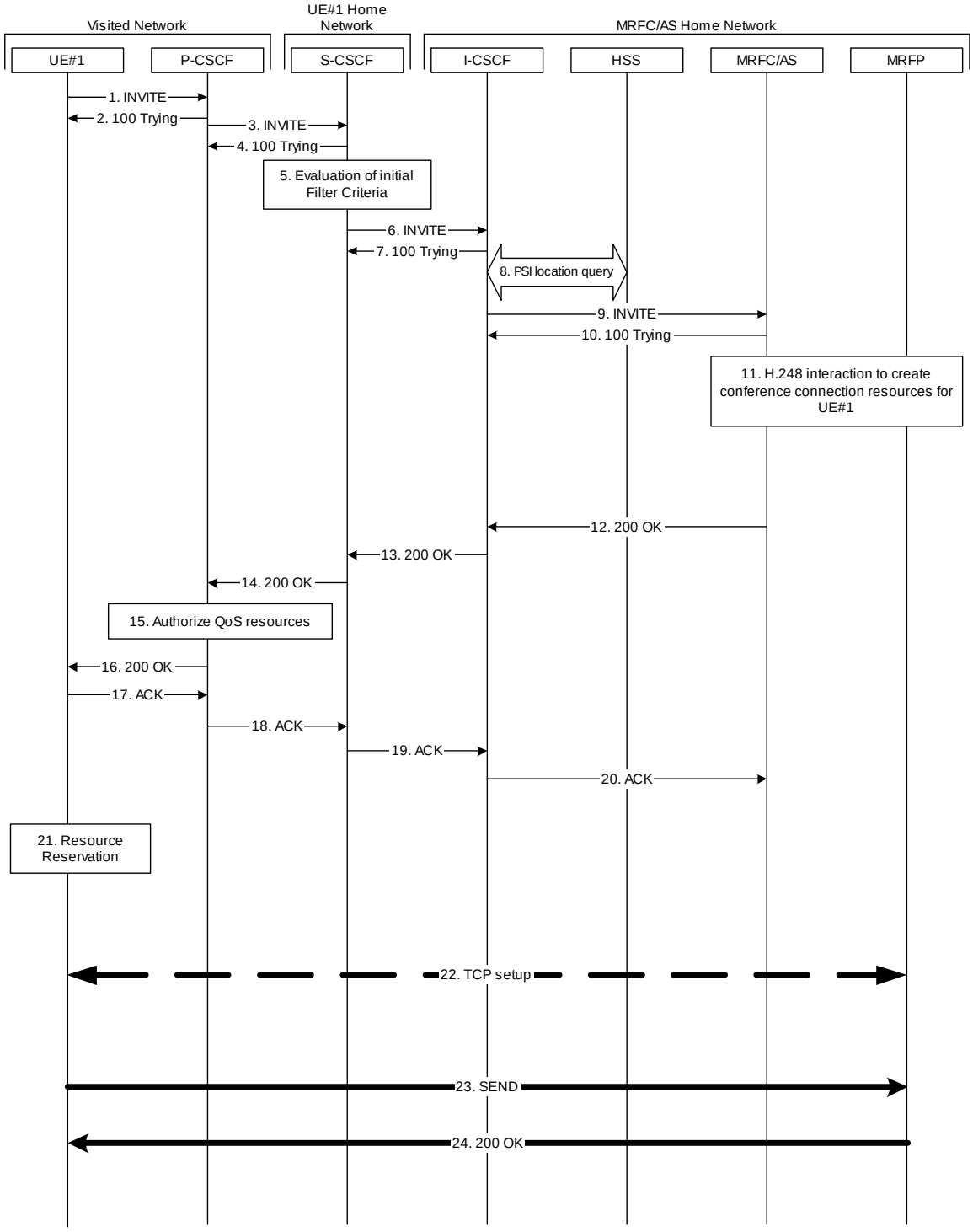


Figure A.5.1-1: User connecting into a messaging conference - network MRFC/AS is not located in user's home network - conference URI resolved by the terminating home network

Figure A.5.1-1 shows an user calling into a messaging conference by using a conference URI. The focus of that conference is at a MRFC/AS which are located in another network. The conference URI in this example cannot be

resolved by the originating home network. In this example Service Based Local Policy and Media Authorisation is applied in the visited network.

The details of the flows are as follows:

1. **INVITE request (UE to P-CSCF) - see example in table A.5.1-1**

   A UE wants to join a messaging conference. For this purpose the UE is aware of the related conference URI that was obtained by means outside the present document (e.g. via other protocols, such as http).

   The originating UE creates a local MSRP URL, which can be used for communication for the messaging conference. It builds a SDP Offer containing the generated MSRP URL and assigns a local port number for the MSRP communication.

   The UE sends the INVITE request to the P-CSCF.

Table A.5.1-1: INVITE request (UE to P-CSCF)

```
INVITE sip:conference1@home2.net SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:orig@scscf1.home1.net;lr>
P-Preferred-Identity: "John Doe" <sip:user1_public1@home1.net>
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
Privacy: none
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conference1@home2.net>
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 127 INVITE
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; q=0.1; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
   port-c=8642; port-s=7531
Contact: <sip:[5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp>
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE, SUBSCRIBE, NOTIFY
Content-Type: application/sdp
Content-Length: (…)

v=0
o=- 2987933615 2987933615 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=message 9999 3402 msrp/tcp *
a=accept-types:message/cpim text/plain text/html
a=path:msrp://[5555::aaa:bbb:ccc:ddd]:3402/s111271;tcp
a=max-size:131072
```

SDP The SDP contains a set of content types supported by UE#1 and desired by the user at UE#1 for this session in the accept-types attribute and indicates the maximum size message that can be receieved by UE#1 in the max-size attribute.

2. **100 (Trying) response (P-CSCF to UE) - see example in table A.5.1-2**

   The P-CSCF responds to the INVITE request (1) with a 100 (Trying) response provisional response.

Table A.5.1-2: 100 (Trying) response (P-CSCF to UE)

```
SIP/2.0 100 (Trying) response
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

3. **INVITE request (P-CSCF to S-CSCF) - see example in table A.5.1-3**

   The P-CSCF forwards the INVITE request to the S-CSCF.

Table A.5.1-3: INVITE request (P-CSCF to S-CSCF)

```
INVITE sip:conference1@home2.net SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
Route: <sip:orig@scscf1.home1.net;lr>
Record-Route: <sip:pcscf1.visited1.net;lr>
P-Asserted-Identity: "John Doe" <sip:user1_public1@home1.net>
P-Access-Network-Info:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"
Privacy:
From:
To:
Call-ID:
Cseq:
Contact:
Allow:
Content-Type:
Content-Length: (…)

v=
o=
s=
c=
t=
m=
a=
```

4. **100 (Trying) response (S-CSCF to P-CSCF) - see example in table A.5.1-4**

   The S-CSCF responds to the INVITE request (3) with a 100 (Trying) response provisional response.

Table A.5.1-4: 100 (Trying) response (S-CSCF to P-CSCF)

```
SIP/2.0 100 (Trying) response
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

5. **Evaluation of initial filter criteria**

   The S-CSCF validates the service profile of this subscriber and evaluates the initial filter criteria.

6. **INVITE request (S-CSCF to I-CSCF) - see example in table A.5.1-6**

   The S-CSCF performs an analysis of the destination address, and determines the network operator to whom the destination subscriber belongs. Since the originating operator does not desire to keep their internal configuration hidden, the S-CSCF forwards the INVITE request directly to the I-CSCF in the destination network.

   As the S-CSCF does not know whether the I-CSCF at home2.net is a loose router or not, it does not introduce a Route header.

Table A.5.1-6: INVITE request (S-CSCF to I-CSCF)

```
INVITE sip:conference1@home2.net SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
P-Asserted-Identity: "John Doe" <sip:user1_public1@home1.net>, <tel:+358-50-4821437>
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"; orig-ioi=home1.net
Privacy:
From:
To:
Call-ID:
Cseq:
Require:
Contact:
Content-Type:
Content-Length: (...)

v=
o=
s=
c=
t=
m=
a=
```

7. **100 (Trying) response (I-CSCF to S-CSCF) - see example in table A.5.1-7 (related to table A.5.1-6)**

   The I-CSCF responds to the INVITE request (6) with a 100 (Trying) response provisional response.

Table A.5.1-7: 100 (Trying) response (MRFC/AS to S-CSCF)

```
SIP/2.0 100 (Trying) response
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

8. **Public service identity (PSI) location query**

   The I-CSCF sends a query to the HSS to find out the MRFC/AS at which the conference has been created. The HSS responds with the address of the MRFC/AS at which the conference is hosted. The HSS responds with the address of the MRFC/AS.

   For detailed message flows see 3GPP TS 29.228 [11].

9. **INVITE request (I-CSCF to MRFC/AS) - see example in table A.5.1-9**

I-CSCF forwards the INVITE request to the MRFC/AS that was resolved during the PSI location query (8). The I-CSCF does not re-write the Request URI.

Table A.5.1-9: INVITE request (I-CSCF to MRFC/AS)

```
INVITE sip:conference1@home2.net SIP/2.0
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 67
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
P-Asserted-Identity:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"; orig-ioi=home1.net
Privacy:
From:
To:
Call-ID:
Cseq:
Contact:
Content-Type:
Content-Length: (...)

v=
o=
s=
c=
t=
m=
a=
```

10. **100 (Trying) response (MRFC/AS to I-CSCF) - see example in table A.5.1-10 (related to table A.5.1-9)**

The MRFC/AS responds to the INVITE request (9) with a 100 (Trying) response provisional response.

Table A.5.1-10: 100 (Trying) response (MRFC/AS to I-CSCF)

```
SIP/2.0 100 (Trying) response
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

11. **H.248 interaction to create conference connection resources for UE#1**

MRFC initiates a H.248 interaction to create an connection point for UE#1 in MRFP.

12. **200 (OK) response (MRFC/AS to I-CSCF) - see example in table A.5.1-12 (related to table A.5.1-9)**

The MRFC/AS sends a 200 (OK) response for the INVITE request containing SDP that indicates that the MRFC/AS has accepted the message session and listens on the MSRP TCP port returned in the path attribute in the answer for a TCP SETUP from the originating UE. The MRFC/AS sends a 200 (OK) response final response to the INVITE request (9) to the I-CSCF.

Table A.5.1-12: 200 (OK) response (MRFC/AS to I-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net;lr>
P-Asserted-Identity: "Conference Server" <sip:mrfc1.home2.net>
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"; orig-ioi=home1.net;
   term-ioi=home2.net
P-Charging-Function-Addresses: ccf=[5555::b99:c88:d77:e66]; ccf=[5555::a55:b44:c33:d22];
   ecf=[5555::1ff:2ee:3dd:4cc]; ecf=[5555::6aa:7bb:8cc:9dd]
Privacy: none
From:
To: <sip:conference1@home2.net>; tag=314159
Call-ID:
CSeq:
Contact: <sip:conference1@home2.net>;isfocus
Allow-Events: conference
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE, SUBSCRIBE, NOTIFY
Content-Type: application/sdp
Content-Length: (…)

v=0
o=- 2987933623 2987933623 IN IP6 5555::aaa:bbb:ccc:ddd
s=-
c=IN IP6 5555::aaa:bbb:ccc:ddd
t=0 0
m=message 9999 3402 msrp/tcp *
a=accept-types:message/cpim text/plain text/html
a=path:msrp://[9999:: aaa:bbb:ccc:ddd]:3402/s317122;tcp
a=max-size:32768
```

SDP The SDP contains a set of offered content types supported by the MRFC/AS for this session in the accept-types attribute and indicates the maximum size message that can be receieved by the MRFC/AS in the max-size attribute.

13. **200 (OK) response (I-CSCF to S-CSCF) - see example in table A.5.1-13**

The I-CSCF sends a 200 (OK) response final response along the signalling path back to the S-CSCF.

Table A.5.1-13: 200 (OK) response (I-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route:
P-Asserted-Identity:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"; orig-ioi=home1.net;
   term-ioi=home2.net
Privacy:
From:
To:
Call-ID:
CSeq:
Contact:
Allow-Events:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
```

14. **200 (OK) response (S-CSCF to P-CSCF) - see example in table A.5.1-14**

The S-CSCF sends a 200 (OK) response final response along the signalling path back to the P-CSCF.

Table A.5.1-14: 200 (OK) response (S-CSCF to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route:
P-Asserted-Identity:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"
P-Charging-Function-Addresses: ccf=[5555::b99:c88:d77:e66]; ccf=[5555::a55:b44:c33:d22];
   ecf=[5555::1ff:2ee:3dd:4cc]; ecf=[5555::6aa:7bb:8cc:9dd]
Privacy:
From:
To:
Call-ID:
CSeq:
Contact:
Allow-Events:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
```

15. **Authorize QoS Resources**

The P-CSCF authorizes the resources necessary for this session.

16. **200 (OK) response (P-CSCF to UE) - see example in table A.5.1-16**

The P-CSCF forwards the 200 (OK) response final response including the media authorisation token to the session originator.

Table A.5.1-16: 200 (OK) response (P-CSCF to UE)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Record-Route: <sip:scscf1.home1.net;lr>, <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>
P-Asserted-Identity:
Privacy:
P-Media-Authorization:
   00200001001001017064663 22e76697369746564322e6e6574000c020139425633303732
From:
To:
Call-ID:
CSeq:
Contact:
Allow-Events:
Allow:
Content-Type:
Content-Length:
```

17. **ACK request (UE to P-CSCF) - see example in table A.5.1-17**

The UE starts the media flow for this session, and responds to the 200(OK) response (16) with an ACK request sent to the P-CSCF.

Table A.5.1-17: ACK request (UE to P-CSCF)

```
ACK sip:conference1@home2.net:2342 SIP/2.0
Via: SIP/2.0/UDP [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 70
Route: <sip:pcscf1.visited1.net:7531;lr;comp=sigcomp>, <sip:scscf1.home1.net;lr>
From: <sip:user1_public1@home1.net>; tag=171828
To: <sip:conference1@home2.net>;tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 127 ACK
Content-Length: 0
```

18. **ACK request (P-CSCF to S-CSCF) - see example in table A.5.1-18**

The P-CSCF forwards the ACK request to the S-CSCF.

Table A.5.1-18: ACK request (P-CSCF to S-CSCF)

```
ACK sip:conference1@home2.net:2342 SIP/2.0
Via: SIP/2.0/UDP pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 69
Route: <sip:scscf1.home1.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Length:
```

19. **ACK request (S-CSCF to I-CSCF) - see example in table A.5.1-19**

The S-CSCF performs an analysis of the destination address, and determines the network operator to whom the destination subscriber belongs. Since the originating operator does not desire to keep their internal configuration hidden, the S-CSCF forwards the ACK request directly to the I-CSCF in the destination network.

As the S-CSCF does not know whether the I-CSCF at home2.net is a loose router or not, it does not introduce a Route header.

Table A.5.1-19: ACK request (S-CSCF to I-CSCF)

```
ACK sip:conference1@home2.net:2342 SIP/2.0
Via: SIP/2.0/UDP scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
Content-Length:
```

20. **ACK request (I-CSCF to MRFC/AS) - see example in table A.5.1-20**

I-CSCF forwards the ACK request to the MRFC/AS that was resolved during the PSI location query (8). The I-CSCF does not re-write the Request URI.

Table A.5.1-20: ACK request (I-CSCF to MRFC/AS)

```
ACK sip:conference1@home2.net:2342 SIP/2.0
Via: SIP/2.0/UDP icscf2_s.home2.net;branch=z9hG4bK871y12.1, SIP/2.0/UDP
   scscf1.home1.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   pcscf1.visited1.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   [5555::aaa:bbb:ccc:ddd]:1357;comp=sigcomp;branch=z9hG4bKnashds7
Max-Forwards: 67
From:
To:
Call-ID:
Cseq:
Content-Length:
```

21. **Reserve IP-CAN bearer for media**

The UE reserves an IP-CAN bearer for the message session media component.

22. **TCP setup**

Originating UE establishes a TCP connection using the IP-CAN bearers established in step 21to the host address and port as specified in the MSRP URL received in the SDP Answer from MRFC/AS.

23. **MSRP SEND request (UE to MRFP) – see example in table A.5.1-23**

The originating UE sends the first me.ssage over the MSRP session with an MSRP SEND request using the established TCP connection.

Table A.5.1-23: MSRP SEND request (UE to MRFP)

```
MSRP a97ghjut SEND
To-path:msrp://[9999::ccc:aaa:bbb:ddd]:3402/s317122;tcp
From-path:msrp://[5555::aaa:bbb:ccc:ddd]:3402/s111271;tcp
Message-ID: 9972
Byte-Range: 1-77/77
Content-Type: "text/plain"
those are my principles. If you don't like them I have others – Groucho Marx.
-------a97ghjut$
```

To-path: The sender's remote path

From-path: The sender's local URL

Message-ID: A unique message ID for MSRP message.

Byte-Range: The Byte Range for this message.

Content-Type: The format of the body of the request.

24. **MSRP 200 (OK) response (MRFP to UE) – see example in table A.5.1-24**

The MRFP acknowledges the reception of the MSRP SEND request with an MSRP 200 (OK) response using the established TCP connection.

Table A.5.1-24: MSRP 200 (OK) response (MRFP to UE)

```
MSRP a97ghjut 200 OK
To-path:msrp://[9999::ccc:aaa:bbb:ddd]:3402/s317122;tcp
From-path:msrp://[5555::aaa:bbb:ccc:ddd]:3402/s111271;tcp
-------a97ghjut$
```

A.5.2 MRFC/AS invites a user to a messaging conference

Figure A.5.2-1 shows an MRFC/AS inviting a user to a messaging conference. The invitation is sent as a result of user1@home1.net sending a REFER request to the MRFC/AS. The MRFC/AS is located in a different network than user's S-CSCF. The flows for inviting a user to a conference using REFER are shown in TS 24.147 [10]. In this example Service Based Local Policy and Media Authorisation is applied in the visted network.

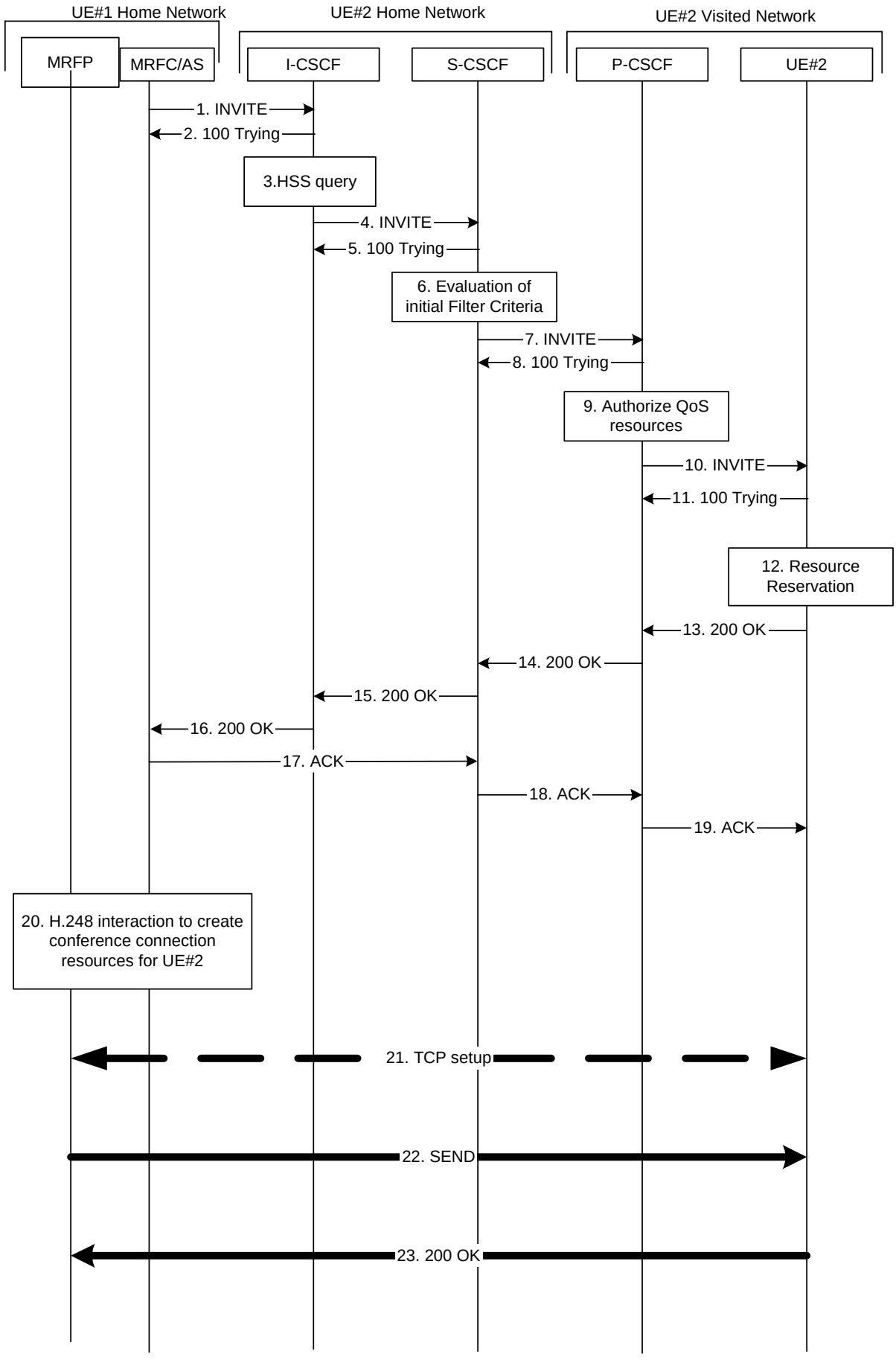

UE#1 Home Network
UE#2 Home Network
UE#2 Visited Network
MRFP
MRFC/AS
I-CSCF
S-CSCF
P-CSCF
UE#2
1. INVITE
2. 100 Trying
3.HSS query
4. INVITE
5. 100 Trying
6. Evaluation of initial Filter Criteria
7. INVITE
8. 100 Trying
9. Authorize QoS resources
10. INVITE
11. 100 Trying
12. Resource Reservation
13. 200 OK
14. 200 OK
15. 200 OK
16. 200 OK
17. ACK
18. ACK
19. ACK
20. H.248 interaction to create conference connection resources for UE#2
21. TCP setup
22. SEND
23. 200 OK

Figure A.5.2-1: MRFC/AS inviting a user to a messaging conference - MRFC/AS routes directly to I-CSCF

The details of the flows are as follows:

1. **INVITE request (MRFC/AS to I-CSCF) - see example in table A.5.2-1**

   In this example, the MRFC/AS is capable of resolving the terminating users I-CSCF address for this request. As a result of a DNS query, it has received the address of the I-CSCF as the next hop.

   The MRFC/AS invites a user to a messaging conference as it received a REFER request from another user.

   The MRFC/AS creates a local MSRP URL, which can be used for communication for the messaging conference. It builds a SDP Offer containing the generated MSRP URL and assigns a local port number for the MSRP communication. In this example Service Based Local Policy and Media Authorisation is applied in the visited network.

Table A.5.2-1: INVITE request (MRFC/AS to I-CSCF)

```
INVITE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP mrfc1.home1.net;branch=z9hG4bK23273846
Max-Forwards: 70
P-Asserted-Identity: <sip:conference1@mrfc1.home1.net>
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"; orig-ioi=home1.net
Privacy: none
From: <sip:conference1@mrfc1.home1.net>;tag=171828
To: <sip:user2_public1@home2.net>
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 127 INVITE
Referred-By: <sip:user1_public1@home1.net>
Contact: <sip:conference1@mrfc1.home1.net>;isfocus
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE, SUBSCRIBE, NOTIFY
Allow-Events: conference
Content-Type: application/sdp
Content-Length: (…)

v=0
o=- 2987933615 2987933615 IN IP6 5555::abc:def:abc:def
s=-
c=IN IP6 5555::abc:def:abc:def
t=0 0
m=message 9999 3402 msrp/tcp *
a=accept-types:message/cpim text/plain text/html
a=path:msrp://[5555::abc:def:abc:def]:3402/s111271;tcp
a=max-size:32768
```

SDP The SDP contains a set of content types supported by the MRFC/AS for this session in the accept-types attribute and indicates the maximum size message that can be receieved by the MRFC/AS in the max-size attribute.

2. **100 (Trying) response (I-CSCF to MRFC/AS) - see example in table A.5.2-2**

   The I-CSCF responds to the INVITE request with a 100 (Trying) provisional response.

Table A.5.2-2: 100 (Trying) response (I-CSCF to MRFC/AS)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP conference1@mrfc1.home1.net;branch=z9hG4bK23273846
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

3. **Cx: User Location Query procedure**

The I-CSCF sends a query to the HSS to find out the S-CSCF of the called user. The HSS responds with the address of the current S-CSCF for the terminating subscriber.

For detailed message flows see 3GPP TS 29.228[11].

4. **INVITE request (I-CSCF to S-CSCF) - see example in table A.5.2-4**

The INVITE request is forwarded to the S-CSCF.

Table A.5.2-4: INVITE request (I-CSCF to S-CSCF)

```
INVITE sip:user2_public1@home2.net SIP/2.0
Via: SIP/2.0/UDP icscf2.home2.net;branch=z9hG4bK241d17.2, SIP/2.0/UDP
   mrfc1.home1.net;branch=z9hG4bK23273846
Max-Forwards: 69
P-Asserted-Identity:
P-Charging-Vector:
Privacy:
From:
To:
Call-ID:
Cseq:
Referred-By:
Contact:
Allow:
Allow-Events:
Content-Type:
Content-Length: (…)

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

5. **100 (Trying) response (S-CSCF to I-CSCF) - see example in table 6.2.2.2-5**

The S-CSCF responds to the INVITE request (3) with a 100 (Trying) provisional response.

Table 6.2.2.2-5: 100 (Trying) response (S-CSCF to I-CSCF)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP icscf2.home2.net;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   mrfc1.home1.net;branch=z9hG4bK23273846
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

6. **Evaluation of initial filter criteria**

The S-CSCF validates the service profile of this subscriber and evaluates the initial filter criteria.

7. **INVITE request (S-CSCF to P-CSCF) - see example in table A.5.2-7**

S-CSCF remembers (from registration procedures) the contact address of UE#2 and determines the P-CSCF assigned for UE#2 and routes message there.

Table A.5.2-7: INVITE request (S-CSCF to P-CSCF)

```
INVITE sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   icscf2.home2.net;branch=z9hG4bK241d17.2, SIP/2.0/UDP
   mrfc1.home1.net;branch=z9hG4bK23273846
Max-Forwards: 68
Record-Route: <sip:scscf1.home1.net;lr>
P-Asserted-Identity:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"
Privacy:
From:
To:
Call-ID:
Cseq:
Referred-By:
Contact:
Allow:
Allow-Events:
P-Called-Party-ID: <sip:user2_public1@home2.net>
Content-Type:
Content-Length: (...)

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

8. **100 (Trying) response (P-CSCF to S-CSCF) - see example in table A.5.2-8**

   The P-CSCF responds to the INVITE request (6) with a 100 (Trying) provisional response.

Table A.5.2-8: 100 (Trying) response (P-CSCF to S-CSCF)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   icscf2.home2.net;branch=z9hG4bK241d17.2, SIP/2.0/UDP
   mrfc1.home1.net;branch=z9hG4bK23273846
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

9. **Authorize QoS resources**

   The P-CSCF authorizes the resources necessary for this session.

10. **INVITE request (P-CSCF to UE#2) - see example in table A.5.2-10**

P-CSCF forwards the request to UE#2 including the Media Authorisation token.

Table A.5.2-10: INVITE request (P-CSCF to UE#2)

```
INVITE sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf2.visited2.net:5088;comp=sigcomp;branch=z9hG4bK240f34.1 SIP/2.0/UDP
   scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   icscf2.home2.net;branch=z9hG4bK241d17.2, SIP/2.0/UDP
   mrfc1.home1.net;branch=z9hG4bK23273846
Max-Forwards: 67
Record-Route: <sip:pcscf2.visited2.net:5088;lr;comp=sigcomp>, <sip:scscf2.home2.net;lr>
P-Asserted-Identity:
Privacy:
P-Media-Authorization: 00200001001001017064663l2e686f6d65312e6e6574000c02013331533134363231
From:
To:
Call-ID:
Cseq:
Referred-By:
Contact:
Allow:
Allow-Events:
P-Called-Party-ID:
Content-Type:
Content-Length: (...)

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

11. **100 (Trying) response (UE#2 to P-CSCF) - see example in table A.5.2-11**

UE#2 responds to the INVITE request (10) with a 100 (Trying) provisional response.

Table A.5.2-11: 100 (Trying) response (UE#2 to P-CSCF)

```
SIP/2.0 100 Trying
Via: SIP/2.0/UDP pcscf2.visited2.net:5088;comp=sigcomp;branch=z9hG4bK240f34.1 SIP/2.0/UDP
   scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   icscf2.home2.net;branch=z9hG4bK241d17.2, SIP/2.0/UDP
   mrfc1.home1.net;branch=z9hG4bK23273846
From:
To:
Call-ID:
CSeq:
Content-Length: 0
```

12. **Resource reservation**

After determining the media streams, UE#2 initiates the reservation procedures for the resources needed for this session.

13. **200 (OK) response (UE#2 to P-CSCF) - see example in table A.5.2-13 (related to table A.5.2-10)**

After reserving an IP-CAN bearer for the message session media componentthe receipt of the MSRP 200 (OK) response to the MSRP VISIT request, the terminating UE#2 sends a 200 (OK) response for the INVITE request containing SDP that indicates that UE#2 has successfully visited AS#2. accepted the message session and listens on the MSRP TCP port returned in the path attribute in the answer for a TCP SETUP from the MRFC/AS.

Table A.5.2-13: 200 (OK) response (UE#2 to P-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP pcscf2.visited2.net:5088;comp=sigcomp;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   icscf2.home2.net;branch=z9hG4bK241d17.2, SIP/2.0/UDP
   mrfc1.home1.net;branch=z9hG4bK23273846
Record-Route: <sip:pcscf2.visited2.net:5088;lr;comp=sigcomp>, <sip:scscf2.home2.net;lr>
P-Access-Network-Info: 3GPP-UTRAN-TDD; utran-cell-id-3gpp=234151D0FCE11
Privacy: none
From:
To: <sip:user2_public1@home2.net>; tag=314159
Call-ID:
CSeq: 127 INVITE
Contact: <sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp>
Content-Length:0
Allow: INVITE, ACK, CANCEL, BYE, PRACK, UPDATE, REFER, MESSAGE, SUBSCRIBE, NOTIFY
Content-Type: application/sdp
Content-Length: (…)

v=0
o=- 2987933623 2987933623 IN IP6 5555::eee:fff:aaa:bbb
s=-
c=IN IP6 5555::eee:fff:aaa:bbb
t=0 0
m=message 9999 3402 msrp/tcp *
a=accept-types:text/plain text/html message/cpim
a=path:msrp://[5555::eee:fff:aaa:bbb]:3402/s417121;tcp
a=max-size:65536
```

SDP The SDP contains a set of offered content types supported by UE#2 and desired by the user at UE#2 for this session in the accept-types attribute and indicates the maximum size message that can be receieved by UE#2 in the max-size attribute.

14. **200 (OK) response (P-CSCF to S-CSCF) - see example in table A.5.2-14**

The P-CSCF forwards the 200 (OK) response to the S-CSCF.

Table A.5.2-14: 200 (OK) response (P-CSCF to S-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   icscf2.home2.net;branch=z9hG4bK241d17.2, SIP/2.0/UDP
   mrfc1.home1.net;branch=z9hG4bK23273846
Record-Route: <sip:pcscf2.visited2.net;lr>, <sip:scscf2.home2.net;lr>
P-Asserted-Identity: "John Smith" <sip:user2_public1@home2.net>
P-Access-Network-Info:
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"
Privacy:
From:
To:
Call-ID:
CSeq:
Contact:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

15. **200 (OK) response (S-CSCF to I-CSCF) - see example in table A.5.2-15**

The S-CSCF sends a 200 (OK) response final response along the signalling path back to I-CSCF.

Table A.5.2-15: 200 (OK) response (S-CSCF to I-CSCF)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP icscf2.home2.net;branch=z9hG4bK241d17.2, SIP/2.0/UDP
   mrfc1.home1.net;branch=z9hG4bK23273846
Record-Route:
P-Asserted-Identity: "John Smith" <sip:user2_public1@home2.net>, <tel:+1-212-555-2222>
P-Charging-Vector: icid-value="AyretyU0dm+6O2IrT5tAFrbHLso=023551024"; orig-ioi=home1.net;
   term-ioi=home2.net
P-Charging-Function-Addresses: ccf=[5555::b99:c88:d77:e66]; ccf=[5555::a55:b44:c33:d22];
   ecf=[5555::1ff:2ee:3dd:4cc]; ecf=[5555::6aa:7bb:8cc:9dd]
Privacy:
From:
To:
Call-ID:
CSeq:
Contact:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

16. **200 (OK) response (I-CSCF to MRFC/AS) - see example in table A.5.2-16**

The I-CSCF forwards the 200 (OK) response final response to the session originator.

Table 6.2.2.2-16: 200 (OK) response (I-CSCF to MRFC/AS)

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP mrfc1.home1.net;branch=z9hG4bK23273846
Record-Route:
P-Asserted-Identity:
Privacy:
From:
To:
Call-ID:
CSeq:
Contact:
Allow:
Content-Type:
Content-Length:

v=
o=
s=
c=
t=
m=
a=
a=
a=
```

17. **ACK request (MRFC/AS to S-CSCF) - see example in table A.5.2-17**

The MRFC/AS responds to the 200 (OK) response (16) with an ACK request sent to the S-CSCF.

Table A.5.2-17: ACK request (MRFC/AS to S-CSCF)

```
ACK sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP mrfc1.home1.net;branch=z9hG4bK23273846
Max-Forwards: 70
Route: <sip:scscf2.home2.net;lr>, <sip:pcscf2.visited2.net;lr>
From: <sip:conference1@mrfc1.home1.net>; tag=171828
To: <sip:user2_public1@home2.net>;tag=314159
Call-ID: cb03a0s09a2sdfglkj490333
Cseq: 127 ACK
Content-Length: 0
```

18. **ACK request (S-CSCF to P-CSCF) - see example in table A.5.2-18**

The S-CSCF forwards the ACK request to the P-CSCF.

Table A.5.2-18: ACK request (S-CSCF to P-CSCF)

```
ACK sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   mrfc1.home1.net;branch=z9hG4bK23273846
Max-Forwards: 69
Route: <sip:pcscf2.visited2.net;lr>
From:
To:
Call-ID:
Cseq:
Content-Length:
```

19. **ACK request (P-CSCF to UE#2) - see example in table A.5.2-19**

The P-CSCF forwards the ACK request to the UE#2.

Table A.5.2-19: ACK request (P-CSCF to UE#2)

```
ACK sip:[5555::eee:fff:aaa:bbb]:8805;comp=sigcomp SIP/2.0
Via: SIP/2.0/UDP pcscf2.visited2.net:5088;comp=sigcomp;branch=z9hG4bK240f34.1, SIP/2.0/UDP
   scscf2.home2.net;branch=z9hG4bK332b23.1, SIP/2.0/UDP
   mrfc1.home1.net;branch=z9hG4bK23273846
Max-Forwards: 68
From:
To:
Call-ID:
Cseq:
Content-Length:
```

20. **H.248 interaction to create conference connection resources for UE#2**

MRFC initiates a H.248 interaction to create an connection point for UE#2 in MRFP.

21. **TCP setup**

MRFP establishes a TCP connection using the IP-CAN bearers established in step 12 to the host address and port as specified in the MSRP URL received in the SDP Answer UE#2.

22. **MSRP SEND request (MRFP to UE#2) – see example in table A.5.1-22**

The MRFP sends the first me.ssage over the MSRP session with an MSRP SEND request using the established TCP connection.

Table A.5.1-22: MSRP SEND request (MRFP to UE#2)

```
MSRP y56hkseg SEND
To-path:msrp://[5555::eee:fff:aaa:bbb]:3402/s417121;tcp
From-path:msrp://[5555::abc:def:abc:def]:3402/s111271;tcp
Message-ID: 10568
Byte-Range: 1-89/89
Content-Type: "text/plain"
I will never be a member of a club that accepts people like me as members – Groucho Marx.
-------y56hkseg$
```

To-path: The sender's remote path

From-path: The sender's local URL

Message-ID: A unique message ID for MSRP message.

Byte-Range: The Byte Range for this message.

Content-Type: The format of the body of the request.

23. **MSRP 200 (OK) response (UE#2 to MRFP) – see example in table A.5.1-23**

The terminating UE acknowledges the reception of the MSRP SEND request with an MSRP 200 (OK) response using the established TCP connection.

Table A.5.1-23: MSRP 200 (OK) response (UE#2 to MRFP)

```
MSRP y56hkseg 200 OK
To-path:msrp://[5555::eee:fff:aaa:bbb]:3402/s417121;tcp
From-path:msrp://[5555::abc:def:abc:def]:3402/s111271;tcp
-------y56hkseg$
```

Annex C (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
2003-06					Version 0.0.1: Initial version for discussion		0.0.1
2003-06	CN#31				Version 0.0.2: Title and text changed in order to reflect that Messaging is a service.	N1-031123	N1-031281
2003-09					Version 0.1.0: Title changed	0.0.2	0.1.0
2003-12					Version 0.2.0: Incorporated the following CRs as approved at CN#32 meeting: N1-031676: Message Sessions in IMS – Call Flow N1-031677: Immediate Messaging – Call Flow reference to 24.228 N1-031722: Message Sessions in IMS – Text (created Annex B) N1-031723: Immediate Messaging – Text Additionally the editor took the freedom to change the heading formats in subclause B.5. Also the title <void> of subclause B.5 was replaced with the title of clause 5 in the main part of the text and subclauses B.5.1 and B.5.2 were added (both <void>).	0.1.0	0.2.0
2003-12					Version 0.2.1: Including minor issues that were left out by mistake when creating version 0.2.0	0.2.0	0.2.1
2004-01					Version 0.3.0: Incorporated the following CRs as approved at CN#32bis meeting: N1-040151 – Message Session in IMS N1-040189 – Deletion of imported and unused Definitions N1-040197 – UE to UE message session flow N1-040198 – Message Session Initiation – mobile originating case N1-040199 – Message Session Initiation – mobile terminating case N1-040200 – Use of MESSAGE versus MSRP	0.2.1	0.3.0
2004-01					Version 0.3.1: Including N1-040200, that was left out (although listed) by mistake when creating version 0.3.0	0.3.0	0.3.1
2004-02					Version 0.4.0: Incorporated the following CRs as approved at CN1#33 meeting: - N1-040261 – Update of Scope - N1-040262 – Correction of Flows - N1-040280 – Editorial Changes - N1-040306 – Corections to Annex A.4.3 - N1-040307 – Corrections to Annex B - N1-040426 – SDP for session-based messaging - N1-040429 – Corrections to Annex A.1 – A.4.2 - N1-040486 – Definition of MSRP Role for AS and MRFP - N1-040488 – Session-based Messaging with Intermediate Node Flow A.4.3	0.3.1	0.4.0
2004-02					Version 0.4.1: Added subclause 9.2.2, which was missing from last update. Minor editorials	0.4.0	0.4.1
2004-04					Version 0.5.0: Incorporated the following CRs as approved as CN1#33bis meeting: - N1-040561 – MSRP in AS - N1-040648 – Editorial changes to Annex A - N1-040738 – MSRP terminating UE hosting flow as well as minor editorial changes	0.4.1	0.5.0
2004-05					Version 1.0.0: Incorporated the following CRs as approved during CN1#34 meeting: - N1-041038 – Shifting Material from Annex B to main body - N1-041036 – Corrections to Message Sessions Flows - N1-041040 – Ut for Messaging - N1-040850 – Correction of signalling flow example - N1-041037 – Establishing a session with active intermediate nodes, with originating UE hosting, and without SBLP - N1-041039 – Addition of Note to 5.3.1.1 - several smaller editorial changes Note: the material was first shifted from Annex B to the main body (approved CR in N1-041038), all CRs that were written against material in Annex B were afterwards applied against the material in the main body.	0.5.0	1.0.0
2004-05					Version 1.0.1 produced to correct smaller editorial mistakes.	1.0.0	1.0.1
2004-06					Version 1.1.0 produced as outcome of CN#34bis meeting in Helsinki, Finland. Todc N1-041172 (Changes in MSRP) and	1.0.1	1.1.0

					smaller editorial changes incorporated.		
2004-08					Version 1.2.0 produced as outcome CN#35 meeting in Sophia Antipolis, France. Tdoc N1-041585 (AS section) and smaller editorial changes incorporated.	1.1.0	1.2.0
2004-11					Version 6.0.0 produces as outcome of CN#36 meeting in Seoul, South Korea. The following documents were incorporated: N1-041714 – deletion of intro claus N1-041716 – Terminology alignment N1-041989 – Data Manipulation for IMS Messaging in Rel-6 N1-041995 – Session establishment for session-mode messaging N1-041996 – Session-based messaging conferences N1-041997 – subclause 8 rework N1-041998 – general subclause in participant section N1-041999 – subclause 9 rework N1-042001 – Participant in immediate messaging N1-042114 – subclause 10 rework N1-042115 – subclause 6 rework	1.2.0	2.0.0
2004-12	CN-26	NP-040611			Version 2.0.0 is approved and the TS is brought under the change control. As an erroneous v6.0.0 is presented in CN-26, the first officially published version is 6.0.1.	2.0.0	6.0.1
2005-03	CN-27	NP-050073	011	1	Corrections to Message Session Flows to align with draft-ietf-simple-message-sessions-09	6.0.1	6.1.0
2005-03	CN-27	NP-050073	008	1	Alignment between TS 23.228/ TS 22.340 and TS 24.247 for immediate messaging	6.0.1	6.1.0
2005-03	CN-27	NP-050073	001	1	Resolution of references to 24.228	6.0.1	6.1.0
2005-03	CN-27	NP-050073	003		MESSAGE to unregistered user	6.0.1	6.1.0
2005-03	CN-27	NP-050073	010	2	Removing CPCP from 24.247	6.0.1	6.1.0
2005-03	CN-27	NP-050075	009	2	Clarifications to TS 24.247 subclause 9.3	6.0.1	6.1.0
2005-03	CN-27	NP-050075	002	3	MESSAGE to multiple recipients	6.0.1	6.1.0
2005-03	CN-27	NP-050075	007	2	Alignment between TS 22.340 and on TS 24.247 for "is composing"	6.0.1	6.1.0

CR-Form-v7.1

CHANGE REQUEST

⌘ 24.167 CR 1 ⌘rev 1 ⌘ Current version: 6.0.0 ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [ ] Core Network [X]

Title:	⌘	Corrections to TS 24.167 due to comments from OMA DM
Source:	⌘	Ericsson
Work item code:	⌘	IMS2
Date:	⌘	06/04/2005
Category:	⌘	F
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

Ph2	*(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)*
Rel-7	*(Release 7)*

Reason for change:	⌘	OMA DM has reviewed the version 2.0.0 of TS 24.167 and has some comments. - The Enabler Release is referenced - A list of connectivity objects is added - Appropriate formats are used (bool & int)
Summary of change:	⌘	This CR corrects the TS according to the comments by OMA DM.
Consequences if not approved:	⌘	The TS will not be fully aligned with the OMA DM framework

Clauses affected:	⌘	1, 2, 4, 5 (wih subclauses)			
		Y	**N**		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

Contents

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

This document defines a mobile device 3GPP IMS Management Object. The management object is compatible with OMA Device Management protocol specifications, version 1.1.2 and upwards, and is defined using the OMA DM Device Description Framework as described in the Enabler Release Definition OMA-ERELD-SyncML_DM-V1_1_2-20031209-A [x]~~OMA-SyncML-DMTND-V1-1 [6] and OMA-SyncML-DMStdObj-V1-1-2 [7]~~.

The 3GPP IMS Management Object consists of relevant parameters that can be managed for the IM CN Subsystem. This includes the basic framework defined in 3GPP TS 23.228 [4] and 3GPP TS 24.229 [5], and early IMS as defined in 3GPP TS 23.221 [3].

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the 3GPP IMS Management Object 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 23.003: "Numbering, addressing and identification".

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

[4] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".

[5] 3GPP TS 24.229: "Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".

[6] ~~OMA-SyncML-DMTND-V1-1: "SyncML Device Management Tree and Description".~~Void.

[7] ~~OMA-SyncML-DMStdObj-V1-1-2: "SyncML Device Management Standardized Objects".~~Void.

[8] RFC 1123: "Requirements for Internet Hosts -- Application and Support".

[x] OMA-ERELD-SyncML_DM-V1_1_2-20031209-A: "Enabler Release Definition for OMA Device Management (based on SyncML DM), Version 1.1.2".

3 Definitions and abbreviations

3.1 Definitions

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

3.2 Abbreviations

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

CN	Core Network
CSCF	Call Session Control Function

DDF	Device Description Framework
DM	Device Management
IMS	IP Multimedia core network Subsystem
IP	Internet Protocol
MO	Management Object
OMA	Open Mobile Alliance
P-CSCF	Proxy – CSCF
PDP	Packet Data Protocol
SIP	Session Initiation Protocol
UE	User Equipment

4 3GPP IMS Management Object

The 3GPP IMS Management Object is used to manage settings of the UE for IM CN Subsystem protocols. The Management Object covers generic parameters for the IM CN subsystem. The Management Object enables the management of the settings on behalf of the end user.

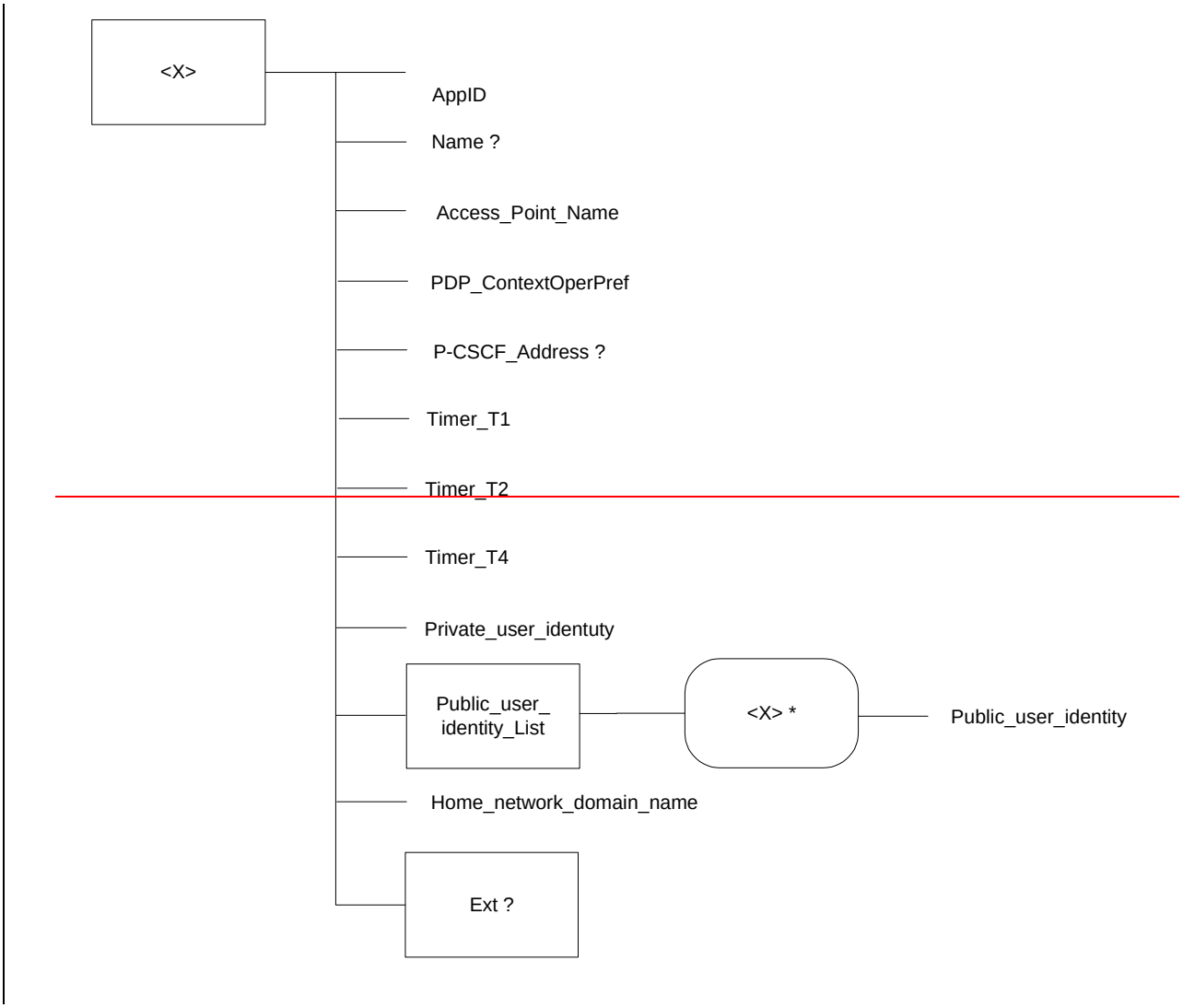
The Management Object Identifier is: org.3gpp/1.0/SIPCore

Protocol compatibility: This MO is compatible with OMA DM 1.1.2.

~~Management object name: 3GPP_IMS~~

~~Editor's Note: The name of the management object to be determined by OMA.~~

The following nodes and leaf objects are possible under the 3GPP_IMS node:


<X>
AppID
Name ?
Access_Point_Name
PDP_ContextOperPref
P-CSCF_Address ?
Timer_T1
Timer_T2
Timer_T4
Private_user_identuty
Public_user_ identity_List
<X> *
Public_user_identity
Home_network_domain_name
Ext ?

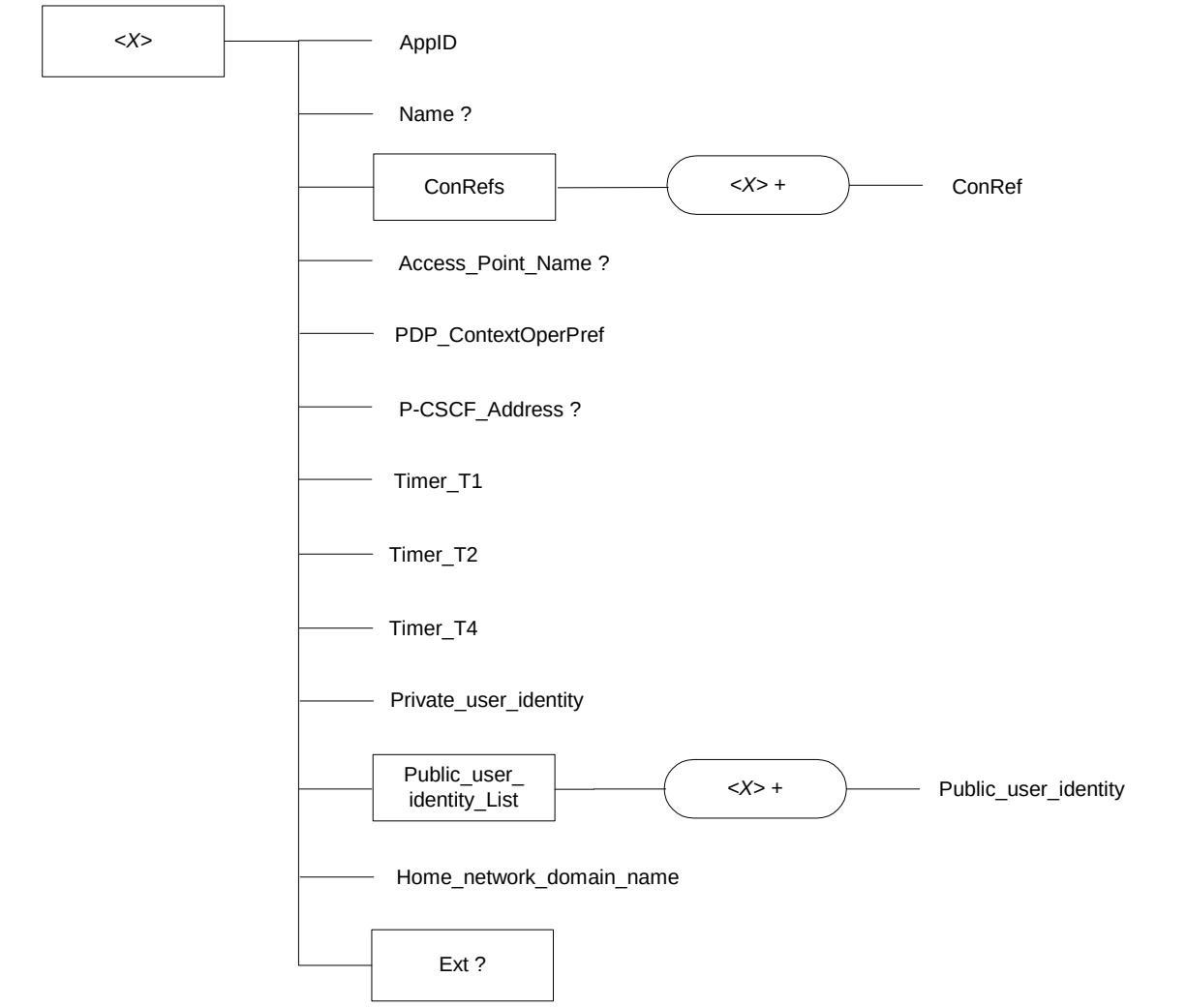


Figure 1: The 3GPP IMS Management Object

5 Management Object parameters

5.1 General

This clause describes the parameters for the 3GPP IMS Management Object.

5.2 Node: /<*X*>

This interior node acts as a placeholder for one or more accounts for a fixed node.

- Occurrence: OneOrMore
- Format: node
- Access Types: Get
- Values: N/A

The interior node is mandatory if the UE supports the IM CN Subsystem. Support for a UE is defined by the user agent role as defined in 3GPP TS 24.229 [5].

5.3 /<*X*>/AppID

The AppID identifies the type of the application service available at the described application service access point. The value is expected to be globally unique.

- Occurrence: One
- Format: chr
- Access Types: Get
- Values: <Globally unique value>

Editor's Note: The value of the 3GPP_IMS/AppID to be determined by OMA

5.4 /<*X*>/Name

The Name leaf is a name for the 3GPP_IMS settings.

- Occurrence: ZeroOrOne
- Format: chr
- Access Types: Get
- Values: <User displayable name>

5.5 /<*X*>/ConRefs/

The ConRefs interior node is used to allow a reference to a list of network access point objects.

- Occurrence: One
- Format: node
- Access Types: Get
- Values: N/A

5.6 /<*X*>/ConRefs/<*X*>

This run-time node acts as a placeholder for one or more network access point objects.

- Occurrence: OneOrMore
- Format: node
- Access Types: Get
- Values: N/A

5.7 /<*X*>/ConRefs/<*X*>/ConRef

The ConRef leaf represents one or more network access point objects.

- Occurrence: One
- Format: chr
- Access Types: Get, Replace
- Values: <A network access point object>

5.8~~5~~ /<*X*>/Access_Point_Name

The Access_Point_Name leaf defines the APN to use for where the PDP context for the SIP towards the FQDN to a P-CSCF.

- Occurrence: One
- Format: chr
- Access Types: Get, Replace
- Values: <The IMS access point name>

The format of the APN is defined by 3GPP TS 23.003 [2].

Example: operator.com

5.96 /<*X*>/PDP_ContextOperPref

The PDP_ContextOperPref leaf indicates an operator's preference to have a dedicated PDP context for SIP signalling.

- Occurrence: One
- Format: ~~bin~~bool
- Access Types: Get, Replace
- Values: 0, 1

  0 – Indicates that the operator has no preference for a dedicated PDP context for SIP signalling.

  1 – Indicates that the operator has preference for a dedicated PDP context for SIP signalling.

The PDP_ContextOperPref leaf indicates a preference only. 3GPP TS 24.229 [5] describes the normative options and the procedures for establishment of a dedicated PDP context for SIP signalling.

5.107 /<*X*>/P-CSCF_Address

The P-CSCF_Address leaf defines an FQDN to an IPv4 P-CSCF.

- Occurrence: ZeroOrOne
- Format: chr
- Access Types: Get, Replace
- Values: <A fully qualified domain name>

The P-CSCF_Address leaf shall only be used in early IMS implementations as described in 3GPP TS 23.221 [3].

The FQDN, or domain name as defined by RFC 1123 [8], is represented as character-labels with dots as delimiters.

Example: operator.com

5.118 /<*X*>/Timer_T1

The Timer_T1 leaf defines the SIP timer T1 – the RTT estimate.

- Occurrence: One
- Format: ~~chr~~int
- Access Types: Get, Replace
- Values: <The round trip time>

The Timer_T1 leaf is an estimate for the round trip time in the system (UE – P-CSCF). The timer value shall be given in milliseconds. The recommended value is defined in 3GPP TS 24.229 [5].

Example: 2000 (milliseconds)

5.129 /<*X*>/Timer_T2

The Timer_T2 leaf defines the SIP timer T2 – the maximum retransmit interval for non-INVITE requests and INVITE responses.

- Occurrence: One
- Format: ~~chr~~int
- Access Types: Get, Replace
- Values: < The maximum retransmit interval for non-INVITE requests and INVITE responses>

The Timer_T2 leaf is an estimate for the maximum retransmit interval for non-INVITE requests and INVITE responses. The timer value shall be given in milliseconds. The recommended value is defined in 3GPP TS 24.229 [5].

Example: 16000 (milliseconds)

5.130 /<*X*>/Timer_T4

The Timer_T4 leaf defines the SIP timer T4 – the maximum duration a message will remain in the network.

- Occurrence: One
- Format: ~~chr~~int
- Access Types: Get, Replace
- Values: <The maximum duration a message will remain in the network>

The Timer_T4 leaf is an estimate for the maximum duration a message will remain in the network. The timer value shall be given in milliseconds. The recommended value is defined in 3GPP TS 24.229 [5].

Example: 17000 (milliseconds)

5.141 /<*X*>/Private_user_identity

The Private_user_identity leaf represents the private user identity.

- Occurrence: One
- Format: chr
- Access Types: Get
- Values: <A private user identity>

NOTE: The Private_user_identity leaf value is populated by the UE using the procedures to obtain the private user identity specified in 3GPP TS 24.229 [5].

The format of the private user identity is defined by 3GPP TS 23.003 [2].

Example: 234150999999999@ims.mnc015.mcc234.3gppnetwork.org

5.152 /<*X*>/Public_user_identity_List/

The Public_user_identity_List interior node is used to allow a reference to a list of public user identities.

- Occurrence: One
- Format: node
- Access Types: Get
- Values: N/A

5.163 /<*X*>/Public_user_identity_List/<*X*>

This run-time node acts as a placeholder for one or more public user identities.

- Occurrence: OneOrMore
- Format: node
- Access Types: Get
- Values: N/A

5.174 /<*X*>/Public_user_identity_List/<*X*>/Public_user_identity

The Public_user_identity leaf represents one or more public user identities.

- Occurrence: One
- Format: chr
- Access Types: Get
- Values: <A public user identity>

NOTE: The Public_user_identity leaf value is populated by the UE using the procedures to obtain the public user identity specified in 3GPP TS 24.229 [5].

The temporary public user identity if derived is populated and stored as the topmost element in the Public_user_identity_List as specified in 3GPP TS 24.229 [5].

The format of the public user identity is defined by 3GPP TS 23.003 [2].

Example: sip: sip:user@domain

5.185 /<*X*>/Home_network_domain_name

The Home_network_domain_name leaf indicates the operator's home network domain.

- Occurrence: One
- Format: chr
- Access Types: Get
- Values: <The home network domain name>

NOTE: The Home_network_domain_name leaf value is populated by the UE using the procedures to obtain the home network domain name specified in 3GPP TS 24.229 [5].

The format of the home network domain name is defined by 3GPP TS 23.003 [2].

Example: ims.mnc015.mcc234.3gppnetwork.org

5.196 /<*X*>/Ext/

The Ext is an interior node for where the vendor specific information about the 3GPP-IMS MO is being placed (vendor meaning application vendor, device vendor etc.). Usually the vendor extension is identified by vendor specific name under the ext node. The tree structure under the vendor identified is not defined and can therefore include un-standardized sub-tree.

- Occurrence: ZeroOrOne
- Format: node
- Access Types: Get
- Values: N/A

Annex A (informative): Management Object DDF

This DDF is the standardized minimal set. A vendor can define it's own DDF for the complete device. This DDF can include more features than this minimal standardized version.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE MgmtTree PUBLIC "-//OMA//DTD SYNCML-DMDDF 1.2//EN"
http://www.openmobilealliance.org/tech/DTD/OMA-SyncML-DMDDF-1_2.dtd>

<MgmtTree>
    <VerDTD>1.2</VerDTD>
    <Man>--The device manufacturer--</Man>
    <Mod>--The device model--</Mod>

    <Node>
        <NodeName>3GPP_IMS</NodeName>
        <DFProperties>
            <AccessType>
                <Get/>
            </AccessType>
            <Description>3GPP IMS settings</Description>
            <DFFormat>
                <node/>
            </DFFormat>
            <Occurrence>
                <OneOrMore/>
            </Occurrence>
            <Scope>
                <Permanent/>
            </Scope>
            <DFTitle>The 3GPP IMS Management Object.</DFTitle>
            <DFType>
                <DDFName/>
            </DFType>
        </DFProperties>

        <Node>
            <NodeName>AppID</NodeName>
            <DFProperties>
                <AccessType>
                    <Get/>
                </AccessType>
                <DFFormat>
                    <chr/>
                </DFFormat>
                <Occurrence>
                    <One/>
                </Occurrence>
                <Scope>
                    <Permanent/>
                </Scope>
                <DFTitle>The Application ID.</DFTitle>
                <DFType>
                    <MIME>text/plain</MIME>
                </DFType>
            </DFProperties>
        </Node>

        <Node>
            <NodeName>Name</NodeName>
```

```
            <DFProperties>
                <AccessType>
                    <Get/>
                </AccessType>
                <DFFormat>
                    <chr/>
                </DFFormat>
                <Occurrence>
                    <ZeroOrOne/>
                </Occurrence>
                <Scope>
                    <Dynamic/>
                </Scope>
                <DFTitle>User displayable name for the node.</DFTitle>
                <DFType>
                    <MIME>text/plain</MIME>
                </DFType>
            </DFProperties>
        </Node>

        <Node>
            <NodeName>ConRefs</NodeName>
            <!-- The ConRefs node starts here. -->
            <DFProperties>
                <AccessType>
                    <Get/>
                </AccessType>
                <DFFormat>
                    <node/>
                </DFFormat>
                <Occurrence>
                    <One/>
                </Occurrence>
                <Scope>
                    <Permanent/>
                </Scope>
                <DFTitle>A collection of network access point objects.</DFTitle>
                <DFType>
                    <DDFName/>
                </DFType>
            </DFProperties>
            <Node>
                <NodeName/>
                <DFProperties>
                    <AccessType>
                        <Get/>
                    </AccessType>
                    <DFFormat>
                        <node/>
                    </DFFormat>
                    <Occurrence>
                        <OneOrMore/>
                    </Occurrence>
                    <Scope>
                        <Dynamic/>
                    </Scope>
                    <DFTitle>The "name" node for a network access point object.</DFTitle>
                    <DFType>
                        <DDFName/>
                    </DFType>
                </DFProperties>
                <Node>
```

```
                <NodeName>ConRef</NodeName>
                <DFProperties>
                    <AccessType>
                        <Get/>
                        <Replace/>
                    </AccessType>
                    <DFFormat>
                        <chr/>
                    </DFFormat>
                    <Occurrence>
                        <One/>
                    </Occurrence>
                    <Scope>
                        <Permanent/>
                    </Scope>
                    <DFTitle>The ConRef (network access point object).</DFTitle>
                    <DFType>
                        <MIME>text/plain</MIME>
                    </DFType>
                </DFProperties>
            </Node>
        </Node>
    </Node>
```

```
<Node>
    <NodeName>Access_Point_Name</NodeName>
    <DFProperties>
        <AccessType>
            <Get/>
            <Replace/>
        </AccessType>
        <DFFormat>
            <chr/>
        </DFFormat>
        <Occurrence>
            <One/>
        </Occurrence>
        <Scope>
            <Permanent/>
        </Scope>
        <DFTitle>The IMS access point name.</DFTitle>
        <DFType>
            <MIME>text/plain</MIME>
        </DFType>
    </DFProperties>
</Node>

<Node>
    <NodeName>PDP_ContextOperPref</NodeName>
    <DFProperties>
        <AccessType>
            <Get/>
            <Replace/>
        </AccessType>
        <DFFormat>
            <bool~~bin~~/>
        </DFFormat>
        <Occurrence>
            <One/>
        </Occurrence>
        <Scope>
            <Permanent/>
        </Scope>
```

```
            <DFTitle>Indication of the operator's preference for a dedicated PDP context for IMS
signalling.</DFTitle>
            <DFType>
                <MIME>text/plain</MIME>
            </DFType>
        </DFProperties>
    </Node>

    <Node>
        <NodeName>P-CSCF_Address</NodeName>
        <DFProperties>
            <AccessType>
                <Get/>
                <Replace/>
            </AccessType>
            <DFFormat>
                <chr/>
            </DFFormat>
            <Occurrence>
                <ZeroOrOne/>
            </Occurrence>
            <Scope>
                <Dynamic/>
            </Scope>
            <DFTitle>The address of the P-CSCF.</DFTitle>
            <DFType>
                <MIME>text/plain</MIME>
            </DFType>
        </DFProperties>
    </Node>

    <Node>
        <NodeName>Timer_T1</NodeName>
        <DFProperties>
            <AccessType>
                <Get/>
                <Replace/>
            </AccessType>
            <DFFormat>
                <intchr/>
            </DFFormat>
            <Occurrence>
                <One/>
            </Occurrence>
            <Scope>
                <Permanent/>
            </Scope>
            <DFTitle>RFC 3261, timer T1.</DFTitle>
            <DFType>
                <MIME>text/plain</MIME>
            </DFType>
        </DFProperties>
    </Node>

    <Node>
        <NodeName>Timer_T2</NodeName>
        <DFProperties>
            <AccessType>
                <Get/>
                <Replace/>
            </AccessType>
            <DFFormat>
                <intchr/>
```

```
            </DFFormat>
            <Occurrence>
                <One/>
            </Occurrence>
            <Scope>
                <Permanent/>
            </Scope>
            <DFTitle>RFC 3261, timer T2.</DFTitle>
            <DFType>
                <MIME>text/plain</MIME>
            </DFType>
        </DFProperties>
    </Node>

    <Node>
        <NodeName>Timer_T4</NodeName>
        <DFProperties>
            <AccessType>
                <Get/>
                <Replace/>
            </AccessType>
            <DFFormat>
                <intchr/>
            </DFFormat>
            <Occurrence>
                <One/>
            </Occurrence>
            <Scope>
                <Permanent/>
            </Scope>
            <DFTitle>RFC 3261, timer T4.</DFTitle>
            <DFType>
                <MIME>text/plain</MIME>
            </DFType>
        </DFProperties>
    </Node>

    <Node>
        <NodeName>Private_user_identity</NodeName>
        <DFProperties>
            <AccessType>
                <Get/>
            </AccessType>
            <DFFormat>
                <chr/>
            </DFFormat>
            <Occurrence>
                <One/>
            </Occurrence>
            <Scope>
                <Permanent/>
            </Scope>
            <DFTitle>The private user identity.</DFTitle>
            <DFType>
                <MIME>text/plain</MIME>
            </DFType>
        </DFProperties>
    </Node>

    <Node>
        <NodeName>Public_user_identity_List</NodeName>
        <!-- The Public_user_identity_List node starts here. -->
        <DFProperties>
```

```
            <AccessType>
                <Get/>
            </AccessType>
            <DFFormat>
                <node/>
            </DFFormat>
            <Occurrence>
                <One/>
            </Occurrence>
            <Scope>
                <Permanent/>
            </Scope>
            <DFTitle>A collection of public user identity objects.</DFTitle>
            <DFType>
                <DDFName/>
            </DFType>
        </DFProperties>
        <Node>
            <NodeName/>
            <DFProperties>
                <AccessType>
                    <Get/>
                </AccessType>
                <DFFormat>
                    <node/>
                </DFFormat>
                <Occurrence>
                    <OneOrMore/>
                </Occurrence>
                <Scope>
                    <Dynamic/>
                </Scope>
                <DFTitle>The "name" node for a public user identity object.</DFTitle>
                <DFType>
                    <DDFName/>
                </DFType>
            </DFProperties>
            <Node>
                <NodeName>Public_user_identity</NodeName>
                <DFProperties>
                    <AccessType>
                        <Get/>
                    </AccessType>
                    <DFFormat>
                        <chr/>
                    </DFFormat>
                    <Occurrence>
                        <One/>
                    </Occurrence>
                    <Scope>
                        <Permanent/>
                    </Scope>
                    <DFTitle>The public user identity.</DFTitle>
                    <DFType>
                        <MIME>text/plain</MIME>
                    </DFType>
                </DFProperties>
            </Node>
        </Node>
    </Node>

    <Node>
```

```
            <NodeName>Home_network_domain_name</NodeName>
            <DFProperties>
                <AccessType>
                    <Get/>
                </AccessType>
                <DFFormat>
                    <chr/>
                </DFFormat>
                <Occurrence>
                    <One/>
                </Occurrence>
                <Scope>
                    <Permanent/>
                </Scope>
                <DFTitle>The home network domain name.</DFTitle>
                <DFType>
                    <MIME>text/plain</MIME>
                </DFType>
            </DFProperties>
        </Node>

        <Node>
            <NodeName>Ext</NodeName>
            <!-- The Extension node starts here. -->
            <DFProperties>
                <AccessType>
                    <Get/>
                    <Replace/>
                </AccessType>
                <DFFormat>
                    <node/>
                </DFFormat>
                <Occurrence>
                    <ZeroOrOne/>
                </Occurrence>
                <Scope>
                    <Dynamic/>
                </Scope>
                <DFTitle>A collection of all Extension objects.</DFTitle>
                <DFType>
                    <DDFName/>
                </DFType>
            </DFProperties>
        </Node>

    </Node>

</MgmtTree>
```

Annex B (informative): Change history

Change history								
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**	**WG doc**
2004-10					Version 0.0.1: Preliminary proposal		0.0.1	
2004-11					Version 0.0.2: Version after CN1 #36	0.0.1	0.0.2	
2004-12					Version 1.0.0: Version after CN1#36 and editorial corrections	0.0.2	1.0.0	
2005-02					Version 1.1.0: Version after CN1#37 and editorial corrections	1.0.0	1.1.0	N1-050330 N1-050393
2005-02	TSG-27	NP-050066			Version 2.0.0 created by MCC	1.1.0	2.0.0	
2005-03					Version 2.0.0. approved in TSG-27. V6.0.0 created.	2.0.0	6.0.0	

CR-Form-v7.1

CHANGE REQUEST

⌘ 24.167 CR 2 ⌘rev 1 ⌘ Current version: 6.0.0 ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [ ] Core Network [X]

Title:	⌘	Miscellaneous corrections
Source:	⌘	Ericsson
Work item code:	⌘	IMS2
Date:	⌘	06/04/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

Ph2	*(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)*
Rel-7	*(Release 7)*

Reason for change:	⌘	A number of corrections are introduced to improve readability and correct minor ambiguities.
Summary of change:	⌘	Misellaneous clarifications are introduced.
Consequences if not approved:	⌘	The TS will suffer from ambiguities which may lead to differences in implementation.
Clauses affected:	⌘	5.2, 5.8, 5.9, 5.10, 5.16

Other specs affected: ⌘

Y	N	
	X	Other core specifications
	X	Test specifications
	X	O&M Specifications

⌘

Other comments: ⌘

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

5.2 Node: /<X>

This interior node acts as a placeholder for one or more accounts for a fixed node.

- Occurrence: OneOrMore
- Format: node
- Access Types: Get
- Values: N/A

The interior node is mandatory if the UE supports the IM CN Subsystem. Support for a UE is defined by the user agent role as defined in 3GPP TS 24.229 [5].

NOTE: One node is normally used. More nodes are only used in case the terminal supports multiple UICCs.

***** Next change *****

5.8 /<X>/Timer_T1

The Timer_T1 leaf defines the SIP timer T1 – the RTT estimate.

- Occurrence: One
- Format: chr
- Access Types: Get, Replace
- Values: <The round trip time>

The Timer_T1 leaf is an estimate for the round trip time in the system (UE – P-CSCF). The timer value shall be given in milliseconds. The ~~recommended~~ default value is ~~defined in~~specified in 3GPP TS 24.229 [5].

Example: 2000 (milliseconds)

5.9 /<X>/Timer_T2

The Timer_T2 leaf defines the SIP timer T2 – the maximum retransmit interval for non-INVITE requests and INVITE responses.

- Occurrence: One
- Format: chr
- Access Types: Get, Replace
- Values: < The maximum retransmit interval for non-INVITE requests and INVITE responses>

The Timer_T2 leaf is an estimate for the maximum retransmit interval for non-INVITE requests and INVITE responses. The timer value shall be given in milliseconds. The ~~recommended~~ default value is ~~defined in~~ specified in 3GPP TS 24.229 [5].

Example: 16000 (milliseconds)

5.10 /<X>/Timer_T4

The Timer_T4 leaf defines the SIP timer T4 – the maximum duration a message will remain in the network.

- Occurrence: One
- Format: chr
- Access Types: Get, Replace
- Values: <The maximum duration a message will remain in the network>

The Timer_T4 leaf is an estimate for the maximum duration a message will remain in the network. The timer value shall be given in milliseconds. The ~~recommended~~ default value is ~~defined in~~ specified in 3GPP TS 24.229 [5].

Example: 17000 (milliseconds)

***** Next change *****

5.16 /<*X*>/Ext/

The Ext is an interior node for where the vendor specific information about the 3GPP-IMS MO is being placed (vendor meaning application vendor, device vendor etc.). Usually the vendor extension is identified by vendor specific name under the ext node. The tree structure under the vendor identified is not defined and can therefore include one or more un-standardized sub-trees.

- Occurrence: ZeroOrOne
- Format: node
- Access Types: Get
- Values: N/A

CR-Form-v7.1

CHANGE REQUEST

⌘ 24.167 CR 3 ⌘rev 1 ⌘ Current version: 6.0.0 ⌘

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

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [ ] Core Network [X]

Title:	⌘	Removal of APN from the IMS MO
Source:	⌘	Ericsson
Work item code:	⌘	IMS2
Date:	⌘	06/04/2005
Category:	⌘	F
Release:	⌘	Rel-6

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

Ph2	*(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)*
Rel-7	*(Release 7)*

Reason for change:	⌘	The APN belongs to the connectivity and is specified by the appropriate management object for the connectivity. To avoid overlap and possibly contradictory information provided to the UE, the APN is removed from the 3GPP IMS MO.
Summary of change:	⌘	APN is removed from the 3GPP IMS MO.
Consequences if not approved:	⌘	Contradictory information may be provided to the UE in multiple MOs, leading to misoperation.

Clauses affected:	⌘	4, 5.5, Annex A

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

Other comments: ⌘

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

4 3GPP IMS Management Object

The 3GPP IMS Management Object is used to manage settings of the UE for IM CN Subsystem protocols. The Management Object covers generic parameters for the IM CN subsystem. The Management Object enables the management of the settings on behalf of the end user.

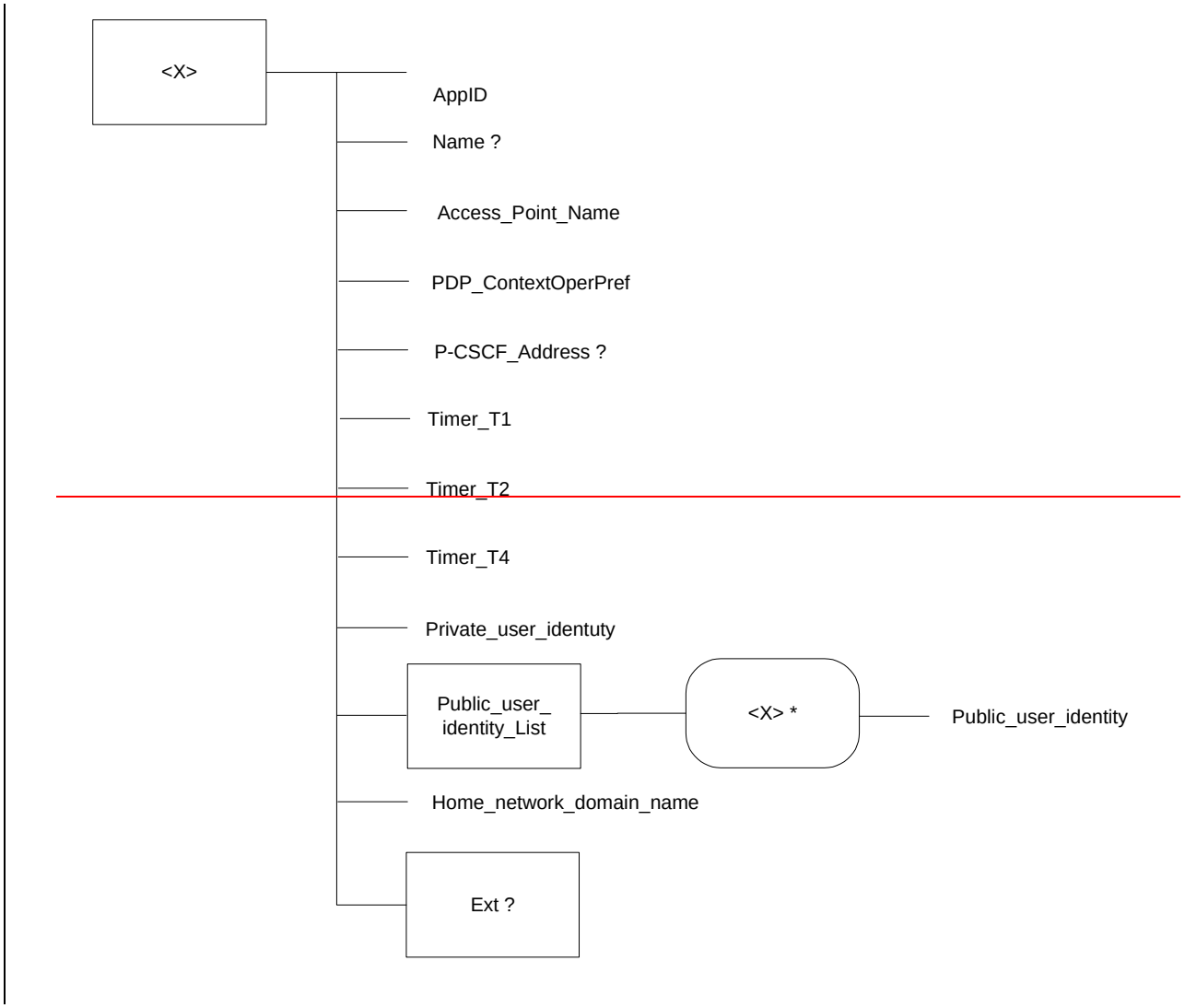
The Management Object Identifier is: org.3gpp/1.0/SIPCore

Protocol compatibility: This MO is compatible with OMA DM 1.2.

Management object name: 3GPP_IMS

Editor's Note: The name of the management object to be determined by OMA.

The following nodes and leaf objects are possible under the 3GPP_IMS node:


<X>
AppID
Name ?
Access_Point_Name
PDP_ContextOperPref
P-CSCF_Address ?
Timer_T1
Timer_T2
Timer_T4
Private_user_identuty
Public_user_ identity_List
<X> *
Public_user_identity
Home_network_domain_name
Ext ?

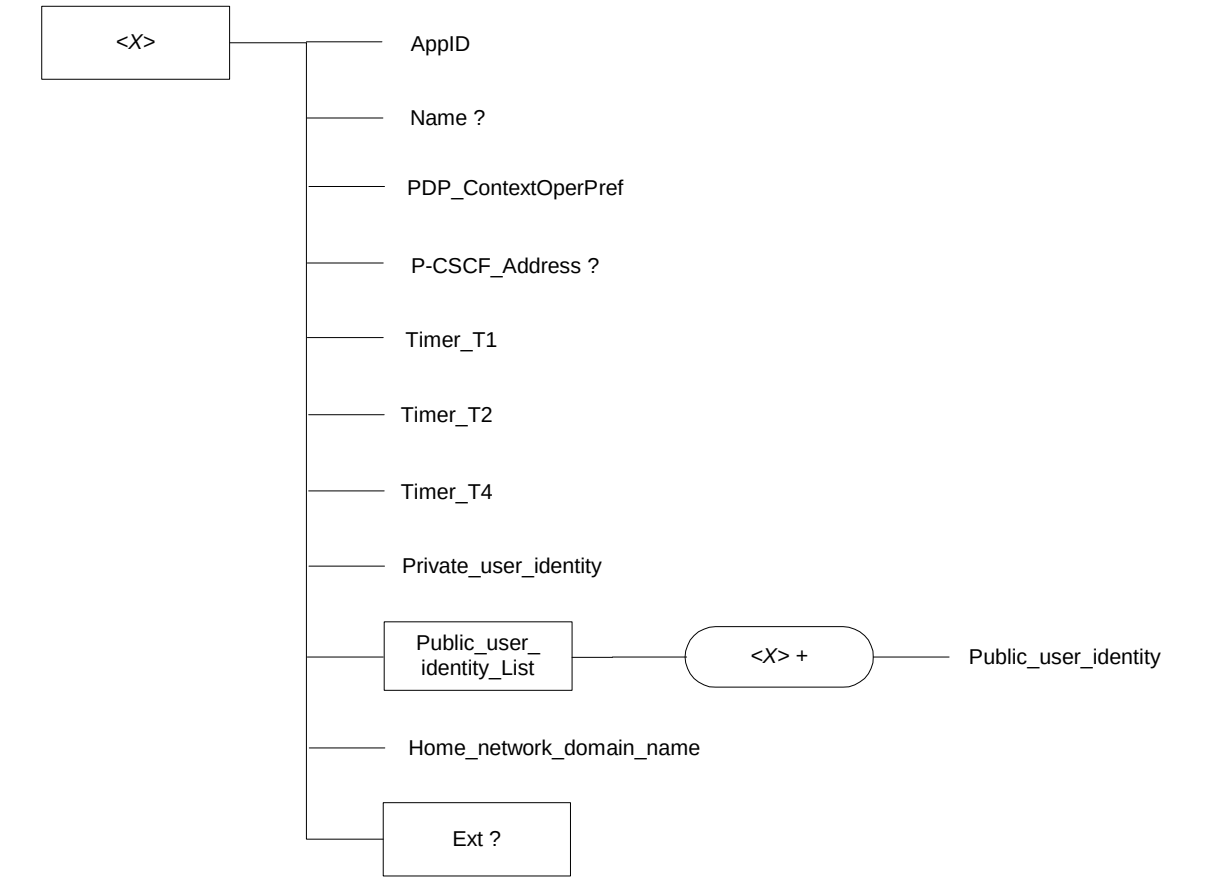


Figure 1: The 3GPP IMS Management Object

***** Next change *****

~~5.5 /<X>/Access_Point_Name~~

~~The Access_Point_Name leaf defines the APN to use for where the PDP context for the SIP towards the FQDN to a P-CSCF.~~

- ~~Occurrence: One~~
- ~~Format: chr~~
- ~~Access Types: Get, Replace~~
- ~~Values: <The IMS access point name>~~

~~The format of the APN is defined by 3GPP TS 23.003 [2].~~

~~Example: operator.com~~

***** Next change *****

Annex A (informative): Management Object DDF

This DDF is the standardized minimal set. A vendor can define it's own DDF for the complete device. This DDF can include more features than this minimal standardized version.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE MgmtTree PUBLIC "-//OMA//DTD SYNCML-DMDDF 1.2//EN"
http://www.openmobilealliance.org/tech/DTD/OMA-SyncML-DMDDF-1_2.dtd>

<MgmtTree>
    <VerDTD>1.2</VerDTD>
    <Man>--The device manufacturer--</Man>
    <Mod>--The device model--</Mod>

    <Node>
        <NodeName>3GPP_IMS</NodeName>
        <DFProperties>
            <AccessType>
                <Get/>
            </AccessType>
            <Description>3GPP IMS settings</Description>
            <DFFormat>
                <node/>
            </DFFormat>
            <Occurrence>
                <OneOrMore/>
            </Occurrence>
            <Scope>
                <Permanent/>
            </Scope>
            <DFTitle>The 3GPP IMS Management Object.</DFTitle>
            <DFType>
                <DDFName/>
            </DFType>
        </DFProperties>

        <Node>
            <NodeName>AppID</NodeName>
            <DFProperties>
                <AccessType>
                    <Get/>
                </AccessType>
                <DFFormat>
                    <chr/>
                </DFFormat>
                <Occurrence>
                    <One/>
                </Occurrence>
                <Scope>
                    <Permanent/>
                </Scope>
                <DFTitle>The Application ID.</DFTitle>
                <DFType>
                    <MIME>text/plain</MIME>
                </DFType>
            </DFProperties>
        </Node>

        <Node>
            <NodeName>Name</NodeName>
```

```
            <DFProperties>
                <AccessType>
                    <Get/>
                </AccessType>
                <DFFormat>
                    <chr/>
                </DFFormat>
                <Occurrence>
                    <ZeroOrOne/>
                </Occurrence>
                <Scope>
                    <Dynamic/>
                </Scope>
                <DFTitle>User displayable name for the node.</DFTitle>
                <DFType>
                    <MIME>text/plain</MIME>
                </DFType>
            </DFProperties>
        </Node>
```

~~<Node>~~
~~<NodeName>Access_Point_Name</NodeName>~~
~~<DFProperties>~~
~~<AccessType>~~
~~<Get/>~~
~~<Replace/>~~
~~</AccessType>~~
~~<DFFormat>~~
~~<chr/>~~
~~</DFFormat>~~
~~<Occurrence>~~
~~<One/>~~
~~</Occurrence>~~
~~<Scope>~~
~~<Permanent/>~~
~~</Scope>~~
~~<DFTitle>The IMS access point name.</DFTitle>~~
~~<DFType>~~
~~<MIME>text/plain</MIME>~~
~~</DFType>~~
~~</DFProperties>~~
~~</Node>~~

```
        <Node>
            <NodeName>PDP_ContextOperPref</NodeName>
            <DFProperties>
                <AccessType>
                    <Get/>
                    <Replace/>
                </AccessType>
                <DFFormat>
                    <bin/>
                </DFFormat>
                <Occurrence>
                    <One/>
                </Occurrence>
                <Scope>
                    <Permanent/>
                </Scope>
                <DFTitle>Indication of the operator’s preference for a dedicated PDP context for IMS
signalling.</DFTitle>
                <DFType>
                    <MIME>text/plain</MIME>
```

```
            </DFType>
        </DFProperties>
    </Node>

    <Node>
        <NodeName>P-CSCF_Address</NodeName>
        <DFProperties>
            <AccessType>
                <Get/>
                <Replace/>
            </AccessType>
            <DFFormat>
                <chr/>
            </DFFormat>
            <Occurrence>
                <ZeroOrOne/>
            </Occurrence>
            <Scope>
                <Dynamic/>
            </Scope>
            <DFTitle>The address of the P-CSCF.</DFTitle>
            <DFType>
                <MIME>text/plain</MIME>
            </DFType>
        </DFProperties>
    </Node>

    <Node>
        <NodeName>Timer_T1</NodeName>
        <DFProperties>
            <AccessType>
                <Get/>
                <Replace/>
            </AccessType>
            <DFFormat>
                <chr/>
            </DFFormat>
            <Occurrence>
                <One/>
            </Occurrence>
            <Scope>
                <Permanent/>
            </Scope>
            <DFTitle>RFC 3261, timer T1.</DFTitle>
            <DFType>
                <MIME>text/plain</MIME>
            </DFType>
        </DFProperties>
    </Node>

    <Node>
        <NodeName>Timer_T2</NodeName>
        <DFProperties>
            <AccessType>
                <Get/>
                <Replace/>
            </AccessType>
            <DFFormat>
                <chr/>
            </DFFormat>
            <Occurrence>
                <One/>
            </Occurrence>
```

```
            <Scope>
                <Permanent/>
            </Scope>
            <DFTitle>RFC 3261, timer T2.</DFTitle>
            <DFType>
                <MIME>text/plain</MIME>
            </DFType>
        </DFProperties>
    </Node>

    <Node>
        <NodeName>Timer_T4</NodeName>
        <DFProperties>
            <AccessType>
                <Get/>
                <Replace/>
            </AccessType>
            <DFFormat>
                <chr/>
            </DFFormat>
            <Occurrence>
                <One/>
            </Occurrence>
            <Scope>
                <Permanent/>
            </Scope>
            <DFTitle>RFC 3261, timer T4.</DFTitle>
            <DFType>
                <MIME>text/plain</MIME>
            </DFType>
        </DFProperties>
    </Node>

    <Node>
        <NodeName>Private_user_identity</NodeName>
        <DFProperties>
            <AccessType>
                <Get/>
            </AccessType>
            <DFFormat>
                <chr/>
            </DFFormat>
            <Occurrence>
                <One/>
            </Occurrence>
            <Scope>
                <Permanent/>
            </Scope>
            <DFTitle>The private user identity.</DFTitle>
            <DFType>
                <MIME>text/plain</MIME>
            </DFType>
        </DFProperties>
    </Node>

    <Node>
        <NodeName>Public_user_identity_List</NodeName>
        <!-- The Public_user_identity_List node starts here. -->
        <DFProperties>
            <AccessType>
                <Get/>
            </AccessType>
            <DFFormat>
```

```
                <node/>
            </DFFormat>
            <Occurrence>
                <One/>
            </Occurrence>
            <Scope>
                <Permanent/>
            </Scope>
            <DFTitle>A collection of public user identity objects.</DFTitle>
            <DFType>
                <DDFName/>
            </DFType>
        </DFProperties>
        <Node>
            <NodeName/>
            <DFProperties>
                <AccessType>
                    <Get/>
                </AccessType>
                <DFFormat>
                    <node/>
                </DFFormat>
                <Occurrence>
                    <OneOrMore/>
                </Occurrence>
                <Scope>
                    <Dynamic/>
                </Scope>
                <DFTitle>The "name" node for a public user identity object.</DFTitle>
                <DFType>
                    <DDFName/>
                </DFType>
            </DFProperties>
            <Node>
                <NodeName>Public_user_identity</NodeName>
                <DFProperties>
                    <AccessType>
                        <Get/>
                    </AccessType>
                    <DFFormat>
                        <chr/>
                    </DFFormat>
                    <Occurrence>
                        <One/>
                    </Occurrence>
                    <Scope>
                        <Permanent/>
                    </Scope>
                    <DFTitle>The public user identity.</DFTitle>
                    <DFType>
                        <MIME>text/plain</MIME>
                    </DFType>
                </DFProperties>
            </Node>
        </Node>
    </Node>

    <Node>
        <NodeName>Home_network_domain_name</NodeName>
        <DFProperties>
            <AccessType>
                <Get/>
```

```
            </AccessType>
            <DFFormat>
                <chr/>
            </DFFormat>
            <Occurrence>
                <One/>
            </Occurrence>
            <Scope>
                <Permanent/>
            </Scope>
            <DFTitle>The home network domain name.</DFTitle>
            <DFType>
                <MIME>text/plain</MIME>
            </DFType>
        </DFProperties>
    </Node>

    <Node>
        <NodeName>Ext</NodeName>
        <!-- The Extension node starts here. -->
        <DFProperties>
            <AccessType>
                <Get/>
                <Replace/>
            </AccessType>
            <DFFormat>
                <node/>
            </DFFormat>
            <Occurrence>
                <ZeroOrOne/>
            </Occurrence>
            <Scope>
                <Dynamic/>
            </Scope>
            <DFTitle>A collection of all Extension objects.</DFTitle>
            <DFType>
                <DDFName/>
            </DFType>
        </DFProperties>
    </Node>

</Node>

</MgmtTree>
```