IPv6 Ready Logo Phase 2 IP Multimedia Subsystem

Test Profile01 User Equipment

Version 0.4.0

IPv6 Forum Converged Test Specification IPv6 Logo Committee IPv6 Promotion Council (Japan) http://www.ipv6forum.org http://www.ipv6ready.org



Modification Record

Version 0.3.0 Jun. 15, 2009 - Pre-release (trial version)

 Version 0.3.1
 Jun. 19, 2009
 - Fixed a typo.

 Version 0.3.2
 Jul. 16, 2009
 - Fixed a typo.

 Version 0.4.0(beta)
 Oct. 15, 2010
 - Public review



Acknowledgements

IPv6 Forum would like to acknowledge the efforts of the following organizations and commentators in the development of this test specification.

- IPv6 Promotion Council Certification Working Group SIP IPv6 Sub Working Group BII Group

Commentators:

Note:

Development of this document was supported in part by a grant from NICT (National Institute of Information and Communications Technology).



Table of Contents

		ady Logo Phase 2 Test Specification IMS IPv6 User Equipment	
M	odificatio	n Record	i
		gements	
Та	ble of Co	ontents	iii
1		Overview	1
2		Requirements of conformance test	4
	2.1	Requirements based on Policy of IMS IPv6 Ready Logo	4
	2.2	Other Requirements	4
3		Common Observable Results	4
	3.1	generic_sip_message	4
	3.2	generic_REGISTER	5
	3.3	generic_Auth_REGISTER	9
	3.4	generic_re_REGISTER	13
	3.5	generic_de_REGISTER	18
	3.6	generic_SUBSCRIBE	22
	3.7	generic_re_SUBSCRIBE	26
	3.8	generic_200-NOTIFY	30
	3.9	generic_INVITE	31
	3.10	generic_180-INVITE	36
	3.11	generic_200-INVITE	37
	3.12	generic_ACK	41
	3.13	generic_BYE	43
	3.14	generic_200-BYE	46
	3.15	generic_CANCEL	47
	3.16	generic_200-CANCEL	49
	3.17	generic_3XX-6XX	50
	3.18	generic_ACK-non2XX	51
	3.19	generic_OPTIONS	53
	3.20	generic_200-OPTIONS	56
4		Test Profile: User Equipment operation (IMS-AKA)	60
	4.1	Registration	60
	4.1.1	UE-RG-B-1-AKA - Initial registration and subscription for the registrati	ion
		state event package (SIP default port values)	60
	4.1.2	UE-RG-B-2-AKA - User-initiated reregistration	67
	4.1.3	UE-RG-B-3-AKA - Network-initiated re-authentication	72
	4.1.4	UE-RG-B-4-AKA - User-initiated deregistration	79
	4.1.5	UE-RG-B-5-AKA - Network-initiated deregistration with rejected event	86
	4.1.6	UE-RG-B-6-AKA - Netowrk-initiated deregistration with deactivated event	92
	4.1.7	UE-RG-B-7-AKA - Reception of 423 response to initial registration	101
	4.1.8	UE-RG-B-8-AKA - Re-subscription for the registration state event package	107



4.1.9	UE-RG-B-9-AKA - Reception of 481 response to subscription for the
	registration state event package113
4.1.10	UE-RG-B-10-AKA - Reception of a new service-route to reregistration119
4.1.11	UE-RG-B-11-AKA - Reception of 423 response to reregistration 128
4.1.12	UE-RG-B-12-AKA - Reception of 408 response to reregistration 134
4.1.13	UE-RG-B-13-AKA - Reception of 500 response to reregistration 142
4.1.14	UE-RG-B-14-AKA - Reception of 504 response to reregistration 151
4.1.15	UE-RG-B-15-AKA - Timer F expiration (Registration)
4.1.16	UE-RG-B-16-AKA - Reception of 401 response with no Security-Server
	header to initial registration167
4.1.17	UE-RG-B-17-AKA - Charge from the old SAs to the new SAs 173
4.1.18	UE-RG-B-18-AKA - Invalid authentication parameter (MAC) and 403 response183
4.1.19	UE-RG-B-19-AKA - Invalid authentication parameter(SQN)
4.1.20	UE-RG-B-20-AKA - User-initiated deregistration and dialog release 204
4.1.21	UE-RG-B-21-AKA - Reception of 401 response to user-initiated deregistration213
4.1.22	UE-RG-B-22-AKA - Reception of 503 response to subscription for the
	registration state event package218
4.1.23	UE-RG-B-23-AKA - Security association (DES-EDE3-CBC and HMAC-MD5-96)222
4.1.24	UE-RG-B-24-AKA - Security association (AES-CBC and HMAC-SHA-1-96) 229
4.2	Session Establishment
4.2.1	UE-SE-B-1-AKA - Session initiation and termination (Sends INVITE and
	receives BYE)
4.2.2	UE-SE-B-2-AKA - Session initiation and termination (Sends INVITE and sends
	BYE)244
4.2.3	UE-SE-B-3-AKA - Session initiation and termination (Receives INVITE and
	receives BYE)251
4.2.4	UE-SE-B-4-AKA - Session initiation and termination (Receives INVITE and
	sends BYE)
4.2.5	UE-SE-B-5-AKA - Call cancellation (Sends INVITE and sends CANCEL) 266
4.2.6	UE-SE-B-6-AKA - Call cancellation (Receives INVITE and receives CANCEL)272
4.2.7	UE-SE-B-7-AKA - SIP response received from the P-CSCF outside of the
	registration279
4.2.8	UE-SE-B-8-AKA - SIP Request received from the P-CSCF outside of the
	registration286
4.2.9	UE-SE-B-9-AKA - Receiving 503 response to INVITE
4.2.10	UE-SE-B-10-AKA - Receiving forked 180 and 200 response
4.3	SDP
4.3.1	UE-SD-B-1-AKA - SDP offer which included one or more media lines which
	was offered with several codecs (Receives INVITE and sends BYE) 308
4.3.2	UE-SD-B-2-AKA - SDP offer which included an IP address type that is not
	supported (Receives INVITE and sends BYE)
4.4	OPTIONS
4.4.1	UE-OP-B-1-AKA - OPTIONS request (Sends OPTIONS) 320
4.4.2	UE-OP-B-2-AKA - OPTIONS request (Receives OPTIONS)



4	.5	SIP timer	328
	4.5.1	UE-TM-B-1-AKA - Timer B expiration to INVITE	328
	4.5.2	UE-TM-B-2-AKA - Timer D expiration	332
	4.5.3	UE-TM-B-3-AKA - Timer H expiration	337
	4.5.4	UE-TM-B-4-AKA - Timer J expiratoin	342
	4.5.5	UE-TM-B-5-AKA - Timer F expiration (In Session)	348
4	.6	Sending Response	353
	4.6.1	UE-SR-B-1-AKA - Sending 400 response	353
	4.6.2	UE-SR-B-2-AKA - Sending 404 response	357
	4.6.3	UE-SR-B-3-AKA - Sending 405 response	362
	4.6.4	UE-SR-B-4-AKA - Sending 406 response	366
	4.6.5	UE-SR-B-5-AKA - Sending 414 response	371
	4.6.6	UE-SR-B-6-AKA - Sending 415 response	376
	4.6.7	UE-SR-B-7-AKA - Sending 416 response	381
	4.6.8	UE-SR-B-8-AKA - Sending 420 response	386
	4.6.9	UE-SR-B-9-AKA - Sending 480/486 response	391
	4.6.10	UE-SR-B-10-AKA - Sending 482 response	396
	4.6.11	UE-SR-B-11-AKA - Sinding 489 response	406
	4.6.12	UE-SR-B-12-AKA - Sending 500 response	410
	4.6.13	UE-SR-B-13-AKA - Sending 505 response	419
4	.7	Receiving Response	424
	4.7.1	UE-RR-B-1-AKA - Receiving 100 response	424
	4.7.2	UE-RR-B-2-AKA - Receiving 181 response (Call transfer by S-CSCFa2	to
		UEa2')	435
	4.7.3	UE-RR-B-3-AKA - Receiving 182 response (Request is queued by P-CSCFa	2)443
	4.7.4	UE-RR-B-4-AKA - Receiving 183 responsee	448
	4.7.5	UE-RR-B-5-AKA - Receiving 202 response	453
	4.7.6	UE-RR-B-6-AKA - Receiving 400 response	456
	4.7.7	UE-RR-B-7-AKA - Receiving 404 response	459
	4.7.8	UE-RR-B-8-AKA - Receiving 405 response	463
	4.7.9	UE-RR-B-9-AKA - Receiving 406 response	467
	4.7.10	UE-RR-B-10-AKA - Receiving 410 response	472
	4.7.11	UE-RR-B-11-AKA - Receiving 413 response	476
	4.7.12	UE-RR-B-12-AKA - Receiving 414 response	481
	4.7.13	UE-RR-B-13-AKA - Receiving 415 response	484
	4.7.14	UE-RR-B-14-AKA - Response 480 response	488
	4.7.15	UE-RR-B-15-AKA - Receiving 482 response	491
	4.7.16	UE-RR-B-16-AKA - Receiving 483 response	494
	4.7.17	UE-RR-B-17-AKA - Receiving 484 response	498
	4.7.18	UE-RR-B-18-AKA - Receiving 485 response	501
	4.7.19	UE-RR-B-19-AKA - Receiving 488 response	
	4.7.20	UE-RR-B-20-AKA - Receiving 501 response	
	4.7.21	UE-RR-B-21-AKA - Receivning 502 response	
	7.1.21	OL-INIT-D-Z I-ANA - Necelvilling 302 response	313
		UE-RR-B-22-AKA - Receiving 505 response	



4.7.23	UE-RR-B-23-AKA - Red	eiving 513 response	520
4.7.24	UE-RR-B-24-AKA - Red	eiving 600 response	524
4.7.25	UE-RR-B-25-AKA - Red	eiving 603 response	528
4.7.26	UE-RR-B-26-AKA - Red	eiving 604 response	532
4.7.27	UE-RR-B-27-AKA - Red	eiving 606 response	535
4.7.28	UE-RR-B-28-AKA - Red	eption of 504 response to Session initiation	539
4.8	SigComp		544
4.8.1	UE-SC-B-1-AKA - SigC	omp for IMS (Sends INVITE and receives BYE)	544
4.8.2	UE-SC-B-2-AKA - SigC	omp for IMS (Receive INVITE and send BYE)	564
Appendix	Mapping table		578



1 Overview

This document describes details of the IMS Conformance Test. The format of the description block is as follows:

Description block

[NAME]	NAME is a name of the test.
[TARGET]	TARGET is a target node of the test.
[PURPOSE]	PURPOSE is a short statement describing what the test
	attempts to achieve. It is usually phrased as a simple assertion
	of the feature or capability to be tested.
[REFERENCE]	REFERENCE section contains some parts of specification
	related to the tests. It also shows the document names and
	section numbers.
[REQUIREMENT]	REQUIREMENT section specifies the functions and conditions
	that will be needed to perform the test.
[PARAMETER]	PARAMETER describes SIP URIs on the topology that relates
	to the test
[ADDRESS]	ADDRESS describes IP addresses on the topology that relates to
	the test.
[TOPOLOGY]	TOPOLOGY describes the network used in the test.
[INITIALIZATION]	INITIALIZATION describes step-by-step instructions for
	carrying out the setting before the test.
[PROCEDURE]	PROCEDURE describes step-by-step instructions for carrying
	out the test.
[OBSERVABLE RESULTS]	OBSERVABLE RESULTS describes expected result.
	If we can observe as same result as the description of Judgment,
	the NUT passes the test.

NOTE: There are common observable resaluts in the category of OBSERVABLE RESULTS. Refer to Section 3.

Acronyms

UE - IMS User Equopment

P-CSCF - IMS Proxy- Call/Session Control Function

I-CSCF - IMS Interrogating- Call/Session Control Function

S-CSCF - IMS Serving- Call/Session Control Function

IF - Interface

UNI - User-Network InterfaceNNI - Network-Network Interface

1



Reference standards

The following documents are referenced in the test specifications.

[IMS]

(1) TS 24.229: IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3(Release 8), 3GPP TS 24.229 v8.10.0.

(http://www.3gpp.org/ftp/Specs/html-info/24229.htm)

[SIP/SDP]

- (2) RFC3261: SIP: Session Initiation Protocol (http://www.ietf.org/rfc/rfc3261.txt)
- (3) RFC3265: Session Initiation Protocol (SIP)-Specific Event Notification (http://www.ietf.org/rfc/rfc3265.txt)
- (4) RFC3327: Session Initiation Protocol (SIP) Extension Header Field for Registering Non-Adjacent Contacts (http://www.ietf.org/rfc/rfc3327.txt)
- (5) RFC3455: Private Header (P-Header) Extensions to the Session Initiation Protocol (SIP) for the 3rd-Generation Partnership Project (3GPP) (http://www.ietf.org/rfc/rfc3455.txt)
- (6) RFC3608: Session Initiation Protocol (SIP) Extension Header Field for Service Route Discovery During Registration (http://www.ietf.org/rfc/rfc3608.txt)
- (7) RFC3680: A Session Initiation Protocol (SIP) Event Package for Registrations (http://www.ietf.org/rfc/rfc3680.txt)
- (8) RFC4320: Actions addressing identified issues with the Session Initiation Protocol's non-INVITE Transaction (http://www.ietf.org/rfc/rfc4320.txt)
- (9) RFC4566: SDP: Session Description Protocol (http://www.ietf.org/rfc/rfc4566.txt)

[SigComp]

- (10) RFC3320: Signaling Compression (SigComp) (http://www.ietf.org/rfc/rfc3320.txt)
- (11) RFC3485: The Session Initiation Protocol (SIP) and Session Description Protocol (SDP) Static Dictionary for Signaling Compression (SigComp) (http://www.ietf.org/rfc/rfc3485.txt)
- (12) RFC3486: Compressing the Session Initiation Protocol (http://www.ietf.org/rfc/rfc3486.txt)
- (13) RFC4896: Signaling Compression (SigComp) Corrections and Clarifications (http://www.ietf.org/rfc/4896.txt)
- (14) RFC5049: Applying Signaling Compression (SigComp) to the Session Initiation Protocol (SIP) (http://www.ietf.org/rfc/5049.txt)

[IMS AKA and Security Association]

- (15) TS.33.203: 3G security; Access security for IP-based services (Release8), 3GPP TS 33.203 v8.8.0. (http://www.3gpp.org/ftp/Specs/html-info/33203.htm)
- (16) RFC3310: Hypertext Transfer Protocol (HTTP) Digest Authentication Using Authentication and Key Agreement (AKA) (http://www.ietf.org/rfc/rfc3310.txt)
- (17) RFC3329: Security Mechanism Agreement for the Session Initiation Protocol (SIP) (http://www.ietf.org/rfc/rfc3329.txt)

[SIP Digest]

(18) RFC2617: HTTP Authentication: Basic and Digest Access Authentication



(http://www.ietf.org/rfc/rfc2617.txt)

[Call Flow Examples]

- (19) TS24.228: Signalling flows for the IP multimedia call control based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3, 3GPP TS 24.228 v5.15.0. (http://www.3gpp.org/ftp/Specs/html-info/24228.htm)
- (20) RFC3665: SIP Basic Call Flow Examples (http://www.ietf.org/rfc/rfc3665.txt)



2 Requirements of conformance test

2.1 Requirements based on Policy of IMS IPv6 Ready Logo

[PRq]

- 1. Supported transport protocol is only UDP.
- 2. The path MTU is 1500 bytes.
- 3. Supported URI scheme is only SIP-URI.
- 4. Only unicast session is supported.

2.2 Other Requirements

[ORq]

- 1. INVITE requests includes the bodies and any other requests doesn't include the bodies.
- 2. IMS-AKA is mandatory for all UEs containing a UICC at registration.

3 Common Observable Results

3.1 generic_sip_message

Generic judgement items for SIP message.

- -The start-line, each message-header line, and the empty line MUST be terminated by a carriage-return line-feed sequence (CRLF).[RFC3261-7-1]
- Request-Line:
 - -Applications sending SIP messages MUST include a SIP-Version of "SIP/2.0". [RFC3261-7.1-3]
 - -Implementations MUST send upper-case. [RFC3261-7.1-4]
- Header fields:
 - * Content-Length
 - -Applications SHOULD use this field to indicate the size of the message-body to be transferred.[RFC3261-20.14-1]
 - * From
 - -Even if the "display- name" is empty, the "name-addr" form MUST be



used if the "addr-spec" contains a comma, question mark, or semicolon. [RFC3261-20.20-2]

3.2 generic_REGISTER

Generic judgement items for REGISTER request.

See generic_sip_message

-The empty line MUST be present even if the message-body is not. [RFC3261-7-2]

[Digest]

-The locally available public user identity, the private user identity, and the domain name to be used in the Request-URI SHALL be used in the registration by UE. [TS24229-5.1-100]

- Request-Line:

- -Request-URI SHALL be set to the SIP URI of the domain name of the home network.[TS24229-5.1-41]
- -The Request-URI MUST NOT contain unescaped space control characters. [RFC3261-7.1-1]
- -The Request-URI MUST NOT be enclosed in "<>". [RFC3261-7.1-2]
- -The "userinfo" and "@" components of the SIP URI MUST NOT be present. [RFC3261-10.2-4]

- Header fields:

- -An Expires header field or the expires parameter within the Contact header field SHALL be set to the value of 600 000 seconds. [TS24229-5.1-40]
- -SIP request MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via header fields. [RFC3261-8.1-1]

[AKA]

-The client MUST add both a Require and Proxy-Require header field with the value "sec-agree" to its request. [RFC3329-2.3-4]

[Digest]

-Security-Client, Security-Verify header field and both a Require and Proxy-Require header fields with the value "sec-agree" SHALL not be included in any SIP messages if SIP digest without TLS is used. [TS24229-5.1-9]



* Authorization header

-WWW-Authenticate, Authorization, Proxy-Authenticate or Proxy-Authorization MUST NOT be combined into a single header field row. [RFC3261-7.3-3]

[AKA]

- -The username directive in Authorization header field SHALL be set to the value of the private user identity.[TS24229-5.1-69]
- -The realm directive in Authorization header field SHALL be set to the value of the domain name of the home network. [TS24229-5.1-70]
- -The uri directive in Authorization header field SHALL be set to the SIP URI of the domain name of the home network.[TS24229-5.1-71]
- -The nonce directive in Authorization header field SHALL be empty. [TS24229-5.1-72]
- -The response directive in Authorization header field SHALL be empty. [TS24229-5.1-73]

[Digest]

- -The username directive in Authorization header field SHALL be set to the value of the private user identity. [TS24229-5.1-93]
- -The realm directive in Authorization header field SHALL be set to the value of the domain name of the home network. [TS24229-5.1-94]
- -The uri directive in Authorization header field SHALL be set to the SIP URI of the domain name of the home network. [TS24229-5.1-95]
- -The nonce directive in Authorization header field SHALL be empty. [TS24229-5.1-96]
- -The response directive in Authorization header field SHALL be empty. [TS24229-5.1-97]

* Contact

- -Contact header field SHALL be set to SIP URIs containing the IP address or FQDN of the UE in the hostport parameter or FQDN. [TS24229-5.1-33]
- -UACs SHOULD NOT use the "action" parameter.[RFC3261-10.2-9]
- -Even if the "display-name" is empty, the "name-addr" form MUST be used if the "addr-spec" contains a comma, semicolon, or question mark.[RFC3261-20.10-1]

[AKA]

-The hostport parameter in Contact header field SHALL include the protected server port value if the REGISTER request is protected by a security association. [TS24229-5.1-74]

[Digest]

IPv6 FORUM TECHNICAL DOCUMENT

-The hostport parameter in Contact header field SHALL be set to an



unprotected port where the UE expects to receive subsequent requests. [TS24229-5.1-98]

* Content-length

-If no body is present in a message, then the Content-Length header field value MUST be set to zero.[RFC3261-20.14-3]

* CSeq

- -The Cseq method MUST match the method of Request-Line in the request.[RFC3261-8.1-14]
- -The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261-8.1-15][RFC3261-20.16-1]
- -The sequence number value in the CSeq header field MUST be less than 2**31. [RFC3261-8.1-16]

* From

- -From header field SHALL be set to the SIP URI that contains the public user identity to be registered or deregistered.[TS24229-5.1-31]
- -The From field MUST contain a new "tag" parameter, chosen by the UAC.[RFC3261-8.1-9]

* Max-Forwards

- -A UAC MUST insert a Max-Forwards header field into each request it originates. [RFC3261-8.1-17]
- -The Max-Forwards header field value SHOULD be 70. [RFC3261-8.1-18]

* To

- -To header field SHALL be set to the SIP URI that contains the public user identity to be registered or deregistered. [TS24229-5.1-32]
- -A request outside of a dialog MUST NOT contain a To tag. [RFC3261-8.1-7]
- -An address-of-record included in To header field MUST be a SIP URI or SIPS URI.[RFC3261-10.2-5]

* P-Access-Network-Info

-3GPP UA SHOULD NOT send P-Access-Network-Info header in any initial unauthenticated and unprotected request.[RFC3455-6.4-2]

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455-4.2-1]



* Security-Client [AKA]

- -The Security-Client header field SHALL be set to the security mechanism the UE supports, the IPsec layer algorithms the UE supports and the parameters needed for the security association setup.[TS24229-5.1-76]
- -A client wishing to use the security agreement of this specification MUST add a Security-Client header field to a request addressed to its first-hop proxy.[RFC3329-2.3-2]

* Supported

- -The option tag "path" SHALL be contained in the Supported header field.[TS24229-5.1-42]
- -The UA SHOULD include the option tag "path" as a header field value in all Supported header fields.[RFC3327-5.1-1]
- -The UA SHOULD include a Supported header field in all requests. [RFC3327-5.1-2]

* Via

- The sent-by field of the Via header field shall include the IP address or FQDN of the UE and the port number where the UE expects to receive the response to this request when UDPis used. [TS24229-5.1-37]
- -A UAC MUST insert a Via into that request. [RFC3261-8.1-19]
- -The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261-8.1-20]
- -The Via header field value MUST contain a branch parameter. [RFC3261-8.1-21]
- -The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261-8.1-23]
- -The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261-18.1-7]

[AKA]

-The protected server port value SHALL be included in the sent-by field of the Via header field for the UDP.[TS24229-5.1-75]

[Digest]

- -The sent-by field in Via header field SHALL be set to an unprotected port where the UE expects to receive subsequent requests.

 [TS24229-5.1-99]
- Security Associations behavior [AKA]
 - -A Security-setup-line SHALL be included in REGISTER request in order to start the security mode set-up procedure.[TS33203-7.2-1]



3.3 generic_Auth_REGISTER

Generic judgement items for Auth_REGISTER request.

See generic_sip_message

- -The empty line MUST be present even if the message-body is not. [RFC3261-7-2]
- -The client SHOULD NOT retry the same request without modification. [RFC3261-21.4-1]
- Request-Line:
 - -The Request-URI MUST NOT contain unescaped space control characters. [RFC3261-7.1-1]
 - -The Request-URI MUST NOT be enclosed in "♦". [RFC3261-7.1-2]
 - -The "userinfo" and "@" components of the SIP URI MUST NOT be present. [RFC3261-10.2-4]
- Header fields:
 - -SIP request MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via header fields.[RFC3261-8.1-1]
 - -This new request SHOULD have the same value of the Call-ID, To, and From of the previous request, but the CSeq should contain a new sequence number that is onehigher than the previous. [RFC3261-8.1-62]

[AKA]

- -The client MUST add both a Require and Proxy-Require header field with the value "sec-agree" to its request.[RFC3329-2.3-4]
- -A subsequent SIP requests MUST also have both a Require and Proxy-Require header fields with the value "sec-agree".[RFC3329-2.3-16] [Digest]
- -The REGISTER request SHALL not include Security-Client, Security-Verify header field and both a Require and Proxy-Require header fields with the value "sec-agree" if SIP digest without TLS is used.[TS24229-5.1-259]
- * Authorization
 - -WWW-Authenticate, Authorization, Proxy-Authenticate or Proxy-Authorization MUST NOT be combined into a single header field row. [RFC3261-7.3-3]

[AKA]

-The UE SHALL include an Authorization header as defined for the initial REGISTER



- request that was challenged with the received 401 (Unauthorized) response. [TS24229-5.1-226]
- -The "realm" header field parameter in Authorization header field SHALL be set to the value as received in the "realm" header field in the WWW Authenticate header field.[TS24229-5.1-227]
- -The "username" header field parameter in Authorization header field SHALL be set to the value of the private user identity. [TS24229-5.1-228]
- -The "response" header field parameter in Authorization header field SHALL be set to the RES parameter.[TS24229-5.1-229]
- -The "uri" header field parameter in Authorization header field SHALL be set to the SIP URI of the domain name of the home network.[TS24229-5.1-230]
- -The algorithm header field parameter in Authorization header field SHALL be set to the value received in the 401 (Unauthorized) response. [TS24229-5.1-231]
- -The "nonce" header field parameter in Authorization header field SHALL be set to the value received in the 401(Unauthorized) response.[TS24229-5.1-232] [Digest]
- -Another REGISTER request SHALL be sent containing an Authorization header field. [TS24229-5.1-256]
- -Authorization header fields are populated as defined for the initial registration, with the addition that the header field SHALL be populated a challenge response, i.e. "cnonce", "qop", and "nonce-count" header field parameters.[TS24229-5.1-257]
- -The 'uri' parameter of the Authorization header field MUST be enclosed in quotation marks.[RFC3261-22.4-20]
- -If a client receives a "qop" parameter in a challenge header field, it MUST send the "qop" parameter in any resulting authorization header field. [RFC3261-22.4-23]
- -The qop value MUST be one of the alternatives the server indicated it supports in the WWW-Authenticate header, if present. [RFC2617-3-4]
- -The qop SHOULD be used if the server indicated that qop is supported by providing a qop directive in the WWW-Authenticate header field. [RFC2617-3-5]
- -The cnonce MUST be specified if a qop directive is sent a qop directive in the WWW-Authenticate header field.[RFC2617-3-6]
- -The cnonce MUST NOT be specified if the server did not send a qop directive in the WWW-Authenticate header field.[RFC2617-3-7]
- -The nonce-count MUST be specified if a qop directive is sent a qop directive in the WWW-Authenticate header field. [RFC2617-3-8]
- -The nonce-count MUST NOT be specified if the server did not send a gop directive in the WWW-Authenticate header field.[RFC2617-3-9]



* Call-ID

- -The Call-ID header field SHOULD be the same in each registration from a UA.[RFC3261-8.1-11]
- -All registrations from a UAC SHOULD use the same Call-ID header field value for registrations sent to a particular registrar. [RFC3261-10.2-6]

[AKA]

-Call-ID of the security association protected REGISTER request which carries the authentication challenge response SHALL be set to the same value as the Call-ID of the 401 (Unauthorized) response.

[TS24229-5.1-235]

[Digest]

-Call-ID of REGISTER request which carries the authentication challenge response SHALL be set to the same value as the Call-ID of the 401 (Unauthorized) response which carried the challenge. [TS24229-5.1-258]

* Contact

- -UACs SHOULD NOT use the "action" parameter.[RFC3261-10.2-9]
- -Even if the "display-name" is empty, the "name-addr" form MUST be used if the "addr-spec" contains a comma, semicolon, or question mark.[RFC3261-20.10-1]

* Content-length

-If no body is present in a message, then the Content-Length header field value MUST be set to zero.[RFC3261-20.14-3]

* CSeq

- -The Cseq method MUST match the method of Request-Line in the request.[RFC3261-8.1-14]
- -The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261-8.1-15][RFC3261-20.16-1]
- -The sequence number value in the CSeq header field MUST be less than 2**31. [RFC3261-8.1-16]
- -A UA MUST increment the CSeq value by one for each REGISTER request with the same Call-ID.[RFC3261-10.2-7]

* From

-The From field MUST contain a new "tag" parameter, chosen by the UAC.[RFC3261-8.1-9]

* Max-Forwards

-A UAC MUST insert a Max-Forwards header field into each request it



originates. [RFC3261-8.1-17]
-The Max-Forwards header field value SHOULD be 70.

[RFC3261-8.1-18]

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455-4.2-1]

* Security-Client [AKA]

-Security-Client header field that is identical to the Security-Client header field that was included in the previous REGISTER request SHALL be inserted into the request. [TS24229-5.1-233]

-A client wishing to use the security agreement of this specification MUST add a Security-Client header field to a request addressed to its first-hop proxy.[RFC3329-2.3-2]

* Sucurity-Verify [AKA]

- -The Security-Verify header field SHALL be mirrored the content of the Security-Server header field received in the 401 (Unauthorized) response.[TS24229-5.1-234]
- -A subsequent SIP requests MUST contain a Security-Verify header field that mirrors the server's list received previously in the Security-Server header field.[RFC3329-2.3-15]

* Supported

- -The UA SHOULD include the option tag "path" as a header field value in all Supported header fields.[RFC3327-5.1-1]
- -The UA SHOULD include a Supported header field in all requests. [RFC3327-5.1-2]

* To

- -A request outside of a dialog MUST NOT contain a To tag. [RFC3261-8.1-7]
- -An address-of-record included in To header field MUST be a SIP URI or SIPS URI.[RFC3261-10.2-5]

* Via

- -A UAC MUST insert a Via into that request. [RFC3261-8.1-19]
- -The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261-8.1-20]
- -The Via header field value MUST contain a branch parameter.



[RFC3261-8.1-21]

- -The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261-8.1-23]
- -The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261-18.1-7]
- Security Association behavior [AKA]
 - -A temporary set of security associations SHALL be set up based on the static list and parameters it received in the 401 (Unauthorized) response and its capabilities sent in the Security-Client header field in the REGISTER request.[TS24229-5.1-221]
 - -The temporary set of security associations SHALL be set up using the most preferred mechanism and algorithm returned by the P-CSCF and supported by the UE and using IK and CK as the shared key. [TS24229-5.1-222]
 - -The parameters received in the Security-Server header field SHALL be used to setup the temporary set of security associations. [TS24229-5.1-223]
 - -REGISTER request SHALL be sent using the temporary set of security associations to protect the message. [TS24229-5.1-225]
 - -The REGISTER request for authentication SHALL include the integrity and encryption algorithms list, SPI_P, and Port_P received in 401 (Unauthorized) response, and SPI_U, Port_U sent in the initial REGISTER request.[TS33203-7.2-9]
 - -The REGISTER request for authentication to the P-CSCF SHALL be protected with the new outbound SA.[TS33203-7.4-18]
 - -All the subsequent SIP requests sent by the client to that server SHOULD make use of the security mechanism initiated in the previous step.[RFC3329-2.3-14]
 - -All clients MUST select HTTP Digest, TLS, IPsec, or any stronger method for the protection of the second request.[RFC3329-5-1]

3.4 generic_re_REGISTER

Generic judgement items for re_REGISTER request

See generic_sip_message

- -The empty line MUST be present even if the message-body is not. [RFC3261-7-2]
- -Registration refreshes SHOULD be sent to the same network address as the original registration.[RFC3261-10.2-16]



- Request-Line:

- -Request-URI SHALL be set to the SIP URI of the domain name of the home network.[TS24229-5.1-162]
- -The Request-URI MUST NOT contain unescaped space control characters. [RFC3261-7.1-1]
- -The Request-URI MUST NOT be enclosed in "<>". [RFC3261-7.1-2]
- -The "userinfo" and "@" components of the SIP URI MUST NOT be present. [RFC3261-10.2-4]

- Header fields

- -An Expires header field or the expires parameter within the Contact header field SHALL be set to the value of 600 000 seconds.[TS24229-5.1-161]
- -SIP request MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via header fields. [RFC3261-8.1-1]

[AKA]

- -The client MUST add both a Require and Proxy-Require header field with the value "sec-agree" to its request.[RFC3329-2.3-4]
- -A subsequent SIP requests MUST also have both a Require and Proxy-Require header fields with the value "sec-agree".[RFC3329-2.3-16] [Digest]
- -The REGISTER request SHALL not include Security-Client, Security-Verify header field and both a Require and Proxy-Require header fields with the value "sec-agree" if SIP digest without TLS is used.[TS24229-5.1-259]

* Authorization header

-WWW-Authenticate, Authorization, Proxy-Authenticate or Proxy-Authorization MUST NOT be combined into a single header field row. [RFC3261-7.3-3]

[AKA]

- -The username directive in Authorization header field SHALL be set to the value of the private user identity.[TS24229-5.1-183]
- -The realm directive in Authorization header field SHALL be set to the value as received in the realm directive in the WWW Authenticate header field.[TS24229-5.1-184]
- -The uri directive in Authorization header field SHALL be set to the SIP URI of the domain name of the home network. [TS24229-5.1-185]
- -The nonce directive in Authorization header field SHALL be set to last received nonce value.[TS24229-5.1-186]



-The response directive in Authorization header field SHALL be set to the last calculated response value.[TS24229-5.1-187]

[Digest]

- -The username directive in Authorization header field SHALL be set to the value of the private user identity.[TS24229-5.1-193]
- -The realm directive in Authorization header field SHALL be set to the value of the domain name of the home network.[TS24229-5.1-194]
- -The uri directive in Authorization header field SHALL be set to the SIP URI of the domain name of the home network.[TS24229-5.1-195]
- -The nonce directive in Authorization header field SHALL be empty. [TS24229-5.1-196]
- -The response directive in Authorization header field SHALL be empty. $[TS24229 \hbox{-} 5.1 \hbox{-} 197]$

* From

- -From header field SHALL be set to the SIP URI that contains the public user identity to be registered or deregistered. [TS24229-5.1-155]
- -The From field MUST contain a new "tag" parameter, chosen by the UAC.[RFC3261-8.1-9]

* Max-Forwards

- -A UAC MUST insert a Max-Forwards header field into each request it originates. [RFC3261-8.1-17]
- -The Max-Forwards header field value SHOULD be 70. [RFC3261-8.1-18]

* Call-ID

- -The Call-ID header field SHOULD be the same in each registration from a UA.[RFC3261-8.1-11]
- -All registrations from a UAC SHOULD use the same Call-ID header field value for registrations sent to a particular registrar. [RFC3261-10.2-6]
- -A UA SHOULD use the same Call-ID for all registrations during a single boot cycle.[RFC3261-10.2-15]

* Contact

- -Contact header field SHALL be set to IP address or FQDN. [TS24229-5.1-157]
- -UACs SHOULD NOT use the "action" parameter. [RFC3261-10.2-9]
- -Even if the "display-name" is empty, the "name-addr" form MUST be used if the "addr-spec" contains a comma, semicolon, or question mark.[RFC3261-20.10-1]

[AKA]



-Contact header field SHALL be set to protected server port value. [TS24229-5.1-188]

[Digest]

-The port value in Contact header field SHALL be set to an unprotected port where the UE expects to receive subsequent requests. [TS24229-5.1-198]

* Content-length

-If no body is present in a message, then the Content-Length header field value MUST be set to zero.[RFC3261-20.14-3]

* CSeq

- -The Cseq method MUST match the method of Request-Line in the request. [RFC3261-8.1-14]
- -The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261-8.1-15][RFC3261-20.16-1]
- -The sequence number value in the CSeq header field MUST be less than 2**31. [RFC3261-8.1-16]
- -A UA MUST increment the CSeq value by one for each REGISTER request with the same Call-ID.[RFC3261-10.2-7]

* To

- -To header field SHALL be set to the SIP URI that contains the public user identity to be registered or deregistered.[TS24229-5.1-156]
- -A request outside of a dialog MUST NOT contain a To tag. [RFC3261-8.1-7]
- -An address-of-record included in To header field MUST be a SIP URI or SIPS URI.[RFC3261-10.2-5]

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455-4.2-1]

* Security-Client [AKA]

- -Security-Client header field SHALL be set to the security mechanism it supports, the IPsec layer algorithms for security and confidentiality protection it supports and the new parameter values needed for the setup of two new pairs of security associations. [TS24229-5.1-190]
- -A client wishing to use the security agreement of this specification MUST add a Security-Client header field to a request addressed to its first-hop proxy.[RFC3329-2.3-2]



* Security-Verify [AKA]

- -Security-Verify header field SHALL be set to the content of the Security-Server header received in the 401 (Unauthorized) response of the last successful authentication. [TS24229-5.1-191]
- -A subsequent SIP requests MUST contain a Security-Verify header field that mirrors the server's list received previously in the Security-Server header field. [RFC3329-2.3-15]

* Supported

- -The option tag "path" SHALL be contained in Supported header field. [TS24229-5.1-163]
- -The UA SHOULD include the option tag "path" as a header field value in all Supported header fields.[RFC3327-5.1-1]
- -The UA SHOULD include a Supported header field in all requests. [RFC3327-5.1-2]

* Via

- -Via header field SHALL be set to IP address or FQDN. [TS24229-5.1-160]
- -A UAC MUST insert a Via into that request. [RFC3261-8.1-19]
- -The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261-8.1-20]
- -The Via header field value MUST contain a branch parameter. [RFC3261-8.1-21]
- -The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261-8.1-23]
- -The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261-18.1-7]

[AKA]

-The protected server port value for the UDP SHALL be included in Via header field.[TS24229-5.1-189]

[Digest]

- -The port value in Via header field SHALL be set to an unprotected port where the UE expects to receive responses to the request. [TS24229-5.1-199]
- Security Association behavior [AKA]
 - -The REGISTER request SHALL be protected using a security association established as a result of an earlier registration.[TS24229-5.1-153]
 - -A Security-setup-line SHALL be included in REGISTER request in order to start the security mode set-up procedure.[TS33203-7.2-1]
 - -The first message in this registration SHOULD be protected with an SA



created by a previous successful authentication if one exists. [TS33203-7.3-8]

- -An already active pair of security associations SHALL be used to protect the REGISTER request.[TS33203-7.4-3]
- -A particular security association SHALL protect the certain messages in the authentication.[TS33203-7.4-12]
- -The REGISTER request SHALL be protected with the old outbound security association if the initial REGISTER request was protected.

 [TS33203-7.4-14]
- -All the subsequent SIP requests sent by the client to that server SHOULD make use of the security mechanism initiated in the previous step.[RFC3329-2.3-14]

3.5 generic_de_REGISTER

Generic judgement items for de_REGISTER request.

See generic_sip_message

- -The empty line MUST be present even if the message-body is not. [RFC3261-7-2]
- Request-Line:
 - -Request-URI SHALL be set to the SIP URI of the domain name of the home network.[TS24229-5.1-302]
 - -The Request-URI MUST NOT contain unescaped space control characters. [RFC3261-7.1-1]
 - -The Request-URI MUST NOT be enclosed in "\(\infty\)". [RFC3261-7.1-2]
 - -The "userinfo" and "@" components of the SIP URI MUST NOT be present. [RFC3261-10.2-4]
- Header fields:
 - -Expires header or the expires parameter of the Contact header field SHALL be set to the value of zero.[TS24229-5.1-301]
 - -SIP request MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via header fields. [RFC3261-8.1-1]
 - -The REGISTER-specific Contact header field value of "*" applies to all registrations, but it MUST NOT be used unless the Expires header field is present with a value of "0".[RFC3261-10.2-13]

[AKA]



- -The client MUST add both a Require and Proxy-Require header field with the value "sec-agree" to its request.[RFC3329-2.3-4]
- -A subsequent SIP requests MUST also have both a Require and Proxy-Require header fields with the value "sec-agree".[RFC3329-2.3-16] [Digest]
- -The REGISTER request SHALL not include Security-Client, Security-Verify header field and both a Require and Proxy-Require header fields with the value "sec-agree" if SIP digest without TLS is used.[TS24229-5.1-259]

* Authorization

-WWW-Authenticate, Authorization, Proxy-Authenticate or Proxy-Authorization MUST NOT be combined into a single header field row. [RFC3261-7.3-3]

[AKA]

- -The username directive in Authorization header field SHALL be set to the value of the private user identity.[TS24229-5.1-313]
- -The realm directive in Authorization header field SHALL be set to the value as received in the realm directive in the WWW-Authenticate header.[TS24229-5.1-314]
- -The uri directive in Authorization header field SHALL be set to the SIP URI of the domain name of the home network. [TS24229-5.1-315]
- -The nonce directive in Authorization header field SHALL be set to last received nonce value.[TS24229-5.1-316]
- -The response directive in Authorization header field SHALL be set to the last calculated response value.[TS24229-5.1-317]

[Digest]

- -The username directive in Authorization header field SHALL be set to the value of the private user identity.[TS24229-5.1-323]
- -The realm directive in Authorization header field SHALL be set to the value of the domain name of the home network.[TS24229-5.1-324]
- -The uri directive in Authorization header field SHALL be set to the SIP URI of the domain name of the home network.[TS24229-5.1-325]
- -The nonce directive in Authorization header field SHALL be empty. [TS24229-5.1-326]
- -The response directive in Authorization header field SHALL be empty. [TS24229-5.1-327]

* Call-ID

- -The Call-ID header field SHOULD be the same in each registration from a UA.[RFC3261-8.1-11]
- -All registrations from a UAC SHOULD use the same Call-ID header



field value for registrations sent to a particular registrar. [RFC3261-10.2-6]

* Contact

-SIP URI(s) that contain(s) in the hostport parameter the IP address of the UE or FQDN SHALL be included in Contact header field. [TS24229-5.1-298]

- -UACs SHOULD NOT use the "action" parameter. [RFC3261-10.2-9]
- -Even if the "display-name" is empty, the "name-addr" form MUST be used if the "addr-spec" contains a comma, semicolon, or question mark.[RFC3261-20.10-1]

[AKA]

-Contact header field SHALL be set to the protected server port value bound to the security association.[TS24229-5.1-318]

[Digest]

-The port value in Contact header field SHALL be set to the associated unprotected port value (where the UE was expecting to receive mid-dialog requests). [TS24229-5.1-328]

* Content-length

-If no body is present in a message, then the Content-Length header field value MUST be set to zero.[RFC3261-20.14-3]

* CSeq

- -The Cseq method MUST match the method of Request-Line in the request. [RFC3261-8.1-14]
- -The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261-8.1-15][RFC3261-20.16-1]
- -The sequence number value in the CSeq header field MUST be less than 2**31. [RFC3261-8.1-16]
- -A UA MUST increment the CSeq value by one for each REGISTER request with the same Call-ID.[RFC3261-10.2-7]

* From

- -From header field SHALL be set to the SIP URI that contains the public user identity to be registered or deregistered.[TS24229-5.1-296]
- -The From field MUST contain a new "tag" parameter, chosen by the UAC.[RFC3261-8.1-9]

* Max-Forwards

-A UAC MUST insert a Max-Forwards header field into each request it originates. [RFC3261-8.1-17]



-The Max-Forwards header field value SHOULD be 70. [RFC3261-8.1-18]

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455-4.2-1]

* Security-Client [AKA]

- -Security-Client header field SHALL be set to the security mechanism it supports, the IPsec layer algorithms for integrity and confidentiality protection it supports and the new parameter values needed for the setup of two new pairs of security associations. [TS24229-5.1-320]
- -A client wishing to use the security agreement of this specification MUST add a Security-Client header field to a request addressed to its first-hop proxy.[RFC3329-2.3-2]

* Security-Verify [AKA]

- -Security-Verify header field SHALL be set to the content of the Security-Server header received in the 401 (Unauthorized) response of the last successful authentication.[TS24229-5.1-322]
- -A subsequent SIP requests MUST contain a Security-Verify header field that mirrors the server's list received previously in the Security-Server header field.[RFC3329-2.3-15]

* Supported

- -The UA SHOULD include the option tag "path" as a header field value in all Supported header fields.[RFC3327-5.1-1]
- -The UA SHOULD include a Supported header field in all requests. [RFC3327-5.1-2]

* To

- -To header field SHALL be set to the SIP URI that contains the public user identity to be registered or deregistered.[TS24229-5.1-297]
- -A request outside of a dialog MUST NOT contain a To tag. [RFC3261-8.1-7]
- -An address-of-record included in To header field MUST be a SIP URI or SIPS URI.[RFC3261-10.2-5]

* Via

- -The IP address or FQDN of the UE SHALL be included in Via header field.[TS24229-5.1-300]
- -A UAC MUST insert a Via into that request. [RFC3261-8.1-19]



- -The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261-8.1-20]
- -The Via header field value MUST contain a branch parameter. [RFC3261-8.1-21]
- -The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261-8.1-23]
- -The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261-18.1-7]

[AKA]

-The protected server port value for the UDP SHALL be included in Via header field.[TS24229-5.1-319]

[Digest]

- -The port value in Via header field SHALL be set to an unprotected port where the UE expects to receive responses to the request.

 [TS24229-5.1-329]
- Security Association behavior [AKA]
 - -The REGISTER request SHALL be protected using a security association established as a result of an earlier registration.[TS24229-5.1-290]
 - -A Security-setup-line SHALL be included in REGISTER request in order to start the security mode set-up procedure.[TS33203-7.2-1]
 - -All the subsequent SIP requests sent by the client to that server SHOULD make use of the security mechanism initiated in the previous step.[RFC3329-2.3-14]

3.6 generic SUBSCRIBE

Generic judgement items for SUBSCRIBE request.

See generic_sip_message

- -The empty line MUST be present even if the message-body is not. [RFC3261-7-2]
- Request-Line:
 - -Request-URI SHALL be set to the resource to which the UE wants to be subscribed to [TS24229-5.1-123]
 - -The Request-URI MUST NOT contain unescaped space control characters. [RFC3261-7.1-1]
 - -The Request-URI MUST NOT be enclosed in "\(\infty\)". [RFC3261-7.1-2]
 - -The initial Request-URI of the message SHOULD be set to the value of



the URI in the To field. [RFC3261-8.1-2]

- Header fields:

-SIP request MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via header fields. [RFC3261-8.1-1]

[AKA]

-These requests MUST also have both a Require and Proxy-Require header fields with the value "sec-agree".[RFC3329-2.3-16]

[Digest]

-Security-Client, Security-Verify header field and both a Require and Proxy-Require header fields with the value "sec-agree" SHALL not be included in any SIP messages if SIP digest without TLS is used. [TS24229-5.1-363]

* Allow-Events

-Any node implementing one or more event packages SHOULD include an appropriate "Allow-Events" header indicating all supported events in all methods which initiate dialogs and their responses and OPTIONS responses.[RFC3265-3.3-5]

* Contact

- -Contact header field SHALL be set to IP address or FQDN as in the initial registration .[TS24229-5.1-129]
- -The Contact header field MUST be present and contain exactly one SIP or SIPS URI in any request that can result in the establishment of a dialog, [RFC3261-8.1-24]
- -Even if the "display-name" is empty, the "name-addr" form MUST be used if the "addr-spec" contains a comma, semicolon, or question mark.[RFC3261-20.10-1]

[AKA]

- -Contact header field set to contain the protected server port value as in the initial registration. [TS24229-5.1-130]
- -UE SHALL populate the Contact header field of the request with the protected server port and the respective contact address if the UE has not obtained a GRUU and IMS AKA is being used. [TS24229-5.1-355]

[Digest]

- -The port value in Contact header field SHALL be set to an unprotected port where the UE expects to receive subsequent mid-dialog requests. [TS24229-5.1-131]
- -The port value in Contact header field SHALL be set the unprotected port value to the port value used in the initial REGISTER request.



[TS24229-5.1-132]

-UE SHALL populate the Contact header field of the request with the port value of an unprotected port and the contact address where the UE expects to receive subsequent mid-dialog requests if the UE has not obtained a GRUU and SIP digest without TLS is being used.[TS24229-5.1-357]

* Content-length

-If no body is present in a message, then the Content-Length header field value MUST be set to zero.[RFC3261-20.14-3]

* CSeq

- -The Cseq method MUST match the method of Request-Line in the request.[RFC3261-8.1-14][RFC3261-12.2-11]
- -The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer.[RFC3261-8.1-15][RFC3261-20.16-1]
- -The sequence number value in the CSeq header field MUST be less than 2**31. [RFC3261-8.1-16]

* Event

- -Event header field SHALL be set to the "reg" event package. [TS24229-5.1-126]
- -Subscribers MUST include exactly one "Event" header in SUBSCRIBE requests, indicating to which event or class of events they are subscribing. [RFC3265-3.1-4]
- -There MUST be exactly one event type listed per event header. [RFC3265-7.2-2]

* Expires

- -Expires header field SHALL be set to 600 000 seconds as the value desired for the duration of the subscription.[TS24229-5.1-127]
- -The SUBSCRIBE requests SHOULD contain an "Expires" header. [RFC3265-3.1-1]

* From

- -From header field SHALL be set to a SIP URI that contains the public user identity used for subscription.[TS24229-5.1-124]
- -The From field MUST contain a new "tag" parameter, chosen by the UAC. [RFC3261-8.1-9]

* Max-Forwards

-A UAC MUST insert a Max-Forwards header field into each request it



originates.[RFC3261-8.1-17]

-The Max-Forwards header field value SHOULD be 70.[RFC3261-8.1-18]

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455-4.2-1]

* P-Preferred-Identity

-The P-Preferred-Identity header field SHALL be used as the public user identity for the request if a P-Preferred-Identity was included. [TS24229-5.1-378]

[AKA]

-The default public user identity for the security association SHALL be used as the public user identity for the request if no P-Preferred-Identity was included.[TS24229-5.1-379]

* Route

- -A proper preloaded Route header value SHALL be built in Route header for all new dialog and standalone transactions.[TS24229-5.1-398]
- -A list of Route header values made out of the P-CSCF URI containing the IP address or the FQDN learnt through the P-CSCF discovery procedure SHALL be built in Route header. [TS24229-5.1-400]
- -A list of Route header values made out of the values received in the Service-Route header field saved from the 200 (OK) response to the last registration or re-registration of the public user identity with associated contact address SHALL be built in Route header. [TS24229-5.1-404]
- -If the request contains a Route header field, the request SHOULD be sent to the locations derived from its topmost value.

 [RFC3261-8.1-38]

[AKA]

-A list of Route header values made out of the P-CSCF port containing the protected server port learned during the registration procedure SHALL be built in Route header. [TS24229-5.1-402]

[Digest]

-A list of Route header values made out of the P-CSCF port containing the unprotected server port learned during the registration procedure SHALL be built in Route header. [TS24229-5.1-403]

* Security-Verify [AKA]

-A subsequent SIP requests MUST contain a Security-Verify header field that mirrors the server's list received previously in the



Security- Server header field. [RFC3329-2.3-15]

* To

- -To header field SHALL be set to a SIP URI that contains the public user identity used for subscription.[TS24229-5.1-125]
- -A request outside of a dialog MUST NOT contain a To tag. [RFC3261-8.1-7]

* Via

- -A UAC MUST insert a Via into that request. [RFC3261-8.1-19]
- -The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261-8.1-20]
- -The Via header field value MUST contain a branch parameter. [RFC3261-8.1-21]
- -The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261-8.1-23]
- -The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261-18.1-7]

[AKA]

-The protected server port and the respective contact address SHALL be included in the Via header entry relating to the UE if the has not obtained a GRUU and IMS AKA is being used.[TS24229-5.1-356]

[Digest]

- -UE SHALL populate the Via header field of the request with the port value of an unprotected port and the respective contact address where the UE expects to receive responses to the request if the has not obtained a GRUU and SIP digest without TLS is being used.[TS24229-5.1-358]
- Security Association behavior [AKA]
 - -All the subsequent SIP requests sent by the client to that server SHOULD make use of the security mechanism initiated in the previous step.[RFC3329-2.3-14]

3.7 generic_re_SUBSCRIBE

Generic judgement items for Re-SUBSCRIBE request.

See generic_sip_message

-The information for the established dialog and the expiration time as indicated in the Expires header field of the received response SHALL be



stored by UE.[TS24229-5.1-133]

-The empty line MUST be present even if the message-body is not. [RFC3261-7-2]

- Request-Line:

- -The Request-URI MUST NOT contain unescaped space control characters. [RFC3261-7.1-1]
- -The Request-URI MUST NOT be enclosed in "<>". [RFC3261-7.1-2]
- -The UAC MUST place the remote target URI into the Request-URI if the route set is not empty and the first URI in the route set contains the lr parameter.[RFC3261-12.2-14]

- Header fields:

-SIP request MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via header fields. [RFC3261-8.1-1]

[AKA]

-A subsequent SIP requests MUST also have both a Require and Proxy-Require header fields with the value "sec-agree".[RFC3329-2.3-16]

[Digest]

-Security-Client, Security-Verify header field and both a Require and Proxy-Require header fields with the value "sec-agree" SHALL not be included in any SIP messages if SIP digest without TLS is used.[TS24229-5.1-363]

* Allow-Events

-Any node implementing one or more event packages SHOULD include an appropriate "Allow-Events" header indicating all supported events in all methods which initiate dialogs and their responses and OPTIONS responses.[RFC3265-3.3-5]

* Call-ID

- -The Call-ID header field MUST be the same for all requests and responses sent by either UA in a dialog.[RFC3261-8.1-10]
- -The Call-ID of the request MUST be set to the Call-ID of the dialog. [RFC3261-12.2-6]

* Contact

- -The UE SHOULD insert the previously used Contact header field in Contact header field. [TS24229-5.1-386]
- -Even if the "display-name" is empty, the "name-addr" form MUST be used if the "addr-spec" contains a comma, semicolon, or question mark. [RFC3261-20.10-1]



[AKA]

-UE SHALL populate the Contact header field of the request with the protected server port and the respective contact address if the UE has not obtained a GRUU and IMS AKA is being used. [TS24229-5.1-355]

[Digest]

-UE SHALL populate the Contact header field of the request with the port value of an unprotected port and the contact address where the UE expects to receive subsequent mid-dialog requests if the UE has not obtained a GRUU and SIP digest without TLS is being used. [TS24229-5.1-357]

* Content-length

-If no body is present in a message, then the Content-Length header field value MUST be set to zero.[RFC3261-20.14-3]

* CSeq

- -The Cseq method MUST match the method of Request-Line in the request. [RFC3261-8.1-14]
- -The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer.[RFC3261-8.1-15][RFC3261-20.16-1]
- -The sequence number value in the CSeq header field MUST be less than 2**31.[RFC3261-8.1-16]
- -Requests within a dialog MUST contain strictly monotonically increasing and contiguous CSeq sequence numbers in each direction.[RFC3261-12.2-7]
- -The value of the local sequence number MUST be incremented by one if the local sequence number is not empty.[RFC3261-12.2-8]
- -The value of the local sequence number that be incremented by one MUST be placed into the CSeq header field if the local sequence number is not empty.[RFC3261-12.2-9]

* Event

- -Subscribers MUST include exactly one "Event" header in SUBSCRIBE requests, indicating to which event or class of events they are subscribing. [RFC3265-3.1-4]
- -There MUST be exactly one event type listed per event header. [RFC3265-7.2-2]

* Expires

-The SUBSCRIBE requests SHOULD contain an "Expires" header. [RFC3265-3.1-1]



* From

- -The From URI of the request MUST be set to the local URI from the dialog state.[RFC3261-12.2-3]
- -The tag in the From header field of the request MUST be set to the local tag of the dialog ID.[RFC3261-12.2-4]

* Max-Forwards

- -A UAC MUST insert a Max-Forwards header field into each request it originates. [RFC3261-8.1-17]
- -The Max-Forwards header field value SHOULD be 70. [RFC3261-8.1-18]

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455-4.2-1]

* Route

- -If the request contains a Route header field, the request SHOULD be sent to the locations derived from its topmost value. [RFC3261-8.1-38]
- -The UAC MUST include a Route header field containing the route set values in order including all parameters if the route set is not empty, and the first URI in

* Security-Verify [AKA]

-A subsequent SIP requests MUST contain a Security-Verify header field that mirrors the server's list received previously in the Security-Server header field. [RFC3329-2.3-15]

the route set contains the lr parameter. [RFC3261-12.2-15]

* To

- -The URI in the To field of the request MUST be set to the remote URI from the dialog state.[RFC3261-12.2-1]
- -The tag in the To header field of the request MUST be set to the remote tag of the dialog ID.[RFC3261-12.2-2]

* Via

- -A UAC MUST insert a Via into that request. [RFC3261-8.1-19]
- -The protocol name and protocol version in the Via header field MUST be SIP and 2.0.[RFC3261-8.1-20]
- -The Via header field value MUST contain a branch parameter. [RFC3261-8.1-21]
- -The branch ID MUST always begin with the characters "z9hG4bK".



[RFC3261-8.1-23]

-The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261-18.1-7]

[AKA]

-The protected server port and the respective contact address SHALL be included in the Via header entry relating to the UE if the has not obtained a GRUU and IMS AKA is being used.[TS24229-5.1-356]

[Digest]

- -UE SHALL populate the Via header field of the request with the port value of an unprotected port and the respective contact address where the UE expects to receive responses to the request if the has not obtained a GRUU and SIP digest without TLS is being used.[TS24229-5.1-358]
- Security Association behavior [AKA]
 - -All the subsequent SIP requests sent by the client to that server SHOULD make use of the security mechanism initiated in the previous step.[RFC3329-2.3-14]

3.8 generic_200-NOTIFY

Generic judgement items for 200-NOTIFY response.

- -The empty line MUST be present even if the message-body is not. [RFC3261-7-2]
- -TUs SHOULD respond immediately to non-INVITE requests.[RFC3261-17.1-1]
- Header fields:
 - * Call-ID
 - -The Call-ID header field MUST be the same for all requests and responses sent by either UA in a dialog.[RFC3261-8.1-10]
 - -The Call-ID header field of the response MUST equal the Call-ID header field of the request.[RFC3261-8.2-37]
 - * Content-length
 - -If no body is present in a message, then the Content-Length header field value MUST be set to zero.[RFC3261-20.14-3]
 - * CSeq
 - -The CSeq header field of the response MUST equal the CSeq field of



the request.[RFC3261-8.2-38]

* From

-The From field of the response MUST equal the From header field of the request.[RFC3261-8.2-36]

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455-4.2-1]

* To

- -If a request contained a To tag in the request, the To header field in the response MUST equal that of the request. [RFC3261-8.2-41]
- -The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261-8.2-44]

* Via

- -The Via header field values in the response MUST equal the Via header field values in the request and MUST maintain the same ordering. [RFC3261-8.2-39][RFC3261-8.2-40]
- -If the host portion of the "sent-by" parameter contains a domain name, or if it contains an IP address that differs from the packet source address, the server MUST add a "received" parameter to that Via header field value.[RFC3261-18.2-5]
- -The "received" parameter MUST contain the source address from which the packet was received.[RFC3261-18.2-6]
- -The response MUST be sent to the address in the "received" parameter, using the port indicated in the "sent-by" value, or using port 5060 if none is specified explicitly.[RFC3261-18.2-13]

3.9 generic_INVITE

Generic judgement items for INVITE request.

See generic_sip_message

- Request-Line:

-The Request-URI MUST NOT contain unescaped space control characters. [RFC3261-7.1-1]

-The Request-URI MUST NOT be enclosed in "<>". [RFC3261-7.1-2]



-The initial Request-URI of the message SHOULD be set to the value of the URI in the To field.[RFC3261-8.1-2]

- Header fields:

-The UE SHALL include the Accept header field with "application/sdp", the MIME type associated with the 3GPP IM CN subsystem XML body and any other MIME type the UE is willing and capable to accept, when generating an initial INVITE request, [TS24229-5.1-454]

-SIP request MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via header fields. [RFC3261-8.1-1]

[AKA]

-These requests MUST also have both a Require and Proxy-Require header fields with the value "sec-agree".[RFC3329-2.3-16]

[Digest]

-Security-Client, Security-Verify header field and both a Require and Proxy-Require header fields with the value "sec-agree" SHALL not be included in any SIP messages if SIP digest without TLS is used.[TS24229-5.1-363]

* Allow

-A UA that supports INVITE MUST also support ACK, CANCEL and BYE. [RFC3261-13.1-1]

-An Allow header field SHOULD be present in the INVITE. [RFC3261-13.2-1]

* Allow-Events

-Any node implementing one or more event packages SHOULD include an appropriate "Allow-Events" header indicating all supported events in all methods which initiate dialogs and their responses and OPTIONS responses.[RFC3265-3.3-5]

* Contact

-The Contact header field MUST be present and contain exactly one SIP or SIPS URI in any request that can result in the establishment of a dialog.[RFC3261-8.1-24]

-Even if the "display-name" is empty, the "name-addr" form MUST be used if the "addr-spec" contains a comma, semicolon, or question mark.[RFC3261-20.10-1]

[AKA]

-UE SHALL populate the Contact header field of the request with the protected server port and the respective contact address if the UE has not obtained a GRUU and IMS AKA is being used.



[TS24229-5.1-355]

[Digest]

-UE SHALL populate the Contact header field of the request with the port value of an unprotected port and the contact address where the UE expects to receive subsequent mid-dialog requests if the UE has not obtained a GRUU and SIP digest without TLS is being used.[TS24229-5.1-357]

* Content-Encoding

-If the body has not undergone any encoding such as compression, then Content-Encoding MUST be omitted. [RFC3261-7.4-3]

* Content-Type

- -The Internet media type of the message body MUST be given by the Content-Type header field. [RFC3261-7.4-1]
- -The Content-Type header field MUST be present if the body is not empty.[RFC3261-20.15-1]

* CSeq

- -The Cseq method MUST match the method of Request-Line in the request. [RFC3261-8.1-14]
- -The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261-8.1-15][RFC3261-20.16-1]
- -The sequence number value in the CSeq header field MUST be less than 2**31. [RFC3261-8.1-16]

* From

-The From field MUST contain a new "tag" parameter, chosen by the UAC. [RFC3261-8.1-9]

* Max-Forwards

- -A UAC MUST insert a Max-Forwards header field into each request it originates.[RFC3261-8.1-17]
- -The Max-Forwards header field value SHOULD be 70.[RFC3261-8.1-18]

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455-4.2-1]

* Route

-A proper preloaded Route header value SHALL be built in Route header for all new dialog and standalone transactions.[TS24229-5.1-398]



- -A list of Route header values made out of the P-CSCF URI containing the IP address or the FQDN learnt through the P-CSCF discovery procedure SHALL be built in Route header. [TS24229-5.1-400]
- -A list of Route header values made out of the values received in the Service-Route header field saved from the 200 (OK) response to the last registration or re-registration of the public user identity with associated contact address SHALL be built in Route header. [TS24229-5.1-404]
- -If the request contains a Route header field, the request SHOULD be sent to the locations derived from its topmost value.[RFC3261-8.1-38] [AKA]
 - -A list of Route header values made out of the P-CSCF port containing the protected server port learned during the registration procedure SHALL be built in Route header. [TS24229-5.1-402]

[Digest]

-A list of Route header values made out of the P-CSCF port containing the unprotected server port learned during the registration procedure SHALL be built in Route header. [TS24229-5.1-403]

* P-Preferred-Identity

-The P-Preferred-Identity header field SHALL be used as the public user identity for the request if a P-Preferred-Identity was included. [TS24229-5.1-378]

[AKA]

-The default public user identity for the security association SHALL be used as the public user identity for the request if no P-Preferred-Identity was included.[TS24229-5.1-379]

* Security-Verify [AKA]

-A subsequent SIP requests MUST contain a Security-Verify header field that mirrors the server's list received previously in the Security-Server header field. [RFC3329-2.3-15]

* Supported

-A Supported header field SHOULD be present in the INVITE. [RFC3261-13.2-3]

* To

-A request outside of a dialog MUST NOT contain a To tag. [RFC3261-8.1-7]

* Via



- -A UAC MUST insert a Via into that request. [RFC3261-8.1-19]
- -The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261-8.1-20]
- -The Via header field value MUST contain a branch parameter. [RFC3261-8.1-21]
- -The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261-8.1-23]
- -The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261-18.1-7]

[AKA]

-The protected server port and the respective contact address SHALL be included in the Via header entry relating to the UE if the has not obtained a GRUU and IMS AKA is being used.[TS24229-5.1-356]

[Digest]

-UE SHALL populate the Via header field of the request with the port value of an unprotected port and the respective contact address where the UE expects to receive responses to the request if the has not obtained a GRUU and SIP digest without TLS is being used.[TS24229-5.1-358]

- Bodies fields:

- -The SDP payloads SHALL not be encrypted.[TS24229-6.1-1]
- -Only SDP payload SHALL be contained in SIP messages when the SDP payload must be included in the message.[TS24229-6.1-3]
- -A SDP offer and at least one media description SHALL be contained in an INVITE request generated by a UE.[TS24229-6.1-26]
- -The Session Description Protocol MUST be supported by all user agents as a means to describe sessions.[RFC3261-13.2-12]
- -Whitespace MUST NOT be used on either side of the "=" sign. [RFC4566-5-2] -v,o,s,(c),t,m,(c) lines are REQUIRED in the SDP message.
- (c line MUST included session level information or all of media information) [RFC4566-5-3]
- -all MUST appear in exactly the following order:
- $v_{0,s,(i),(u),(e),(p),(c),(b),t,(r),(z),(k),(a),m,(i),(c),(b),(k),(a)}$

(the line enclosed in "O" is OPTIONAL)[RFC4566-5-4]

* o line

-For both IP4 and IP6, the fully qualified domain name is the form that SHOULD be given unless this is unavailable, in which case the globally unique address MAY be substituted.[RFC4566-5.2-3]

* s line



- -There MUST be one and only one "s=" field per session description. [RFC4566-5.3-1]
- -The "s=" field MUST NOT be empty. [RFC4566-5.3-2]
- -If a session has no meaningful name, the value "s= " SHOULD be used. [RFC4566-5.3-4]

* c line

- -A session description MUST contain either at least one "c=" field in each media description or a single "c=" field at the session level. [RFC4566-5.7-1]
- -A session-level "c=" field MUST NOT specify Multiple addresses or "c=" lines.[RFC4566-5.7-7]

* b line

- -The proposed bandwidth for each media stream utilizing the "b=" media descriptor and the "AS" bandwidth modifier in the SDP SHALL be specified for "video" and "audio" media types that utilize the RTP/RTCP.[TS24229-6.1-7]
- Security Association behavior [AKA]
 - -All the subsequent SIP requests sent by the client to that server SHOULD make use of the security mechanism initiated in the previous step.[RFC3329-2.3-14]

3.10 generic_180-INVITE

Generic judgement items for 180-INVITE response.

- -The empty line MUST be present even if the message-body is not. [RFC3261-7-2]
- Header fields:
 - * Call-ID
 - -The Call-ID header field of the response MUST equal the Call-ID header field of the request. [RFC3261-8.2-37]
 - * Content-length
 - -If no body is present in a message, then the Content-Length header field value MUST be set to zero.[RFC3261-20.14-3]



* CSeq

-The CSeq header field of the response MUST equal the CSeq field of the request.[RFC3261-8.2-38]

* From

-The From field of the response MUST equal the From header field of the request.[RFC3261-8.2-36]

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455-4.2-1]

* To

- -If the To header field in the request did not contain a tag, the URI in the To header field in the response MUST equal the URI in the To header field. [RFC3261-8.2-42]
- -If the To header field in the request did not contain a tag, the UAS MUST add a tag to the To header field in the response. [RFC3261-8.2-43]

* Via

- -The Via header field values in the response MUST equal the Via header field values in the request and MUST maintain the same ordering. [RFC3261-8.2-39][RFC3261-8.2-40]
- -If the host portion of the "sent-by" parameter contains a domain name, or if it contains an IP address that differs from the packet source address, the server MUST add a "received" parameter to that Via header field value.[RFC3261-18.2-5]
- -The "received" parameter MUST contain the source address from which the packet was received.[RFC3261-18.2-6]
- -The response MUST be sent to the address in the "received" parameter, using the port indicated in the "sent-by" value, or using port 5060 if none is specified explicitly.[RFC3261-18.2-13]

3.11 generic_200-INVITE

Generic judgement items for 200-INVITE response.



- Header fields:

-A 2xx response to an INVITE SHOULD contain the Allow header field and the Supported header field.[RFC3261-13.3-10]

* Allow

-A UA that supports INVITE MUST also support ACK, CANCEL and BYE. $[\mathrm{RFC}3261\text{-}13.1\text{-}1]$

* Allow-Events

-Any node implementing one or more event packages SHOULD include an appropriate "Allow-Events" header indicating all supported events in all methods which initiate dialogs and their responses and OPTIONS responses.[RFC3265-3.3-5]

* Call-ID

- -The Call-ID header field MUST be the same for all requests and responses sent by either UA in a dialog.[RFC3261-8.1-10]
- -The Call-ID header field of the response MUST equal the Call-ID header field of the request.[RFC3261-8.2-37]

* Contact

- -The UAS MUST add a Contact header field to the response. [RFC3261-12.1-4]
- -The URI provided in the Contact header field MUST be a SIP or SIPS URI.[RFC3261-12.1-5]
- -Even if the "display-name" is empty, the "name-addr" form MUST be used if the "addr-spec" contains a comma, semicolon, or question mark.[RFC3261-20.10-1]

[AKA]

-The protected server port SHALL be included in the address in the Contact header field if UE did not insert a GRUU.[TS24229-5.1-444] [Digest]

The port value of an unprotected port where the UE expects to receive subsequent mid-dialog requests SHALL be included in the address in the Contact header field if UE did not insert a GRUU and SIP digest without TLS is being used. [TS24229-5.1-445]

* Content-Encoding

-If the body has not undergone any encoding such as compression, then Content-Encoding MUST be omitted. [RFC3261-7.4-3]



* Content-Type

- -The Internet media type of the message body MUST be given by the Content-Type header field.[RFC3261-7.4-1]
- -The Content-Type header field MUST be present if the body is not empty.[RFC3261-20.15-1]

* CSeq

-The CSeq header field of the response MUST equal the CSeq field of the request.[RFC3261-8.2-38]

* From

-The From field of the response MUST equal the From header field of the request.[RFC3261-8.2-36]

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455-4.2-1]

* Record-Route

- -When a UAS responds to a request with a response that establishes a dialog, the UAS MUST copy all Record-Route header field values from the request into the response. [RFC3261-12.1-2][RFC3261-12.1-9]
- -Record-Route header field values MUST maintain the order of Record-Route values from the request. [RFC3261-12.1-3][RFC3261-12.1-9]

* To

- -If the To header field in the request did not contain a tag, the URI in the To header field in the response MUST equal the URI in the To header field. [RFC3261-8.2-42]
- -If the To header field in the request did not contain a tag, the UAS MUST add a tag to the To header field in the response. [RFC3261-8.2-43]
- -The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261-8.2-44]

* Via

- -The Via header field values in the response MUST equal the Via header field values in the request and MUST maintain the same ordering.[RFC3261-8.2-39][RFC3261-8.2-40]
- -If the host portion of the "sent-by" parameter contains a domain name, or if it contains an IP address that differs from the packet source address, the server MUST add a "received" parameter to that



Via header field value.[RFC3261-18.2-5]

- -The "received" parameter MUST contain the source address from which the packet was received.[RFC3261-18.2-6]
- -The response MUST be sent to the address in the "received" parameter, using the port indicated in the "sent-by" value, or using port 5060 if none is specified explicitly.[RFC3261-18.2-13]

- Bodies fields:

- -The SDP payloads SHALL not be encrypted.[TS24229-6.1-1]
- -Only SDP payload SHALL be contained in SIP messages when the SDP payload must be included in the message.[TS24229-6.1-3]
- -The answer MUST be in a reliable non-failure message from UAS back to UAC which is correlated to that INVITE if the initial offer is in an INVITE. [RFC3261-13.2-6][RFC3261-13.3-11]
- -The Session Description Protocol MUST be supported by all user agents as a means to describe sessions.[RFC3261-13.2-12]
- -Whitespace MUST NOT be used on either side of the "=" sign. [RFC4566-5-2]
- -v,o,s,(c),t,m,(c) lines are REQUIRED in the SDP message.
- (c line MUST included session level information or all of media information) [RFC4566-5-3]
- -all MUST appear in exactly the following order:
- v,o,s,(i),(u),(e),(p),(c),(b),t,(r),(z),(k),(a),m,(i),(c),(b),(k),(a)
- (the line enclosed in "O" is OPTIONAL)[RFC4566-5-4]

* o line

-For both IP4 and IP6, the fully qualified domain name is the form that SHOULD be given unless this is unavailable, in which case the globally unique address MAY be substituted.[RFC4566-5.2-3]

* s line

- -There MUST be one and only one "s=" field per session description. [RFC4566-5.3-1]
- -The "s=" field MUST NOT be empty. [RFC4566-5.3-2]
- -If a session has no meaningful name, the value "s= " SHOULD be used. [RFC4566-5.3-4]

* c line

- -A session description MUST contain either at least one "c=" field in each media description or a single "c=" field at the session level. [RFC4566-5.7-1]
- -A session-level "c=" field MUST NOT specify Multiple addresses or



"c=" lines.[RFC4566-5.7-7]

* b line

-The proposed bandwidth for each media stream utilizing the "b=" media descriptor and the "AS" bandwidth modifier in the SDP SHALL be specified for "video" and "audio" media types that utilize the RTP/RTCP.[TS24229-6.1-7]

3.12 generic ACK

Generic judgement items for ACK request.

- -The empty line MUST be present even if the message-body is not. [RFC3261-7-2]
- Request-Line:
 - -The Request-URI MUST NOT contain unescaped space control characters. [RFC3261-7.1-1]
 - -The Request-URI MUST NOT be enclosed in "<>". [RFC3261-7.1-2]
 - -The UAC MUST place the remote target URI into the Request-URI if the route set is not empty and the first URI in the route set contains the lr parameter.[RFC3261-12.2-14]
- Header fields:
 - -SIP request MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via header fields. [RFC3261-8.1-1]
 - * Call-ID
 - -The Call-ID header field MUST be the same for all requests and responses sent by either UA in a dialog.[RFC3261-8.1-10]
 - -The Call-ID of the request MUST be set to the Call-ID of the dialog. [RFC3261-12.2-6]
 - * Content-length
 - -If no body is present in a message, then the Content-Length header field value MUST be set to zero.[RFC3261-20.14-3]
 - * CSeq



- -The Cseq method MUST match the method of Request-Line in the request. [RFC3261-8.1-14][RFC3261-12.2-11]
- -The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261-8.1-15][RFC3261-20.16-1]
- -The sequence number value in the CSeq header field MUST be less than 2**31. [RFC3261-8.1-16]
- -The sequence number of the CSeq header field MUST be the same as the INVITE being acknowledged.[RFC3261-13.2-19]
- -The CSeq method MUST be ACK.[RFC3261-13.2-20]

* From

- -The From URI of the request MUST be set to the local URI from the dialog state.[RFC3261-12.2-3]
- -The tag in the From header field of the request MUST be set to the local tag of the dialog ID.[RFC3261-12.2-4]

* Max-Forwards

- -A UAC MUST insert a Max-Forwards header field into each request it originates.[RFC3261-8.1-17]
- -The Max-Forwards header field value SHOULD be 70.[RFC3261-8.1-18]

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455-4.2-1]

* Route

- -If the request contains a Route header field, the request SHOULD be sent to the locations derived from its topmost value.[RFC3261-8.1-38]
- -The UAC MUST include a Route header field containing the route set values in order including all parameters if the route set is not empty, and the first URI in the route set contains the lr parameter. [RFC3261-12.2-15]

* To

- -The URI in the To field of the request MUST be set to the remote URI from the dialog state.[RFC3261-12.2-1]
- -The tag in the To header field of the request MUST be set to the remote tag of the dialog ID.[RFC3261-12.2-2]

* Via

- -A UAC MUST insert a Via into that request. [RFC3261-8.1-19]
- -The protocol name and protocol version in the Via header field MUST



- be SIP and 2.0. [RFC3261-8.1-20]
- -The Via header field value MUST contain a branch parameter. [RFC3261-8.1-21]
- -The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261-8.1-23]
- -The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261-18.1-7]

[AKA]

-The protected server port and the respective contact address SHALL be included in the Via header entry relating to the UE if the has not obtained a GRUU and IMS AKA is being used.[TS24229-5.1-356]

[Digest]

-UE SHALL populate the Via header field of the request with the port value of an unprotected port and the respective contact address where the UE expects to receive responses to the request if the has not obtained a GRUU and SIP digest without TLS is being used.[TS24229-5.1-358]

3.13 generic_BYE

Generic judgement items for BYE request.

See generic_sip_message

- -The empty line MUST be present even if the message-body is not. [RFC3261-7-2]
- Request-Line:
 - -The Request-URI MUST NOT contain unescaped space control characters. [RFC3261-7.1-1]
 - -The Request-URI MUST NOT be enclosed in "\(\infty\)". [RFC3261-7.1-2]
 - -The UAC MUST place the remote target URI into the Request-URI if the route set is not empty and the first URI in the route set contains the lr parameter.[RFC3261-12.2-14]
- Header fields:
 - -SIP request MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via header fields. [RFC3261-8.1-1]

[AKA]

-These requests MUST also have both a Require and Proxy-Require header fields with the value "sec-agree". [RFC3329-2.3-16]



[Digest]

-Security-Client, Security-Verify header field and both a Require and Proxy-Require header fields with the value "sec-agree" SHALL not be included in any SIP messages if SIP digest without TLS is used. [TS24229-5.1-363]

* Call-ID

- -The Call-ID header field MUST be the same for all requests and responses sent by either UA in a dialog.[RFC3261-8.1-10]
- -The Call-ID of the request MUST be set to the Call-ID of the dialog.[RFC3261-12.2-6]

* Content-length

-If no body is present in a message, then the Content-Length header field value MUST be set to zero.[RFC3261-20.14-3]

* CSeq

- -The Cseq method MUST match the method of Request-Line in the request.[RFC3261-8.1-14][RFC3261-12.2-11]
- -The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261-8.1-15][RFC3261-20.16-1]
- -The sequence number value in the CSeq header field MUST be less than 2**31. [RFC3261-8.1-16]
- -Requests within a dialog MUST contain strictly monotonically increasing and contiguous CSeq sequence numbers in each direction. [RFC3261-12.2-7]
- -The value of the local sequence number MUST be incremented by one if the local sequence number is not empty.[RFC3261-12.2-8]
- -The value of the local sequence number that be incremented by one MUSTbe placed into the CSeq header field if the local sequence number is not empty.[RFC3261-12.2-9]

* From

- -The From URI of the request MUST be set to the local URI from the dialog state.[RFC3261-12.2-3]
- -The tag in the From header field of the request MUST be set to the local tag of the dialog ID.[RFC3261-12.2-4]

* Max-Forwards

- -A UAC MUST insert a Max-Forwards header field into each request it originates. [RFC3261-8.1-17]
- -The Max-Forwards header field value SHOULD be 70.[RFC3261-8.1-18]



* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455-4.2-1]

* Route

-If the request contains a Route header field, the request SHOULD be sent to the locations derived from its topmost value.[RFC3261-8.1-38]

-The UAC MUST include a Route header field containing the route set values in order including all parameters if the route set is not empty, and the first URI in the route set contains the lr parameter. [RFC3261-12.2-15]

* Security-Verify [AKA]

-A subsequent SIP requests MUST contain a Security-Verify header field that mirrors the server's list received previously in the Security-Server header field. [RFC3329-2.3-15]

* To

- -The URI in the To field of the request MUST be set to the remote URI from the dialog state.[RFC3261-12.2-1]
- -The tag in the To header field of the request MUST be set to the remote tag of the dialog ID.[RFC3261-12.2-2]

* Via

- -A UAC MUST insert a Via into that request. [RFC3261-8.1-19]
- -The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261-8.1-20]
- -The Via header field value MUST contain a branch parameter. [RFC3261-8.1-21]
- -The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261-8.1-23]
- -The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261-18.1-7]

[AKA]

-The protected server port and the respective contact address SHALL be included in the Via header entry relating to the UE if the has not obtained a GRUU and IMS AKA is being used.[TS24229-5.1-356]

[Digest]

-UE SHALL populate the Via header field of the request with the port value of an unprotected port and the respective contact address where the UE expects to receive responses to the request if the has not obtained a GRUU and



SIP digest without TLS is being used. [TS24229-5.1-358]

- Security Association behavior [AKA]

-All the subsequent SIP requests sent by the client to that server SHOULD make use of the security mechanism initiated in the previous step.[RFC3329-2.3-14]

3.14 generic 200-BYE

Generic judgement items for 200-BYE response.

- -The empty line MUST be present even if the message-body is not. [RFC3261-7-2] -TUs SHOULD respond immediately to non-INVITE requests.[RFC3261-17.1-1]
- Header fields:
 - * Call-ID
 - -The Call-ID header field MUST be the same for all requests and responses sent by either UA in a dialog.[RFC3261-8.1-10]
 - -The Call-ID header field of the response MUST equal the Call-ID header field of the request.[RFC3261-8.2-37]
 - * Content-length
 - -If no body is present in a message, then the Content-Length header field value MUST be set to zero.[RFC3261-20.14-3]
 - * CSeq
 - -The CSeq header field of the response MUST equal the CSeq field of the request.[RFC3261-8.2-38]
 - * From
 - -The From field of the response MUST equal the From header field of the request.[RFC3261-8.2-36]
 - * P-Called-Party-ID
 - -A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455-4.2-1]
 - * To



- -If a request contained a To tag in the request, the To header field in the response MUST equal that of the request. [RFC3261-8.2-41]
- -The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261-8.2-44]

* Via

- -The Via header field values in the response MUST equal the Via header field values in the request and MUST maintain the same ordering. [RFC3261-8.2-39][RFC3261-8.2-40]
- -If the host portion of the "sent-by" parameter contains a domain name, or if it contains an IP address that differs from the packet source address, the server MUST add a "received" parameter to that Via header field value.[RFC3261-18.2-5]
- -The "received" parameter MUST contain the source address from which the packet was received.[RFC3261-18.2-6]
- -The response MUST be sent to the address in the "received" parameter, using the port indicated in the "sent-by" value, or using port 5060 if none is specified explicitly.[RFC3261-18.2-13]

3.15 generic_CANCEL

Generic judgement items for CANCEL request.

- -The empty line MUST be present even if the message-body is not. [RFC3261-7-2]
- -The Request-URI, Call-ID, To, the numeric part of CSeq, and From header fields in the CANCEL request MUST be identical to those in the request being cancelled, including tags.[RFC3261-9.1-2]
- -The destination address, port, and transport for the CANCEL MUST be identical to those used to send the original request.[RFC3261-9.1-11]
- Request-Line:
 - -The Request-URI MUST NOT contain unescaped space control characters. [RFC3261-7.1-1]
 - -The Request-URI MUST NOT be enclosed in "<>". [RFC3261-7.1-2]
- Header fields:
 - -SIP request MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via



header fields. [RFC3261-8.1-1]

-Require and Proxy-Require MUST NOT be used in a SIP CANCEL request, or in an ACK request sent for a non-2xx response. [RFC3261-8.2-18][RFC3261-9.1-6]

[Digest]

-Security-Client, Security-Verify header field and both a Require and Proxy-Require header fields with the value "sec-agree" SHALL not be included in any SIP messages if SIP digest without TLS is used. [TS24229-5.1-363]

* Content-length

-If no body is present in a message, then the Content-Length header field value MUST be set to zero.[RFC3261-20.14-3]

* CSeq

- -The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261-8.1-15][RFC3261-20.16-1]
- -The sequence number value in the CSeq header field MUST be less than 2**31. [RFC3261-8.1-16]
- -The CSeq method MUST have a value of CANCEL. [RFC3261-9.1-4]

* Max-Forwards

- -A UAC MUST insert a Max-Forwards header field into each request it originates. [RFC3261-8.1-17]
- -The Max-Forwards header field value SHOULD be 70.[RFC3261-8.1-18]

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455-4.2-1]

* Route

-If the request being cancelled contains a Route header field, the CANCEL request MUST include that Route header field's values. [RFC3261-9.1-5]

* Via

- -A UAC MUST insert a Via into that request. [RFC3261-8.1-19]
- -The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261-8.1-20]
- -The Via header field value MUST contain a branch parameter. [RFC3261-8.1-21]
- -The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261-8.1-23]



-A CANCEL constructed by a client MUST have only a single Via header field value matching the top Via value in the request being cancelled. [RFC3261-9.1-3]

[AKA]

-The protected server port and the respective contact address SHALL be included in the Via header entry relating to the UE if the has not obtained a GRUU and IMS AKA is being used.[TS24229-5.1-356]

[Digest]

-UE SHALL populate the Via header field of the request with the port value of an unprotected port and the respective contact address where the UE expects to receive responses to the request if the has not obtained a GRUU and SIP digest without TLS is being used.[TS24229-5.1-358]

3.16 generic 200-CANCEL

Generic judgement items for 200-CANCEL response.

- -The empty line MUST be present even if the message-body is not. [RFC3261-7-2]
- -TUs SHOULD respond immediately to non-INVITE requests.[RFC3261-17.1-1]
- Header fields:
 - * Call-ID
 - -The Call-ID header field of the response MUST equal the Call-ID header field of the request. [RFC3261-8.2-37]
 - * Content-length
 - -If no body is present in a message, then the Content-Length header field value MUST be set to zero.[RFC3261-20.14-3]
 - * CSeq
 - -The CSeq header field of the response MUST equal the CSeq field of the request.[RFC3261-8.2-38]
 - * From
 - -The From field of the response MUST equal the From header field of the request.[RFC3261-8.2-36]
 - * P-Called-Party-ID



-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455-4.2-1]

* To

- -If the To header field in the request did not contain a tag, the URI in the To header field in the response MUST equal the URI in the To header field. [RFC3261-8,2-42]
- -If the To header field in the request did not contain a tag, the UAS MUST add a tag to the To header field in the response. [RFC3261-8.2-43]

* Via

- -The Via header field values in the response MUST equal the Via header field values in the request and MUST maintain the same ordering. [RFC3261-8.2-39][RFC3261-8.2-40]
- -If the host portion of the "sent-by" parameter contains a domain name, or if it contains an IP address that differs from the packet source address, the server MUST add a "received" parameter to that Via header field value.[RFC3261-18.2-5]
- -The "received" parameter MUST contain the source address from which the packet was received.[RFC3261-18.2-6]
- -The response MUST be sent to the address in the "received" parameter, using the port indicated in the "sent-by" value, or using port 5060 if none is specified explicitly.[RFC3261-18.2-13]

3.17 generic 3XX-6XX

Generic judgement items for 3XX-6XX response.

See generic_sip_message

- -The empty line MUST be present even if the message-body is not. [RFC3261-7-2]
- Header fields:
 - * Call-ID

-The Call-ID header field of the response MUST equal the Call-ID header field of the request.[RFC3261-8,2-37]

* Content-length

-If no body is present in a message, then the Content-Length header



field value MUST be set to zero.[RFC3261-20.14-3]

* CSeq

-The CSeq header field of the response MUST equal the CSeq field of the request.[RFC3261-8.2-38]

* From

-The From field of the response MUST equal the From header field of the request.[RFC3261-8.2-36]

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455-4.2-1]

* To

- -If a request contained a To tag in the request, the To header field in the response MUST equal that of the request. [RFC3261-8.2-41]
- -If the To header field in the request did not contain a tag, the URI in the To header field in the response MUST equal the URI in the To header field. [RFC3261-8.2-42]
- -If the To header field in the request did not contain a tag, the UAS MUST add a tag to the To header field in the response. [RFC3261-8.2-43]
- -The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261-8.2-44]

* Via

- -The Via header field values in the response MUST equal the Via header field values in the request and MUST maintain the same ordering. [RFC3261-8.2-39][RFC3261-8.2-40]
- -If the host portion of the "sent-by" parameter contains a domain name, or if it contains an IP address that differs from the packet source address, the server MUST add a "received" parameter to that Via header field value.[RFC3261-18.2-5]
- -The "received" parameter MUST contain the source address from which the packet was received.[RFC3261-18.2-6]
- -The response MUST be sent to the address in the "received" parameter, using the port indicated in the "sent-by" value, or using port 5060 if none is specified explicitly.[RFC3261-18.2-13]

3.18 generic_ACK-non2XX



Generic judgement items for ACK-non2XX request.

See generic_sip_message

- -The empty line MUST be present even if the message-body is not. [RFC3261-7-2]
- -The ACK MUST be sent to the same address, port, and transport to which the original request was sent.[RFC3261-17.1-23]
- -The ACK request constructed by the client transaction MUST contain values for the Call-ID, From, and Request-URI that are equal to the values of those header fields in the request passed to the transport by the client transaction. [RFC3261-17.1-32]

- Request-Line:

- -The Request-URI MUST NOT contain unescaped space control characters. [RFC3261-7.1-1]
- -The Request-URI MUST NOT be enclosed in "<>". [RFC3261-7.1-2]

- Header fields:

- -SIP request MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via header fields. [RFC3261-8.1-1]
- -Require and Proxy-Require MUST NOT be used in a SIP CANCEL request, or in an ACK request sent for a non-2xx response. [RFC3261-8.2-18]

* Content-length

-If no body is present in a message, then the Content-Length header field value MUST be set to zero.[RFC3261-20.14-3]

* CSeq

- -The Cseq method MUST match the method of Request-Line in the request. [RFC3261-8.1-14]
- -The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261-8.1-15][RFC3261-20.16-1]
- -The sequence number value in the CSeq header field MUST be less than 2**31. [RFC3261-8.1-16]
- -The CSeq header field in the ACK MUST contain the same value for the sequence number as was present in the original request.

 [RFC3261-17.1-36]
- -The method parameter MUST be equal to "ACK".[RFC3261-17.1-37]

* Max-Forwards



- -A UAC MUST insert a Max-Forwards header field into each request it originates.[RFC3261-8.1-17]
- -The Max-Forwards header field value SHOULD be 70.[RFC3261-8.1-18]

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455-4.2-1]

* Route

-The Route header fields MUST appear in the ACK if the INVITE request whose response is being acknowledged had Route header fields. [RFC3261-17.1-38]

* To

-The To header field in the ACK MUST equal the To header field in the response being acknowledged.[RFC3261-17.1-33]

* Via

- -A UAC MUST insert a Via into that request. [RFC3261-8.1-19]
- -The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261-8.1-20]
- -The Via header field value MUST contain a branch parameter. [RFC3261-8.1-21]
- -The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261-8.1-23]
- -The ACK MUST contain a single Via header field.[RFC3261-17.1-34]
- -The single Via header field MUST be equal to the top Via header field of the original request. [RFC3261-17.1-35]

[AKA]

-The protected server port and the respective contact address SHALL be included in the Via header entry relating to the UE if the has not obtained a GRUU and IMS AKA is being used.[TS24229-5.1-356]

[Digest]

-UE SHALL populate the Via header field of the request with the port value of an unprotected port and the respective contact address where the UE expects to receive responses to the request if the has not obtained a GRUU and SIP digest without TLS is being used.[TS24229-5.1-358]

3.19 generic_OPTIONS

Generic judgement items for OPTIONS request.



See generic_sip_message

-The empty line MUST be present even if the message-body is not. [RFC3261-7-2]

- Request-Line:

- -The Request-URI MUST NOT contain unescaped space control characters. [RFC3261-7.1-1]
- -The Request-URI MUST NOT be enclosed in "<>". [RFC3261-7.1-2]
- -The initial Request-URI of the message SHOULD be set to the value of the URI in the To field.[RFC3261-8.1-2]

- Header fields:

-SIP request MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via header fields. [RFC3261-8.1-1]

[AKA]

-These requests MUST also have both a Require and Proxy-Require header fields with the value "sec-agree".[RFC3329-2.3-16]

[Digest]

-Security-Client, Security-Verify header field and both a Require and Proxy-Require header fields with the value "sec-agree" SHALL not be included in any SIP messages if SIP digest without TLS is used. [TS24229-5.1-363]

*Accept

-An Accept header field SHOULD be included to indicate the type of message body the UAC wishes to receive in the response. [RFC3261-11.1-1]

* Content-length

-If no body is present in a message, then the Content-Length header field value MUST be set to zero.[RFC3261-20.14-3]

* CSeq

- -The Cseq method MUST match the method of Request-Line in the request. [RFC3261-8.1-14]
- -The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261-8.1-15][RFC3261-20.16-1]
- -The sequence number value in the CSeq header field MUST be less than 2**31. [RFC3261-8.1-16]



* From

-The From field MUST contain a new "tag" parameter, chosen by the UAC. [RFC3261-8.1-9]

* Max-Forwards

- -A UAC MUST insert a Max-Forwards header field into each request it originates. [RFC3261-8.1-17]
- -The Max-Forwards header field value SHOULD be 70.[RFC3261-8.1-18]

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455-4.2-1]

* P-Preferred-Identity

-The P-Preferred-Identity header field SHALL be used as the public user identity for the request if a P-Preferred-Identity was included. [TS24229-5.1-378]

[AKA]

-The default public user identity for the security association SHALL be used as the public user identity for the request if no P-Preferred-Identity was included.[TS24229-5.1-379]

* Route

- -A proper preloaded Route header value SHALL be built in Route header for all new dialog and standalone transactions.[TS24229-5.1-398]
- -A list of Route header values made out of the P-CSCF URI containing the IP address or the FQDN learnt through the P-CSCF discovery procedure SHALL be built in Route header. [TS24229-5.1-400]
- -A list of Route header values made out of the values received in the Service-Route header field saved from the 200 (OK) response to the last registration or re-registration of the public user identity with associated contact address SHALL be built in Route header. [TS24229-5.1-404]
- -If the request contains a Route header field, the request SHOULD be sent to the locations derived from its topmost value.[RFC3261-8.1-38]

[AKA]

-A list of Route header values made out of the P-CSCF port containing the protected server port learned during the registration procedure SHALL be built in Route header. [TS24229-5.1-402]

[Digest]

-A list of Route header values made out of the P-CSCF port containing the unprotected server port learned during the registration procedure



SHALL be built in Route header. [TS24229-5.1-403]

* Security-Verify [AKA]

-A subsequent SIP requests MUST contain a Security-Verify header field that mirrors the server's list received previously in the Security-Server header field. [RFC3329-2.3-15]

* To

-A request outside of a dialog MUST NOT contain a To tag. [RFC3261-8.1-7]

* Via

- -A UAC MUST insert a Via into that request. [RFC3261-8.1-19]
- -The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261-8.1-20]
- -The Via header field value MUST contain a branch parameter. [RFC3261-8.1-21]
- -The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261-8.1-23]
- -The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261-18.1-7]

[AKA]

-The protected server port and the respective contact address SHALL be included in the Via header entry relating to the UE if the has not obtained a GRUU and IMS AKA is being used.[TS24229-5.1-356]

[Digest]

-UE SHALL populate the Via header field of the request with the port value of an unprotected port and the respective contact address where the UE expects to receive responses to the request if the has not obtained a GRUU and SIP digest without TLS is being used.[TS24229-5.1-358]

- Security Association behavior [AKA]

-All the subsequent SIP requests sent by the client to that server SHOULD make use of the security mechanism initiated in the previous step.[RFC3329-2.3-14]

3.20 generic_200-OPTIONS

Generic judgement items for 200-OPTIONS response.



-TUs SHOULD respond immediately to non-INVITE requests.[RFC3261-17.1-1]

- Header fields:

-Allow, Accept, Accept-Encoding, Accept-Language, and Supported header fields SHOULD be present in a 200 (OK) response to an OPTIONS request. [RFC3261-11.2-2]

* Allow

- -All UAs MUST support the OPTIONS method.[RFC3261-11-1]
 -A IIA that supports INVITE MUST also support ACK_CANCEL and
- -A UA that supports INVITE MUST also support ACK, CANCEL and BYE. [RFC3261-13.1-1]

*Allow-Events

-Any node implementing one or more event packages SHOULD include an appropriate "Allow-Events" header indicating all supported events in all methods which initiate dialogs and their responses and OPTIONS responses.[RFC3265-3.3-5]

* Call-ID

-The Call-ID header field of the response MUST equal the Call-ID header field of the request.[RFC3261-8.2-37]

* Content-Encoding

-If the body has not undergone any encoding such as compression, then Content-Encoding MUST be omitted. [RFC3261-7.4-3]

* Content-Type

- -The Internet media type of the message body MUST be given by the Content-Type header field.[RFC3261-7.4-1]
- -The Content-Type header field MUST be present if the body is not empty.[RFC3261-20.15-1]

* CSeq

-The CSeq header field of the response MUST equal the CSeq field of the request.[RFC3261-8.2-38]

* From

-The From field of the response MUST equal the From header field of the request.[RFC3261-8.2-36]



* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455-4.2-1]

* To

- -If the To header field in the request did not contain a tag, the URI in the To header field in the response MUST equal the URI in the To header field. [RFC3261-8,2-42]
- -If the To header field in the request did not contain a tag, the UAS MUST add a tag to the To header field in the response. [RFC3261-8.2-43]

* Via

- -The Via header field values in the response MUST equal the Via header field values in the request and MUST maintain the same ordering.[RFC3261-8.2-39][RFC3261-8.2-40]
- -If the host portion of the "sent-by" parameter contains a domain name, or if it contains an IP address that differs from the packet source address, the server MUST add a "received" parameter to that Via header field value.[RFC3261-18.2-5]
- -The "received" parameter MUST contain the source address from which the packet was received.[RFC3261-18.2-6]
- -The response MUST be sent to the address in the "received" parameter, using the port indicated in the "sent-by" value, or using port 5060 if none is specified explicitly.[RFC3261-18.2-13]

- Bodies fields:

- -The SDP payloads SHALL not be encrypted. [TS24229-6.1-1]
- -Only SDP payload SHALL be contained in SIP messages when the SDP payload must be included in the message.[TS24229-6.1-3]
- -If the types include one that can describe media capabilities, the UAS SHOULD include a body in the response for that purpose. [RFC3261-11.2-4]
- -The Session Description Protocol MUST be supported by all user agents as a means to describe sessions.[RFC3261-13.2-12]
- -Whitespace MUST NOT be used on either side of the "=" sign. [RFC4566-5-2]
- -v,o,s,(c),t,m,(c) lines are REQUIRED in the SDP message.
- (c line MUST included session level information or all of media information) [RFC4566-5-3]
- -all MUST appear in exactly the following order:
- $v_{0,0,s,(i),(u),(e),(p),(c),(b),t,(r),(z),(k),(a),m,(i),(c),(b),(k),(a)}$
- (the line enclosed in "O" is OPTIONAL)[RFC4566-5-4]



* o line

-For both IP4 and IP6, the fully qualified domain name is the form that SHOULD be given unless this is unavailable, in which case the globally unique address MAY be substituted.[RFC4566-5.2-3]

* s line

- -There MUST be one and only one "s=" field per session description. [RFC4566-5.3-1]
- -The "s=" field MUST NOT be empty. [RFC4566-5.3-2]
- -If a session has no meaningful name, the value "s= " SHOULD be used. [RFC4566-5.3-4]

* c line

- -A session description MUST contain either at least one "c=" field in each media description or a single "c=" field at the session level. [RFC4566-5.7-1]
- -A session-level "c=" field MUST NOT specify Multiple addresses or "c=" lines.[RFC4566-5.7-7]

* b line

-The proposed bandwidth for each media stream utilizing the "b=" media descriptor and the "AS" bandwidth modifier in the SDP SHALL be specified for "video" and "audio" media types that utilize the RTP/RTCP.[TS24229-6.1-7]



4 Test Profile: User Equipment operation (IMS-AKA)

4.1 Registration

4.1.1 UE-RG-B-1-AKA - Initial registration and subscription for the registration state event package (SIP default port values)

[NAME]

UE-RG-B-1-AKA - Initial registration and subscription for the registration state event package (SIP default port values)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

- (1) To verify that the UEa1 properly sends the initial REGISTER request to the SIP default port values and registers its public user identity when the UEa1 does not receive any specific port information during the P-CSCF discovery procedure, or if the UE was pre-configured with the P-CSCF's IP address or domain name and was unable to obtain specific port information.
- (2) To verify that the UEa1 properly subscribes to the reg event package for the public user identity registered at the user's registrar and performs upon receipt of a NOTIFY request on the dialog which was generated during subscription to the reg event package.

[REFERENCE]

TS24.229 5.1.1.1

TS24.229 5.1.1.2.1

TS24.229 5.1.1.2.2

TS24.229 5.1.1.3

TS24.229 5.1.1.5.1

TS33.203 6

RFC3680 4.6

RFC36807

[REQUIREMENT]



NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com

private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

 UEa1(NUT)
 :
 3ffe:501:ffff:1000::1000

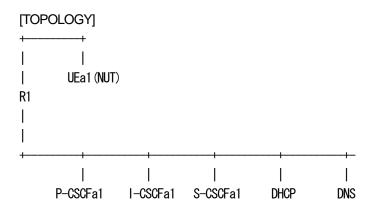
 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50



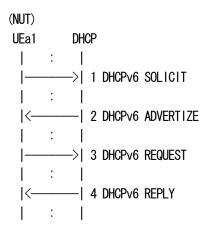
[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

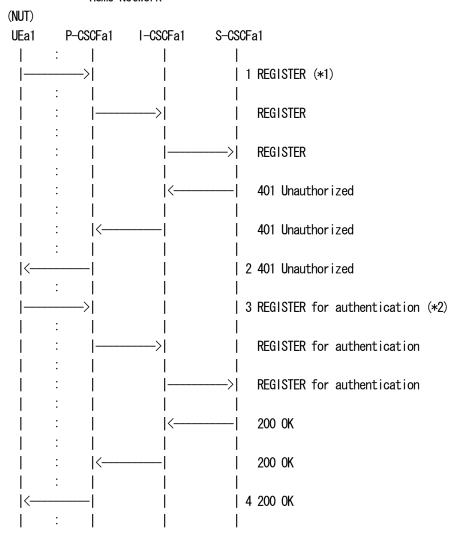
B. DHCPv6



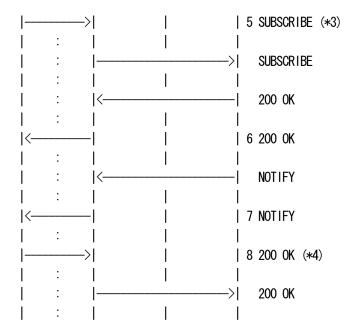


[PROCEDURE]

Home Network







1 NUT sends REGISTER

2 NUT receives 401 Unauthorized

3 NUT sends REGISTER for authentication

4 NUT receives 200 OK

5 NUT sends SUBSCRIBE

6 NUT receives 200 OK

7 NUT receives NOTIFY

8 NUT sends 200 OK

=== Message example ===

1. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashds7

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa3

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com",

nonce="", uri="sip:under.test.com", response=""

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=23456789; spi-s=12345678;

port-c=2468; port-s=1357 Require: sec-agree Proxy-Require: sec-agree

CSeq: 1 REGISTER



Supported: path Content-Length: 0

2. 401 Unauthorized P-CSCF -> NUT

SIP/2.0 401 Unauthorized

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashds7

WWW-Authenticate: Digest realm="under.test.com", nonce="I1U8vpY3qJhiuZNrke/

NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5

From: <sip:UEa1_public_1@under.test.com>;tag=4fa3 To: <sip:UEa1_public_1@under.test.com>;tag=5ef4

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

CSeq: 1 REGISTER
Content-Length: 0

3. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds8

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa3

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", algorithm=AKAv1-MD5, nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM",

uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=23456789; spi-s=12345678;

port-c=2468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Require: sec-agree Proxy-Require: sec-agree CSeq: 2 REGISTER Supported: path Content-Length: 0

4. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds8

From: <sip:UEa1_public_1@under.test.com>;tag=4fa3
To: <sip:UEa1_public_1@under.test.com>;tag=5ef5



Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Path: <sip:term@p.a1.under.test.com;lr>

Service-Route: <sip:orig@s.a1.under.test.com;lr>

P-Associated-URI: <sip:UEa1_public_1@under.test.com>

CSeq: 2 REGISTER

Date: Wed, 11 July 2001 08:49:37 GMT

Content-Length: 0

5. SUBSCRIBE NUT -> P-CSCF

SUBSCRIBE sip:UEa1_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsa1

Max-Forwards: 70

Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=31415

To: <sip:UEa1_public_1@under.test.com>
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

Require: sec-agree Proxy-Require: sec-agree CSeq: 1 SUBSCRIBE Allow-Events: reg

Event: reg

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Expires: 600000

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Content-Length: 0

6. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsa1

Record-Route: <sip:p.a1.under.test.com:10001;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=31415
To: <sip:UEa1_public_1@under.test.com>;tag=151170

Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE Allow-Events: reg Expires: 600000

Contact: <sip:s.a1.under.test.com>

Content-Length: 0



```
7. NOTIFY P-CSCF -> NUT
NOTIFY sip:UEa1 public 1@node.under.test.com:1357 SIP/2.0
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.1,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.1;received=3ffe:501:ffff:100::30
Max-Forwards: 69
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 1 NOTIFY
Contact: <sip:s.a1.under.test.com>
Subscription-State: active; expires=600000
Event: reg
Content-Type: application/reginfo+xml
Content-Length: (...)
<?xml version="1.0"?>
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="0" state="full">
     <registration aor="sip:UEa1_public_1@under.test.com" id="a7" state="active">
         <contact id="76" state="active" event="registered">
             <uri>sip:UEa1_public_1@node.under.test.com</uri>
         </contact>
     </registration>
</reginfo>
8, 200 OK NUT -> P-CSCF
SIP/2.0 200 OK
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.1;received=3ffe:501:ffff:100::10,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.1;received=3ffe:501:ffff:100::30
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 1 NOTIFY
Content-Length: 0
[OBSERVABLE RESULTS]
*1: 1 REGISTER from NUT to P-CSCF
      See generic_REGISTER
*2: 3 REGISTER for authentication from NUT to P-CSCF
```



See generic_Auth_REGISTER

*3: 5 SUBSCRIBE from NUT to P-CSCF

See generic_SUBSCRIBE

*4: 8 NOTIFY 200 OK from NUT to P-CSCF

See generic_200-NOTIFY

4.1.2 UE-RG-B-2-AKA - User-initiated reregistration

[NAME]

UE-RG-B-2-AKA - User-initiated reregistration

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

- (1) To verify that the UEa1 properly reregisters an already registered public user without a challenge response when half of the time has expired when the previous registration was for 1200 seconds or less.
- (2) To verify that the UEa1 properly protects the REGISTER request using a security association, established as a result of an earlier registration.

[REFERENCE]

TS24.229 5.1.1.4.1

TS24.229 5.1.1.4.3

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com



contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

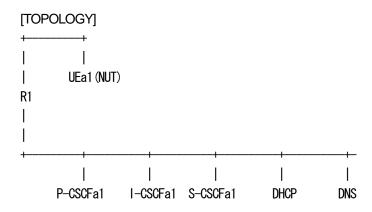
[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

Router(R1) : 3ffe:501:ffff:1000::1
P-CSCFa1 : 3ffe:501:ffff:100::10
I-CSCFa1 : 3ffe:501:ffff:100::20
S-CSCFa1 : 3ffe:501:ffff:100::30
DNS : 3ffe:501:ffff:100::40
DHCP : 3ffe:501:ffff:100::50



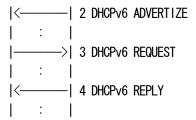
[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

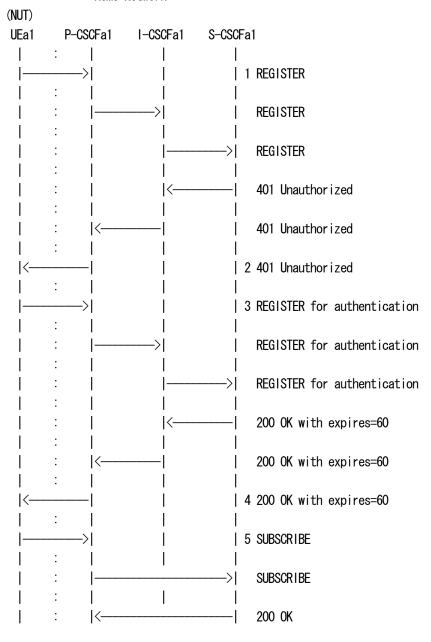
B. DHCPv6 (NUT) UEa1 DHCP | : | |----->| 1 DHCPv6 SOLICIT



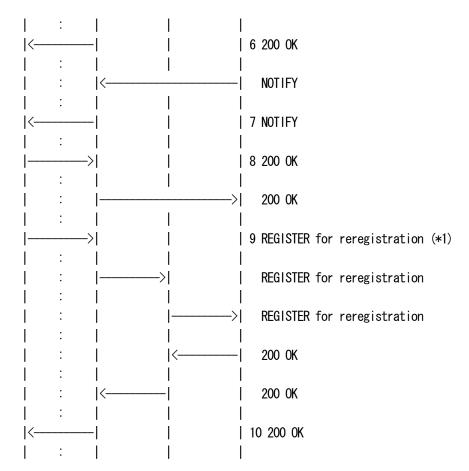


[PROCEDURE]

Home Network







- 1 NUT sends REGISTER
- 2 NUT receives 401 Unauthorized
- 3 NUT sends REGISTER for authentication
- 4 NUT receives 200 OK
- 5 NUT sends SUBSCRIBE
- 6 NUT receives 200 OK
- 7 NUT receives NOTIFY
- 8 NUT sends 200 OK
- 9 NUT sends REGISTER for reregistration
- 10 NUT receives 200 OK

=== Message example ===

As regards the message 1-3, please refer to the message 1-3 in UE-RG-B-1-AKA.

4. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds8

From: <sip:UEa1_public_1@under.test.com>;tag=4fa3
To: <sip:UEa1_public_1@under.test.com>;tag=5ef5



Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=60

Path: <sip:term@p.a1.under.test.com;lr>

Service-Route: <sip:orig@s.a1.under.test.com;lr>

P-Associated-URI: <sip:UEa1_public_1@under.test.com>

CSeq: 2 REGISTER

Date: Wed, 11 July 2001 08:49:37 GMT

Content-Length: 0

As regards the message 5-8, please refer to the message 5-8 in UE-RG-B-1-AKA.

9. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds9

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", uri="sip:under.test.com",

response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=33456789; spi-s=22345678;

port-c=3468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Require: sec-agree Proxy-Require: sec-agree CSeq: 3 REGISTER Supported: path Content-Length: 0

10. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds9

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4 To: <sip:UEa1_public_1@under.test.com>;tag=5ef6 Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Path: <sip:term@p.a1.under.test.com;lr>

Service-Route: <sip:orig@s.a1.under.test.com;lr>



P-Associated-URI: <sip:UEa1_public_1@under.test.com>

CSeq: 3 REGISTER

Date: Wed, 11 July 2001 08:50:08 GMT

Content-Length: 0

[OBSERVABLE RESULTS]

*1: 9 REGISTER for reregistration from NUT to P-CSCF

See generic_re_REGISTER

4.1.3 UE-RG-B-3-AKA - Network-initiated re-authentication

[NAME]

UE-RG-B-3-AKA - Network-initiated re-authentication

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

- (1) To verify that the UEa1 properly receives a NOTIFY request carrying information related to the reg event package and answers to a network-initiated re-authentication on the dialog.
- (2) To verify that the UEa1 properly performs the authentication procedure when received a 401 (Unauthorized) response to the REGISTER request for reregistration.

[REFERENCE]

TS24.229 5.1.1.4.1

TS24.229 5.1.1.4.2

TS24.229 5.1.1.5A

TS33.203 6.1.4

[REQUIREMENT]

NONE



[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

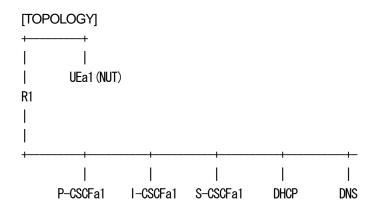
 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50



[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

B. DHCPv6

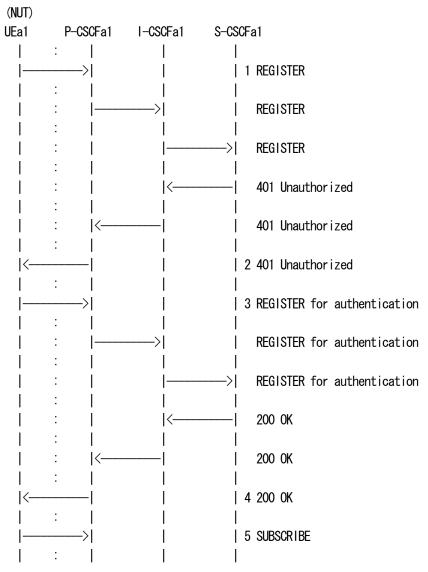
(NUT)

UEa1 DHCP



[PROCEDURE]

Home Network





:	> SUBSCRIBE
: -	200 OK
: <	 6 200 0K
: : <	 NOTIFY
: \	 7 NOTIFY
: >	 8 200 0K
i : i	İ
: \ 	NOTIFY for re-authentication
i <i< td=""><td>9 NOTIFY for re-authentication</td></i<>	9 NOTIFY for re-authentication
: 	 10 200 0K (*1)
	 > 200 0K
: 	 11 REGISTER for reregistration (*2)
; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	 REGISTER for reregistration
	I
	> REGISTER for reregistration
:	401 Unauthorized
: -	401 Unauthorized
: <	 12 401 Unauthorized
: 	 13 REGISTER for authentication (*3)
	i
: 	REGISTER for authentication
i i i —	REGISTER for authentication
·	 200 0K
:	I



	:	<		1	200	0K
	:					
 <				14	200	0K
1		1	1	1		

1 NUT sends REGISTER

2 NUT receives 401 Unauthorized

3 NUT sends REGISTER for authentication

4 NUT receives 200 OK

5 NUT sends SUBSCRIBE

6 NUT receives 200 OK

7 NUT receives NOTIFY

8 NUT sends 200 OK

9 NUT receives NOTIFY for re-authentication

10 NUT sends 200 OK

11 NUT sends REGISTER for reregistration

12 NUT receives 401 Unauthorized

13 NUT sends REGISTER for authentication

14 NUT receives 200 OK

15 NUT receives NOTIFY

16 NUT sends 200 OK

=== Message example ===

As regards the message 1-8, please refer to the message 1-8 in UE-RG-B-1-AKA.

9. NOTIFY P-CSCF -> NUT

NOTIFY sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.2,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.2;received=3ffe:501:ffff:100::30

Max-Forwards: 69

From: <sip:UEa1_public_1@under.test.com>;tag=151170

To: <sip:UEa1_public_1@under.test.com>;tag=31415

Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

CSeq: 2 NOTIFY

Subscription-State: active; expires=600000

Event: reg

Content-Type: application/reginfo+xml Contact: <sip:s.a1.under.test.com>

Content-Length: (...)

<?xml version="1.0"?>

<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="1" state="full">
 <registration aor="sip:UEa1_public_1@under.test.com" id="a7" state="active">

76



10. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.2;received=3ffe:501:ffff:100::10,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.2;received=3ffe:501:ffff:100::30

From: <sip:UEa1_public_1@under.test.com>;tag=151170 To: <sip:UEa1_public_1@under.test.com>;tag=31415 Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

CSeq: 2 NOTIFY Content-Length: 0

11. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds9

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

 $\label{lem:commutation} Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", uri="sip:under.test.com", nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", uri="sip:under.test.com", nonce="under.test.com", no$

response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=33456789; spi-s=22345678;

port-c=3468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Require: sec-agree Proxy-Require: sec-agree CSeq: 3 REGISTER Supported: path Content-Length: 0

12. 401 Unauthorized P-CSCF -> NUT

SIP/2.0 401 Unauthorized

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds9

WWW-Authenticate: Digest realm="under.test.com",



nonce="J2U8vpY3qJhiuZNrke/ObponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4

To: <sip:UEa1_public_1@under.test.com>;tag=5ef6

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

CSeq: 3 REGISTER

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

Content-Length: 0

13. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds10

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", algorithm=AKAv1-MD5, nonce="J2U8vpY3qJhiuZNrke/ObponGSCcLm5iR+WCRkWYoM",

uri="sip:under.test.com", response="7729fae49393a05397450978507c4ef2"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=33456789; spi-s=22345678;

port-c=3468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

Require: sec-agree Proxy-Require: sec-agree CSeq: 4 REGISTER Supported: path

14. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Content-Length: 0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds10

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4
To: <sip:UEa1_public_1@under.test.com>;tag=5ef7
Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

CSeq: 4 REGISTER

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Path: <sip:term@p.a1.under.test.com;lr>

Service-Route: <sip:orig@s.a1.under.test.com;lr>

P-Associated-URI: <sip:UEa1 public 1@under.test.com>

Date: Wed, 11 July 2001 08:49:37 GMT

Content-Length: 0



[OBSERVABLE RESULTS]

*1: 10 NOTIFY 200 OK from NUT to P-CSCF

See generic_200-NOTIFY

*2: 11 REGISTER for reregistration from NUT to P-CSCF

See generic_re_REGISTER

The UE SHALL use the expiry attribute within the <contact> sub-element that the UE registered to adjust the expiration time for that public user identity. [TS24229-5.1-278]

*3: 13 REGISTER for authentication

See generic_Auth_REGISTER

The protected server port value for the UDP SHALL be included in Via header field.[TS24229-5.1-189]

4.1.4 UE-RG-B-4-AKA - User-initiated deregistration

[NAME]

UE-RG-B-4-AKA - User-initiated deregistration

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

- (1) To verify that the UEa1 properly deregisters a public user identity that it has previously registered with its contact address and deletes the security associations.
- (2) To verify that the UEa1 properly protects the REGISTER request using a security association established as a result of an earlier registration.
- (3) To verify that the UEa1 properly considers subscription to the reg event package cancelled.



(i.e. as if the UE had sent a SUBSCRIBE request with an Expires header containing a value of zero).

[REFERENCE]

TS24.229 5.1.1.1 TS24.229 5.1.1.6.1 TS24.229 5.1.1.6.2

RFC3261 10.2.2

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCF : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

 UEa1(NUT)
 : 3ffe:501:ffff:1000::1000

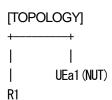
 Router(R1)
 : 3ffe:501:ffff:1000::1

 P-CSCFa1
 : 3ffe:501:ffff:100::20

 I-CSCFa1
 : 3ffe:501:ffff:100::30

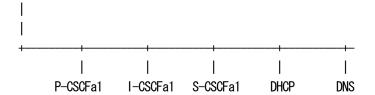
 S-CSCFa1
 : 3ffe:501:ffff:100::40

 DNS
 : 3ffe:501:ffff:100::50



80

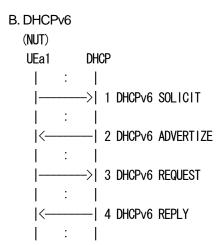




[INITIALIZATION]

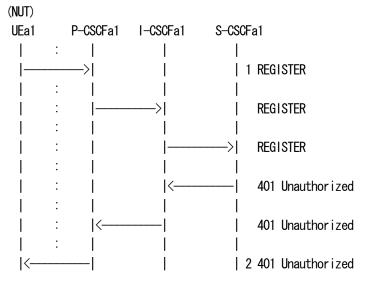
Set up IP Address using A or B.

A. Router Advertisement

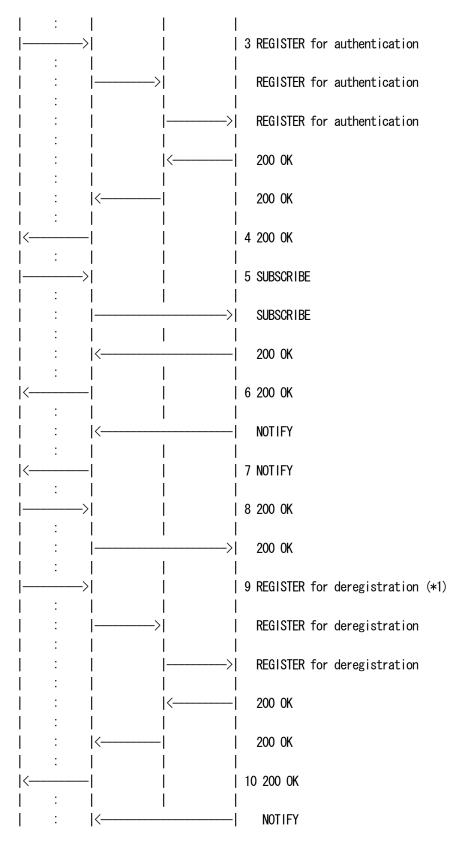


[PROCEDURE]

Home Network









			1
	:		
<			11 NOTIFY with SAs
	:		
	:		12 $<$ No response or ICMP error $>$ (*2)
	:		
	:	<	 NOTIFY
	:		
<			13 NOTIFY with no SAs
	:		
	:		14 <no any="" or="" response="" responses<="" td=""></no>
	:		except 1XX/2XX response> (*3)

- 1 NUT sends REGISTER
- 2 NUT receives 401 Unauthorized
- 3 NUT sends REGISTER for authentication
- 4 NUT receives 200 OK
- 5 NUT sends SUBSCRIBE
- 6 NUT receives 200 OK
- 7 NUT receives NOTIFY
- 8 NUT sends 200 OK
- 9 NUT sends REGISTER for deregistration
- 10 NUT receives 200 OK
- 11 Tester sends NOTIFY with SAs
- 12 <No response or ICMP error>
- 13 Tester sends NOTIFY with no SAs
- 14 <No response or any response except 1XX/2XX response>

=== Message example ===

As regards the message 1-8, please refer to the message 1-8 in UE-RG-B-1-AKA.

9. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds9

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=0

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com",

nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", uri="sip:under.test.com",

response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=33456789; spi-s=22345678;



port-c=3468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Supported: path
Require: sec-agree

Proxy-Require: sec-agree CSeq: 3 REGISTER Content-Length: 0

10. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds9

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4
To: <sip:UEa1_public_1@under.test.com>;tag=5ef6

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=0

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

CSeq: 3 REGISTER P-Associated-URI:

Date: Wed, 11 July 2001 08:49:37 GMT

Content-Length: 0

11. NOTIFY P-CSCF -> NUT

NOTIFY sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.2,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.2;received=3ffe:501:ffff:100::30

Max-Forwards: 69

From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415

Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

CSeq: 2 NOTIFY

Contact: <sip:s.a1.under.test.com>

Subscription-State: terminated;reason=noresource

Event: reg

Content-Type: application/reginfo+xml

Content-Length: (...)

<?xml version="1.0"?>

<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="1" state="full">

<registration aor="sip:UEa1_public_1@under.test.com" id="a7" state="terminated">

<contact id="76" state="terminated" event="unregistered">

<uri>sip:UEa1_public_1@node.under.test.com</uri>

</contact>



```
</registration> </reginfo>
```

12. <No response or ICMP error>

```
13. NOTIFY P-CSCF -> NUT
NOTIFY sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.3,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.3;received=3ffe:501:ffff:100::30
Max-Forwards: 69
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 2 NOTIFY
Contact: <sip:s.a1.under.test.com>
Subscription-State: terminated;reason=noresource
Event: reg
Content-Type: application/reginfo+xml
Content-Length: (...)
<?xml version="1.0"?>
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="2" state="full">
     <registration aor="sip:UEa1_public_1@under.test.com" id="a7" state="terminated">
       <contact id="76" state="terminated" event="unregistered">
            <uri>sip:UEa1_public_1@node.under.test.com</uri>
       </contact>
     </registration>
   </reginfo>
14. <No response or any responses except 1XX/2XX response>
[OBSERVABLE RESULTS]
*1: 9 REGISTER for deregistration from NUT to P-CSCF
      See generic_de_REGISTER
*2: 12 No response or ICMP error
```

- Security behavior:



All registration details relating to the public user identity SHALL be removed when UE received the 200 (OK) response to the REGISTER request. [TS24229-5.1-310]

The security associations SHALL be deleted by UE if there are no more public user identities registered.[TS24229-5.1-311]

*3: 14 No response or any responses except 200 OK

- Security behavior:

The subscription to the reg event package SHALL be considered cancelled if all public user identities are deregistered and the security association is removed.[TS24229-5.1-312]

4.1.5 UE-RG-B-5-AKA - Network-initiated deregistration with rejected event

[NAME]

UE-RG-B-5-AKA - Network-initiated deregistration with rejected event

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

- (1) To verify that the UEa1 properly receives a NOTIFY request carrying information related to the reg event package, and answers to a network-initiated deregistration event on the dialog.
- (2) To verify that the UEa1 properly deletes the security associations towards the P-CSCFafter the server transaction pertaining to the received NOTIFY request terminates.

[REFERENCE]

TS24.229 5.1.1.7

[REQUIREMENT]

NONE

[PARAMETER(NUT)]



public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

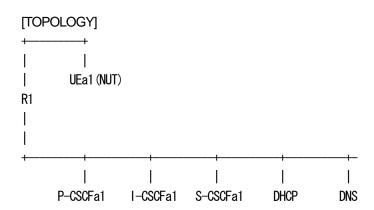
 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::40

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::50



[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

B. DHCPv6

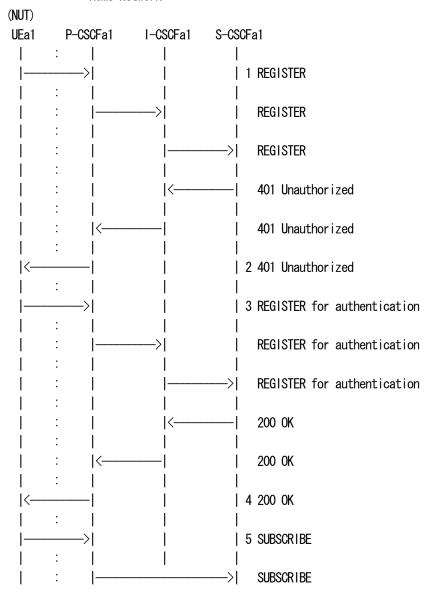
(NUT)

UEa1 DHCP

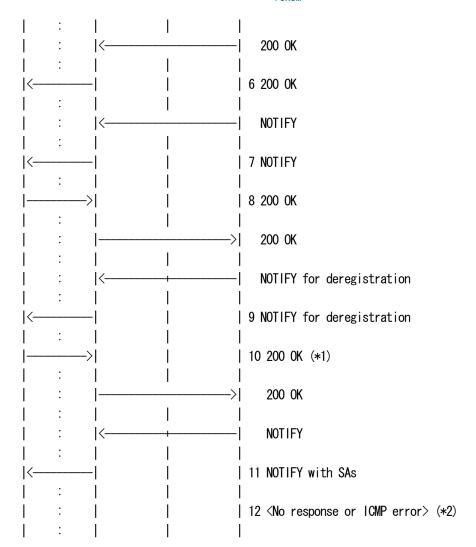


[PROCEDURE]

Home Network







- 1 NUT sends REGISTER
- 2 NUT receives 401 Unauthorized
- 3 NUT sends REGISTER for authentication
- 4 NUT receives 200 OK
- 5 NUT sends SUBSCRIBE
- 6 NUT receives 200 OK
- 7 NUT receives NOTIFY
- 8 NUT sends 200 OK
- 9 NUT receives NOTIFY for deregistration
- 10 NUT sends 200 OK
- 11 Tester sends NOTIFY with SAs
- 12 <No response or ICMP error>

=== Message example ===

As regards the message 1-8, please refer to the message 1-8 in UE-RG-B-1-AKA.



```
9. NOTIFY P-CSCF -> NUT
NOTIFY sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.2,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.2;received=3ffe:501:ffff:100::30
Max-Forwards: 69
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 2 NOTIFY
Contact: <sip:s.a1.under.test.com>
Subscription-State: terminated; reason=rejected
Event: reg
Content-Type: application/reginfo+xml
Content-Length: (...)
<?xml version="1.0"?>
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="1" state="full">
     <registration aor="sip:UEa1_public_1@under.test.com" id="a7" state="terminated">
         <contact id="76" state="terminated" event="rejected">
              <uri>sip:UEa1_public_1@node.under.test.com</uri>
         </contact>
     </registration>
</reginfo>
10. 200 OK NUT -> P-CSCF
SIP/2.0 200 OK
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.2;received=3ffe:501:ffff:100::10,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.2;received=3ffe:501:ffff:100::30
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 2 NOTIFY
Content-Length: 0
11. NOTIFY P-CSCF -> NUT
NOTIFY sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.3,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.3;received=3ffe:501:ffff:100::30
Max-Forwards: 69
```



```
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 3 NOTIFY
Contact: <sip:s.a1.under.test.com>
Subscription-State: terminated; reason=rejected
Event: reg
Content-Type: application/reginfo+xml
Content-Length: (...)
<?xml version="1.0"?>
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="2" state="full">
     <registration aor="sip:UEa1_public_1@under.test.com" id="a7" state="terminated">
         <contact id="76" state="terminated" event="rejected">
              <uri>sip:UEa1_public_1@node.under.test.com</uri>
         </contact>
     </registration>
</reginfo>
```

12. <No response or ICMP error>

[OBSERVABLE RESULTS]

*1: 10 NOTIFY 200 OK from NUT to P-CSCF

See generic_200-NOTIFY

*2: 12 No response or ICMP error

All dialogs related to those public user identities SHALL be relaesed when the event attribute is set to "rejected". [TS24229-5.1-343]

- Security Behavior:

The UE SHALL delete the security associations towards the P-CSCF if all <registration> element(s) have their state attribute set to "terminated". [TS24229-5.1-344]

The UE SHALL delete the security associations towards the P-CSCF if each <registration> element that was registered by this UE has either the state attribute set to "terminated", or the state attribute set to "active" and the state attribute within the <contact> element belonging to this UE set to "terminated".[TS24229-5.1-345]



The security associations towards the P-CSCF SHALL be deleted after the server transaction pertaining to the received NOTIFY request terminates. [TS24229-5.1-346]

4.1.6 UE-RG-B-6-AKA - Netowrk-initiated deregistration with deactivated event

[NAME]

UE-RG-B-6-AKA - Network-initiated deregistration with deactivated event

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

- (1) To verify that the UEa1 properly receives a NOTIFY request carrying information related to the reg event package and answers to a network-initiated deregistration event on the dialog.
- (2) To verify that the UEa1 properly delete the security associations towards the P-CSCF after the server transaction pertaining to the received NOTIFY request terminates.
- (3) To verify that the UEa1 properly starts the initial registration procedure in case of a "deactivated" event attribute.

[REFERENCE]

TS24.229 5.1.1.2.1

TS24.229 5.1.1.2.2

TS24.229 5.1.1.3

TS24.229 5.1.1.7

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com



contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

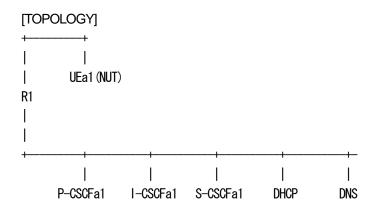
[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

Router(R1) : 3ffe:501:ffff:1000::1
P-CSCFa1 : 3ffe:501:ffff:100::20
I-CSCFa1 : 3ffe:501:ffff:100::20
S-CSCFa1 : 3ffe:501:ffff:100::30
DNS : 3ffe:501:ffff:100::40
DHCP : 3ffe:501:ffff:100::50



[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

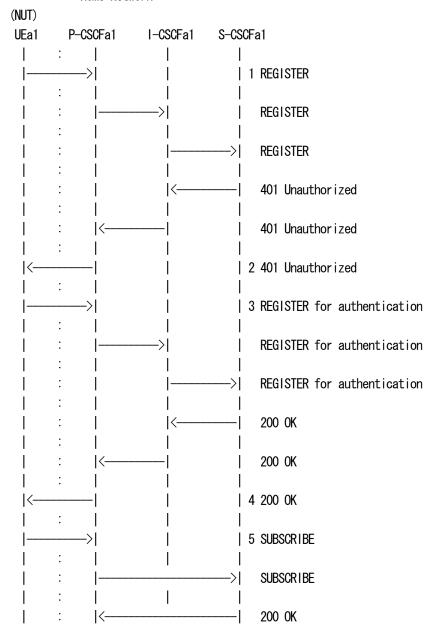
B. DHCPv6 (NUT) UEa1 DHCP | : | |------>| 1 DHCPv6 SOLICIT



|<-----| 2 DHCPv6 ADVERTIZE | : | |----->| 3 DHCPv6 REQUEST | : | |<-----| 4 DHCPv6 REPLY

[PROCEDURE]

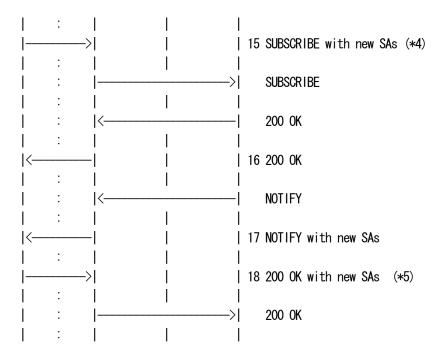
Home Network





1 . 1 . 1	
 	6 200 OK
	NOTIFY
:	7 NOTIFY
	8 200 OK
:	200 OK
	NOTIFY for deregistration
:	9 NOTIFY for deregistration
	10 200 OK (*1)
:	200 OK
	11 REGISTER with no SAs (*2)
: >	REGISTER
:	REGISTER
	401 Unauthorized
	401 Unauthorized
·	12 401 Unauthorized with no SAs
	13 REGISTER for authentication with temporary SAs (*3)
: >	REGISTER for authentication
	REGISTER for authentication
	200 OK
	200 OK
 	14 200 OK with new SAs





- 1 NUT sends REGISTER
- 2 NUT receives 401 Unauthorized
- 3 NUT sends REGISTER for authentication
- 4 NUT receives 200 OK
- 5 NUT sends SUBSCRIBE
- 6 NUT receives 200 OK
- 7 NUT receives NOTIFY
- 8 NUT sends 200 OK
- 9 NUT receives NOTIFY
- 10 NUT sends 200 OK
- 11 NUT sends REGISTER with no SAs
- 12 NUT receives 401 Unauthorized with no SAs
- 13 NUT sends REGISTER for authentication with temporary SAs
- 14 NUT receives 200 OK with new SAs
- 15 NUT sends SUBSCRIBE with new SAs
- 16 NUT receives 200 OK with new SAs
- 17 NUT receives NOTIFY with new SAs
- 18 NUT sends 200 OK with new SAs

=== Message example ===

As regards the message 1-8, please refer to the message 1-8 in UE-RG-B-1-AKA.

9. NOTIFY P-CSCF -> NUT

NOTIFY sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0



```
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.2,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.2;received=3ffe:501:ffff:100::30
Max-Forwards: 69
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 2 NOTIFY
Contact: <sip:s.a1.under.test.com>
Subscription-State: terminated;reason=deactivated
Event: reg
Content-Type: application/reginfo+xml
Content-Length: (...)
<?xml version="1.0"?>
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="1" state="full">
     <registration aor="sip:UEa1_public_1@under.test.com" id="a7" state="terminated">
         <contact id="76" state="terminated" event="deactivated">
              <uri>sip:UEa1_public_1@node.under.test.com</uri>
         </contact>
     </registration>
</reginfo>
10. 200 OK NUT -> P-CSCF
SIP/2.0 200 OK
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.2;received=3ffe:501:ffff:100::10,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.2;received=3ffe:501:ffff:100::30
From: <sip:UEa1 public 1@under.test.com>;tag=151170
To: <sip:UEa1 public 1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 2 NOTIFY
Content-Length: 0
11. REGISTER NUT -> P-CSCF
REGISTER sip:under.test.com SIP/2.0
Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashdt7
Max-Forwards: 70
From: <sip:UEa1_public_1@under.test.com>;tag=5fa3
To: <sip:UEa1_public_1@under.test.com>
Contact: <sip:UEa1 public 1@node.under.test.com>;expires=600000
Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com
Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", nonce="",
```



uri="sip:under.test.com", response=""

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=33456789; spi-s=22345678;

port-c=3468; port-s=1357

Require: sec-agree

Proxy-Require: sec-agree CSeq: 1 REGISTER Supported: path Content-Length: 0

12. 401 Unauthorized P-CSCF -> NUT

SIP/2.0 401 Unauthorized

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashdt7

WWW-Authenticate: Digest realm="under.test.com",

nonce="J2U8vpY3qJhiuZNrke/ObponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5

From: <sip:UEa1_public_1@under.test.com>;tag=5fa3
To: <sip:UEa1_public_1@under.test.com>;tag=6ef4
Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

CSeq: 1 REGISTER Content-Length: 0

13. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdt8

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=5fa3

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

 $\label{lem:commutation:decommended} Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", realm="under.test.com", algorithm=AKAv1-MD5, nonce="J2U8vpY3qJhiuZNrke/ObponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5, nonce="J2U8vpY3qJhiuZNrke/ObponGSCcLm5iR+WCRkWYoM", realm="under.test.com",

uri="sip:under.test.com", response="7729fae49393a05397450978507c4ef2"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=33456789; spi-s=22345678;

port-c=3468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

Require: sec-agree Proxy-Require: sec-agree CSeq: 2 REGISTER Supported: path Content-Length: 0



14. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdt8

From: <sip:UEa1_public_1@under.test.com>;tag=5fa3 To: <sip:UEa1_public_1@under.test.com>;tag=6ef5 Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Path: <sip:term@p.a1.under.test.com;lr>

Service-Route: <sip:orig@s.a1.under.test.com;lr>

CSeq: 2 REGISTER

P-Associated-URI: <sip:UEa1_public_1@under.test.com>

Date: Wed, 11 July 2001 08:49:37 GMT

Content-Length: 0

15. SUBSCRIBE NUT -> P-CSCF

SUBSCRIBE sip:UEa1_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsb1

Max-Forwards: 70

Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=41415

To: <sip:UEa1_public_1@under.test.com>

Require: sec-agree Proxy-Require: sec-agree

Call-ID: c89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE Allow-Events: reg

Event: reg

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

Expires: 600000

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Content-Length: 0

16. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsb1

Record-Route: <sip:p.a1.under.test.com:10001;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=41415
To: <sip:UEa1_public_1@under.test.com>;tag=251170

Call-ID: c89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE



```
Contact: <sip:s.a1.under.test.com>
Content-Length: 0
17. NOTIFY P-CSCF -> NUT
NOTIFY sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f82.1,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b56.1;received=3ffe:501:ffff:100::30
Max-Forwards: 69
From: <sip:UEa1_public_1@under.test.com>;tag=251170
To: <sip:UEa1_public_1@under.test.com>;tag=41415
Call-ID: c89rjhnedlrfjflslj40a222@under.test.com
CSeq: 1 NOTIFY
Contact: <sip:s.a1.under.test.com>
Subscription-State: active; expires=600000
Event: reg
Content-Type: application/reginfo+xml
Content-Length: (...)
<?xml version="1.0"?>
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="0" state="full">
     <registration aor="sip:UEa1_public_1@under.test.com" id="a7" state="active">
         <contact id="76" state="active" event="registered">
              <uri>sip:UEa1_public_1@node.under.test.com</uri>
         </contact>
     </registration>
</reginfo>
18. 200 OK NUT -> P-CSCF
SIP/2.0 200 OK
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f82.1;received=3ffe:501:ffff:100::10,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b56.1;received=3ffe:501:ffff:100::30
From: <sip:UEa1_public_1@under.test.com>;tag=251170
To: <sip:UEa1_public_1@under.test.com>;tag=41415
Call-ID: c89rjhnedlrfjflslj40a222@under.test.com
CSeq: 1 NOTIFY
Content-Length: 0
```

[OBSERVABLE RESULTS]

Allow-Events: reg Expires: 600000



*1: 10 NOTIFY 200 OK from NUT to P-CSCF

See generic_200-NOTIFY

*2: 11 REGISTER with no SAs from NUT to P-CSCF

See generic_REGISTER

- Security behavior:

The UE SHALL delete the security associations towards the P-CSCF if all <registration> element(s) have their state attribute set to "terminated". [TS24229-5.1-344]

The UE SHALL delete the security associations towards the P-CSCF if each <registration> element that was registered by this UE has either the state attribute set to "terminated", or the state attribute set to "active" and the state attribute within the <contact> element belonging to this UE set to "terminated".[TS24229-5.1-345]

*3: 13 REGISTER with temporary SAs from NUT to P-CSCF

See generic_Auth_REGISTER

*4: 15 SUBSCRIBE with new SAs from NUT to P-CSCF

See generic_SUBSCRIBE

The subscriber SHOULD retry immediately with a new subscription when the reason code indicates "deactivated".[RFC3265-3.2-22]

*5: 18 NOTIFY 200 OK with new SAs from NUT to P-CSCF

See generic_200-NOTIFY

4.1.7 UE-RG-B-7-AKA - Reception of 423 response to initial registration

[NAME]

UE-RG-B-7-AKA - Reception of 423 response to initial registration

[TARGET]

IMS User Equipment (NUT)



[PURPOSE]

To verify that UEa1 sends another REGISTER request populating the Expires header or the expires parameter with an expiration timer of at least the value received in the Min-Expires header of the 423 (Interval Too Brief) response.

[REFERENCE] TS24.229 5.1.1.2.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

 UEa1(NUT)
 :
 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::10

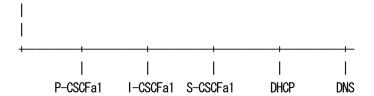
 I-CSCFa1
 : 3ffe:501:ffff:100::20

 S-CSCFa1
 : 3ffe:501:ffff:100::30

 DNS
 : 3ffe:501:ffff:100::40

 DHCP
 : 3ffe:501:ffff:100::50

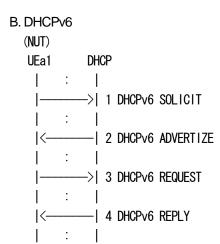




[INITIALIZATION]

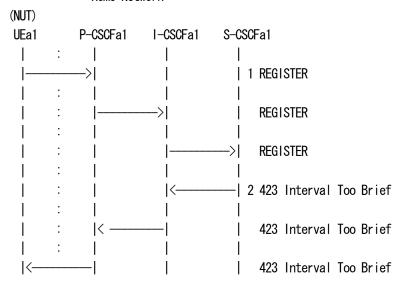
Set up IP Address using A or B.

A. Router Advertisement

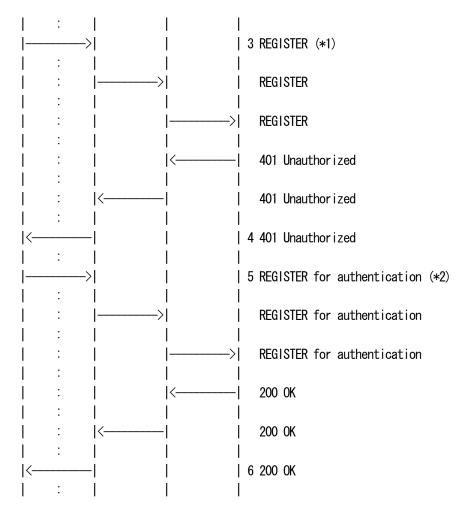


[PROCEDURE]

Home Network







- 1 NUT sends REGISTER
- 2 NUT receives 423 Interval Too Brief
- 3 NUT sends REGISTER
- 4 NUT receives 401 Unauthorized
- 5 NUT sends REGISTER for authentication
- 6 NUT receives 200 OK

=== Message example ===

As regards the message 1, please refer to the message 1 in UE-RG-B-1-AKA.

2. 423 Interval Too Brief P-CSCF -> NUT

SIP/2.0 423 Interval Too Brief

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashds7

From: <sip:UEa1_public_1@under.test.com>;tag=4fa3 To: <sip:UEa1_public_1@under.test.com>;tag=5ef4 Call-ID: apb03a0s09dkjdfglkj49111@under.test.com



CSeq: 1 REGISTER Min-Expires: 600000 Content-Length: 0

3. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashds8

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", nonce="",

uri="sip:under.test.com", response=""

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=23456789; spi-s=12345678;

port-c=2468; port-s=1357

Require: sec-agree

Proxy-Require: sec-agree

CSeq: 2 REGISTER

Supported: path

Content-Length: 0

4. 401 Unauthorized P-CSCF -> NUT

SIP/2.0 401 Unauthorized

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashds8

WWW-Authenticate: Digest realm="under.test.com",

nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4
To: <sip:UEa1_public_1@under.test.com>;tag=5ef5
Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

CSeq: 2 REGISTER Content-Length: 0

5. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds9

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4

To: <sip:UEa1_public_1@under.test.com>



Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", algorithm=AKAv1-MD5, nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM",

uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=23456789; spi-s=12345678;

port-c=2468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Require: sec-agree Proxy-Require: sec-agree CSeq: 3 REGISTER Supported: path Content-Length: 0

6. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds9

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4
To: <sip:UEa1_public_1@under.test.com>;tag=5ef6
Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Path: <sip:term@p.a1.under.test.com;lr>

Service-Route: <sip:orig@s.a1.under.test.com;lr>

CSeq: 3 REGISTER

P-Associated-URI: <sip:UEa1_public_1@under.test.com>

Date: Wed, 11 July 2001 08:49:37 GMT

Content-Length: 0

[OBSERVABLE RESULTS]

*1: 3 REGISTER from NUT to P-CSCF

See generic_REGISTER

Another REGISTER request populating the Expires header field or the expires parameter with an expiration timer of at least the value received in the Min-Expires header field of the 423 (Interval Too Brief) response SHALL be sent.[TS24229-5.1-61]

The client SHOULD NOT retry the same request without modification. [RFC3261-21.4-1]



*2: 5 REGISTER for authentication from NUT to P-CSCF

See generic_Auth_REGISTER

4.1.8 UE-RG-B-8-AKA - Re-subscription for the registration state event package

[NAME]

UE-RG-B-8-AKA - Re-subscription for the registration state event package

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 automatically refreshes the subscription by the reg event package, for a previously registered public user identity when half of the time has expired if the initial subscription was for 1200 seconds or less.

[REFERENCE]

TS24.229 5.1.1.3

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]



 UEa1(NUT)
 :
 3ffe:501:ffff:1000::1000

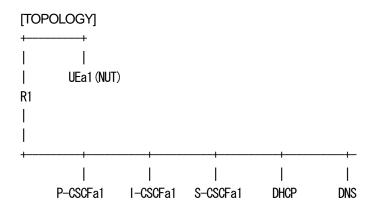
 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

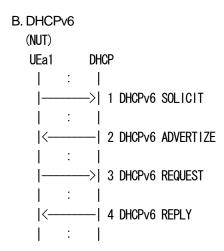
 DNS
 :
 3ffe:501:ffff:100::50



[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement



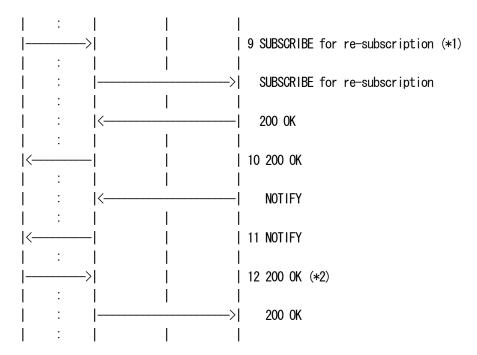
[PROCEDURE]

Home Network



			I-CSC	CFa1	S-CS	CFa	n1
	: >			 		1	REGISTER
	:	 	>	 			REGISTER
	:	! 		 	 > 		REGISTER
İ	:	' 		 < 	 		401 Unauthorized
İ	:	' < 		 	į		401 Unauthorized
 < 	· :	 		 	į	2	401 Unauthorized
 	· :	' 		 	į	3	REGISTER for authentication
İ	:	' 	>	 	į		REGISTER for authentication
i i	:	 		 	> 		REGISTER for authentication
i i	:	 		 < 	 		200 OK
i i	:	< 		 	i İ I		200 OK
< 	:	 		 	i İ I	4	200 OK
 	>	 		 	i İ I	5	SUBSCRIBE
i I	:	 		· 	> 		SUBSCRIBE
i I	:	< 		· 	i i		200 OK with Expires=60
< 	:	 		 	į Į	6	200 OK with Expires=60
İ	:	< 			 		NOTIFY
< 	:	 			i I	7	NOTIFY
[]	> :	 		- 	i I	8	200 OK
İ	:	 			> >		200 OK





- 1 NUT sends REGISTER
- 2 NUT receives 401 Unauthorized
- 3 NUT sends REGISTER for authentication
- 4 NUT receives 200 OK
- 5 NUT sends SUBSCRIBE with Expires=60
- 6 NUT receives 200 OK
- 7 NUT receives NOTIFY
- 8 NUT sends 200 OK
- 9 NUT sends SUBSCRIBE for re-subscription
- 10 NUT receives 200 OK
- 11 NUT receives NOTIFY
- 12 NUT sends 200 OK

=== Message example ===

As regards the message 1-5, please refer to the message 1-5 in UE-RG-B-1-AKA.

6. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsa1

Record-Route: <sip:p.a1.under.test.com:10001;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=31415
To: <sip:UEa1_public_1@under.test.com>;tag=151170

Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE

Contact: <sip:s.a1.under.test.com>



```
Allow-Events: reg
Expires: 60
Content-Length: 0
7. NOTIFY P-CSCF -> NUT
NOTIFY sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.2,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.2;received=3ffe:501:ffff:100::30
Max-Forwards: 69
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1 public 1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 2 NOTIFY
Contact: <sip:s.a1.under.test.com>
Subscription-State: active; expires=60
Event: reg
Content-Type: application/reginfo+xml
Content-Length: (...)
<?xml version="1.0"?>
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="0" state="full">
     <registration aor="sip:UEa1_public_1@under.test.com" id="a7" state="active">
         <contact id="76" state="active" event="registered">
              <uri>sip:UEa1_public_1@node.under.test.com</uri>
         </contact>
     </registration>
</reginfo>
As regards the message 8, please refer to the message 8 in UE-RG-B-1-AKA.
9. SUBSCRIBE NUT -> P-CSCF
SUBSCRIBE sip:s.a1.under.test.com SIP/2.0
Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsa2
Max-Forwards: 70
Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>
From: <sip:UEa1_public_1@under.test.com>;tag=31415
To: <sip:UEa1_public_1@under.test.com>;tag=151170
Require: sec-agree
Proxy-Require: sec-agree
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 2 SUBSCRIBE
```

Allow-Events: reg

Event: reg



Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10002; port-s=10001

```
Expires: 600000
Contact: <sip:UEa1_public_1@node.under.test.com:1357>
Content-Length: 0
10. 200 OK P-CSCF -> NUT
SIP/2.0 200 OK
Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsa2
Record-Route: <sip:p.a1.under.test.com:10001;lr>
From: <sip:UEa1 public 1@under.test.com>;tag=31415
To: <sip:UEa1_public_1@under.test.com>;tag=151170
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 2 SUBSCRIBE
Allow-Events: reg
Expires: 600000
Contact: <sip:s.a1.under.test.com>
Content-Length: 0
11. NOTIFY P-CSCF -> NUT
NOTIFY sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.2,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.2;received=3ffe:501:ffff:100::30
Max-Forwards: 69
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 2 NOTIFY
Contact: <sip:s.a1.under.test.com>
Subscription-State: active; expires=600000
Event: rea
Content-Type: application/reginfo+xml
Content-Length: (...)
<?xml version="1.0"?>
<reginfo xmlns="um:ietf:params:xml:ns:reginfo" version="1" state="full">
     <registration aor="sip:UEa1 public 1@under.test.com" id="a7" state="active">
         <contact id="76" state="active" event="registered">
             <uri>sip:UEa1_public_1@node.under.test.com</uri>
         </contact>
     </registration>
</reginfo>
```



12. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.2;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;

branch=z9hG4bK332b23.2;received=3ffe:501:ffff:100::30

From: <sip:UEa1_public_1@under.test.com>;tag=151170

To: <sip:UEa1_public_1@under.test.com>;tag=31415

Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

CSeq: 2 NOTIFY Content-Length: 0

[OBSERVABLE RESULTS]

*1: 9 SUBSCRIBE for re-subscription from NUT to P-CSCF

See generic_re_SUBSCRIBE

The subscription for a previously registered public user identity SHALL be automatically refreshed either 600 seconds before the expiration time if the initial subscription was for greater than 1200 seconds, or when half of the time has expired if the initial subscription was for 1200 seconds or less.[TS24229-5.1-134]

*2: 12 NOTIFY 200 OK from NUT to P-CSCF

See generic_200-NOTIFY

4.1.9 UE-RG-B-9-AKA - Reception of 481 response to subscription for the registration state event package

[NAME]

UE-RG-B-9-AKA - Reception of 481 response to subscription for the registration state event package

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]



To verify that the UEa1 properly starts a new initial subscription request when the refresh subscription fails with a 481 response.

[REFERENCE] TS24.229 5.1.1.3

[REQUIREMENT] NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

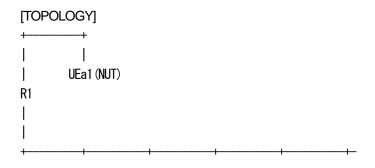
 P-CSCFa1
 :
 3ffe:501:ffff:100::40

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::50

 DHCP
 :
 3ffe:501:ffff:100::50



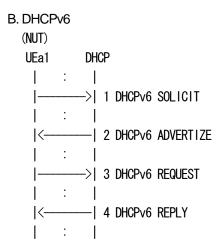


P-CSCFa1 I-CSCFa1 S-CSCFa1 DHCP DNS

[INITIALIZATION]

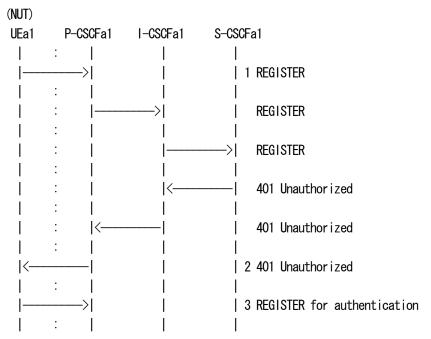
Set up IP Address using A or B.

A. Router Advertisement



[PROCEDURE]

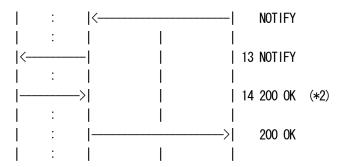
Home Network





: >	REGISTER for authentication
·	REGISTER for authentication
	200 OK
	200 OK
:	4 200 OK
:	5 SUBSCRIBE
: :	SUBSCRIBE
:	200 OK with Expire=60
:	6 200 OK with Expire=60
:	NOTIFY
: <	7 NOTIFY
:	8 200 OK
i : i	
:	9 SUBSCRIBE for re-subscription
:	SUBSCRIBE for re-subscription
	481 Call Does Not Exist
	10 481 Call Does Not Exist
	11 SUBSCRIBE (*1)
: 	SUBSCRIBE
	200 OK
	12 200 OK





- 1 NUT sends REGISTER
- 2 NUT receives 401 Unauthorized
- 3 NUT sends REGISTER for authentication
- 4 NUT receives 200 OK
- 5 NUT sends SUBSCRIBE
- 6 NUT receives 200 OK
- 7 NUT receives NOTIFY
- 8 NUT sends 200 OK
- 9 NUT sends SUBSCRIBE for re-subscription
- 10 NUT receives 481 Call Does Not Exist
- 11 NUT sends SUBSCRIBE
- 12 NUT receives 200 OK
- 13 NUT receives NOTIFY
- 14 NUT sends 200 OK

=== Message example ===

As regards the message 1-9, please refer to the message 1-9 in UE-RG-B-8-AKA.

10. 481 Call Does Not Exist P-CSCF -> NUT

SIP/2.0 481 Subscription Does Not Exist

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsa2

From: <sip:UEa1_public_1@under.test.com>;tag=31415

To: <sip:UEa1_public_1@under.test.com>;tag=151170

Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

CSeq: 2 SUBSCRIBE

Content-Length: 0

11. SUBSCRIBE NUT -> P-CSCF

SUBSCRIBE sip:UEa1_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsb1

Max-Forwards: 70

Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=41415



To: <sip:UEa1_public_1@under.test.com>

Require: sec-agree

Proxy-Require: sec-agree

Call-ID: c89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE Allow-Events: reg

Event: reg

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Expires: 600000

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Content-Length: 0

12. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsb1

Record-Route: <sip:p.a1.under.test.com:10001;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=41415
To: <sip:UEa1_public_1@under.test.com>;tag=251170

Call-ID: c89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE Allow-Events: reg Expires: 600000

Contact: <sip:s.a1.under.test.com>

Content-Length: 0

13. NOTIFY P-CSCF -> NUT

NOTIFY sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f82.1,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b56.1;received=3ffe:501:ffff:100::30

Max-Forwards: 69

From: <sip:UEa1_public_1@under.test.com>;tag=251170

To: <sip:UEa1_public_1@under.test.com>;tag=41415

Call-ID: c89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 NOTIFY

Contact: <sip:s.a1.under.test.com>

Subscription-State: active; expires=600000

Event: reg

Content-Type: application/reginfo+xml

Content-Length: (...)

<?xml version="1.0"?>



```
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="0" state="full">
     <registration aor="sip:UEa1_public_1@under.test.com" id="a7" state="active">
         <contact id="76" state="active" event="registered">
             <uri>sip:UEa1_public_1@node.under.test.com</uri>
         </contact>
     </registration>
</reginfo>
14. 200 OK NUT -> P-CSCF
SIP/2.0 200 OK
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f82.1;received=3ffe:501:ffff:100::10,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b56.1;received=3ffe:501:ffff:100::30
From: <sip:UEa1_public_1@under.test.com>;tag=251170
To: <sip:UEa1_public_1@under.test.com>;tag=41415
Call-ID: c89rjhnedlrfjflslj40a222@under.test.com
CSeq: 1 NOTIFY
Content-Length: 0
[OBSERVABLE RESULTS]
*1: 11 SUBSCRIBE from NUT to P-CSCF
      See generic_SUBSCRIBE
          The UAC SHOULD terminate the dialog.[RFC3261-12.2-23]
*2: 14 NOTIFY 200 OK from NUT to P-CSCF
      See generic_200-NOTIFY
4.1.10 UE-RG-B-10-AKA - Reception of a new service-route to reregistration
[NAME]
UE-RG-B-10-AKA - Reception of a new service-route to reregistration
[TARGET]
IMS User Equipment (NUT)
```

[PURPOSE]



To verify that the UEa1 stores the list of Service-Route headers contained in the Service-Route header, in order to build a proper preloaded Route header value for new dialogs and standalone transactions.

[REFERENCE] TS24229 5.1.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com S-CSCFa3 : sip:s.a3.under.test.com

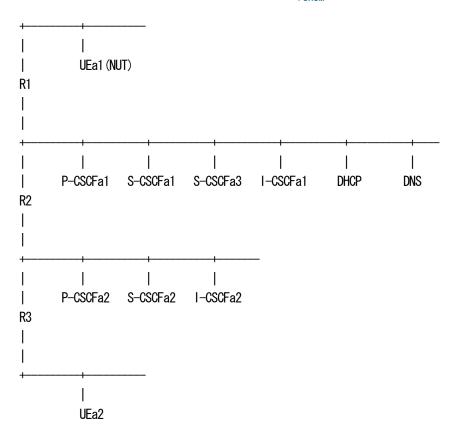
[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

3ffe:501:ffff:1000::1 Router(R1) P-CSCFa1 3ffe:501:ffff:100::10 : I-CSCFa1 3ffe:501:ffff:100::20 S-CSCFa1 3ffe:501:ffff:100::30 S-CSCFa3 3ffe:501:ffff:300::30 DNS 3ffe:501:ffff:100::40 DHCP 3ffe:501:ffff:100::50 UEa2 3ffe:501:ffff:2000::1000 P-CSCFa2 3ffe:501:ffff:200::10 I-CSCFa2 3ffe:501:ffff:200::20 S-CSCFa2 3ffe:501:ffff:200::30

[TOPOLOGY]

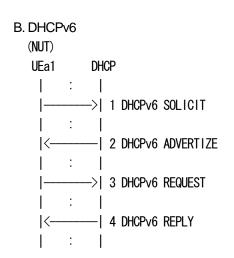




[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement



[PROCEDURE]

Home Network



(NUT)								
UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	S-CSCFa3	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
- 1	: [- 1	1		I
	>	- 1	1	1		1		1 REGISTER
- 1	: [- 1	1	- 1	1	1		1
1	:		>	I	- 1	1	I	REGISTER
- 1	: 1	1	- 1	- 1	1	1	ı	I
i	· 1	<		i	i	i	i	REGISTER
i	: 1	i i	i	i	i	i	i	1
i	. 1	 	> >	i	i	i	i	401 Unauthorized
, ,	· I	! 	71	' 	' 	' 	! I	401 Graderior 1200
'	·	ı	! !	 	· · ·	1	ı I	401 Unauthorized
1	: <	1	I	1	1	1	l I	i
 	· [I	I	l I	1	1	I	
<-		l	l	l		1	l	2 401 Unauthorized
	1		l	l	!	 	l	
	>I		l	l		I	l	3 REGISTER for authentication
	:			l				I
-	:		>I	I		I		REGISTER for authentication
	:			I		I		I
	: [<		I		- 1		REGISTER for authentication
	:	- 1	I	I		1		I
	: [>	I		1		200 OK with expires=60
- 1	: [- 1	1	I	1	1		1
- 1	: <		I	I	1	1		200 OK with expires=60
- 1	: [ı	ı	1	1		1
<-		1	- 1	- 1	1	1	ı	4 200 OK with expires=60
i	· 1	i	i	i	i	i	i	·
	>l	i	i	i	i	i	i	5 SUBSCRIBE
i	· 1	i i	ı I	i	i i	i	ı	I cossociation
i	·	>	ı I	i i	i i	i	ı	SUBSCRIBE
'		/I	l I	 	· · ·	1	ı I	SOBSONIBE
1	· 1	1	l I	1	1	1	l I	1 200 04
1	: <		ı	ı		1	I	200 OK
	:		l	l I	1	1	l	
<-			l	l	!	1	l	6 200 OK
	; [l	l	 	1	l	l
I	: <			I		I		NOTIFY
- 1	:		I	I		I		I
<			I	I		- 1		7 NOTIFY
- 1	:	1	1	I	1	I	1	
	>			I	-	1		8 200 OK
1	: 1	1	1	1	1	1	1	
1	:	——>	I	I	1	I	I	200 OK
1	1	i	1	l		Ī	1	
	· 	•	•		•	•	· 	



:
:
:
:
:
:
:
$\begin{array}{cccccccccccccccccccccccccccccccccccc$
:
:
< 12 100 Trying :
:
: < 100 Trying
:
$\begin{array}{cccccccccccccccccccccccccccccccccccc$
: > INVITE :
: 100 Trying
:
:
:
:
:
:
: 180 Ringing :
: 180 Ringing
: < 180 Ringing



:	l I I	I	1	I	I I	ı
· ·	· · · · · · · · · · · · · · · · · · ·	! 	! 	! 	' ' 	13 180 Ringing
:	 I I	İ				
1 :		I	I		<	200 OK
:	l I I	I	I			
1 :			1	<	I I	200 OK
:		I	I		I I	
:		1	<			200 OK
:						000.04
1 :		<	1	 	l	200 OK
· ·		 	! !	l I	l 	200 OK
· · · · ·		1 	! 	I 	! ! [200 010
<	 I I	İ				14 200 OK
1 :		I	I		I I	
>	1 1		1		I I	15 ACK
1 :			1	l	1 1	
:		·	1	l	I I	ACK
:		I	I		l	
:			>			ACK
1 :		 	 	 \	l	ACK
:		l I	! 	> 	l 	AUN
1 :		! 	1	! 	 >	ACK
· :	 I I I				I I	
1 :			[<	BYE
1 :					I I	
:			1	<	l 1	BYE
:			[l		
: 		<			l	BYE
:			1	 		DVE
1 .		· -	 	l I	l 	BYE
· ·	ı ı ı I I I	l I	! I	I I	! ! ! !	16 BYE
:	' ' ' 		I	' 	I I	
>	 		[17 200 OK
1 :		l	I	l		
:		·	[l		200 OK
:			1			
1 :			>	<u> </u>		200 OK
:						
:			1	>	[200 OK
:	1 1	I	I	I	I I	



| : | | | | | | | | | | 200 0K

- 1 NUT sends REGISTER
- 2 NUT receives 401 Unauthorized
- 3 NUT sends REGISTER for authentication
- 4 NUT receives 200 OK
- 5 NUT sends SUBSCRIBE
- 6 NUT receives 200 OK
- 7 NUT receives NOTIFY
- 8 NUT sends 200 OK
- 9 NUT sends REGISTER for reregistration
- 10 NUT receives 200 OK with a new Service-Route Header from S-CSCFa3
- 11 NUT sends INVITE
- 12 NUT receives 100 Trying
- 13 NUT receives 180 Ringing
- 14 NUT receives 200 OK
- 15 NUT sends ACK
- 16 NUT receives BYE
- 17 NUT sends 200 OK

=== Message example ===

As regards the message 1-9, please refer to the message 1-9 in UE-RG-B-2-AKA.

10. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds9

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4
To: <sip:UEa1_public_1@under.test.com>;tag=5ef6
Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Path: <sip:term@p.a1.under.test.com;lr>

Service-Route: <sip:orig@s.a3.under.test.com;lr>

P-Associated-URI: <sip:UEa1_public_1@under.test.com>

CSeq: 3 REGISTER

Date: Wed, 11 July 2001 08:50:08 GMT

Content-Length: 0

11. INVITE NUT -> P-CSCF

INVITE sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a3.under.test.com;lr>



Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

Require: sec-agree

Proxy-Require: sec-agree

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa1 2890844526 2890844526 IN IP6 node.under.test.com

S=

c=IN IP6 node.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

12. 100 Trying P-CSCF -> NUT

SIP/2.0 100 Trying

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

13. 180 Ringing P-CSCF -> NUT

SIP/2.0 180 Ringing

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE



Content-Length: 0

14. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Record-Route: <sip:p.a2.under.test.com;lr>,<sip:s.a2.under.test.com;lr>,

<sip:s.a3.under.test.com;lr>,<sip:p.a1.under.test.com:10001;lr>
From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Content-Type: application/sdp

Content-Length: 153

v=0

o=UEa2 2890844527 2890844527 IN IP6 nodea2.under.test.com

S=

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 3456 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

15. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@nodea2.under.test.com:22222 SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf10 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a3.under.test.com;lr>,<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

16. BYE P-CSCF -> NUT



BYE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c501,

SIP/2.0/UDP s.a3.under.test.com;branch=z9hG4bKnashdsa2.3;received=3ffe:501:ffff:300::30,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c9.1;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghds30;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashdsb3

Max-Forwards: 66

From: <sip:UEa2_public_1@under.test.com>;tag=314259
To: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

17. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c501;received=3ffe:501:ffff:100::10,

SIP/2.0/UDP s.a3.under.test.com;branch=z9hG4bKnashdsa2.3;received=3ffe:501:ffff:300::30,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c9.1;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghds30;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashdsb3

From: <sip:UEa2_public_1@under.test.com>;tag=314259

To: <sip:UEa1 public 1@under.test.com>;tag=9fxced76sl

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

[OBSERVABLE RESULTS]

*1: 11 INVITE from NUT to P-CSCF

See generic_INVITE

4.1.11 UE-RG-B-11-AKA - Reception of 423 response to reregistration

[NAME]

UE-RG-B-11-AKA - Reception of 423 response to reregistration

[TARGET]

IMS User Equipment (NUT)

128



[PURPOSE]

To verify that the UEa1 properly sends another REGISTER request populating the Expires header or the expires parameter with an expiration timer of at least the value received in the Min-Expires header of the 423 (Interval Too Brief) response.

[REFERENCE] TS24229 5.1.1.4.1

[REQUIREMENT] NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

 UEa1(NUT)
 : 3ffe:501:ffff:1000::1000

 Router(R1)
 : 3ffe:501:ffff:1000::1

 P-CSCFa1
 : 3ffe:501:ffff:100::20

 I-CSCFa1
 : 3ffe:501:ffff:100::30

 S-CSCFa1
 : 3ffe:501:ffff:100::40

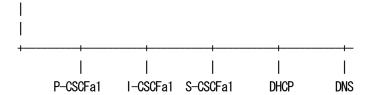
 DNS
 : 3ffe:501:ffff:100::50

[TOPOLOGY]

+-----+

| | UEa1 (NUT)
R1

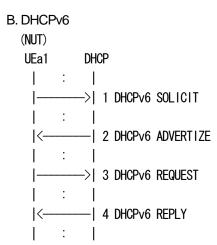




[INITIALIZATION]

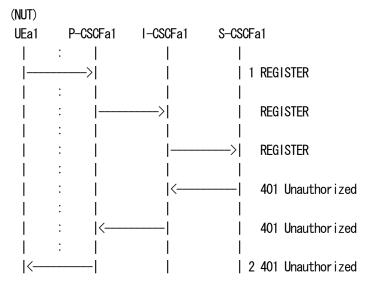
Set up IP Address using A or B.

A. Router Advertisement



[PROCEDURE]

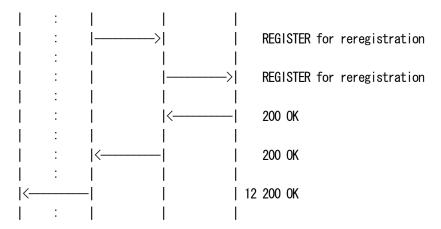
Home Network





1 .	1 1 1	
		3 REGISTER for authentication
:	>	REGISTER for authentication
:		REGISTER for authentication
:	 	200 OK with expires=60
:	 <	200 OK with expires=60
: <		4 200 OK with expires=60
: >		5 SUBSCRIBE
:		
:	< 	200 OK
< :	 	6 200 OK
: :	< 	NOTIFY
<		7 NOTIFY
: >		8 200 OK
:		200 OK
: >		9 REGISTER for reregistration
: :		REGISTER for reregistration
; :		REGISTER for reregistration
i :	 	423 Interval Too Brief
:	<	423 Interval Too Brief
< :		10 423 Interval Too Brief
>		11 REGISTER for reregistration (*1)





- 1 NUT sends REGISTER
- 2 NUT receives 401 Unauthorized
- 3 NUT sends REGISTER for authentication
- 4 NUT receives 200 OK
- 5 NUT sends SUBSCRIBE
- 6 NUT receives 200 OK
- 7 NUT receives NOTIFY
- 8 NUT sends 200 OK
- 9 NUT sends REGISTER for reregistration
- 10 NUT receives 423 Interval Too Brief
- 11 NUT sends REGISTER for reregistration
- 12 NUT receives 200 OK

=== Message example ===

As regards the message 1-9, please refer to the message 1-9 in UE-RG-B-2-AKA.

10. 423 Interval Too Brief P-CSCF -> NUT

SIP/2.0 423 Interval Too Brief

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds9

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4
To: <sip:UEa1_public_1@under.test.com>;tag=5ef6
Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

CSeq: 3 REGISTER Min-Expires: 600000 Content-Length: 0

11. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds10

Max-Forwards: 70



From: <sip:UEa1_public_1@under.test.com>;tag=4fa5

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", uri="sip:under.test.com",

response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=33456789; spi-s=22345678;

port-c=3468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Require: sec-agree
Proxy-Require: sec-agree
CSeq: 4 REGISTER
Supported: path

12. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Content-Length: 0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds10

From: <sip:UEa1_public_1@under.test.com>;tag=4fa5 To: <sip:UEa1_public_1@under.test.com>;tag=5ef7 Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Path: <sip:term@p.a1.under.test.com;lr>

Service-Route: <sip:orig@s.a1.under.test.com;lr>

CSeq: 4 REGISTER

P-Associated-URI: <sip:UEa1_public_1@under.test.com>

Date: Wed, 11 July 2001 08:50:08 GMT

Content-Length: 0

[OBSERVABLE RESULTS]

*1: 11 REGISTER for reregistration from NUT to P-CSCF

See generic_re_REGISTER

The client SHOULD NOT retry the same request without modification. [RFC3261-21.4-1]

- Header field:

* Contact expires parameter/Expires



Another REGISTER request SHALL be sent the registration expiration interval value with an expiration time of at least the value received in Min-Expire header field of 423(Interval Too Brief) respons.[TS24229-5.1-171]

4.1.12 UE-RG-B-12-AKA - Reception of 408 response to reregistration

[NAME]

UE-RG-B-12-AKA - Reception of 408 response to reregistration

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly performs the procedures for initial registration after received 408 (Request Timeout) response.

[REFERENCE]

TS24.229 5.1.1.2.1

TS24.229 5.1.1.2.2

TS24.229 5.1.1.3

TS24.229 5.1.1.4.1

TS24.229 5.1.1.4.2

TS24.229 5.1.1.5.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

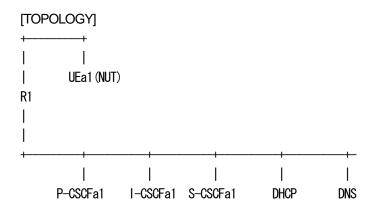
P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com





UEa1(NUT) 3ffe:501:ffff:1000::1000 :

Router(R1) 3ffe:501:ffff:1000::1 P-CSCFa1 3ffe:501:ffff:100::10 : I-CSCFa1 3ffe:501:ffff:100::20 S-CSCFa1 3ffe:501:ffff:100::30 DNS 3ffe:501:ffff:100::40 DHCP 3ffe:501:ffff:100::50



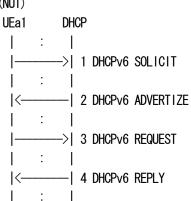
[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

B. DHCPv6

(NUT)



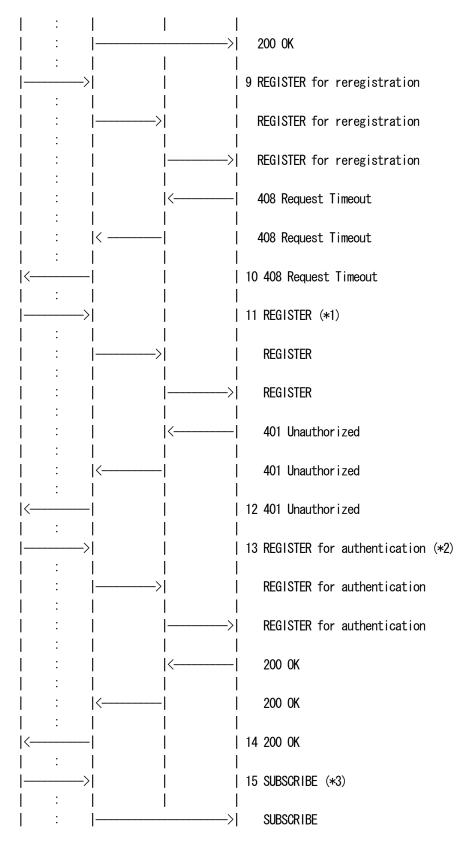


[PROCEDURE]

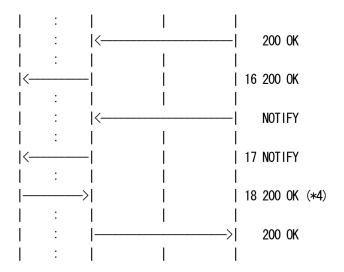
Home Network (NUT) UEa1 P-CSCFa1 I-CSCFa1 S-CSCFa1 1 REGISTER REGISTER REGISTER 401 Unauthorized 401 Unauthorized 2 401 Unauthorized 3 REGISTER for authentication REGISTER for authentication REGISTER for authentication 200 OK with expires=60 200 OK with expires=60 4 200 OK with expires=60 5 SUBSCRIBE SUBSCRIBE 200 OK 6 200 OK **NOTIFY** 7 NOTIFY

8 200 OK









- 1 NUT sends REGISTER
- 2 NUT receives 401 Unauthorized
- 3 NUT sends REGISTER for authentication
- 4 NUT receives 200 OK
- 5 NUT sends SUBSCRIBE
- 6 NUT receives 200 OK
- 7 NUT receives NOTIFY
- 8 NUT sends 200 OK
- 9 NUT sends REGISTER
- 10 NUT receives 408 Request Timeout
- 11 NUT sends REGISTER
- 12 NUT receives 401 Unauthorized
- 13 NUT sends REGISTER for authentication
- 14 NUT receives 200 OK
- 15 NUT sends SUBSCRIBE
- 16 NUT receives 200 OK
- 17 NUT receives NOTIFY
- 18 NUT sends 200 OK

=== Message example ===

As regards the message 1-9, please refer to the message 1-9 in UE-RG-B-2-AKA.

10. 408 Request Timeout P-CSCF -> NUT

SIP/2.0 408 Request Timeout

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds9

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4
To: <sip:UEa1_public_1@under.test.com>;tag=5ef6

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

CSeq: 3 REGISTER



Content-Length: 0

11. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdt7

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=5fa3

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", nonce="",

uri="sip:under.test.com", response=""

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=33456789; spi-s=22345678;

port-c=3468; port-s=1357

Require: sec-agree

Proxy-Require: sec-agree CSeq: 1 REGISTER

Supported: path Content-Length: 0

12. 401 Unauthorized P-CSCF -> NUT

SIP/2.0 401 Unauthorized

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdt7

WWW-Authenticate: Digest realm="under.test.com",

nonce="J2U8vpY3qJhiuZNrke/ObponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5

From: <sip:UEa1_public_1@under.test.com>;tag=5fa3 To: <sip:UEa1_public_1@under.test.com>;tag=6ef4

Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

CSeq: 1 REGISTER
Content-Length: 0

13. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdt8

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=5fa3

To: <sip:UEa1 public 1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com



Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", algorithm=AKAv1-MD5, nonce="J2U8vpY3qJhiuZNrke/ObponGSCcLm5iR+WCRkWYoM",

uri="sip:under.test.com", response="7729fae49393a05397450978507c4ef2"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=33456789; spi-s=22345678;

port-c=3468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

Require: sec-agree Proxy-Require: sec-agree CSeq: 2 REGISTER Supported: path Content-Length: 0

14, 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdt8

From: <sip:UEa1_public_1@under.test.com>;tag=5fa3 To: <sip:UEa1_public_1@under.test.com>;tag=6ef5 Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Path: <sip:term@p.a1.under.test.com;lr>

Service-Route: <sip:orig@s.a1.under.test.com;lr>

CSeq: 2 REGISTER

P-Associated-URI: <sip:UEa1_public_1@under.test.com>

Date: Wed, 11 July 2001 08:49:37 GMT

Content-Length: 0

15. SUBSCRIBE NUT -> P-CSCF

SUBSCRIBE sip:UEa1_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsb1

Max-Forwards: 70

Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=41415

To: <sip:UEa1_public_1@under.test.com>

Require: sec-agree Proxy-Require: sec-agree

Call-ID: c89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE Allow-Events: reg

Event: reg

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

Expires: 600000



Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Content-Length: 0

16. 200 OK P-CSCF -> NUT SIP/2.0 200 OK Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsb1 Record-Route: <sip:p.a1.under.test.com:10001;lr> From: <sip:UEa1_public_1@under.test.com>;tag=41415 To: <sip:UEa1_public_1@under.test.com>;tag=251170 Call-ID: c89rjhnedlrfjflslj40a222@under.test.com CSeq: 1 SUBSCRIBE Allow-Events: reg Expires: 600000 Contact: <sip:s.a1.under.test.com> Content-Length: 0 17. NOTIFY P-CSCF -> NUT NOTIFY sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0 Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f82.1, SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b56.1;received=3ffe:501:ffff:100::30 Max-Forwards: 69 From: <sip:UEa1_public_1@under.test.com>;tag=251170 To: <sip:UEa1_public_1@under.test.com>;tag=41415 Call-ID: c89rjhnedlrfjflslj40a222@under.test.com CSeq: 1 NOTIFY Contact: <sip:s.a1.under.test.com> Subscription-State: active; expires=600000 Event: reg Content-Type: application/reginfo+xml Content-Length: (...) <?xml version="1.0"?> <reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="0" state="full"> <registration aor="sip:UEa1_public_1@under.test.com" id="a7" state="active"> <contact id="76" state="active" event="registered"> <uri>sip:UEa1 public 1@node.under.test.com</uri> </contact>

</registration>

</reginfo>



18. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f82.1;received=3ffe:501:ffff:100::10,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b56.1;received=3ffe:501:ffff:100::30

From: <sip:UEa1_public_1@under.test.com>;tag=251170 To: <sip:UEa1_public_1@under.test.com>;tag=41415

Call-ID: c89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 NOTIFY Content-Length: 0

[OBSERVABLE RESULTS]

*1: 11 REGISTER from NUT to P-CSCF

See generic_REGISTER

*2: 13 REGISTER for authentication from NUT to P-CSCF

See generic_Auth_REGISTER

*3: 15 SUBSCRIBE from NUT to P-CSCF

See generic_SUBSCRIBE

*4: 18 NOTIFY 200 OK from NUT to P-CSCF

See generic_200-NOTIFY

4.1.13 UE-RG-B-13-AKA - Reception of 500 response to reregistration

[NAME]

UE-RG-B-13-AKA - Reception of 500 response to reregistration

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly perform the procedures for initial registration after received 500 (Server Internal) response.



[REFERENCE]

TS24.229 5.1.1.2.1

TS24.229 5.1.1.2.2

TS24.229 5.1.1.3

TS24.229 5.1.1.4.1

TS24.229 5.1.1.5.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 : 3ffe:501:ffff:1000::1

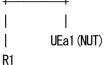
 P-CSCFa1
 : 3ffe:501:ffff:100::20

 I-CSCFa1
 : 3ffe:501:ffff:100::30

 S-CSCFa1
 : 3ffe:501:ffff:100::40

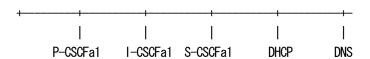
 DNS
 : 3ffe:501:ffff:100::50

[TOPOLOGY]



|

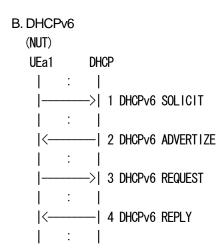




[INITIALIZATION]

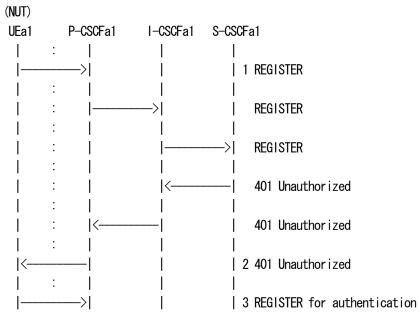
Set up IP Address using A or B.

A. Router Advertisement



[PROCEDURE]

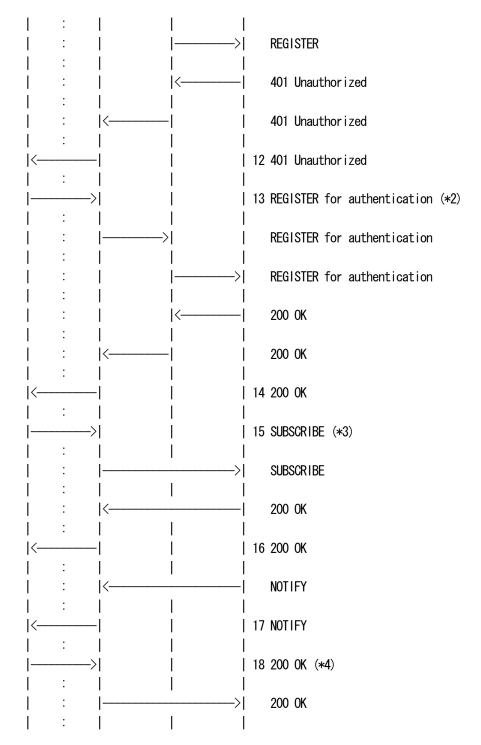
Home Network





1 . 1 . 1	
	REGISTER for authentication
	REGISTER for authentication
	200 OK with expires=60
:	200 OK with expires=60
:	4 200 OK with expires=60
:	5 SUBSCRIBE
:	SUBSCRIBE
:	200 OK
: 	6 200 OK
:	NOTIFY
	7 NOTIFY
	8 200 OK
:	200 OK
	9 REGISTER for reregistration
	REGISTER for reregistration
	REGISTER for reregistration
	500 Server Internal Error
:	500 Server Internal Error
:	10 500 Server Internal Error
	11 REGISTER (*1)
	REGISTER
ı · ı——/	NEGIGIEN





- 1 NUT sends REGISTER
- 2 NUT receives 401 Unauthorized
- 3 NUT sends REGISTER for authentication
- 4 NUT receives 200 OK
- 5 NUT sends SUBSCRIBE



6 NUT receives 200 OK

7 NUT receives NOTIFY

8 NUT sends 200 OK

9 NUT sends REGISTER for reregistration

10 NUT receives 500 Server Internal Error

11 NUT sends REGISTER

12 NUT receives 401 Unauthorized

13 NUT sends REGISTER for authentication

14 NUT receives 200 OK

15 NUT sends SUBSCRIBE

16 NUT receives 200 OK

17 NUT receives NOTIFY

18 NUT sends 200 OK

=== Message example ===

As regards the message 1-9, please refer to the message 1-9 in UE-RG-B-2-AKA.

10. 500 Server Internal Error P-CSCF -> NUT

SIP/2.0 500 Server Internal Error

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds9

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4

To: <sip:UEa1_public_1@under.test.com>;tag=5ef6

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

CSeq: 3 REGISTER
Content-Length: 0

11. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdt7

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=5fa3

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", nonce="",

uri="sip:under.test.com", response=""

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=33456789; spi-s=22345678;

port-c=3468; port-s=1357

Require: sec-agree

Proxy-Require: sec-agree CSeq: 1 REGISTER Supported: path

Content-Length: 0



12. 401 Unauthorized P-CSCF -> NUT

SIP/2.0 401 Unauthorized

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdt7

WWW-Authenticate: Digest realm="under.test.com",

nonce="J2U8vpY3qJhiuZNrke/ObponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5

From: <sip:UEa1_public_1@under.test.com>;tag=5fa3 To: <sip:UEa1_public_1@under.test.com>;tag=6ef4 Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

CSeq: 1 REGISTER Content-Length: 0

13. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdt8

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=5fa3

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", algorithm=AKAv1-MD5, nonce="J2U8vpY3qJhiuZNrke/ObponGSCcLm5iR+WCRkWYoM",

uri="sip:under.test.com", response="7729fae49393a05397450978507c4ef2"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=33456789; spi-s=22345678;

port-c=3468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

Require: sec-agree Proxy-Require: sec-agree CSeq: 2 REGISTER Supported: path Content-Length: 0

14. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdt8

From: <sip:UEa1_public_1@under.test.com>;tag=5fa3 To: <sip:UEa1_public_1@under.test.com>;tag=6ef5 Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

40



Path: <sip:term@p.a1.under.test.com;lr>

Service-Route: <sip:orig@s.a1.under.test.com;lr>

CSeq: 2 REGISTER

P-Associated-URI: <sip:UEa1_public_1@under.test.com>

Date: Wed, 11 July 2001 08:49:37 GMT

Content-Length: 0

15. SUBSCRIBE NUT -> P-CSCF

SUBSCRIBE sip:UEa1_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsb1

Max-Forwards: 70

Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=41415

To: <sip:UEa1_public_1@under.test.com>

Require: sec-agree Proxy-Require: sec-agree

Call-ID: c89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE Allow-Events: reg

Event: reg

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

Expires: 600000

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Content-Length: 0

16. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsb1

Record-Route: <sip:p.a1.under.test.com:10001;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=41415
To: <sip:UEa1_public_1@under.test.com>;tag=251170

Call-ID: c89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE Allow-Events: reg Expires: 600000

Contact: <sip:s.a1.under.test.com>

Content-Length: 0

17. NOTIFY P-CSCF -> NUT

NOTIFY sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0



```
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f82.1,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b56.1;received=3ffe:501:ffff:100::30
Max-Forwards: 69
From: <sip:UEa1_public_1@under.test.com>;tag=251170
To: <sip:UEa1_public_1@under.test.com>;tag=41415
Call-ID: c89rjhnedlrfjflslj40a222@under.test.com
CSeq: 1 NOTIFY
Contact: <sip:s.a1.under.test.com>
Subscription-State: active; expires=600000
Event: reg
Content-Type: application/reginfo+xml
Content-Length: (...)
<?xml version="1.0"?>
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="0" state="full">
     <registration aor="sip:UEa1_public_1@under.test.com" id="a7" state="active">
         <contact id="76" state="active" event="registered">
              <uri>sip:UEa1_public_1@node.under.test.com</uri>
         </contact>
     </registration>
</reginfo>
18. 200 OK NUT -> P-CSCF
SIP/2.0 200 OK
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f82.1;received=3ffe:501:ffff:100::10,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b56.1;received=3ffe:501:ffff:100::30
From: <sip:UEa1_public_1@under.test.com>;tag=251170
To: <sip:UEa1_public_1@under.test.com>;tag=41415
Call-ID: c89rjhnedlrfjflslj40a222@under.test.com
CSeq: 1 NOTIFY
Content-Length: 0
[OBSERVABLE RESULTS]
*1: 11 REGISTER from NUT to P-CSCF
      See generic REGISTER
*2: 13 REGISTER for authentication from NUT to P-CSCF
      See generic_Auth_REGISTER
```



*3: 15 SUBSCRIBE from NUT to P-CSCF

See generic_SUBSCRIBE

*4: 18 NOTIFY 200 OK from NUT to P-CSCF

See generic_200-NOTIFY

4.1.14 UE-RG-B-14-AKA - Reception of 504 response to reregistration

[NAME]

UE-RG-B-14-AKA - Reception of 504 response to reregistration

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UE properly perform the procedures for initial registration after received 504 (Server Time-Out) response.

[REFERENCE]

TS24.229 5.1.1.2.1

TS24.229 5.1.1.2.2

TS24.229 5.1.1.3

TS24.229 5.1.1.4.1

TS24.229 5.1.1.5.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com



[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

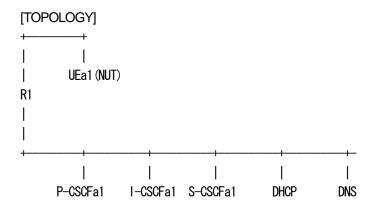
 UEa1(NUT)
 :
 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

DNS : 3ffe:501:ffff:100::40 DHCP : 3ffe:501:ffff:100::50



[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

B. DHCPv6

(NUT)

UEa1 DHCP



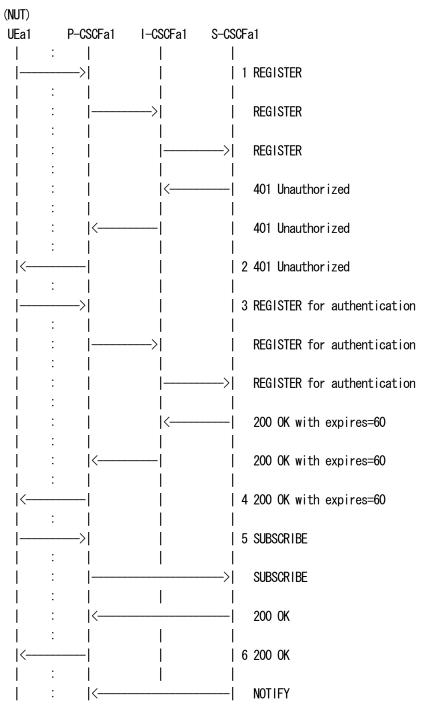
 \mathbf{I} : \mathbf{I}



|<----| 4 DHCPv6 REPLY

[PROCEDURE]

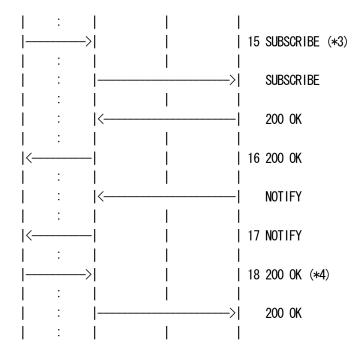
Home Network





1 : 1 1	
<u> </u>	7 NOTIFY
	8 200 OK
:	200 OK
:	9 REGISTER
	REGISTER
	REGISTER
	TEGIOTEIX
	504 Server Time-Out
: <	504 Server Time-Out
:	10 504 Server Time-Out
:	11 REGISTER (*1)
:	REGISTER
	REGISTER
	401 Unauthorized
:	401 Unauthorized
⟨	12 401 Unauthorized
	13 REGISTER for authentication (*2)
	REGISTER for authentication
: :	REGISTER for authentication
	200 OK
:	200 OK
	ZOO UN
<	14 200 OK





- 1 NUT sends REGISTER
- 2 NUT receives 401 Unauthorized
- 3 NUT sends REGISTER for authentication
- 4 NUT receives 200 OK
- 5 NUT sends SUBSCRIBE
- 6 NUT receives 200 OK
- 7 NUT receives NOTIFY
- 8 NUT sends 200 OK
- 9 NUT sends REGISTER
- 10 NUT receives 504 Server Time-Out
- 11 NUT sends REGISTER
- 12 NUT receives 401 Unauthorized
- 13 NUT sends REGISTER for authentication
- 14 NUT receives 200 OK
- 15 NUT sends SUBSCRIBE
- 16 NUT receives 200 OK
- 17 NUT receives NOTIFY
- 18 NUT sends 200 OK

=== Message example ===

As regards the message 1-9, please refer to the message 1-9 in UE-RG-B-2-AKA.

10. 504 Server Time-Out P-CSCF -> NUT

SIP/2.0 504 Server Time-Out

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds9



From: <sip:UEa1_public_1@under.test.com>;tag=4fa4
To: <sip:UEa1_public_1@under.test.com>;tag=5ef6
Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

CSeq: 3 REGISTER
Content-Length: 0

11. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdt7

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=5fa3

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", nonce="",

uri="sip:under.test.com", response=""

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=33456789; spi-s=22345678;

port-c=3468; port-s=1357

Require: sec-agree

Proxy-Require: sec-agree CSeq: 1 REGISTER Supported: path Content-Length: 0

12. 401 Unauthorized P-CSCF -> NUT

SIP/2.0 401 Unauthorized

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdt7

WWW-Authenticate: Digest realm="under.test.com",

nonce="J2U8vpY3qJhiuZNrke/ObponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5

From: <sip:UEa1_public_1@under.test.com>;tag=5fa3 To: <sip:UEa1_public_1@under.test.com>;tag=6ef4 Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

CSeq: 1 REGISTER
Content-Length: 0

13. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdt8

Max-Forwards: 70



From: <sip:UEa1_public_1@under.test.com>;tag=5fa3

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", algorithm=AKAv1-MD5, nonce="J2U8vpY3qJhiuZNrke/ObponGSCcLm5iR+WCRkWYoM",

uri="sip:under.test.com", response="7729fae49393a05397450978507c4ef2"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=33456789; spi-s=22345678;

port-c=3468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

Require: sec-agree Proxy-Require: sec-agree CSeq: 2 REGISTER Supported: path Content-Length: 0

14. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdt8

From: <sip:UEa1_public_1@under.test.com>;tag=5fa3 To: <sip:UEa1_public_1@under.test.com>;tag=6ef5 Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Path: <sip:term@p.a1.under.test.com;lr>

Service-Route: <sip:orig@s.a1.under.test.com;lr>

CSeq: 2 REGISTER

P-Associated-URI: <sip:UEa1_public_1@under.test.com>

Date: Wed, 11 July 2001 08:49:37 GMT

Content-Length: 0

15. SUBSCRIBE NUT -> P-CSCF

SUBSCRIBE sip:UEa1_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsb1

Max-Forwards: 70

Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=41415

To: <sip:UEa1_public_1@under.test.com>

Require: sec-agree Proxy-Require: sec-agree

Call-ID: c89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE



Allow-Events: reg

Event: reg

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

Expires: 600000

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Content-Length: 0

16. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsb1

Record-Route: <sip:p.a1.under.test.com:10001;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=41415
To: <sip:UEa1_public_1@under.test.com>;tag=251170

Call-ID: c89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE Allow-Events: reg Expires: 600000

Contact: <sip:s.a1.under.test.com>

Content-Length: 0

17. NOTIFYP-CSCF -> NUT

NOTIFY sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f82.1,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b56.1;received=3ffe:501:ffff:100::30

Max-Forwards: 69

From: <sip:UEa1_public_1@under.test.com>;tag=251170
To: <sip:UEa1_public_1@under.test.com>;tag=41415
Call-ID: c89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 NOTIFY

Contact: <sip:s.a1.under.test.com>

Subscription-State: active; expires=600000

Event: reg

Content-Type: application/reginfo+xml

Content-Length: (...)

<?xml version="1.0"?>

<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="0" state="full">
 <registration aor="sip:UEa1_public_1@under.test.com" id="a7" state="active">
 <contact id="76" state="active" event="registered">
 <uri>sip:UEa1_public_1@node.under.test.com</uri>

</contact>



</registration>

18. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f82.1;received=3ffe:501:ffff:100::10,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b56.1;received=3ffe:501:ffff:100::30

From: <sip:UEa1_public_1@under.test.com>;tag=251170

To: <sip:UEa1_public_1@under.test.com>;tag=41415

Call-ID: c89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 NOTIFY Content-Length: 0

[OBSERVABLE RESULTS]

*1: 11 REGISTER from NUT to P-CSCF

See generic_REGISTER

*2: 13 REGISTER for authentication from NUT to P-CSCF

See generic_Auth_REGISTER

*3: 15 SUBSCRIBE from NUT to P-CSCF

See generic_SUBSCRIBE

*4: 18 NOTIFY 200 OK from NUT to P-CSCF

See generic_200-NOTIFY

4.1.15 UE-RG-B-15-AKA - Timer F expiration (Registration)

[NAME]

UE-RG-B-15-AKA - Timer F expiration (Registration)

[TARGET]

IMS User Equipment (NUT)



[PURPOSE]

To verify that the UEa1 properly stops processing of all ongoing dialogs and transact ions and silently discards them locally when the timer F expires at the UE.

[REFERENCE] TS24.229 5.1.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-URI(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

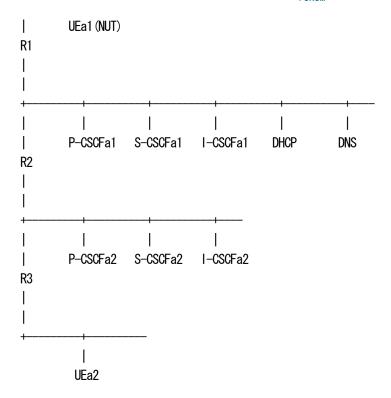
[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000 UEa2 3ffe:501:ffff:2000::1000 3ffe:501:ffff:1000::1 Router(R1) P-CSCFa1 : 3ffe:501:ffff:100::10 I-CSCFa1 3ffe:501:ffff:100::20 S-CSCFa1 3ffe:501:ffff:100::30 P-CSCFa2 3ffe:501:ffff:200::10 I-CSCFa2 3ffe:501:ffff:200::20 S-CSCFa2 3ffe:501:ffff:200::30

DNS : 3ffe:501:ffff:100::40 DHCP : 3ffe:501:ffff:100::50

[TOPOLOGY]				
+				

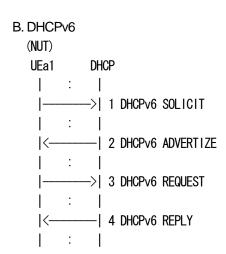




[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement



[PROCEDURE]

Home Network

(NUT)



UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
:		1			1	l	
	—> 	l I	l I	l I	l I	l I	1 REGISTER
:	 	<u>'</u>	>	i	İ	İ	REGISTER
:	1	1	I	I	1	I	1
:		<	— 				REGISTER
	l I	 	_> —>	l I	l I	l I	I 401 Unauthorized
:	l	İ	Ī	Ī	Ī	Ī	Ī
:	<		—I	I	I	I	401 Unauthorized
:							 2 401 Unauthorized
:	I	l I	l I	l I	l I	l I	2 401 Unauthor 12ea
i——		İ	İ	İ	İ	İ	3 REGISTER
:	1	1	I	I	I	I	for authentication
:		1	> >		l	l	REGISTER
	l I	 <	 	l I	l I	l I	for authentication REGISTER
:	İ	İ	İ	İ	İ	İ	for authentication
:			—>	I	I	I	200 OK
:		1	l		l	l	 200 0K
	<	1	—	l I	l I	l I	200 UK
<	i	İ	İ	İ	İ	İ	4 200 OK
:	1	1	1	1	1	1	1
 :	—> >					l	5 SUBSCRIBE
:		>					I SUBSCRIBE
:	1	1	I	I	1	I	1
:	<	<u> </u>	1	1	1	1	200 0K
: <	 	1	l I	l I	l I	l I	 6 200 OK
:		i I	i I	i I	i I	l I	0 200 010
:	<	[I	I	1	I	NOTIFY
:		1	l	 	 	l	
	 	l I	l I	l I	l I	l I	7 NOTIFY
ļ	—> —>		İ	ĺ	İ	İ	8 200 0K
:	1	1	I	1	1	1	1
:		—>	<u> </u>		1	l	200 OK
:	 >	 	l I	l I	l I	l I	 9 INVITE
1	71	ı	1	1	I	1	3 HAALIE



1 :	I	I	I	I	I	l I		
· :	>					I I	IN\	/ITE
:	1	l	l	l	l	l		
\	- -	 	 	 	 	 	10 10	00 Trying
:		 	>	! 	! 	! 	l IN	WITE
:	1	l	I	l	l			
:	<		 	 -	 -		10	00 Trying
·	 	l 	I 	I >	I I	 	ı.	WITE
· :	İ					I I		
:	1	<		l	l	l	10	00 Trying
	 	 	 	 	 >	 	l IN	WITE
:		 	' 	' 		' 		*****
:		l	l	<	l		10	00 Trying
:	1	 	 	 	 	 >		WITE
:	1	 	! 	 	! 	/ 	11	WIIL
:	ļ		l		<		10	00 Trying
:			 -	 -	<u> </u>			20 D' '
	 	 	l I	l I	l I	< 	18	30 Ringing
· :	İ				<		18	30 Ringing
:	1	l	l	l	l	l		
:		 	 	< 	 	 	18	30 Ringing
:		' <		' 	' 	' 	18	30 Ringing
:		l	l	l	l			
:	<	 	 	 	 	 	18	30 Ringing
·	 -	 	 	I 	 	 	 11 18	30 Ringing
:	1	l	I	l	l			
:						<	20	00 OK
	 	 	I I	l I	I <	 	20	00 OK
:	İ		I	I		I :		
:	1	<u> </u>	l	<	l	l	20	00 OK
	1 1	 <	<u> </u>	l I	l I	 	20	00 OK
:			l					
:	<	l	l	l	l		20	00 OK
:	1		l	l	l			



 	1	-	1	12 200 OK
$T \; : \; T \; T \; T$	1	I	I	1
>	1		1	13 ACK
1 : 1 1	1	1	I	
: >	1	- 1	I	ACK
1 : 1 1	1	1	1	1
· · · · · · · · · · · · · · · · · · ·		>l	i	ACK
	1	1	i	1
	i	i	>I	ACK
	i	i i	/ I	Not
	!	1	! !	> ACK
	1	1	1	- / Aux
	1	1	1	l NOTIFY
. .	- 1	1	1	NOTIFY
	1	1	1	for re-authentication
				14 NOTIFY
			 	for re-authentication
>	I		I	15 200 OK
			l	
: >	I		I	200 OK
1 : 1 1	I		I	1
>			1	16 REGISTER
I : I I I	1		I	for reregisteration
				—— Timer F start
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1		1	1
:	1		I	REGISTER
1 : 1 1	1	1	I	for reregisteration
: <	1	- 1	1	REGISTER
	1	1	1	for reregisteration
				Timer F fired
1: 1 1	1	1	1	(T1*64=128sec)
	·	—>I	İ	l BYE
	1	i	i	·
· · · · · · · · · · · · · · · · · · ·	i	i	i	BYE
	i	' 	i	
·	ı I	l I	ı I	17 BYE
	ı	ı I	ı	17 015
	I I	I I	l I	10 /No records
	l I	ļ	l I	18 (No response
	I		I	or ICMP error> (*1)
	I	I	I	I

- 1 NUT sends REGISTER
- 2 NUT receives 401 Unauthorized
- 3 NUT sends REGISTER for authentication



```
4 NUT receives 200 OK
5 NUT sends SUBSCRIBE
6 NUT receives 200 OK
7 NUT receives NOTIFY
8 NUT sends 200 OK
9 NUT sends INVITE
10 NUT receives 100 Trying
11 NUT receives 180 Ringing
12 NUT receives 200 OK
13 NUT sends ACK
14 NUT receives NOTIFY for re-authentication
15 NUT sends 200 OK
16 NUT sends REGISTER for reregisteration
17 Tester sends BYE
18 < No response or ICMP error>
=== Message example ===
As regards the message 1-8, please refer to the message 1-8 in UE-RG-B-1-AKA.
As regards the message 9-13, please refer to the message 1-5 in UE-SE-B-1-AKA.
14. NOTIFY P-CSCF -> NUT
NOTIFY sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.2,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.2;received=3ffe:501:ffff:100::30
Max-Forwards: 69
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 2 NOTIFY
Contact: <sip:s.a1.under.test.com>
Subscription-State: active; expires=600000
Event: rea
Content-Type: application/reginfo+xml
Content-Length: (...)
<?xml version="1.0"?>
<reginfo xmlns="um:ietf:params:xml:ns:reginfo" version="1" state="full">
     <registration aor="sip:UEa1 public 1@under.test.com" id="a7" state="active">
         <contact id="76" state="active" event="shortened" expires="30">
             <uri>sip:UEa1_public_1@node.under.test.com</uri>
         </contact>
     </registration>
</reginfo>
```



15. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.2;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.2;

received=3ffe:501:ffff:100::30

From: <sip:UEa1_public_1@under.test.com>;tag=151170 To: <sip:UEa1_public_1@under.test.com>;tag=31415

Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

CSeq: 2 NOTIFY Content-Length: 0

16. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds9

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", uri="sip:under.test.com",

response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=33456789; spi-s=22345678;

port-c=3468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Require: sec-agree Proxy-Require: sec-agree CSeq: 3 REGISTER Supported: path Content-Length: 0

17. BYE P-CSCF -> NUT

BYE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c501,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bKnashdsa2.3;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c9.1;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghds30;received=3ffe:501:ffff:200::10, SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashdsb3

Max-Forwards: 66



From: <sip:UEa2_public_1@under.test.com>;tag=314259
To: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

18. <No response or ICMP error>

[OBSERVABLE RESULTS]

*1: 18 No response or ICMP error

The process of all ongoing dialogs and transactions SHALL be stopped and silently discarded them locally.[TS24229-5.1-177]

The UAC SHOULD NOT immediately re-attempt a registration to the same registrar.[RFC3261-10.2-18]

4.1.16 UE-RG-B-16-AKA - Reception of 401 response with no Security-Server header to initial registration

[NAME]

UE-RG-B-16-AKA - Reception of 401 response with no Security-Sever header to initial registration

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly abandons the authentication procedure and sends a new REGISTER request with a new Call-ID when Security-Sever header is not present.

[REFERENCE]

TS24.229 5.1.1.2.1

TS24.229 5.1.1.2.2

TS24.229 5.1.1.5.1



[REQUIREMENT] NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

 UEa1(NUT)
 :
 3ffe:501:ffff:1000::1000

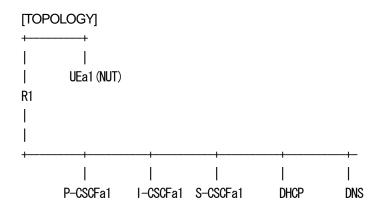
 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::50

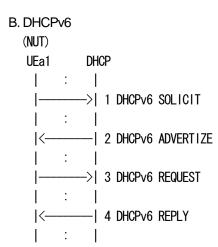


[INITIALIZATION]

Set up IP Address using A or B.

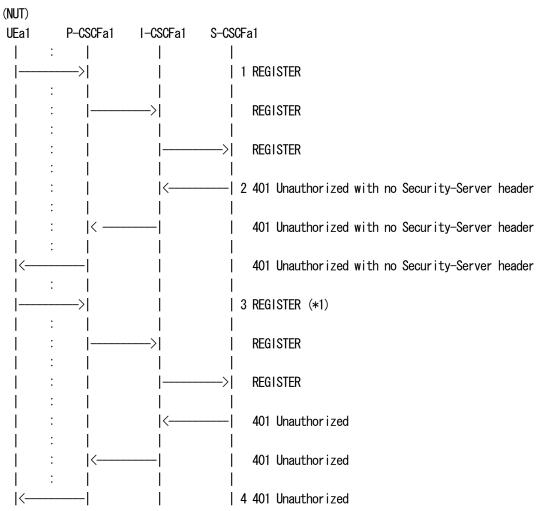
A. Router Advertisement



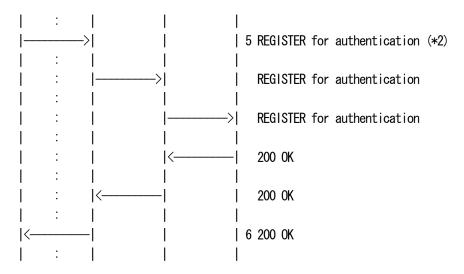


[PROCEDURE]

Home Network







- 1 NUT sends REGISTER
- 2 NUT receives 401 Unauthorized with no Security-Server header
- 3 NUT sends REGISTER
- 4 NUT receives 401 Unauthorized
- 5 NUT sends REGISTER for authentication
- 6 NUT receives 200 OK

=== Message example ===

1. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashds7

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa3

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", nonce="",

uri="sip:under.test.com", response=""

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=23456789; spi-s=12345678;

port-c=2468; port-s=1357 Require: sec-agree

Proxy-Require: sec-agree
CSeq: 1 REGISTER
Supported: path

Content-Length: 0

2. 401 Unauthorized P-CSCF -> NUT



SIP/2.0 401 Unauthorized

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashds7

WWW-Authenticate: Digest realm="under.test.com",

nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5

From: <sip:UEa1_public_1@under.test.com>;tag=4fa3
To: <sip:UEa1_public_1@under.test.com>;tag=5ef4
Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

CSeq: 1 REGISTER Content-Length: 0

3. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashdt7

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=5fa3

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com>;expires=600000

Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", nonce="",

uri="sip:under.test.com", response=""

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=23456780; spi-s=12345679;

port-c=2469; port-s=1357 Require: sec-agree

Proxy-Require: sec-agree CSeq: 1 REGISTER Supported: path Content-Length: 0

4. 401 Unauthorized P-CSCF -> NUT

SIP/2.0 401 Unauthorized

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashdt7

WWW-Authenticate: Digest realm="under.test.com",

nonce="J2U8vpY3qJhiuZNrke/ObponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5

From: <sip:UEa1_public_1@under.test.com>;tag=5fa3 To: <sip:UEa1_public_1@under.test.com>;tag=6ef4 Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

CSeq: 1 REGISTER Content-Length: 0



5. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdt8

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=5fa3

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", algorithm=AKAv1-MD5, nonce="J2U8vpY3qJhiuZNrke/ObponGSCcLm5iR+WCRkWYoM",

uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=23456780; spi-s=12345679;

port-c=2469; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Require: sec-agree

Proxy-Require: sec-agree CSeq: 2 REGISTER Supported: path Content-Length: 0

6. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdt8

From: <sip:UEa1_public_1@under.test.com>;tag=5fa3 To: <sip:UEa1_public_1@under.test.com>;tag=6ef5 Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Path: <sip:term@p.a1.under.test.com;lr>

Service-Route: <sip:orig@s.a1.under.test.com;lr>

CSeq: 2 REGISTER

P-Associated-URI: <sip:UEa1_public_1@under.test.com>

Date: Wed, 11 July 2001 08:49:37 GMT

Content-Length: 0

[OBSERVABLE RESULTS]

*1: 3 REGISTER from NUT to P-CSCF

See generic_REGISTER

Authentication procedure SHALL be abandoned and a new REGISTER request SHALL be sent with a new Call-ID if the Security-Server header field is



not present or it does not contain the parameters required for the setup of the set of security associations. [TS24229-5.1-219]

*2: 5 REGISTER for authentication from NUT to P-CSCF

See generic_Auth_REGISTER

4.1.17 UE-RG-B-17-AKA - Charge from the old SAs to the new SAs

[NAME]

UE-RG-B-17-AKA - Change from the old SAs to the new SAs

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly deletes the old set of security associations and related keys it may have with the P-CSCF after all SIP transactions that use the old set of security associations are completed if the first request or response protected with the newly established set of security associations is received from the P-CSCF.

[REFERENCE]

TS24.229 5.1.1.5.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-URI(UEa2) : sip:UEa2_public_1@under.test.com

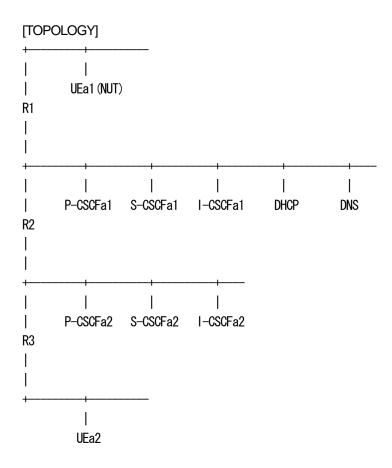
173



P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

UEa1(NUT) 3ffe:501:ffff:1000::1000 : UEa2 3ffe:501:ffff:2000::1000 P-CSCFa1 3ffe:501:ffff:100::10 I-CSCFa1 3ffe:501:ffff:100::20 S-CSCFa1 3ffe:501:ffff:100::30 P-CSCFa2 3ffe:501:ffff:200::10 I-CSCFa2 3ffe:501:ffff:200::20 S-CSCFa2 : 3ffe:501:ffff:200::30 Router(R1) 3ffe:501:ffff:1000::1 DNS 3ffe:501:ffff:100::40 DHCP 3ffe:501:ffff:100::50



[INITIALIZATION]



Set up IP Address using A or B.

A. Router Advertisement

[PROCEDURE]

Home Network

(NUT)								
UEa1		P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
- 1	:	1	1	1	I	1	I	I
		—>	1	1	1	1	1	1 REGISTER
-	:		1	I	I	1	I	I
- 1	:	ļ		—>	I		I	REGISTER
-	:		1	I	I	1	I	I
- 1	:	1	<	—I	I		I	REGISTER
- 1	:						I	I
1	:	1		—>	I		I	401 Unauthorized
- 1	:	1	I	I	I		I	I
- 1	:	<			I		I	401 Unauthorized
- 1	:						I	I
<							I	2 401 Unauthorized
- 1	:						I	I
		—>					I	3 REGISTER for authentication with temporary SA1
- 1	:						I	I
- 1	:			—>			I	REGISTER for authentication
-	:			I	I		I	I
- 1	:		<	—			I	REGISTER for authentication
1	:	1		I	I		I	1
- 1	:			—>	I	1	I	200 OK
I	:	l	I	I	I	1	I	I



	200 OK
	4 200 OK with SA1
	5 SUBSCRIBE with SA1
: >	SUBSCRIBE
: <	200 OK
 	6 200 OK with SA1
: <	NOTIFY
-1 : -1 -1 -1 -1 -1	
 	7 NOTIFY with SA1
>	8 200 OK with SA1
: >	200 OK
	9 INVITE with SA1
	İ
: 	INVITE
	İ
· · · · · · · · · · · · · · · · · · ·	10 100 Trying with SA1
: 	INVITE
	l 100 Trying
	100 11 11115
	I INVITE
	INVIIL
	l 100 Trying
	l 100 IT ying
	I INVITE
	INVIIE
	100 Trying
	INDUTE
	> INVITE
	100 Trying
	< 180 Ringing



:		1 1 1	
:			180 Ringing
:			l 190 Binging
:			180 KINGING
:	: <	—I I I	180 Ringing
:			1 400 81 1
:	: (180 Kinging
:	 	i i i	11 180 Ringing with SA1
:		1 1 1	<u> </u>
:	: (NOTIFY for re-authentication
:	·		1 12 NOTIFY for re-authentication with SA1
:	-1 - : -111	1 1	I
:	>		13 200 OK with SA1
:	: >		200 0K
:		i i i	İ
:	>		14 REGISTER for re—authentication with SA1
:	:		REGISTER for re-authentication
:		· · · ·	
:	: (1 1	REGISTER for re-authentication
:			
:	:		401 Unauthorized
:	: <	i i i	401 Unauthorized
:		1 1 1	<u> </u>
	 		15 401 Unauthorized with SA1
:		· · · · ·	16 REGISTER for authentication with temporary SA2
:	-1 : 1 -1 -1	1 1 1	1
:	:		REGISTER for authentication
:	;		
:		i i i	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$: >	1 1	200 OK
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			
< 17 200 0K with SA1	. \	ı I I	200 UN
	 		17 200 OK with SA1
	$I : I \qquad I \qquad I$	1 1 1	I



:	1 . 1 . 1	1 1	1 1/2 1	200 OK to INVITE request
:				200 ON to INVITE request
:		i	· · · · · · · · · · · · · · · · · · ·	200 OK to INVITE request
:	:	1 1	1 1 1	
:	:	<	-	200 OK to INVITE request
:	: : :	1 1		
:		<		200 OK to INVITE request
:				200 OK to INVITE request
:		i	 I I I	200 011 00 1111 112 1 0444000
	<	1 1	1 1 1	18 200 OK to INVITE request with SA1
:	:	1 1	1 1 1	
:				19 ACK with SA2 (*1)
:				ACV
:		1 1	1 1 1	AUN
:	: : :		· · · · · · · · · · · · · · · · · · ·	ACK
:] :]]	1 1	i i i	
:	:	1 1	>	ACK
:	:	1 1	1 1 1	
>			>	ACK
:				20 RVE with SA2 (+2)
:				20 DIE WIGH ONZ (*2)
: BYE	: : :	i	i i i	BYE
$\begin{array}{cccccccccccccccccccccccccccccccccccc$:	1 1	1 1 1	
:	:	;)	BYE
: BYE				21/5
			>	BYE
	1 : 1			BYF
		i	1 1 1	
: 200 OK	:	1 1		200 OK
	:	1 1	1 1 1	
:			<	200 OK
				200 04
: < 200 0K	: : :		- 	200 UN
: <	: : :			200 OK
	1 : 1	I I		
< 21 200 0K with SA2	<	1 1	1 1 1	21 200 OK with SA2
	[: [I I	1 1	
:	:			INVITE



	:	1	1	1	1				
	:	1	1	1	1	<	-		INVITE
1	:	1	1	1	1	1	1		
	:	1	1	I	<	-	1		INVITE
	:	1	1	I	1		1		
	:	1	<		-		1		INVITE
	:		1	I	1		1		
	:	<	-	I	1		1		INVITE
	:		1	1					
<		-	1	I	1			22	INVITE with SA1
	:	1	1	I	1				
	:		1	I	1			23	< No response or ICMP error > (*3)
1	:	1	1	1	1	1	1	1	

- 1 NUT sends REGISTER
- 2 NUT receives 401 Unauthorized
- 3 NUT sends REGISTER for authentication with temporary SA1
- 4 NUT receives 200 OK with SA1
- 5 NUT sends SUBSCRIBE with SA1
- 6 NUT receives 200 OK with SA1
- 7 NUT receives NOTIFY with SA1
- 8 NUT sends 200 OK with SA1
- 9 NUT sends INVITE with SA1
- 10 NUT receives 100 Trying with SA1
- 11 NUT receives 180 Ringing with SA1
- 12 NUT receives NOTIFY for re-authentication with SA1
- 13 NUT sends 200 OK to NOTIFY with SA1
- 14 NUT sends REGISTER for re-authentication with SA1
- 15 NUT receives 401 Unauthorized with SA1
- 16 NUT sends REGISTER for authentication with temporary SA2
- 17 NUT receives 200 OK to REGISTER with SA2
- 18 NUT receives 200 OK to INVITE request with SA1
- 19 NUT sends ACK with SA2
- 20 NUT sends BYE with SA2
- 21 NUT receives 200 OK
- 22 Tester sends INVITE with SA1
- 23 < No response or ICMP error >

=== Message example ===

As regards the message 1-8, please refer to the message 1-8 in UE-RG-B-1-AKA.

As regards the message 9-11, please refer to the message 1-3 in UE-SE-B-1-AKA.

As regards the message 12-17, please refer to the message 9-14 in UE-RG-B-3-AKA.



18. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Record-Route: <sip:p.a2.under.test.com;lr>,<sip:s.a2.under.test.com;lr>,

<sip:s.a1.under.test.com;lr>,<sip:p.a1.under.test.com:10001;lr>
From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Content-Type: application/sdp

Content-Length: 153

v=0

o=UEa2 2890844527 2890844527 IN IP6 nodea2.under.test.com

S=

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 3456 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

19. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@nodea2.under.test.com:22222 SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf10 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

20. BYE NUT -> P-CSCF

BYE sip:UEa2_public_1@nodea2.under.test.com:22222 SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf11 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,



<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

Require: sec-agree Proxy-Require: sec-agree

Content-Length: 0

21. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf11

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

22. INVITE P-CSCF -> NUT

INVITE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

181



Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com

S=

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

23. < No response or ICMP error >

[OBSERVABLE RESULTS]

*1: 19 ACK with SA2 from NUT to P-CSCF

See generic_ACK

- Security behavior:

The newly established set of security associations SHALL be used for further messages sent towards the P-CSCF as appropriate. [TS24229-5.1-237]

The previous security associations SHALL be replaced the new security associations.[TS33203-7.4-1]

The sever ports of UE and P-CSCF SHALL not be changed, while the protected client ports of UE and P-CSCF SHALL change.[TS33203-7.4-2]

*2: 20 BYE with SA2 from NUT to P-CSCF

See generic_BYE

- Security behavior:

The newly established set of security associations SHALL be used for further messages sent towards the P-CSCF as appropriate.[TS24229-5.1-237]



*3: 23 No response or ICMP error

- Security behavior:

The newly established set of security associations SHALL be used for further messages sent towards the P-CSCF as appropriate.[TS24229-5.1-237]

The old set of security associations SHALL be deleted after all SIP transactions that use the old set of security associations are completed. [TS24229-5.1-240]

4.1.18 UE-RG-B-18-AKA - Invalid authentication parameter (MAC) and 403 response

[NAME]

UE-RG-B-18-AKA - Invalid authentication parameter (MAC) and 403 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

- (1) To verify that the UEa1 properly responds with a further REGISTER indicating to the S-CSCF that the challenge has been deemed invalid
- (2) To verify that the UEa1 properly considers the registration to have failed and deletes the temporary set of security associations it was trying to establish when a 403 (Forbidden) response is received.
- (3) To verify that the UEa1 properly resends a new REGISTER with the old set of security associations.
- (4) To verify that the UEa1 properly sends an unprotected REGISTER message when the old set of security associations are no longer active at the P-CSCF.

[REFERENCE]

TS24.229 5.1.1.2.1

TS24.229 5.1.1.2.2

TS24.229 5.1.1.3

TS24.229 5.1.1.5.1



TS24.229 5.1.1.5.3

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

 UEa1(NUT)
 :
 3ffe:501:ffff:1000::1000

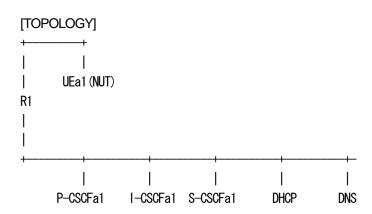
 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::50

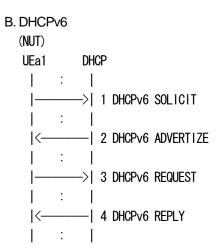


[INITIALIZATION]

Set up IP Address using A or B.

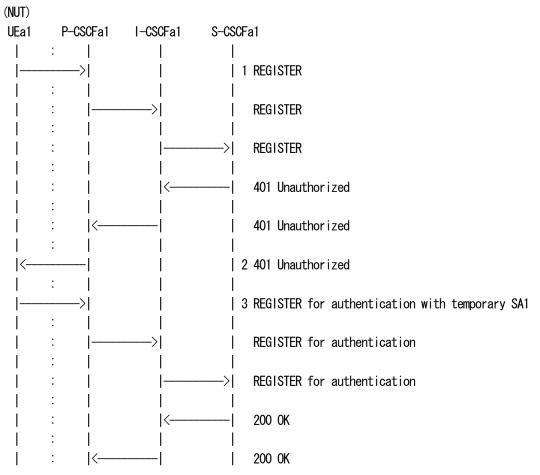


A. Router Advertisement



[PROCEDURE]

Home Network



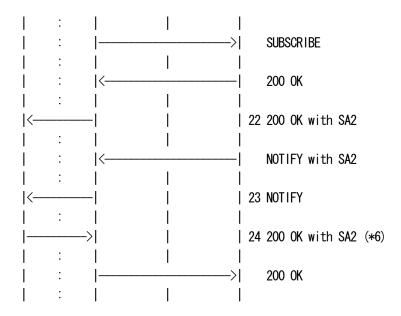


1 . 1 . 1	
·	4 200 OK
	5 SUBSCRIBE with SA1
:	SUBSCRIBE
:	200 OK
:	6 200 OK with SA1
:	NOTIFY
:	7 NOTIFY with SA1
:	8 200 OK
:	200 OK with SA1
:	NOTIFY for reregistration
:	9 NOTIFY for reregistration with SA1
:	10 200 OK
	200 OK with SA1
	11 REGISTER for reregistration with SA1
	REGISTER for reregistration
	REGISTER for reregistration
	401 Unauthorized (with incorrect MAC value)
:	401 Unauthorized (with incorrect MAC value)
	12 401 Unauthorized (with incorrect MAC value) with SA1
:	13 REGISTER with SA1 (*1)
:	REGISTER



1 . 1	1
·	I REGISTER
	l 403 Forbidden
:	403 Forbidden
·	 14 403 Forbidden with SA1
	 15 REGISTER with SA1 (*2)
· ·	REGISTER
	REGISTER
·	i - 16 No response I
	17 REGISTER with no SAs (*3)
: > : >	REGISTER
·	REGISTER
	i 401 Unauthorized
: -	i 401 Unauthorized
·	 18 401 Unauthorized
	19 REGISTER for authentication with temporary SA2 (*4)
· ·	REGISTER for authentication
	REGISTER for authentication
	200 OK
: -	200 OK
·	 20 200 OK with SA2
 	21 SUBSCRIBE with SA2 (*5)





- 1 NUT sends REGISTER with no SA
- 2 NUT receives 401 Unauthorized with no SA
- 3 NUT sends REGISTER for authentication with temporary SA1
- 4 NUT receives 200 OK with SA1
- 5 NUT sends SUBSCRIBE
- 6 NUT receives 200 OK
- 7 NUT receives NOTIFY
- 8 NUT sends 200 OK
- 9 NUT receives NOTIFY
- 10 NUT sends 200 OK
- 11 NUT sends REGISTER with SA1
- 12 NUT receives 401 Unauthorized (with incorrect MAC value) with SA1
- 13 NUT sends REGISTER with SA1
- 14 NUT receives 403 Forbidden with temporary SA2
- 15 NUT sends REGISTER with SA1
- 16 NUT receives no response
- 17 NUT sends REGISTER with no SAs
- 18 NUT receives 401 Unauthorized with no SAs
- 19 NUT sends REGISTER for authentication with temporary SA2
- 20 NUT receives 200 OK with SA2
- 21 NUT sends SUBSCRIBE with SA2
- 22 NUT receives 200 OK with SA2
- 23 NUT receives NOTIFY with SA2
- 24 NUT sends 200 OK with SA2
- === Message example ===

As regards the message 1-11, please refer to the message 1-11 in UE-RG-B-3-AKA.



12. 401 Unauthorized P-CSCF -> NUT

SIP/2.0 401 Unauthorized

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds9

WWW-Authenticate: Digest realm="under.test.com",

nonce=base64(RAND + AUTN including a invalid MAC + server specific data), algorithm=AKAv1-MD5

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4
To: <sip:UEa1_public_1@under.test.com>;tag=5ef6
Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

CSeq: 3 REGISTER

Security-Server: ipsec-3qpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

Content-Length: 0

13. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds10

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com",

algorithm=AKAv1-MD5, nonce=base64(RAND + AUTN including a invalid MAC + server specific data),

uri="sip:under.test.com", response=""

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=33456789; spi-s=22345678;

port-c=3468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

Require: sec-agree Proxy-Require: sec-agree CSeq: 4 REGISTER Supported: path Content-Length: 0

14. 403 Forbidden P-CSCF -> NUT

SIP/2.0 403 Forbidden

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds10

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4
To: <sip:UEa1_public_1@under.test.com>;tag=5ef7
Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

CSeq: 4 REGISTER
Content-Length: 0



15. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdu8

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=5fa3

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", nonce="",

uri="sip:under.test.com", response=""

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=43456789; spi-s=32345678;

port-c=4468; port-s=1357

Require: sec-agree

Proxy-Require: sec-agree CSeq: 1 REGISTER Supported: path Content-Length: 0

16. < No Response>

17. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashdv8

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=6fa3

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com>;expires=600000

Call-ID: cpb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", nonce="",

uri="sip:under.test.com", response=""

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=53456789; spi-s=42345678;

port-c=5468; port-s=1357 Require: sec-agree

Proxy-Require: sec-agree CSeq: 1 REGISTER Supported: path

Content-Length: 0



18. 401 Unauthorized P-CSCF -> NUT

SIP/2.0 401 Unauthorized

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashdv8

WWW-Authenticate: Digest realm="under.test.com",

nonce="J2U8vpY3qJhiuZNrke/ObponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5

From: <sip:UEa1_public_1@under.test.com>;tag=6fa3 To: <sip:UEa1_public_1@under.test.com>;tag=6ef4 Call-ID: cpb03a0s09dkjdfglkj49111@under.test.com

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=276; spi-s=277; port-c=10006; port-s=10001

CSeq: 1 REGISTER Content-Length: 0

19. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdv9

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=6fa3

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: cpb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", algorithm=AKAv1-MD5, nonce="J2U8vpY3qJhiuZNrke/ObponGSCcLm5iR+WCRkWYoM",

uri="sip:under.test.com", response="7729fae49393a05397450978507c4ef2"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=53456789; spi-s=42345678;

port-c=5468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=276; spi-s=277; port-c=10006; port-s=10001

Require: sec-agree Proxy-Require: sec-agree CSeq: 2 REGISTER Supported: path Content-Length: 0

20. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdv9

From: <sip:UEa1_public_1@under.test.com>;tag=6fa3 To: <sip:UEa1_public_1@under.test.com>;tag=6ef5 Call-ID: cpb03a0s09dkjdfglkj49111@under.test.com

Contact: <sip:UEa1 public 1@node.under.test.com:1357>;expires=600000

Path: <sip:term@p.a1.under.test.com;lr>

Service-Route: <sip:orig@s.a1.under.test.com;lr>



CSeq: 2 REGISTER

P-Associated-URI: <sip:UEa1_public_1@under.test.com>

Date: Wed, 11 July 2001 08:49:37 GMT

Content-Length: 0

21. SUBSCRIBE NUT -> P-CSCF

SUBSCRIBE sip:UEa1_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsb1

Max-Forwards: 70

Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=41415

To: <sip:UEa1_public_1@under.test.com>

Require: sec-agree

Proxy-Require: sec-agree

Call-ID: c89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE Allow-Events: reg

Event: reg

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=276; spi-s=277; port-c=10006; port-s=10001

Expires: 600000

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Content-Length: 0

22. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsb1

Record-Route: <sip:p.a1.under.test.com:10001;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=41415
To: <sip:UEa1_public_1@under.test.com>;tag=251170

Call-ID: c89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE Allow-Events: reg Expires: 600000

Contact: <sip:s.a1.under.test.com>

Content-Length: 0

23. NOTIFY P-CSCF -> NUT

NOTIFY sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f82.1,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b56.1;received=3ffe:501:ffff:100::30



```
Max-Forwards: 69
From: <sip:UEa1_public_1@under.test.com>;tag=251170
To: <sip:UEa1_public_1@under.test.com>;tag=41415
Call-ID: c89rjhnedlrfjflslj40a222@under.test.com
CSeq: 1 NOTIFY
Contact: <sip:s.a1.under.test.com>
Subscription-State: active; expires=600000
Event: rea
Content-Type: application/reginfo+xml
Content-Length: (...)
<?xml version="1.0"?>
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="0" state="full">
     <registration aor="sip:UEa1_public_1@under.test.com" id="a7" state="active">
         <contact id="76" state="active" event="registered">
              <uri>sip:UEa1_public_1@node.under.test.com</uri>
         </contact>
     </registration>
</reginfo>
24. 200 OK NUT -> P-CSCF
SIP/2.0 200 OK
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f82.1;
received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b56.1;
received=3ffe:501:ffff:100::30
From: <sip:UEa1_public_1@under.test.com>;tag=251170
To: <sip:UEa1_public_1@under.test.com>;tag=41415
Call-ID: c89rjhnedlrfjflslj40a222@under.test.com
CSeq: 1 NOTIFY
Content-Length: 0
[OBSERVABLE RESULTS]
*1: 13 REGISTER for authentication with SA1 from NUT to P-CSCF
      See generic_re_REGISTER
       - Exception{
        * Authorization
          The response directive in Authorization header field SHALL be set
          to the last calculated response value. [TS24229-5.1-187]
         }
```



The REGISRER request for authentication that includes the cause of failure SHALL be sent towards the Home Network.[TS33203-6.1-26]

The client SHOULD NOT retry the same request without modification. [RFC3261-21.4-1]

- Security behavior:

The REGISTER request SHALL be sent using an existing set of security associations.[TS24229-5.1-250]

A temporary set of security associations SHALL not be created. [TS24229-5.1-252]

The REGISTER request which may pass through an already established SA and indicate a network authentication failure SHALL be sent to the P-CSCF. [TS33203-7.3-5]

- Header field:

This new request SHOULD have the same value of the Call-ID, To, and From of the previous request, but the CSeq should contain a new sequence number that is one higher than the previous. [RFC3261-8.1-62]

* Authorization

No AUTS directive and an empty response directive SHALL be contained in the subsequent REGISTER request.[TS24229-5.1-247]

* Security-Client

The UE shall populate a new Security-Client header field within the REGISTER request and associated contact address, set to specify the security mechanism it supports, the IPsec layer algorithms for integrity and confidentiality protection it supports and the parameters needed for the new security association setup. ITS24229-5.1-2511

*2: 15 REGISTER with SA1 from NUT to P-CSCF

See generic_REGISTER

The registration SHALL be considered to have failed if 403 (Forbidden) response is received.[TS24229-5.1-243]



The temporary set of security associations SHALL be deleted and the old set of security associations SHALL be used.[TS24229-5.1-244]

The client SHOULD NOT retry the same request without modification. [RFC3261-21.4-1]

*3: 17 REGISTER with no SAs from NUT to P-CSCF

See generic_REGISTER

- Security behavior:

An unprotected REGISTER request SHOULD be sent when the security associations no longer active at the P CSCF.[TS33203-7.4-9]

*4: 19 REGISTER for authentication with temporary SA3 from NUT to P-CSCF

See generic_Auth_REGISTER

*5: 21 SUBSCRIBE with SA2 from NUT to P-CSCF

See generic_SUBSCRIBE

*6: 24 NOTIFY 200 OK with SA2 from NUT to P-CSCF

See generic_200-NOTIFY

4.1.19 UE-RG-B-19-AKA - Invalid authentication parameter(SQN)

[NAME]

UE-RG-B-19-AKA - Invalid authentication parameter (SQN)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly responds with a further REGISTER indicating to the S-CSCF that the challenge has been deemed invalid and only responds to two consecutive invalid challenges and does not automatically attempt authentication after two consecutive failed attempts to authenticate.



[REFERENCE] TS24.229 5.1.1.5.3

TS24.229 5.1.1.5.12

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

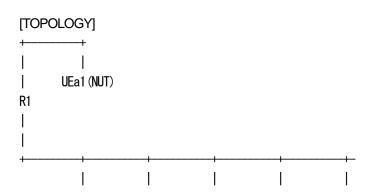
 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::50



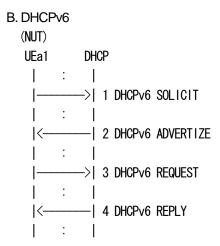


P-CSCFa1 I-CSCFa1 S-CSCFa1 DHCP DNS

[INITIALIZATION]

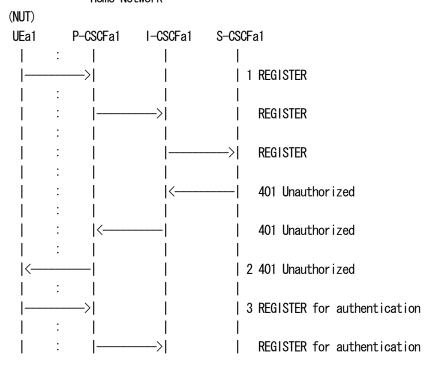
Set up IP Address using A or B.

A. Router Advertisement



[PROCEDURE]

Home Network





	I I	1
		REGISTER for authentication
	 	200 OK
	 <	200 OK
: <		4 200 OK
: >		5 SUBSCRIBE
	 	SUBSCRIBE
	 <	200 OK
: <		6 200 OK
		NOTIFY
: <		7 NOTIFY
: >		8 200 OK
	 	200 OK
:	 <	NOTIFY for re-authentication
: <		9 NOTIFY for re-authentication
: >		10 200 OK
:	 	200 OK
: >		 11 REGISTER for reregisteration
:	 >	REGISTER for reregisteration
		REGISTER for reregisteration
:	 	401 Unauthorized
:		401 Unauthorized



:	12 401 Unauthorized (with incorrect SQN value)
	13 REGISTER for authentication (*1)
	REGISTER for authentication
	REGISTER for authentication
	401 Unauthorized
: -	401 Unauthorized
·	14 401 Unauthorized (with incorrect SQN value)
	15 REGISTER for authentication (*2)
·	REGISTER for authentication
: >	REGISTER for authentication
. . . .	401 Unauthorized
: -	401 Unauthorized
·	16 401 Unauthorized (with incorrect SQN value)
	17 <no more="" register="" requests=""> (*3)</no>

- 1 NUT sends REGISTER
- 2 NUT receives 401 Unauthorized
- 3 NUT sends REGISTER for authentication
- 4 NUT receives 200 OK
- 5 NUT sends SUBSCRIBE
- 6 NUT receives 200 OK
- 7 NUT receives NOTIFY
- 8 NUT sends 200 OK
- 9 NUT receives NOTIFY for re-authentication
- 10 NUT sends 200 OK
- 11 NUT sends REGISTER for reregisteration
- 12 NUT receives 401 Unauthorized
- 13 NUT sends REGISTER for authentication



14 NUT receives 401 Unauthorized15 NUT sends REGISTER for authentication16 NUT receives 401 Unauthorized17 <No more REGISTER requests>

=== Message example ===

As regards the message 1-11, please refer to the message 1-11 in UE-RG-B-3-AKA.

12. 401 Unauthorized P-CSCF -> NUT

SIP/2.0 401 Unauthorized

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds9

WWW-Authenticate: Digest realm="under.test.com",

nonce=base64(RAND + AUTN including a invalid SQN + server specific data), algorithm=AKAv1-MD5

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4
To: <sip:UEa1_public_1@under.test.com>;tag=5ef6
Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

CSeq: 3 REGISTER

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

Content-Length: 0

13. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds10

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com",

algorithm=AKAv1-MD5, nonce=base64(RAND + AUTN including a invalid SQN + server specific data),

uri="sip:under.test.com", auts="5PYxMuX2NOT2NeQ=" response="calculated without password" Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=43456789; spi-s=32345678;

port-c=4468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Require: sec-agree
Proxy-Require: sec-agree
CSeq: 4 REGISTER
Supported: path
Content-Length: 0

14. 401 Unauthorized P-CSCF -> NUT



SIP/2.0 401 Unauthorized

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds10

WWW-Authenticate: Digest realm="under.test.com",

nonce=base64(RAND + AUTN including a invalid SQN + server specific data), algorithm=AKAv1-MD5

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4
To: <sip:UEa1_public_1@under.test.com>;tag=5ef7
Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

CSeq: 4 REGISTER

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=276; spi-s=277; port-c=10006; port-s=10001

Content-Length: 0

15. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds11

Max-Forwards: 70

From: <sip:UEa1 public 1@under.test.com>;tag=4fa4

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com",

algorithm = AKAv1-MD5, nonce = base 64 (RAND + AUTN including a invalid SQN + server specific data),

uri="sip:under.test.com", auts="5PYxMuX2NOT2NeQ=" response="calculated without password"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=53456789; spi-s=42345678;

port-c=5468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Require: sec-agree Proxy-Require: sec-agree CSeq: 5 REGISTER Supported: path

Content-Length: 0

401 Unauthorized P-CSCF -> NUT

SIP/2.0 401 Unauthorized

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds11

WWW-Authenticate: Digest realm="under.test.com",

nonce=base64(RAND + AUTN including a invalid SQN + server specific data), algorithm=AKAv1-MD5

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4
To: <sip:UEa1_public_1@under.test.com>;tag=5ef8

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

CSeq: 5 REGISTER

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=286; spi-s=287; port-c=10008; port-s=10001



Content-Length: 0

17. < No more REGISTER request>

[OBSERVABLE RESULTS]

*1: 13 REGISTER for authentication from NUT to P-CSCF

See generic_re_REGISTER

- Exception{
- * Authorization

The response directive in Authorization header field SHALL be set to the last calculated response value.[TS24229-5.1-187]
}

The REGISRER request for authentication that includes the cause of failure SHALL be sent towards the Home Network.[TS33203-6.1-26]

The client SHOULD NOT retry the same request without modification. [RFC3261-21.4-1]

- Security behavior:

The REGISTER request SHALL be sent using an existing set of security associations.[TS24229-5.1-250]

A temporary set of security associations SHALL not be created. [TS24229-5.1-252]

The REGISTER request which may pass through an already established SA and indicate a network authentication failure SHALL be sent to the P-CSCF. [TS33203-7.3-5]

- Header field:

This new request SHOULD have the same value of the Call-ID, To, and From of the previous request, but the CSeq should contain a new sequence number that is one higher than the previous. [RFC3261-8.1-62]

* Authorization

The AUTS directive SHALL be contained in the subsequent REGISTER request.[TS24229-5.1-248]



The client MUST calculate its credentials using an empty password. [RFC3310-3.4-1]

* Security-Client

The UE shall populate a new Security-Client header field within the REGISTER request and associated contact address, set to specify the security mechanism it supports, the IPsec layer algorithms for integrity and confidentiality protection it supports and the parameters needed for the new security association setup.[TS24229-5.1-251]

*2: 15 REGISTER for authentication from NUT to P-CSCF

See generic_re_REGISTER

- Exception{
- * Authorization

The response directive in Authorization header field SHALL be set to the last calculated response value.[TS24229-5.1-187]
}

The REGISRER request for authentication that includes the cause of failure SHALL be sent towards the Home Network. [TS33203-6.1-26]

The client SHOULD NOT retry the same request without modification. [RFC3261-21.4-1]

- Security behavior:

The REGISTER request SHALL be sent using an existing set of security associations.[TS24229-5.1-250]

A temporary set of security associations SHALL not be created.

A temporary set of security associations SHALL not be created. [TS24229-5.1-252]

The REGISTER request which may pass through an already established SA and indicate a network authentication failure SHALL be sent to the P-CSCF. [TS33203-7.3-5]

- Header field:

This new request SHOULD have the same value of the Call-ID, To, and From of the previous request, but the CSeq should contain a new sequence number that is one higher than the previous. [RFC3261-8.1-62]



* Authorization

The AUTS directive SHALL be contained in the subsequent REGISTER request.[TS24229-5.1-248]

The client MUST calculate its credentials using an empty password. [RFC3310-3.4-1]

* Security-Client

Security-Client header field SHALL be set to the security mechanism it supports, the IPsec layer algorithms for integrity and confidentiality protection it supports and the new parameter values needed for the setup of two new pairs of security associations.[TS24229-5.1-251]

*3: 17 No more REGISTER request

The REGISTER request SHALL be only sent to two consecutive invalid challenges and SHALL not be automatically sent authentication after two consecutive failed attempts to authenticate.[TS24229-5.1-273]

4.1.20 UE-RG-B-20-AKA - User-initiated deregistration and dialog release

[NAME]

UE-RG-B-20-AKA - User-initiated deregistration and dialog release

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that UEa1 properly releases all dialogs related to the public user identity that is going to be deregistered or to one of the implicitly registered public user identities except the dialog used for subscription to reg event package.

[REFERENCE]

TS24.229 5.1.1.6.1

[REQUIREMENT]

NONE



[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

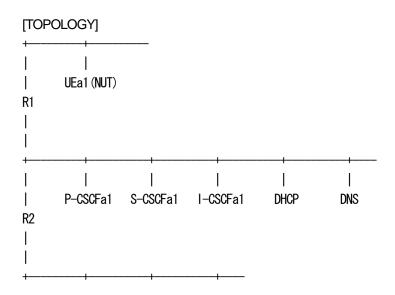
public-URI(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

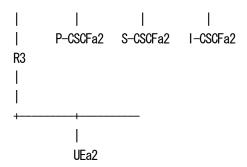
[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

Router(R1) 3ffe:501:ffff:1000::1 P-CSCFa1 3ffe:501:ffff:100::10 I-CSCFa1 3ffe:501:ffff:100::20 S-CSCFa1 3ffe:501:ffff:100::30 3ffe:501:ffff:100::40 DNS DHCP 3ffe:501:ffff:100::50 UEa2 3ffe:501:ffff:2000::1000 P-CSCFa2 : 3ffe:501:ffff:200::10 I-CSCFa2 3ffe:501:ffff:200::20 S-CSCFa2 3ffe:501:ffff:200::30



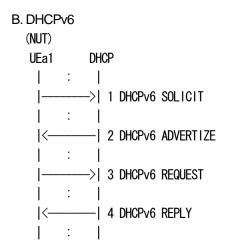




[INITIALIZATION]

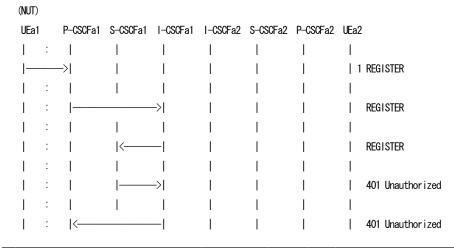
Set up IP Address using A or B.

A. Router Advertisement



[PROCEDURE]

Home Network





		I
:		l 2 401 Unauthorized
:		
:	>	3 REGISTER for authentication
:		
:	:	REGISTER for authentication
:		
:	: (REGISTER for authentication
:		<u> </u>
:		200 OK
:		
		200 UK
:		I 4 200 0K
:		
:	· · · · · · · · · · · · · · · · · · ·	5 SUBSCRIBE
:		I
:	:	SUBSCRIBE
:		
		200 OK
:		
:		6 200 OK
:		 NOTIFY
:		7 NOTIFY
:		
:	>	8 200 OK
:		l
:		I
: >		9 INVIIE
:		I I INVITE
:		
:	· · · · · · · · · · · · · · · · · · ·	10 100 Trying
:		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$: — —	INVITE
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	l
:		100 Trying
:		INDUSTE
		INVIIE
		I



:	!		<	 				100	Trying
:				 	 >	 		INVI	TE
:				 <	 			100	Trying
:				 	 	 >		INVI	TE
:				 	 <	 		100	Trying
: :			 	 	 	 <		180	Ringing
: :			 	 	 <	 		180	Ringing
: :			 	 <	 	 		180	Ringing
: :			 <	 	 	 		180	Ringing
: :		<		 	 				Ringing
: <			 	 	 	 			Ringing
:			· 	 	 	 <		200	
:			 	 	 /			200	
:						 			
:					 -	 .		200	
:				 	 			200 (
:		<			 			200	
< :	 			 	 		12	200	OK
	> 		 	 	 	 	13	ACK	
: :	 	>	 	 	 	 		ACK	
: :				 >	 	 		ACK	
: :				 	> 			ACK	
:						>		ACK	



	14 <try (ex.="" deregistration="" off)="" power="" to=""></try>
·	15 BYE (*1)
	DVF
	BYE
: —	BYE
	BYE
	DVF
: 	BYE
:	NOTIFY
:	16 NOTIFY
	17 000 OV ± NOTICY (.0)
	17 200 OK to NOTIFY (*2)
: >	200 OK to NOTIFY
	200 OK to BYE
	000 OV +- DVF
	200 OK to BYE
:	200 OK to BYE
:	200 OK to BYE
	10 200 OV +a DVE
	18 200 OK to BYE
	19 $<$ No SUBSCRIBE (with expires=0) $>$ (*3)
·	20 REGISTER for deregistration (*4)
	DECICIED for donoristration
	REGISTER for deregistration
:	REGISTER for deregistration
	200 OK
	000 04
	200 OK



<		- 1				21 200 OK
1 . 1	1	1	1	ı	1	1

- 1 NUT sends REGISTER
- 2 NUT receives 401 Unauthorized
- 3 NUT sends REGISTER for authentication
- 4 NUT receives 200 OK
- 5 NUT sends SUBSCRIBE
- 6 NUT receives 200 OK
- 7 NUT receives NOTIFY
- 8 NUT sends 200 OK
- 9 NUT sends INVITE
- 10 NUT receives 100 Trying
- 11 NUT receives 180 Ringing
- 12 NUT receives 200 OK
- 13 NUT sends ACK
- 14 < Try to send De-REGISTER(ex. Power Off)>
- 15 NUT sends BYE
- 16 NUT receives NOTIFY
- 17 NUT sends 200 OK to NOTIFY
- 18 NUT receives 200 OK to BYE
- 19 <No SUBSCRIBE (with expires=0)>
- 20 NUT sends REGISTER for deregistration
- 21 NUT receives 200 OK

=== Message example ===

As regards the message 1-8, please refer to the message 1-8 in UE-RG-B-1-AKA. As regards the message 9-13, please refer to the message 1-5 in UE-SE-B-1-AKA.

14. <Try to deregistration (ex. Power Off)>

15. BYE NUT -> P-CSCF

BYE sip:UEa2_public_1@nodea2.under.test.com:22222 SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf11

Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE



Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

```
Require: sec-agree
Proxy-Require: sec-agree
16. NOTIFY P-CSCF -> NUT
NOTIFY sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.2,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.2;received=3ffe:501:ffff:100::30
Max-Forwards: 69
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 2 NOTIFY
Contact: <sip:s.a1.under.test.com>
Subscription-State: active; expires=600000
Event: reg
Content-Type: application/reginfo+xml
Content-Length: (...)
<?xml version="1.0"?>
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="1" state="full">
     <registration aor="sip:UEa1_public_1@under.test.com" id="a7" state="active">
         <contact id="76" state="active" event="registered">
             <uri>sip:UEa1_public_1@node.under.test.com</uri>
         </contact>
     </registration>
</reginfo>
17. 200 OK NUT -> P-CSCF
SIP/2.0 200 OK
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.2;received=3ffe:501:ffff:100::10,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.2;received=3ffe:501:ffff:100::30
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 2 NOTIFY
Content-Length: 0
18. 200 OK P-CSCF -> NUT
```

Content-Length: 0



SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf11

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

19. <No SUBSCRIBE with expires=0>

20. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds9

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=0

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", uri="sip:under.test.com",

response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=33456789; spi-s=22345678;

port-c=3468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Supported: path
Require: sec-agree
Proxy-Require: sec-agree
CSeq: 3 REGISTER
Content-Length: 0

21. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds9

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4
To: <sip:UEa1_public_1@under.test.com>;tag=5ef6
Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

CSeq: 3 REGISTER

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Path: <sip:term@p.a1.under.test.com;lr>

Service-Route: <sip:orig@s.a1.under.test.com;lr>

212



P-Associated-URI:

Date: Wed, 11 July 2001 08:49:37 GMT

Content-Length: 0

[OBSERVABLE RESULTS]
*1: 15 BYE from NUT to P-CSCF

See generic_BYE

All dialogs related to the public user identity that is going to be deregis tered or to one of the implicitly registered public user identities SHALL REGISTER request for deregistration.[TS24229-5.1-292]

*2: 17 NOTIFY 200 OK from NUT to P-CSCF

See generic_200-NOTIFY

*3: 19 No SUBSCRIBE (with expires=0) from NUT to P-CSCF

The dialog SHALL not be released if the dialog that was established by the UE subscribing to the reg event package used the public user identity and the dialog is the only remaining dialog used for subscription to reg event package.[TS24229-5.1-293][TS24229-5.1-294][TS24229-5.1-295]

*4: 20 REGISTER for deregistration from NUT to P-CSCF

See generic_de_REGISTER

4.1.21 UE-RG-B-21-AKA - Reception of 401 response to user-initiated deregistration

[NAME]

UE-RG-B-21-AKA - Reception of 401 response to user-initiated deregistration

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly performs the authentication procedure when received



a 401 (Unauthorized) response to the REGISTER request for deregistration.

[REFERENCE]

TS24.229 5.1.1.5.1

TS24.229 5.1.1.6.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50

[TOPOLOGY]



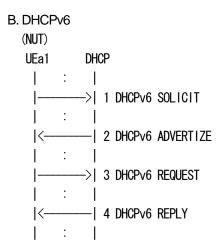


P-CSCFa1 I-CSCFa1 S-CSCFa1 DHCP DNS

[INITIALIZATION]

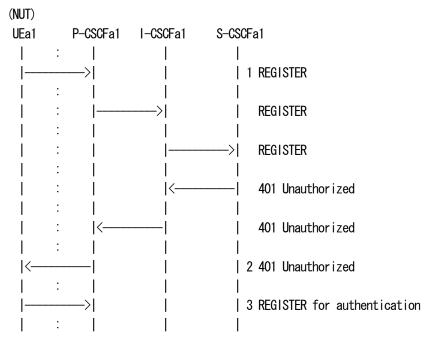
Set up IP Address using A or B.

A. Router Advertisement



[PROCEDURE]

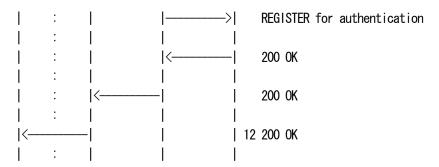
Home Network





: >	REGISTER for authentication
	REGISTER for authentication
:	200 OK
:	200 OK
: 	4 200 OK
	5 SUBSCRIBE
: 	
: <	200 OK
 	6 200 OK
:	NOTIFY
	7 NOTIFY
	/ NUTIFY
	8 200 OK
:	200 OK
:	9 REGISTER for deregistration
	REGISTER for deregistration
: >	REGISTER for deregistration
: (401 Unauthorized
:	401 Unauthorized
	10 401 Unauthorized
	TO 401 UNAULIUTIZEU
	11 REGISTER for authentication (*1)
:	REGISTER for authentication





- 1 NUT sends REGISTER
- 2 NUT receives 401 Unauthorized
- 3 NUT sends REGISTER for authentication
- 4 NUT receives 200 OK
- 5 NUT sends SUBSCRIBE
- 6 NUT receives 200 OK
- 7 NUT receives NOTIFY
- 8 NUT sends 200 OK
- 9 NUT sends REGISTER for deregistration
- 10 NUT receives 401 Unauthorized
- 11 NUT sends REGISTER for authentication
- 12 NUT receives 200 OK

=== Message example ===

As regards the message 1-9, please refer to the message 1-9 in UE-RG-B-4-AKA.

10. 401 Unauthorized P-CSCF -> NUT

SIP/2.0 401 Unauthorized

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds9

WWW-Authenticate: Digest realm="under.test.com",

nonce="J2U8vpY3qJhiuZNrke/ObponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4

To: <sip:UEa1_public_1@under.test.com>;tag=5ef6

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

CSeq: 3 REGISTER

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

Content-Length: 0

11. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds10

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4



To: <sip:UEa1 public 1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=0

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

uri="sip:under.test.com", response="7729fae49393a05397450978507c4ef2"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=33456789; spi-s=22345678;

port-c=3468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=266; spi-s=267; port-c=10004; port-s=10001

Supported: path
Require: sec-agree
Proxy-Require: sec-agree
CSeq: 4 REGISTER
Content-Length: 0

12. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds10

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4
To: <sip:UEa1_public_1@under.test.com>;tag=5ef7
Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=0

Path: <sip:term@p.a1.under.test.com;lr>

Service-Route: <sip:orig@s.a1.under.test.com;lr>

CSeq: 4 REGISTER

P-Associated-URI: <sip:UEa1_public_1@under.test.com>

Date: Wed, 11 July 2001 08:49:37 GMT

Content-Length: 0

[OBSERVABLE RESULTS]

*1: 11 REGISTER for authentication from NUT to P-CSCF

See generic_Auth_REGISTER

Contact header field SHALL be set to the protected server port value bound to the security association.[TS24229-5.1-318]

4.1.22 UE-RG-B-22-AKA - Reception of 503 response to subscription for the registration state event package



[NAME]

UE-RG-B-22-AKA - Reception of 503 response to subscription for the registration state event package

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 does not automatically reattempt the request until after the period indicated by the Retry-After header contents.

[REFERENCE]

TS24.229 5.1.2.2

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

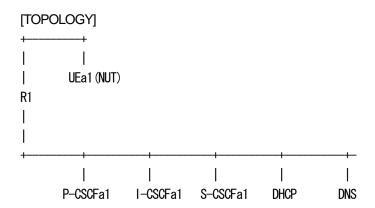
 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50

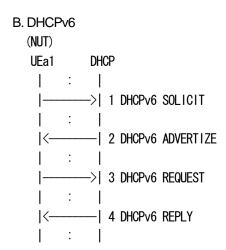




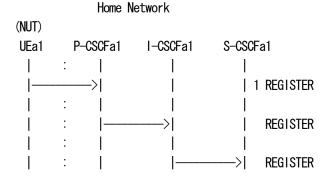
[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement



[PROCEDURE]





1 : 1 1	
:	401 Unauthorized
:	 401 Unauthorized
·	2 401 Unauthorized
·	3 REGISTER for authentication
: >	REGISTER for authentication
:	REGISTER for authentication
. .	200 0K
: <	200 0K
·	4 200 OK
·	5 SUBSCRIBE
: — — — — — — — — — — — — — — — — —	SUBSCRIBE
:	 503 Service Unavailable (with Retry-After:30)
:	l 6 503 Service Unavailable (with Retry-After:30)
	 7 <no 30sec="" 503="" after="" by="" received="" request="" response=""> (*1)</no>
1 · 1	l

- 1 NUT sends REGISTER
- 2 NUT receives 401 Unauthorized
- 3 NUT sends REGISTER for authentication
- 4 NUT receives 200 OK
- 5 NUT sends SUBSCRIBE
- 6 NUT receives 503 Service Unavailable
- 7 <No request by 30sec after received 503 response>

=== Message example ====

As regards the message 1-5, please refer to the message 1-5 in UE-RG-B-1-AKA.

6. 503 Service Unavailable P-CSCF -> NUT SIP/2.0 503 Service Unavailable



Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsa1

From: <sip:UEa1_public_1@under.test.com>;tag=31415
To: <sip:UEa1_public_1@under.test.com>;tag=151170

Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE

Retry-After: 30 Content-Length: 0

7. <No request by 30sec after received 503 response>

[OBSERVABLE RESULTS]

*1: 7 No request by 30sec after received 503 response

The request SHALL not be automatically sent until after the period indicated by the Retry-After header field. [TS24229-5.1-354]

The client SHOULD NOT attempt re-subscription until after the number of seconds specified by the "retry-after" parameter.[RFC3265-3.2-21]

4.1.23 UE-RG-B-23-AKA - Security association (DES-EDE3-CBC and HMAC-MD5-96)

[NAME]

UE-RG-B-23-AKA - Security association (DES-EDE3-CBC and HMAC-MD5-96)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

(1) To verify that the UEa1 properly supports DES-EDE3-CBC encryption algorithm and HMAC-MD5-96 integrity algorithm.

[REFERENCE] TS24.229 5.1.1.2.2 TS33.203 7.1

[REQUIREMENT]



NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

 UEa1(NUT)
 :
 3ffe:501:ffff:1000::1000

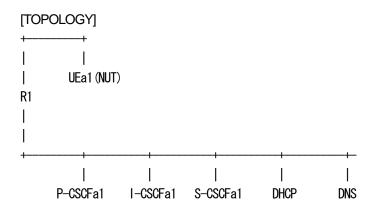
 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50



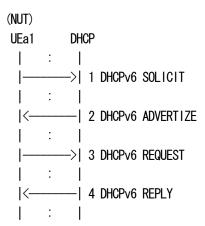
[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

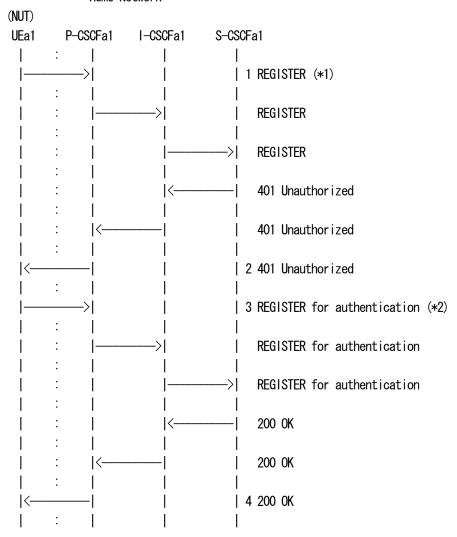
B. DHCPv6



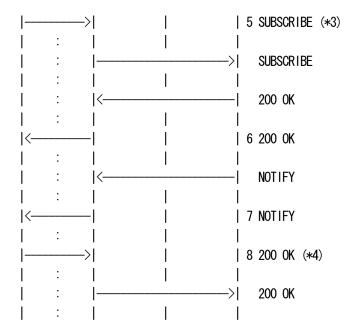


[PROCEDURE]

Home Network







1 NUT sends REGISTER

2 NUT receives 401 Unauthorized

3 NUT sends REGISTER for authentication

4 NUT receives 200 OK

5 NUT sends SUBSCRIBE

6 NUT receives 200 OK

7 NUT receives NOTIFY

8 NUT sends 200 OK

=== Message example ===

1. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashds7

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa3

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", nonce="",

uri="sip:under.test.com", response=""

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-md5-96; ealg=des-ede3-cbc; spi-c=23456789;

spi-s=12345678; port-c=2468; port-s=1357

Require: sec-agree Proxy-Require: sec-agree CSeq: 1 REGISTER



Supported: path Content-Length: 0

2. 401 Unauthorized P-CSCF -> NUT

SIP/2.0 401 Unauthorized

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashds7

WWW-Authenticate: Digest realm="under.test.com",

nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5

From: <sip:UEa1_public_1@under.test.com>;tag=4fa3 To: <sip:UEa1_public_1@under.test.com>;tag=5ef4 Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; ealg=des-ede3-cbc; spi-c=256; spi-s=257; port-c=10002;

port-s=10001

CSeq: 1 REGISTER
Content-Length: 0

3. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds8

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa3

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

 $\label{lem:commutation} Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", algorithm=AKAv1-MD5, nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5, nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5, nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5, nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5, nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5, nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5, nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5, nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5, nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5, algorithm=AKAv1-M$

uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-md5-96; ealg=des-ede3-cbc; spi-c=23456789;

spi-s=12345678; port-c=2468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; ealg=des-ede3-cbc; spi-c=256; spi-s=257; port-c=10002;

port-s=10001
Require: sec-agree
Proxy-Require: sec-agree

CSeq: 2 REGISTER Supported: path Content-Length: 0

4. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds8



From: <sip:UEa1_public_1@under.test.com>;tag=4fa3 To: <sip:UEa1_public_1@under.test.com>;tag=5ef5 Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Path: <sip:term@p.a1.under.test.com;lr>

Service-Route: <sip:orig@s.a1.under.test.com;lr>

CSeq: 2 REGISTER

P-Associated-URI: <sip:UEa1_public_1@under.test.com>

Date: Wed, 11 July 2001 08:49:37 GMT

Content-Length: 0

5. SUBSCRIBE NUT -> P-CSCF

SUBSCRIBE sip:UEa1_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsa1

Max-Forwards: 70

Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=31415

To: <sip:UEa1_public_1@under.test.com>

Require: sec-agree

Proxy-Require: sec-agree

Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE Allow-Events: reg

Event: reg

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; ealg=des-ede3-cbc; spi-c=256; spi-s=257; port-c=10002;

port-s=10001 Expires: 600000

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Content-Length: 0

6. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsa1

Record-Route: <sip:p.a1.under.test.com:10001;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=31415
To: <sip:UEa1_public_1@under.test.com>;tag=151170
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE Allow-Events: reg Expires: 600000

Contact: <sip:s.a1.under.test.com>



Content-Length: 0

```
7. NOTIFY P-CSCF -> NUT
NOTIFY sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.1,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.1;received=3ffe:501:ffff:100::30
Max-Forwards: 69
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 1 NOTIFY
Contact: <sip:s.a1.under.test.com>
Subscription-State: active; expires=600000
Event: reg
Content-Type: application/reginfo+xml
Content-Length: (...)
<?xml version="1.0"?>
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="0" state="full">
     <registration aor="sip:UEa1_public_1@under.test.com" id="a7" state="active">
         <contact id="76" state="active" event="registered">
              <uri>sip:UEa1_public_1@node.under.test.com</uri>
         </contact>
     </registration>
</reginfo>
8, 200 OK NUT -> P-CSCF
SIP/2.0 200 OK
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.1;received=3ffe:501:ffff:100::10,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.1;received=3ffe:501:ffff:100::30
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 1 NOTIFY
Content-Length: 0
[OBSERVABLE RESULTS]
*1: 1 REGISTER from NUT to P-CSCF
      See generic_REGISTER
```



*2: 3 REGISTER for authentication from NUT to P-CSCF

See generic_Auth_REGISTER

- Security behavior:

ESP confidentiality SHALL be used in transport mode between UE and P-CSCF.

[TS33203-6.2-3]

ESP integrity SHALL be used in transport mode between UE and P-CSCF.

[TS33203-6.3-3]

The integrity and confidentiality of the REGISTER request for authentication and all following SIP messages SHALL be protected.

[TS33203-7.2-8]

*3: 5 SUBSCRIBE from NUT to P-CSCF

See generic_SUBSCRIBE

- Security behavior:

The integrity and confidentiality of the REGISTER request for authentication and all following SIP messages SHALL be protected. [TS33203-7.2-8]

*4: 8 NOTIFY 200 OK from NUT to P-CSCF

See generic_200-NOTIFY

- Security behavior:

The integrity and confidentiality of the REGISTER request for authentication and all following SIP messages SHALL be protected. [TS33203-7.2-8]

4.1.24 UE-RG-B-24-AKA - Security association (AES-CBC and HMAC-SHA-1-96)

[NAME]

UE-RG-B-24-AKA - Security association (AES-CBC and HMAC-SHA-1-96)

[TARGET]

IMS User Equipment (NUT)



[PURPOSE]

(1) To verify that the UEa1 properly supports AES-CBC encryption algorithm and HMAC-SHA-1-96 integrity algorithm.

[REFERENCE] TS24.229 5.1.1.2.2 TS33.203 7.1

[REQUIREMENT] NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

 UEa1(NUT)
 : 3ffe:501:ffff:1000::1000

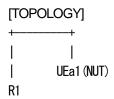
 Router(R1)
 : 3ffe:501:ffff:1000::1

 P-CSCFa1
 : 3ffe:501:ffff:100::20

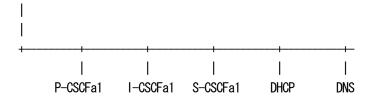
 I-CSCFa1
 : 3ffe:501:ffff:100::30

 S-CSCFa1
 : 3ffe:501:ffff:100::40

 DNS
 : 3ffe:501:ffff:100::50



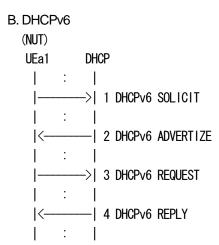




[INITIALIZATION]

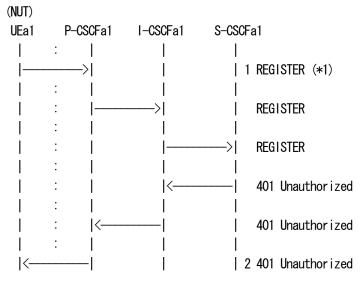
Set up IP Address using A or B.

A. Router Advertisement

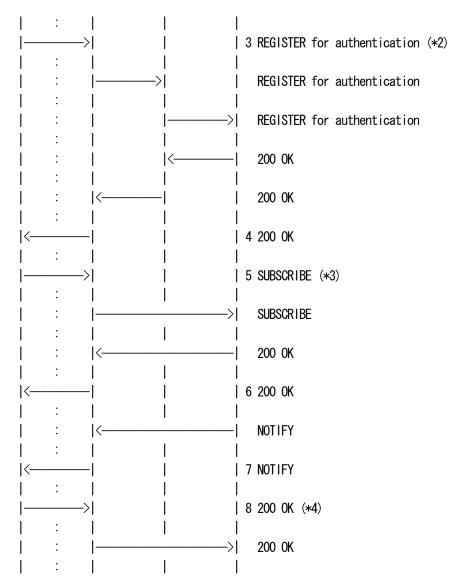


[PROCEDURE]

Home Network







- 1 NUT sends REGISTER
- 2 NUT receives 401 Unauthorized
- 3 NUT sends REGISTER for authentication
- 4 NUT receives 200 OK
- 5 NUT sends SUBSCRIBE
- 6 NUT receives 200 OK
- 7 NUT receives NOTIFY
- 8 NUT sends 200 OK
- === Message example ====
- 1. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0



Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashds7

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa3

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", nonce="",

uri="sip:under.test.com", response=""

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; ealg=aes-cbc; spi-c=23456789;

spi-s=12345678; port-c=2468; port-s=1357

Require: sec-agree
Proxy-Require: sec-agree
CSeq: 1 REGISTER
Supported: path
Content-Length: 0

2. 401 Unauthorized P-CSCF -> NUT

SIP/2.0 401 Unauthorized

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashds7

WWW-Authenticate: Digest realm="under.test.com",

nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5

From: <sip:UEa1_public_1@under.test.com>;tag=4fa3 To: <sip:UEa1_public_1@under.test.com>;tag=5ef4 Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; ealg=aes-cbc; spi-c=256; spi-s=257; port-c=10002;

port-s=10001

CSeq: 1 REGISTER
Content-Length: 0

3. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds8

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa3

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", algorithm=AKAv1-MD5, nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM",

uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; ealg=aes-cbc; spi-c=23456789;



spi-s=12345678; port-c=2468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; ealg=aes-cbc; spi-c=256; spi-s=257; port-c=10002;

port-s=10001

Require: sec-agree

Proxy-Require: sec-agree CSeq: 2 REGISTER Supported: path Content-Length: 0

4, 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds8

From: <sip:UEa1_public_1@under.test.com>;tag=4fa3
To: <sip:UEa1_public_1@under.test.com>;tag=5ef5
Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000

Path: <sip:term@p.a1.under.test.com;lr>

Service-Route: <sip:orig@s.a1.under.test.com;lr>

CSeq: 2 REGISTER

P-Associated-URI: <sip:UEa1_public_1@under.test.com>

Date: Wed, 11 July 2001 08:49:37 GMT

Content-Length: 0

5. SUBSCRIBE NUT -> P-CSCF

SUBSCRIBE sip:UEa1_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsa1

Max-Forwards: 70

Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=31415

To: <sip:UEa1_public_1@under.test.com>

Require: sec-agree Proxy-Require: sec-agree

Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE Allow-Events: reg

Event: reg

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; ealg=aes-cbc; spi-c=256; spi-s=257; port-c=10002;

port-s=10001 Expires: 600000

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Content-Length: 0



```
SIP/2.0 200 OK
Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsa1
Record-Route: <sip:p.a1.under.test.com:10001;lr>
From: <sip:UEa1_public_1@under.test.com>;tag=31415
To: <sip:UEa1_public_1@under.test.com>;tag=151170
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 1 SUBSCRIBE
Allow-Events: reg
Expires: 600000
Contact: <sip:s.a1.under.test.com>
Content-Length: 0
7. NOTIFY P-CSCF -> NUT
NOTIFY sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.1,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.1;received=3ffe:501:ffff:100::30
Max-Forwards: 69
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 1 NOTIFY
Contact: <sip:s.a1.under.test.com>
Subscription-State: active; expires=600000
Event: reg
Content-Type: application/reginfo+xml
Content-Length: (...)
<?xml version="1.0"?>
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="0" state="full">
     <registration aor="sip:UEa1_public_1@under.test.com" id="a7" state="active">
         <contact id="76" state="active" event="registered">
             <uri>sip:UEa1_public_1@node.under.test.com</uri>
         </contact>
     </registration>
</reginfo>
8. 200 OK NUT -> P-CSCF
SIP/2.0 200 OK
```

6. 200 OK P-CSCF -> NUT



Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.1;received=3ffe:501:ffff:100::10,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.1;received=3ffe:501:ffff:100::30

From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 NOTIFY Content-Length: 0

[OBSERVABLE RESULTS]

*1: 1 REGISTER from NUT to P-CSCF

See generic_REGISTER

*2: 3 REGISTER for authentication from NUT to P-CSCF

See generic_Auth_REGISTER

- Security behavior:

ESP confidentiality SHALL be used in transport mode between UE and P-CSCF.[TS33203-6.2-3]
ESP integrity SHALL be used in transport mode between UE and P-CSCF. [TS33203-6.3-3]
The integrity and confidentiality of the REGISTER request for authentication and all following SIP messages SHALL be protected. [TS33203-7.2-8]

*3: 5 SUBSCRIBE from NUT to P-CSCF

See generic_SUBSCRIBE

- Security behavior:

The integrity and confidentiality of the REGISTER request for authentication and all following SIP messages SHALL be protected. [TS33203-7.2-8]

*4: 8 NOTIFY 200 OK from NUT to P-CSCF

See generic_200-NOTIFY

- Security behavior:

The integrity and confidentiality of the REGISTER request for authentication and all following SIP messages SHALL be protected.

236



[TS33203-7.2-8]

4.2 Session Establishment

4.2.1 UE-SE-B-1-AKA - Session initiation and termination (Sends INVITE and receives BYE)

[NAME]

UE-SE-B-1-AKA - Session initiation and termination (Sends INVITE and receives BYE)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

- (1) To verify that the UEa1 properly creates INVITE request and receives the responses relating INVITE request.
- (2) To verify that the UEa1 properly receives BYE request and responds to BYE request.

[REFERENCE]

TS24.229 5.1.2A.1

TS24.229 5.1.2A.2

TS24.229 5.1.3.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]



public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::10

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50

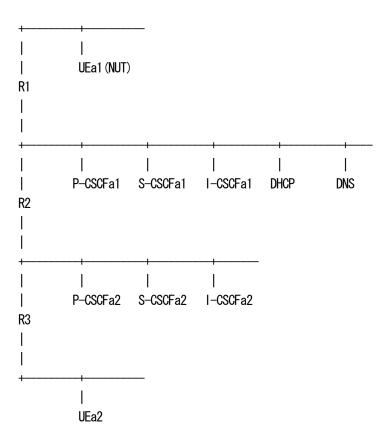
 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30

[TOPOLOGY]





[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network

(NUT)							
UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
; 	 > 						 1 INVITE (*1)
. : :	 	-> ->		 			I INVITE
 :	i i	İ	İ	İ	İ	İ	2 100 Trying
i : :	i i	i I	 	-> -> 	i i	i i	INVITE
:	< 	— 		 	 	 	100 Trying
:	 	 		 	-> 	 	INVITE
:	 	< 		— 			100 Trying
:						->	INVITE
		 		 <	 	 	l 100 Trying
	İ					 	-> INVITE
: :	 	 		 	< 	— 	100 Trying
:	 	 		 	 	< 	— 180 Ringing
:	 	 		 	< 	— 	180 Ringing
:				<	— 		180 Ringing
:		< 	<u> </u>	— 		 	180 Ringing
:	<			I		I	180 Ringing



: <		 	 		3 180	Ringing
:		 	 	 <	200	
:		 	 <	 	200	
		 <	 	 	200	
		 	 		200	
; ; ; : : <	 	 	 		200	
:		 		' ' 	4 200	
: >		 		 	5 ACK	
i : i		 				(* 2)
: 		 			ACK	
					ACK	
:			> 	 	ACK	
:		 		> 	ACK	
:		 	 	< 	BYE	
		 	 <	 	BYE	
		 			BYE	
: <		 			BYE	
· <		 		 	6 BYE	
> >		 			7 200	OK (*3)
: : ──→				 	200	OK
	 	 >		 	200	OK
:			 >	 	200	OK



			I	I	:		
200 OK	>			I	:		
	1 1		i	i		I	

1 NUT sends INVITE

2 NUT receives 100 Trying

3 NUT receives 180 Ringing

4 NUT receives 200 OK

5 NUT sends ACK

6 NUT receives BYE

7 NUT sends 200 OK

=== Message example ===

1. INVITE NUT -> P-CSCF

INVITE sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

Require: sec-agree Proxy-Require: sec-agree

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa1 2890844526 2890844526 IN IP6 node.under.test.com

S=

c=IN IP6 node.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000



2. 100 Trying P-CSCF -> NUT

SIP/2.0 100 Trying

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2 public 1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

3. 180 Ringing P-CSCF -> NUT

SIP/2.0 180 Ringing

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

4. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Record-Route: <sip:p.a2.under.test.com;lr>,<sip:s.a2.under.test.com;lr>,

<sip:s.a1.under.test.com;lr>,<sip:p.a1.under.test.com:10001;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Content-Type: application/sdp

Content-Length: 153

v=0

o=UEa2 2890844527 2890844527 IN IP6 nodea2.under.test.com

S=

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 3456 RTP/AVP 0



b=AS:75 a=rtpmap:0 PCMU/8000

5. ACK NUT -> P-CSCF

ACK sip:UEa2 public 1@nodea2.under.test.com:22222 SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf10

Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

6. BYE P-CSCF -> NUT

BYE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c501,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bKnashdsa2.3;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP s.a2.under.test.com;

branch=z9hG4bK721e418c9.1;received=3ffe:501:ffff:200::30,SIP/2.0/UDP

p.a2.under.test.com;branch=z9hG4bKnaghds30;received=3ffe:501:ffff:200::10,SIP/2.0/UDP

[3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashdsb3

Max-Forwards: 66

From: <sip:UEa2_public_1@under.test.com>;tag=314259
To: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

7. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c501;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;

branch=z9hG4bKnashdsa2.3;received=3ffe:501:ffff:100::30,SIP/2.0/UDP

s.a2.under.test.com;branch=z9hG4bK721e418c9.1;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;

branch=z9hG4bKnaghds30;received=3ffe:501:ffff:200::10,SIP/2.0/UDP

[3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashdsb3 From: <sip:UEa2_public_1@under.test.com>;tag=314259



To: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

[OBSERVABLE RESULTS]

*1: 1 INVITE from NUT to P-CSCF.

See generic_INVITE

*2: 5 ACK from NUT to P-CSCF

See generic_ACK

*3: 7 200 OK from NUT to P-CSCF

See generic_200-BYE

4.2.2 UE-SE-B-2-AKA - Session initiation and termination (Sends INVITE and sends BYE)

[NAME]

UE-SE-B-2-AKA - Session initiation and termination (Sends INVITE and sends BYE)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

- (1) To verify that the UEa1 properly creates INVITE request and receives the responses relating to INVITE request.
- (2) To verify that the UEa1 properly creates BYE request and receives the responses to BYE request.

[REFERENCE] TS24.229 5.1.2A.1 TS24.229 5.1.3.1



[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50

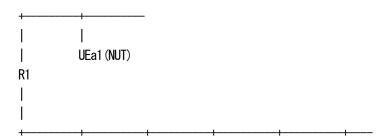
 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

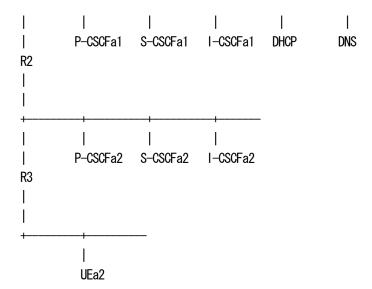
 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30

[TOPOLOGY]





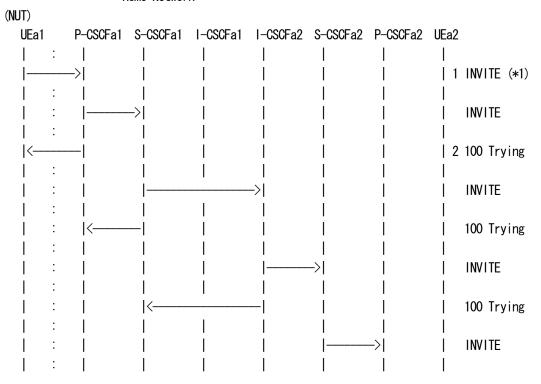


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

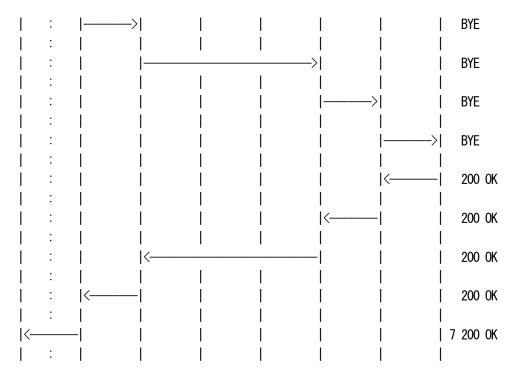
Home Network





	:				<				100	Trying
	:	 	 	 			 >		INVI	TE
	:	 	 	 		 <		-	100	Trying
	:	 -	 -	 -			 <	-	180	Ringing
	:	 -	 -	 -		 <		-	180	Ringing
	:	 	 -	 	 <				180	Ringing
	:		 <	 					180	Ringing
	: :	 <	 -					-	180	Ringing
 <	:		 -					3	180	Ringing
	:		 -				 <	1	200	OK
	:		 -			 <		1	200	OK
	:	 	 	 	 <			1	200	OK
	:	 	 <					1	200	OK
	:	 <	 	 				1	200	OK
 <	:	 	 	 	 		 	4 2	200	OK
 	:	 	 	 	 		 	5 /	4CK	(*2)
 	:	 >	 	 	 		 	,	ACK	
	:	 	 		 >		 	,	ACK	
	: :	 	 -	 	 	 >	 	,	ACK	
	:	 	 	 	 	<u> </u>	 >	,	ACK	
 	:>	 	 	 	 		 	6 I	3YE	(*3)
	:									





1 NUT sends INVITE

2 NUT receives 100 Trying

3 NUT receives 180 Ringing

4 NUT receives 200 OK

5 NUT sends ACK

6 NUT sends BYE

7 NUT receives 200 OK

=== Message example ===

1. INVITE NUT -> P-CSCF

INVITE sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml



Require: sec-agree Proxy-Require: sec-agree

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa1 2890844526 2890844526 IN IP6 node.under.test.com

S=-

c=IN IP6 node.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

2. 100 Trying P-CSCF -> NUT

SIP/2.0 100 Trying

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

3. 180 Ringing P-CSCF -> NUT

SIP/2.0 180 Ringing

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

4. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Record-Route: <sip:p.a2.under.test.com;lr>,<sip:s.a2.under.test.com;lr>,

<sip:s.a1.under.test.com;lr>,<sip:p.a1.under.test.com:10001;lr>
From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259



Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Content-Type: application/sdp

Content-Length: 153

v=0

o=UEa2 2890844527 2890844527 IN IP6 nodea2.under.test.com

S=

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 3456 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

5. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@nodea2.under.test.com:22222 SIP/2.0

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

6. BYE NUT -> P-CSCF

BYE sip:UEa2_public_1@nodea2.under.test.com:22222 SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf11 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0



Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Require: sec-agree Proxy-Require: sec-agree

7. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf11

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

[OBSERVABLE RESULTS]

*1: 1 INVITE request from NUT to P-CSCF.

See generic_INVITE

*2: 5 ACK request from NUT to P-CSCF.

See generic_ACK

*3: 6 BYE request from NUT to P-CSCF.

See generic_BYE

4.2.3 UE-SE-B-3-AKA - Session initiation and termination (Receives INVITE and receives BYE)

[NAME]

UE-SE-B-3-AKA - Session initiation and termination (Receives INVITE and receives BYE)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

(1) To verify that the UEa1 properly receives INVITE request and creates the



responses relating INVITE request.

(2) To verify that the UEa1 properly receives BYE request and responds to BYE request.

[REFERENCE] TS24.229 5.1.2A.2 TS24.229 5.1.4.1

[REQUIREMENT] NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

 UEa1(NUT)
 :
 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

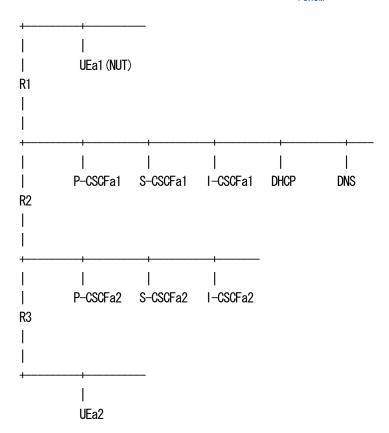
 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30

[TOPOLOGY]



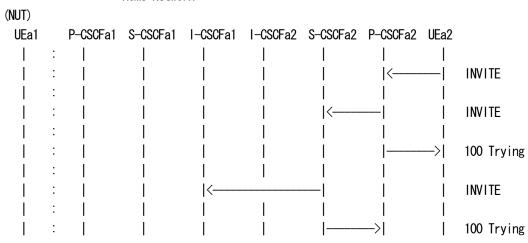


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

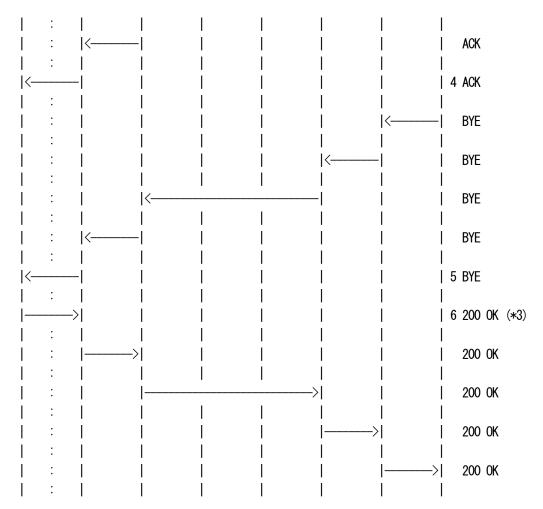
Home Network





1 . 1	ı	ı	ı	ı		l I			
	 <-			 			INV	TE	
			I	 		 	100	Trying	
:	< 		 	 		 	INV	TE	
:	 -	> >	 	 			100	Trying	
: <			 	 		 	1 INV	TE	
: : -	>		 	 		 	100	Trying	
: >			 	 		 	2 180	Ringing (*1))
: : -	>		 	 		 	180	Ringing	
:	 -	 >	 	 		 	180	Ringing	
:	 		l	 		 	180	Ringing	
:			 	 	>	 	180	Ringing	
:			 	 		 >	180	Ringing	
: >	 		 	 		 	3 200	OK (*2)	
; ; -	 		 	 		 	200	OK	
:	 -	 	 	 		 	200	OK	
: :	 		l	 		 	200	OK	
:	 			 	>	 	200	OK	
:				 		 >	200		
	i I	 	 	 			ACK		
	į į	, 	i I	 	<	· 	ACK		
			i						
1 . 1	<-						ACK		





- 1 NUT receives INVITE
- 2 NUT sends 180 Ringing
- 3 NUT sends 200 OK
- 4 NUT receives ACK
- 5 NUT receives BYE
- 6 NUT sends 200 OK

=== Message example ===

1. INVITE P-CSCF -> NUT

INVITE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91



Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com

S=

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

2. 180 Ringing NUT -> P-CSCF

SIP/2.0 180 Ringing

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;

branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;

branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,SIP/2.0/UDP

s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP

p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,SIP/2.0/UDP

[3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

3. 200 OK NUT -> P-CSCF



SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;

branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;

branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,SIP/2.0/UDP

s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP

p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,SIP/2.0/UDP

[3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Content-Type: application/sdp

Content-Length: 153

v=0

o=UEa1 2890844527 2890844527 IN IP6 node.under.test.com

S=

c=IN IP6 node.under.test.com

t=00

m=audio 3456 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

4. ACK P-CSCF -> NUT

ACK sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c234,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.3;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP s.a2.under.test.com;

branch=z9hG4bK721e418c657v;received=3ffe:501:ffff:200::30,SIP/2.0/UDP

p.a2.under.test.com;branch=z9hG4bKnaghc45ca9;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba92

Max-Forwards: 66

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

257



CSeq: 1 ACK Content-Length: 0

5. BYE P-CSCF -> NUT

BYE sip:UEa1 public 1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c235,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.4;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP s.a2.under.test.com;

branch=z9hG4bK721e418c657x;received=3ffe:501:ffff:200::30,SIP/2.0/UDP

p.a2.under.test.com;branch=z9hG4bKnaghc45ca10;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba93

Max-Forwards: 66

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE

Content-Length: 0

6. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c235;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;

branch=z9hG4bK431e418c4.4;received=3ffe:501:ffff:100::30,SIP/2.0/UDP

s.a2.under.test.com;branch=z9hG4bK721e418c657x;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca10;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba93

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

[OBSERVABLE RESULTS]

*1: 2 180 response from NUT.

See generic_180-INVITE

*2: 3 200 response from NUT.



See generic_200-INVITE

*3: 6 200 response from NUT.

See generic_200-BYE

4.2.4 UE-SE-B-4-AKA - Session initiation and termination (Receives INVITE and sends BYE)

[NAME]

UE-SE-B-4-AKA - Session initiation and termination (Receives INVITE and sends BYE)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

- (1) To verify that the UEa1 properly receives INVITE request and creates the responses relating INVITE request.
- (2) To verify that the UEa1 properly creates BYE request and receives the responses to BYE request.

[REFERENCE]

TS24.229 5.1.2A.1

TS24.229 5.1.2A.2

TS24.229 5.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

.....



[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::10

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

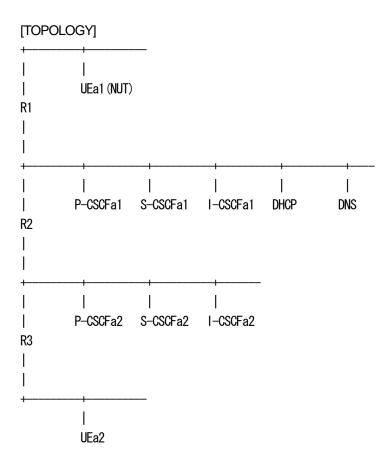
 DHCP
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30



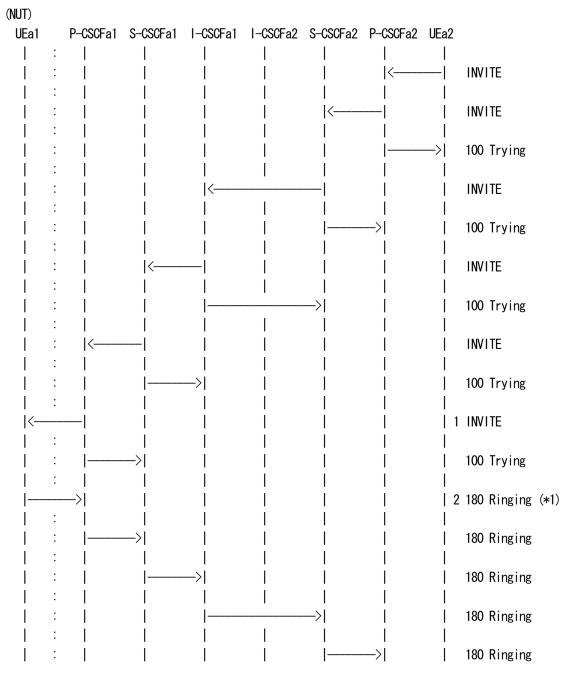


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network





1 : 1	1 1		l					
	 		 		 > 	18	30 R	inging
> 			 			3 20	00 Oł	(*2)
· ·			 			20	00 Oł	(
	 >		 			20	00 Oł	(
:	 		>			20	00 Oł	<
:	 		 	 >		20	00 Oł	(
:	 		 		 >	20	00 Oł	<
:	 		 	 	 <	A	CK	
: :	 		 	 <	 	A	Ж	
: :	 <		 	 	 	A	CK	
: : <	 		 	 	 	A	CK	
: <	 		 	 	 	4 A(
i : i I>I			 	 	 		/E (>	k 3)
: : >			 				/E	-,
	 		 >				/E	
	' 		 	 >	 	B'		
	 		 				Æ	
	 		 		> 			,
			 				00 Oł	
			 	< 			00 Oł	
:	< 		 				00 Oł	
: <	1 1		l			20	00 Ok	<



	:					
<						6 200 OK
1	•	I	l		l	

1 NUT receives INVITE

2 NUT sends 180 Ringing

3 NUT sends 200 OK

4 NUT receives ACK

5 NUT sends BYE

6 NUT receives 200 OK

=== Message example ===

1. INVITE P-CSCF -> NUT

INVITE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com

s=·

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

263



b=AS:75 a=rtpmap:0 PCMU/8000

2. 180 Ringing NUT -> P-CSCF

SIP/2.0 180 Ringing

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1 public 1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

3. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Content-Type: application/sdp

Content-Length: 153

v=0

o=UEa1 2890844527 2890844527 IN IP6 node.under.test.com



c=IN IP6 node.under.test.com t=0 0 m=audio 3456 RTP/AVP 0 b=AS:75 a=rtpmap:0 PCMU/8000

4. ACK P-CSCF -> NUT

ACK sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c234,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.3;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657v;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca9;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba92

Max-Forwards: 66

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

5. BYE NUT -> P-CSCF

BYE sip:UEa2_public_1@nodea2.under.test.com:22222 SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK75ck20 Route: <sip:p.a1.under.test.com:10001;lr>, <sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=414259
To: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Require: sec-agree

Proxy-Require: sec-agree

6. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK75ck20

From: <sip:UEa1_public_1@under.test.com>;tag=414259
To: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl



Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

[OBSERVABLE RESULTS]

*1: 2 180 response from NUT.

See generic_180-INVITE

*2: 3 200 response from NUT.

See generic_200-INVITE

*3: 5 BYE request from NUT to P-CSCF.

See generic_BYE

4.2.5 UE-SE-B-5-AKA - Call cancellation (Sends INVITE and sends CANCEL)

[NAME]

UE-SE-B-5-AKA - Call Cancellaration (Sends INVITE and sends CANCEL)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

- (1) To verify that the UEa1 properly creates a CANCEL request.
- (2) To verify that the UEa1 properly process a 487 (Request Terminated) response and creates an ACK request.

[REFERENCE] TS24.229 A.2.1.3 RFC3261 9

[REQUIREMENT]



NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

 UEa1(NUT)
 :
 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

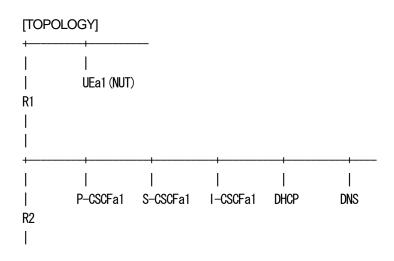
 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

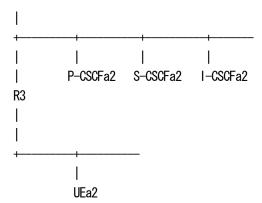
 S-CSCFa1
 :
 3ffe:501:ffff:100::30

DNS : 3ffe:501:ffff:100::40 DHCP : 3ffe:501:ffff:100::50

UEa2 : 3ffe:501:ffff:2000::1000
P-CSCFa2 : 3ffe:501:ffff:200::10
I-CSCFa2 : 3ffe:501:ffff:200::20
S-CSCFa2 : 3ffe:501:ffff:200::30





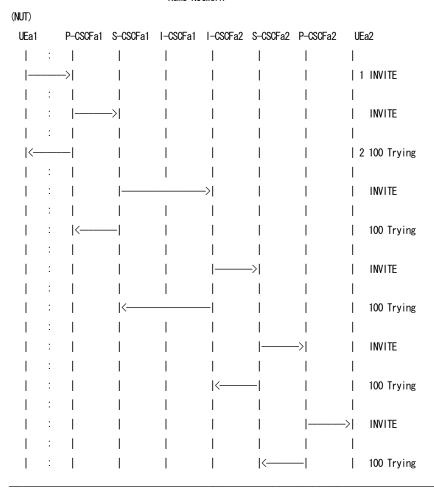


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

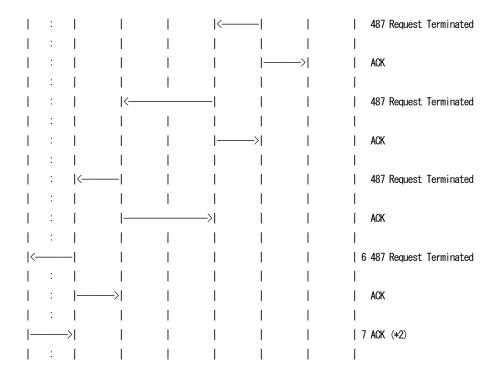
Home Network





ı	:	I	I	I	I	ı	1 1	
i	:			· 			<	180 Ringing
1	:	l	l		l	I		
-	:					<		180 Ringing
l I	:	 	 	 	 <	 	 	l 180 Ringing
	:	! 	! 	! 	 	! 	' ' 	100 Kinging
1	:	l	<		l	I		180 Ringing
-	:		l		l	l		
-		<				[180 Ringing
 /-	:	 	 	 	 	 	 	 3 180 Ringing
	:	! 	! 	! 	! 	! 	' ' 	3 100 Kinging
 -	>							4 CANCEL (*1)
1	:		l			1		
	:	>			<u> </u>	<u> </u>	 	CANCEL
 	:	 	 	 	 	 	 	 5 200 0K
	:	! 	I 	I 	I 	! 	 	5 200 OK
İ	:			· >		[CANCEL
1	:		l		l	l		
-	:	<		<u> </u>		[200 OK
	:	 	 	 	 \	 	 	CANCEL
l I	:	I 	I 	! 	> 	! [I I	CANCEL
i	:		<					200 OK
1	:	l	l		l	1		
-	:		l		l	>		CANCEL
	:				 			000 00
 	•	 	l I	l I	< 	1	 	200 OK
İ	:	' 	' 	' 	' 		 >	
1	:	l	l		l	I		
1	:		l			<		200 OK
	:		 -		<u> </u>			
1	:] 	 	 	< 	200 OK
ı I	:	ı 	ı 	ı 	ı 	1 	 <	487 Request Terminated
İ	:						 	
1	:	l	l		I	<	l I	487 Request Terminated
-	:	l	l	<u> </u>	l	1		
	:		 -		 -	[>	
I	:	I	I		I	I		





- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 180 Ringing
- 4 NUT sends CANCEL
- 5 NUT receives 200 OK
- 6 NUT receives 487 Request Terminated
- 7 NUT sends ACK

=== Message example ===

As regards the message 1, please refer to the message 1 in UE-SE-B-1-AKA.

2. 100 Trying P-CSCF -> NUT

SIP/2.0 100 Trying

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

3. 180 Ringing P-CSCF -> NUT



SIP/2.0 180 Ringing

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

4. CANCEL NUT -> P-CSCF

CANCEL sip:UEa2 public 1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 CANCEL Content-Length: 0

5. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314160

To. <sip.OEaz_public_T@under.test.com>,tag=51416 Call-ID: 3848276298220188511@under.test.com

CSeq: 1 CANCEL Content-Length: 0

6. 487 Request Terminated P-CSCF -> NUT

SIP/2.0 487 Request Terminated

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

7. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0



Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 4 CANCEL from NUT to P-CSCF.

See generic_CANCEL

*2: 7 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.2.6 UE-SE-B-6-AKA - Call cancellation (Receives INVITE and receives CANCEL)

[NAME]

UE-SE-B-6-AKA - Call Cancellaration (Receives INVITE and receives CANCEL)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

- (1) Verify that the UEa1 properly creates a 200 (OK) to CANCEL request.
- (2) Verify that the UEa1 properly creates a 487 (Request Terminated) response.

[REFERENCE] TS24.229 A.2.1.3 RFC3261 9



[REQUIREMENT] NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

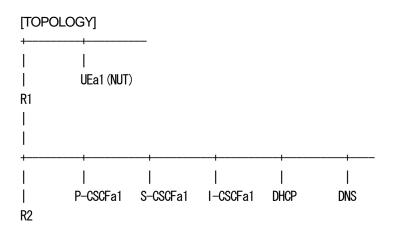
 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

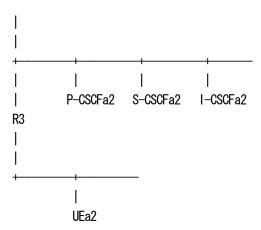
 DNS
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50

UEa2 : 3ffe:501:ffff:2000::1000
P-CSCFa2 : 3ffe:501:ffff:200::10
I-CSCFa2 : 3ffe:501:ffff:200::20
S-CSCFa2 : 3ffe:501:ffff:200::30





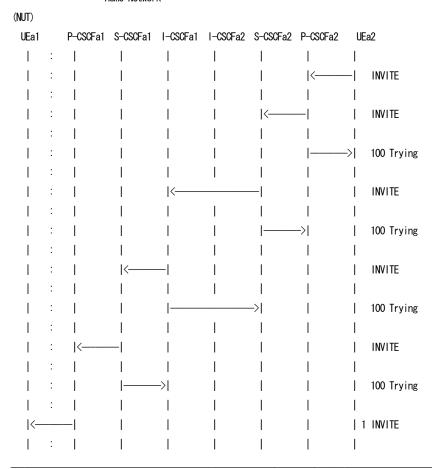


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network





: >	I I		100 Trying
 	' ' 	' ' 	l 2 180 Ringing 1
: >	 	' ' 	 180 Ringing
:	·	' ' 	ı 180 Ringing
		· · · · · · · · · · · · · · · · · · ·	i 180 Ringing
		> >	I 180 Ringing
			ı 180 Ringing
			CANCEL
		 <	CANCEL
			200 0K
			CANCEL
			200 0K
:	-		CANCEL
			200 0K
: (CANCEL
: >			200 0K
·			3 CANCEL
: > : >			200 OK
 			4 200 0K (*1)
 		1 	5 487 Request Terminated (*2)
: >			I 487 Request Terminated
·	1 1		I 6 ACK



:	1	1			1	1		
:	1		->		1	1		487 Request Terminated
:	1	1			1	1		
:	<	—I			1	1		ACK
:	1	1			1	1		
:	1	1			>I	1		487 Request Terminated
:	1	1			- 1			
:	1	<	-	1	I			ACK
:	1	1			1	1		
:	1	1			I	>I		487 Request Terminated
:	1	1			1	1		
:	1	1	<		I	1		ACK
:	1	1			- 1			
:	1	1			1		>	487 Request Terminated
:	1	1			1	1		
:	1	1			<	——I		ACK
:	1	1			1	1		
:	1	1		-	I	<		ACK
:	1	1	1	I	I	1	- 1	

- 1 NUT receives INVITE
- 2 NUT sends 180 Ringing
- 3 NUT receives CANCEL
- 4 NUT sends 200 OK
- 5 NUT sends 487 Request Terminated
- 6 NUT receives ACK

=== Message example ===

1. INVITE P-CSCF -> NUT

INVITE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe;501;ffff:100::20,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>



Call-ID: 3848276298220188511@under.test.com

CSea: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

2. 180 Ringing NUT -> P-CSCF

SIP/2.0 180 Ringing

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:fff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000];22222;branch=z9hG4bKnashds45ba91

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

3. CANCEL P-CSCF -> NUT

CANCEL sip:UEa1 public 1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233

Max-Forwards: 70

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com



CSeq: 1 CANCEL Content-Length: 0

4. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;received=3ffe:501:ffff:100::10

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=314160

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 CANCEL Content-Length: 0

5. 487 Request Terminated NUT -> P-CSCF

SIP/2.0 487 Request Terminated

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;received=3ffe:501:ffff:100::10,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

6. ACK P-CSCF -> NUT

ACK sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233

Max-Forwards: 70

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 4 CANCEL 200 OK from NUT to P-CSCF.



See generic_200-CANCEL

*2: 5 487 Request Terminated from NUT to P-CSCF.

```
See generic_3XX-6XX
- Exception{
    *To
        If a request contained a To tag in the request, the To header field
        in the response MUST equal that of the request.[RFC3261-8.2-41]

        If the To header field in the request did not contain a tag, the UAS
        MUST add a tag to the To header field in the response. [RFC3261-8.2-43]
    }

- Status-Line:
    The Status-Code in the Status-Line SHOULD be a 487 (Request Terminated).
    [RFC3261-9.2-2]
```

4.2.7 UE-SE-B-7-AKA - SIP response received from the P-CSCF outside of the registration

[NAME]

UE-SE-B-7-AKA - SIP response received from the P-CSCF outside of the registration

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly discards any SIP response that is not protected by the security association and is received from the P-CSCF outside of the registration.

[REFERENCE] TS24229 5.1.2A.1.1

[REQUIREMENT]

NONE



[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

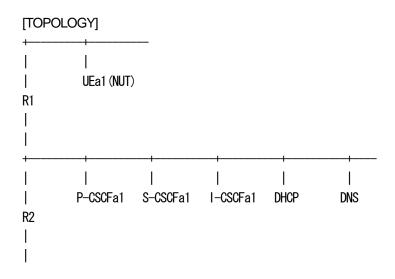
public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com P-CSCFa2 : sip:p.a2.under.test.com

[ADDRESS]

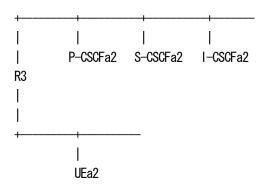
S-CSCFa2

UEa1(NUT) 3ffe:501:ffff:1000::1000 Router(R1) 3ffe:501:ffff:1000::1 P-CSCFa1 3ffe:501:ffff:100::10 I-CSCFa1 3ffe:501:ffff:100::20 S-CSCFa1 3ffe:501:ffff:100::30 DNS 3ffe:501:ffff:100::40 DHCP 3ffe:501:ffff:100::50 UEa2 3ffe:501:ffff:2000::1000 P-CSCFa2 3ffe:501:ffff:200::10 I-CSCFa2 3ffe:501:ffff:200::20



3ffe:501:ffff:200::30



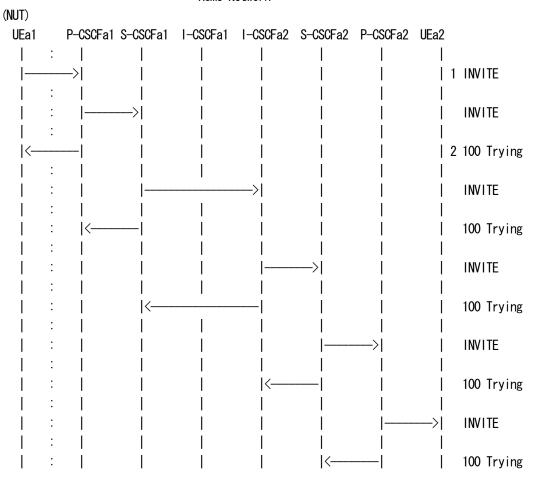


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

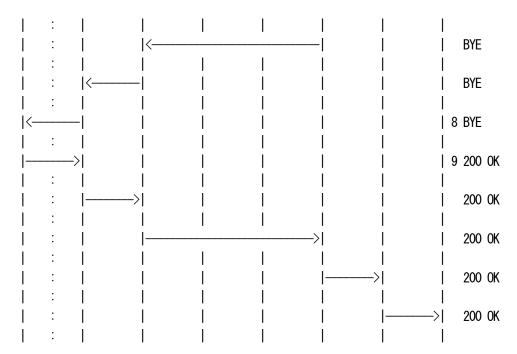
Home Network





1 .	ı		ı	I	I	I	l
:		 !				 <	180 Ringing
.		 !			 <		180 Ringing
:		 !		 <			180 Ringing
;							180 Ringing
;	 <	 					180 Ringing
· · · · · · · · · · · · · · · · · · ·	 - 	 					3 180 Ringing
; <		 		 			4 200 OK from P-CSCFa2
;		 !			 		5 < No response > (*1)
.		 !			 	 <	200 OK
		 !		 	 <		200 OK
		 !		 <	 		200 OK
	 	 <	 		 		200 OK
	 <	 			 		200 OK
 .	 - 	 			 		6 200 OK
· · · · · · · · · · · · · · · · · ·	 	 			 		7 ACK (to P-CSCFa1)
:	>	 		 	 		ACK
:	 	 		·	 		ACK
.	 			 	 >		ACK
:	 	' ' 		 	 	 >	ACK
	 	' ' 		 	 	 <	BYE
					<		BYE





- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 180 Ringing
- 4 NUT receives 200 OK from P-CSCFa2
- 5 < No response>
- 6 NUT receives 200 OK from P-CSCFa1
- 7 NUT sends ACK
- 8 NUT receives BYE
- 9 NUT sends 200 OK

=== Message example ===

As regards the message 1-3, please refer to the message 1-3 in UE-SE-B-1-AKA.

4. 200 OK P-CSCFa2 -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

Record-Route: <sip:p.a2.under.test.com:10001;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:



Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Content-Type: application/sdp

Content-Length: 153

v=0

o=UEa2 2890844527 2890844527 IN IP6 nodea2.under.test.com

s=

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 3456 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

5. <No response>

6. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Record-Route: <sip:p.a2.under.test.com;lr>,<sip:s.a2.under.test.com;lr>,

<sip:s.a1.under.test.com;lr>,<sip:p.a1.under.test.com:10001;lr>
From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Content-Type: application/sdp

Content-Length: 153

v=0

o=UEa2 2890844527 2890844527 IN IP6 nodea2.under.test.com

S=

c=IN IP6 nodea2.under.test.com

t=00

m=audio 3456 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000



7. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@nodea2.under.test.com:22222 SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf10 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

8. BYE P-CSCF -> NUT

BYE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c501,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bKnashdsa2.3;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c9.1;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghds30;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashdsb3

Max-Forwards: 66

From: <sip:UEa2_public_1@under.test.com>;tag=314259

To: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

9. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c501;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bKnashdsa2.3;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c9.1;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghds30;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashdsb3

From: <sip:UEa2_public_1@under.test.com>;tag=314259

To: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

[OBSERVABLE RESULTS]



*1:5 No response

The UE SHALL discard any SIP response that is not protected by the security association and is received from the P-CSCF outside of the registration and authentication procedures.[TS24229-5.1-196]

4.2.8 UE-SE-B-8-AKA - SIP Request received from the P-CSCF outside of the registration

[NAME]

UE-SE-B-8-AKA - SIP Request received from the P-CSCF outside of the registration

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly discards any SIP request that is not protected by the security association and is received from the P-CSCF outside of the registration.

[REFERENCE]

TS24.229 5.1.2A.2

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

Contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com P-CSCFa2 : sip:p.a2.under.test.com

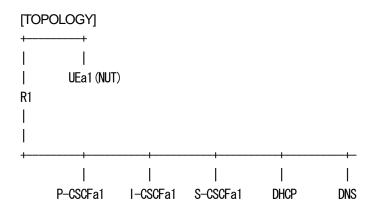
286



S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

3ffe:501:ffff:1000::1000 UEa1(NUT) Router(R1) 3ffe:501:ffff:1000::1 P-CSCFa1 3ffe:501:ffff:100::10 P-CSCFa2 3ffe:501:ffff:200::10 I-CSCFa1 3ffe:501:ffff:100::20 S-CSCFa1 3ffe:501:ffff:100::30 DNS 3ffe:501:ffff:100::40 DHCP 3ffe:501:ffff:100::50



[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network

(NUT)

(IOI)					
UEa1	P.	-CSCFa1	I-CSCFa1	S-CSCFa1	P-CSCFa2
	:				I
 <					1 INVITE (from non-registered server)
	:			1	I
	:				2 No Response (*1)
	:		-	I	

1 NUT receives INVITE



=== Message example ===

1. INVITE P-CSCFa2 -> NUT

INVITE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bK4412,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bK08b4

Record-Route: <sip:p.a2.under.test.com;lr>

Max-Forwards: 69

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1 public 1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa2 3490499303 3490499303 IN IP6 nodea2.under.test.com

s=

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

[OBSERVABLE RESULTS]

*1:2. No response

The UE SHALL discard any SIP request that is not protected by the security association and is received from the P-CSCF outside of the registration and authentication procedures.[TS24229-5.1-426]

4.2.9 UE-SE-B-9-AKA - Receiving 503 response to INVITE



[NAME]

UE-SE-B-9-AKA - Receiving 503 response to INVITE

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly receives a response 503 and retry INVITE after 30 seconds.

[REFERENCE]

TS24229 5.1.3.1

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

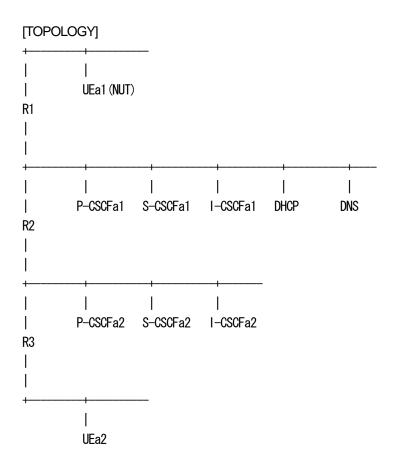
 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50

UEa2 : 3ffe:501:ffff:2000::1000
P-CSCFa2 : 3ffe:501:ffff:200::10
I-CSCFa2 : 3ffe:501:ffff:200::20
S-CSCFa2 : 3ffe:501:ffff:200::30



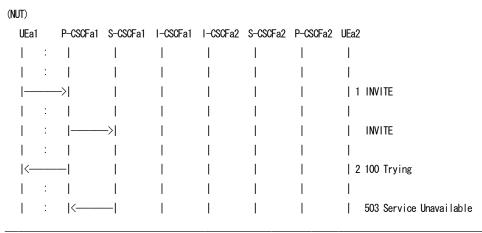


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network





1 : 1 1 1	1	1 1	1
 	i	i i	3 503 Service Unavailable (Retry-After: 30)
:	1	1	I
>	1	1	4 ACK
:	1	1	1
: >	I	1	ACK
	I		1
	I .		<wait 30="" sec=""></wait>
	I I		
	I I	1 I	5 INVITE (*1)
: 	i	1 1	INVITE
	i	I I	1
 	İ	i i	6 100 Trying
:	1	1	I
: <	1	1	100 Trying
:	I	1	I
:	> >		INVITE
			Indeed
	>	· 	INVITE
		1 1	100 Trying
	i	1 1	
	i	>	INVITE
	Ì	l l	ĺ
:	<	-	100 Trying
:	1	1	1
:	I	>	INVITE
	I		I
	Į.	 	100 Trying
	I I		 - 180 Ringing
	1	<	- 180 Ringing I
	i	 <	180 Ringing
	i		
	<	-	180 Ringing
:	1	1	I
: <		1	180 Ringing
1 : 1 1 1	1	1	I
: <	1	<u> </u>	180 Ringing
	1		
 	[7 180 Ringing
1 · 1 1	1	ı l	1



1 .	1	1 1			ı	<	200 OK
1 .	1	l I I I			l I		200 UK
1 .	I	I I I I	ı		 <i>{</i>		200 OK
	1	! ! ! !			\ 	! ! ! !	200 OK
1 .	1	!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!	' '	<	! 	! ! ! !	200 OK
1 .	1	' ' I I			! 	' ' I I	200 OK
1 :	1	ı ı <	l			' ' 	200 OK
1 :	1	l I				' ' I I	200 011
1 :	 <	' ' I I	i			' ' 	200 OK
· :	1	 I I	i			I I	200 0.11
· <	-l	I I	i			I I	8 200 OK
1 :	i	 I I	i			I I	
· 	>I	 I I	i		· 	I I	9 ACK
· :	i	 I I	i			I I	
:	>	 I I	ĺ				ACK
:	1		ı				
:				>			ACK
:		l I	I				
:	1	l I	١		>	l I	ACK
:	1	l I	I			l l	
:	1		I			>	ACK
:	1		I			l l	
:	1		I			<	BYE
:	1	l I	I			l l	
:	1	l I	I		<	l l	BYE
:	1	l I	I			l l	
:	1	<				l l	BYE
:	1		I			l l	
:	<		I				BYE
:	1	l I	I			l l	
<	-	l I	I			l l	10 BYE
:	1	l I	I			l l	
	>		I				11 200 OK
:			I				
:	>	l I	١				200 OK
:	1		I				
:	1			>			200 OK
:	1					 	
:	1	l			>	l	200 OK
:	1						
:	1		 			> 	200 OK
:	I		l				



1 NUT sends INVITE

2 NUT receives 100 Trying

3 NUT receives 503

4 NUT sends ACK

5 NUT sends INVITE

6 NUT receives 100 Trying

7 NUT receives 180 Ringing

8 NUT receives 200 OK

9 NUT sends ACK

10 NUT receives BYE

11 NUT sends 200 OK

=== Message example ===

1. INVITE NUT -> P-CSCF

INVITE sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

Require: sec-agree Proxy-Require: sec-agree

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa1 2890844526 2890844526 IN IP6 node.under.test.com

s=

c=IN IP6 node.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000



2. 100 Trying P-CSCF -> NUT

SIP/2.0 100 Trying

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

3. 503 Service Unavailable P-CSCF -> NUT

SIP/2.0 503 Service Unavailable

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Retry-After: 30 Content-Length: 0

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

5. INVITE NUT -> P-CSCF

INVITE sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>
Call-ID: 3848276298220188511@under.test.com



CSeq: 1 INVITE

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

Require: sec-agree Proxy-Require: sec-agree

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa1 2890844526 2890844526 IN IP6 node.under.test.com

S=

c=IN IP6 node.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

6. 100 Trying P-CSCF -> NUT

SIP/2.0 100 Trying

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

7. 180 Ringing P-CSCF -> NUT

SIP/2.0 180 Ringing

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

8. 200 OK P-CSCF -> NUT



SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Record-Route: <sip:p.a2.under.test.com;lr>,<sip:s.a2.under.test.com;lr>,

<sip:s.a1.under.test.com;lr>,<sip:p.a1.under.test.com:10001;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Content-Type: application/sdp

Content-Length: 153

v=0

o=UEa2 2890844527 2890844527 IN IP6 nodea2.under.test.com

S=-

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 3456 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

9. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@nodea2.under.test.com:22222 SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf10 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,<sip:s.a2.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

10. BYE P-CSCF -> NUT

BYE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c501,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bKnashdsa2.3;received=3ffe:501:ffff:100::30,
SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c9.1;received=3ffe:501:ffff:200::30,



SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghds30;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashdsb3

Max-Forwards: 66

From: <sip:UEa2_public_1@under.test.com>;tag=314259
To: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

11, 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c501;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bKnashdsa2.3;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c9.1;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghds30;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashdsb3

From: <sip:UEa2_public_1@under.test.com>;tag=314259

To: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

[OBSERVABLE RESULTS]

*1: 5 INVITE from NUT to P-CSCF.

See generic_INVITE

The request SHALL not be automatically sent until after the period indicated by the Retry-After header feild.[TS24229-5.1-474]

4.2.10 UE-SE-B-10-AKA - Receiving forked 180 and 200 response

[NAME]

UE-SE-B-10-AKA - Receiving forked 180 and 200 response

[TARGET]

IMS User Equipment (NUT)

297



[PURPOSE]

(1)To verify that UEa1 properly receives forked 180(Ringing) and 200(OK) responses.

(2)To verify that UEa1 properly sends BYE to UEa3.

[REFERENCE]

TS24.229 5.1.3.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

 UEa1(NUT)
 :
 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

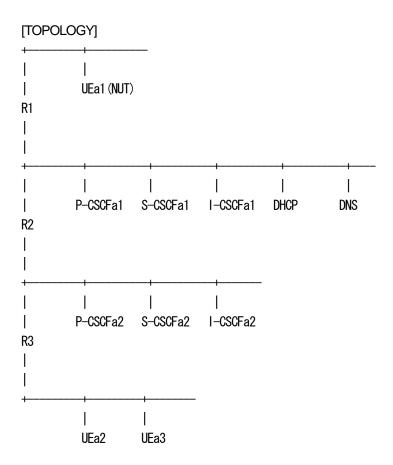
 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30

 UEa3
 : 3ffe:501:ffff:2000::1001



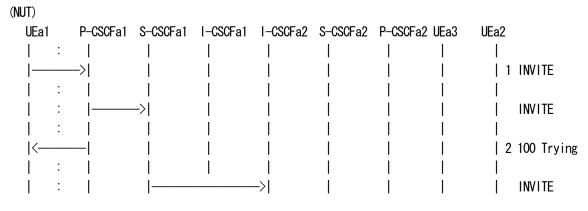


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network



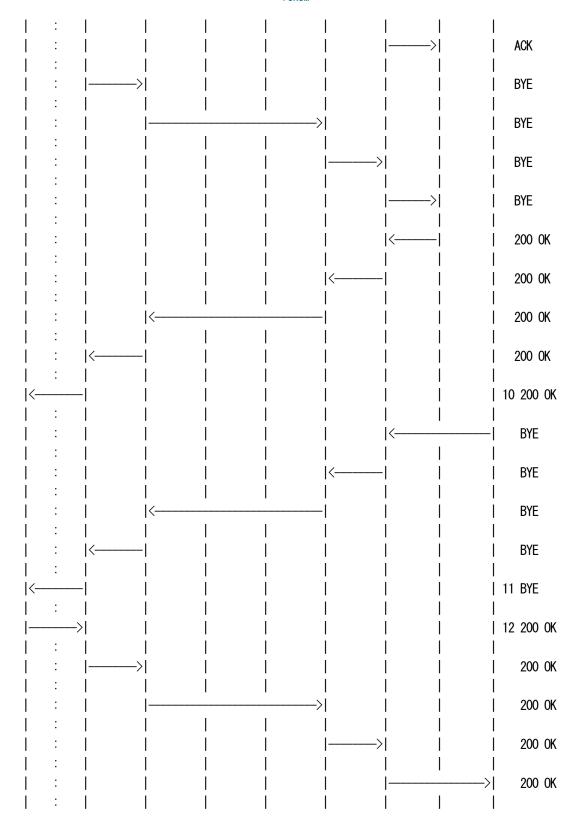


l :	: 1			Ī]	İ	l I			
 	·	 <		 	 	 		1	00	Trying
 	·			 >			 !	I	NV I	TE
 	:		 <		 		 !	1	00 -	Trying
	:				 >		 	I	NV I	TE
	:			 <	 		 	1	00 -	Trying
	:					 	 >	I	NV I	TE
 	:				 	 >	 	I	NV I	TE
 	:				 <		 	1	00 -	Trying
 	:					 <	 	1	80 F	Ringing
	:				 <		 	1	80 F	Ringing
 	:			 <	 		 	1	80 F	Ringing
 	:		 <		 		 	1	80 F	Ringing
 	:	 <			 		 	1	80 F	Ringing
 <	: 				 			3 1	80 F	Ringing
 	: :				 	 <	 	1	80 F	Ringing
 	:				 <		 	1	80 F	Ringing
 	: :			 <			 ! :	1	80 F	Ringing
 	:		 <				 !	1	80 F	Ringing
 	: :	 <		 	 		 	1	80 F	Ringing
 <	: 			 	 		 :	4 1	80 F	Ringing
	: :				 	 <		2	00 (OK



:		l	I	l					
:] I	 	 	 	<	 			200 OK
:	 -	 -	! :	 <	 -				200 OK
: :	 	 <	 	 	 		 		200 OK
:	 <] [200 OK
:		 	 	 					
:	 	 	 	 			 		200 OK
> :	 	 	 	 	 	 	 	6	ACK
: :	> 	 	 	 	 	 	 		ACK
:		ı 	! 	·>					ACK
· :	 -	 -	 -	 -	 >				ACK
: :	 	 	 	 	 	 	 >		ACK
: :] 	 	 	 	 	 <	 		200 OK
:	' 	' 	 	' 		, · 			200 OK
:	 	 -	 -	 	< 				
	 	 	 	< 	 		 		200 OK
: :]]	< 	 I]]	 	 		200 OK
:	 <	' 	 	' 	 				200 OK
		 -	 	 -				7	200 OK
: >	 	 	 	 	 		 	8	ACK (*1)
: :	 >	 	 	 	 	 	 		ACK
:	 	 	 	 	 	 	' ' 		
:	 	 -	 	 	 	 			BYE (*2)
: :	 		 	> 	 	 			ACK
:			l		>				ACK





1 NUT sends INVITE



2 NUT receives 100 Trying

3 NUT receives 180 Ringing

4 NUT receives 180 Ringing

5 NUT receives 200 OK

6 NUT sends ACK

7 NUT receives 200 OK

8 NUT sends ACK

9 NUT sends BYE

10 NUT sends 200 OK

11 NUT receives BYE

12 NUT sends 200 OK

=== Message example ===

1. INVITE NUT -> P-CSCF

INVITE sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

Require: sec-agree Proxy-Require: sec-agree

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa1 2890844526 2890844526 IN IP6 node.under.test.com

s=

c=IN IP6 node.under.test.com

t=0 0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000



2. 100 Trying P-CSCF -> NUT

SIP/2.0 100 Trying

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

3. 180 Ringing P-CSCF -> NUT

SIP/2.0 180 Ringing

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

4. 180 Ringing P-CSCF -> NUT

SIP/2.0 180 Ringing

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314223

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

5. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Record-Route: <sip:p.a2.under.test.com;lr>,<sip:s.a2.under.test.com;lr>,

<sip:s.a1.under.test.com;lr>,<sip:p.a1.under.test.com:10001;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:



Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Content-Type: application/sdp

Content-Length: 153

v=0

o=UEa2 2890844527 2890844527 IN IP6 nodea2.under.test.com

s=

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 3456 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

6. ACK NUT -> P-CSCF

ACK sip:UEa2 public 1@nodea2.under.test.com:22222 SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf10 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

7. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Record-Route: <sip:p.a2.under.test.com;lr>,<sip:s.a2.under.test.com;lr>,

 $<\!\!\mathrm{sip:s.a1.under.test.com;} lr\!\!>, <\!\!\mathrm{sip:p.a1.under.test.com:} 10001; lr\!\!>$

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314223

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa3_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Content-Type: application/sdp

Content-Length: 153



v=0

o=UEa3 2890844527 2890844527 IN IP6 nodea2.under.test.com

S=

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 3456 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

8. ACK NUT -> P-CSCF

ACK sip:UEa3_public_1@nodea2.under.test.com:22222 SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf10

Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314223

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

9. BYE NUT -> P-CSCF

BYE sip:UEa3_public_1@nodea2.under.test.com:22222 SIP/2.0

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314223

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE

Content-Length: 0

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Require: sec-agree

Proxy-Require: sec-agree

10. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf11



From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314223 Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

11. BYE P-CSCF -> NUT

BYE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c501,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bKnashdsa2.3;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c9.1;received=3ffe:501:fff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghds30;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashdsb3

Max-Forwards: 66

From: <sip:UEa2_public_1@under.test.com>;tag=314259
To: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

Call-ID: 3848276298220188511@under.test.com

CSeq: 3 BYE Content-Length: 0

12. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c501;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bKnashdsa2.3;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c9.1;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghds30;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashdsb3

From: <sip:UEa2_public_1@under.test.com>;tag=314259

To: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

Call-ID: 3848276298220188511@under.test.com

CSeq: 3 BYE Content-Length: 0

[OBSERVABLE RESULTS]

*1: 8 ACK from NUT to P-CSCF

See generic ACK

The UE SHALL acknowledge the response with an ACK request.[TS24229-5.1-468]



The UAC core MUST generate an ACK request for each 2xx received from the transaction layer.[RFC3261-13.2-18]

*2: 9 BYE from NUT to P-CSCF

See generic_BYE

The UE SHALL send a BYE request to this dialog in order to terminate it.

[TS24229-5.1-469]

4.3 SDP

4.3.1 UE-SD-B-1-AKA - SDP offer which included one or more media lines which was offered with several codecs (Receives INVITE and sends BYE)

[NAME]

UE-SD-B-1-AKA - SDP offer which included one or more media lines which was offered with several codecs (Receives INVITE and sends BYE)

[TARGET]
IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process an INVITE with a SDP offer which included one or more media lines which was offered with several codecs, and responds with a 200 (OK) response included proper SDP selecting exactly one codec per payload and indicate only the selected codec for the related media stream.

[REFERENCE] TS24.229 6.1.3

[REQUIREMENT] NONE

[PARAMETER(NUT)]



public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

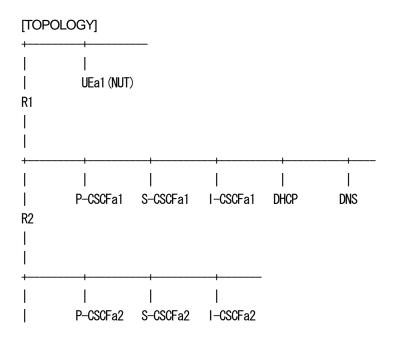
 DHCP
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

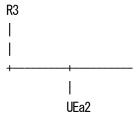
 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30







[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network

(NUT)									
UEa1		P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2	
	:	1	1		1	1	1	- 1	
	:	I	I		1	1	<		INVITE with several codecs
	:	I	I		1	1		- 1	
	:	I	I		1	<		- 1	INVITE with several codecss
	:	l	I		-	1		- 1	
	:	I	I		1	1		>	100 Trying
	:	l	I		-	1		- 1	
	:	I	I	<				I	INVITE with several codecss
	:	I	I		1	1		I	
	:	I	I		1		—>	I	100 Trying
	:	I	I		1	1		I	
	:	I	<		I	1	I	I	INVITE with several codecss
	:	I	I		I	1	l		
	:	I	I			—>	l		100 Trying
	:	I	I		I	1	l		
	:	< 	—-I					I	INVITE with several codecss
	:	I	I		I	1	l		
	:	I		—>				I	100 Trying
	:	I	I					I	
<			I		I	1	l	1	INVITE with several codecss
	:	I	I					I	
	:		—>		I	1	l		100 Trying
	:	I	I		I	I	l		
		—>	I		1	1	1	2	180 Ringing
	:		I		1	1	1		
	:	<u> </u>	—>	I	I	I	I	I	180 Ringing



				ı		ı				
		l	l	l .		l	l I			
1	:			>		<u> </u>			180 F	Ringing
ı	:	l								
1	:				>			•	180 F	Ringing
	:									
	:					>			180 F	Ringing
1	:	I	l	I	l	l	l I			
i		I	I	I	I	I	>		120 F	Ringing
1		I I	l I	l I	! 	I I	1 /1 1 1		100 1	viiigiiig
1		l	l	l I	l	l I	l I		200 (N/ (.1)
	>	l .		l		l	l I	3 4	200 (OK (*1)
ı	:						l l			
1	:	>						2	200 ()K
- [:									
1	:			>				2	200 (Ж
1	:									
1	:	I			>		l I	2	200 ()K
i	:	I					I I			
i		I	I	I	I	' >	 I I	,	200 (nk
1		l I	l I	l I	l I	l /		4	200 (ж
				l		l I				
1	:						>	2	200 (JK
	:									
	:						<	1	ACK	
1	:									
1	:					<		1	ACK	
1	:	I								
1	:	I	l<			l	l I	,	ACK	
i	:	I	I	I	ı	I	I I			
i		 <i> </i>	' 	' I	· I	' I	' ' I I		ACK	
1		I	l I	l I	l I	l I		,	1011	
l Lz	•	l	l	l		l I	l I			
<		l		l		l	l I	4 /	ACK	
ı	:	l				l				
	>							5 E	BYE	
1	:									
1	:	>						E	BYE	
1	:	I								
1	:	I			>	I	l I		BYE	
i		I	I	I	1	I	I I			
ı		' 	' 	ı I	' 	ı >	' ' I		BYE	
I I		l I	ı I	l I	l I	, — <i>——</i> / !	ı I		JΙΕ	
1		l	l	l	l .	l	I I	_		
I	:	l		l		l	>	E	BYE	
ı	:									
- 1	:	l					<	2	200 (Ж
1	:									



	:		I	1	1	<	——I	200	OK
	:	1	1		1	I	1	1	
	:	1	<			——I	1	200) OK
	:	1	1		1	I	1	1	
	:	<	——I		1	I	1	200	OK
	:	1	1		1	I	1		
<-		-1	1		1	I	1	6 200) OK
1	:	1	1	1	1	1	1	1	

1 NUT rreceives INVITE

2 NUT sends 180 Ringing

3 NUT sends 200 OK

4 NUT receives ACK

5 NUT sends BYE

6 NUT receives 200 OK

=== Message example ===

1. INVITE P-CSCF -> NUT

INVITE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE,ACK,CANCEL,OPTIONS,BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: application/sdp

Content-Length: 172



v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com

S=-

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0 18 96

b=AS:75

a=rtpmap:0 PCMU/8000

a=rtpmap:18 G729/8000

a=rtpmap:96 EVRC/8000

2. 180 Ringing NUT -> P-CSCF

SIP/2.0 180 Ringing

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

3. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Supported:



Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Content-Type: application/sdp

Content-Length: 153

v=0

o=UEa1 2890844527 2890844527 IN IP6 node.under.test.com

S=

c=IN IP6 node.under.test.com

t=0.0

m=audio 3456 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

4. ACK P-CSCF -> NUT

ACK sip:UEa1 public 1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c234,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.3;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657v;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca9;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba92

Max-Forwards: 66

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

As regards the message 5-6, please refer to the message 5-6 in UE-SE-B-4-AKA.

[OBSERVABLE RESULTS]

*1: 3 INVITE 200 OK from NUT to P-CSCF.

See generic_200-INVITE

- Message Body:

By the terminating UE, one codec per payload SHALL be selected exactly and only the selected codec for the related media stream SHALL be indicated upon sending a SDP answer to an SDP offer.[TS24229-6.1-43]



4.3.2 UE-SD-B-2-AKA - SDP offer which included an IP address type that is not supported (Receives INVITE and sends BYE)

[NAME]

UE-SD-B-2-AKA - SDP offer which included an IP address type that is not supported (Receives INVITE and sends BYE)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process an INVITE with a SDP offer which included an IP address type that is not supported by the UEa1, and responds with a 488 (Not Acceptable Here) response with 301 Warning header indicating "incompatible network address format".

[REFERENCE]

TS24.229 6.1.3 RFC3261 13.3.1.3

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]



UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::10

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

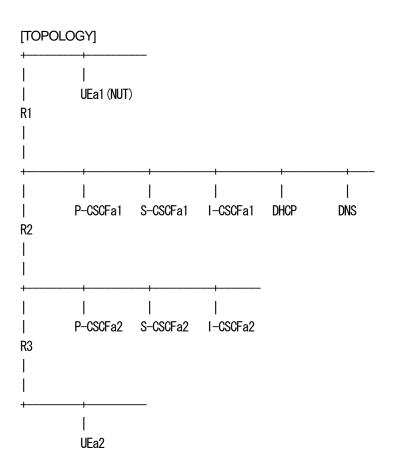
 DHCP
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30



[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".



[PROCEDURE]

Home Network

(NILIT)			TIONE NELWO	ıı K					
(NUT)									
UEa1		P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2	
	:		I						
	:		I	1	I		<		INVITE with IP address type that is not supported
1	:	ı	ı	1	1	1	1	1	
i		ı I	' '	i	' '	1/	i	' '	INVITE with ID address two that is not supported
	•	l			!	<	<u> </u>	!	INVITE with IP address type that is not supported
	:	I	l	I	l		I	ı	
	:		I		I			—>	100 Trying
	:		1	1	1		1	- 1	
i		ı	İ	<		I	i	i	INVITE with IP address type that is not supported
' '		ı I	! !	1	1	' !	' 	1	THE WILL IT GOOD ESPO LINE TO HOE SUPPORTED
	•		!		!	!	1		=
	:	I	l	I	l		—>	I	100 Trying
	:		l		l				
	:		<		I		1	- 1	INVITE with IP address type that is not supported
1	:	ı	ı	1	1	1	1	1	
i		ı I	' '	i	'	\ \1	i	' '	100 Truing
!	•	l	1			>I	1		100 Trying
ı	:	I	ı	I	ı	ı	I	ı	
	:	<	I		l		I		INVITE with IP address type that is not supported
	:		I	1	I		1		
1	:	1	I	>I	ı	1	1	- 1	100 Trying
i		ı I	' '	1	' '	' !	i	' '	100 11,111,5
l	•	l	1	1		1	1	- 1	
<			ı	I	I	ı	I	1	INVITE with IP address type that is not supported
	:		l		l				
	:		—>	1	1		1		100 Trying
1	:	1	ı	1	ı	1	1	- 1	
i		>I	i	i	i	i	·	2	488 Not Acceptable Here (*1)
1		71	1	1	1	1	1	1 4	THE MODE ACCEPTABLE LIGHT (*1)
1	•	l							
<			l	I	l		I	3	ACK
	:		l						
	:		—>	1	I		1		488 Not Acceptable Here
1	:	1	1	1	1	1	1	- 1	
i		<	i	i	·	i	·	i	ACK
1			I	1	ı	ı	1	- !	AOR
ı	:	ļ	I	I	I	ı	I	I	
	:			>	l			ı	488 Not Acceptable Here
	:								
J	:	- 1	<		1	ı		1	ACK
·		ı	·	i I	I	İ	l	·	
ı I		ı I	l I	l I	'		ı I	ı	400 Not Acceptable Hors
	•	l	l			—∕I	1		488 Not Acceptable Here
	:	l	I	l	I	I			
	:	1	1	<				- 1	ACK
	:	1	I		1	I		- 1	



	:			1	1		—>	488 Not Acceptable Here
	:	-		1	1	1	1 1	
	:	-		- [1	<		ACK
	:	-		1	1	1	1 1	
	:	-		1	1	1	>	488
	:	-		1	1	1	1 1	
	:			- 1		1	<	ACK
1	:	1	1	1	1	1	1 1	

1 NUT receives INVITE

2 NUT sends 488 Not Acceptable Here

3 NUT receives ACK

=== Message example ===

1. INVITE P-CSCF -> NUT

INVITE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: rea

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com

S=-



c=IN FOO nodea2.under.test.com t=0 0 m=audio 49172 RTP/AVP 0 b=AS:75 a=rtpmap:0 PCMU/8000

2. 488 Not Acceptable Here NUT -> P-CSCF

SIP/2.0 488 Not Acceptable Here

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Warning: 301 UEa1_public_1 "incompatible network address format"

Content-Length: 0

3. ACK P-CSCF -> NUT

ACK sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233

Max-Forwards: 70

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 2 488 Not Acceptable Here from NUT to P-CSCF.

See generic_3XX-6XX

- Exception{
- * To

If a request contained a To tag in the request, the To header field



in the response MUST equal that of the request.[RFC3261-8.2-41]

The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261-8.2-44]

}

- Header Field:

* Warning

Upon receiving an initial INVITE request, that includes the SDP offer containing an IP address type that is not supported by the UE, it SHALL respond with the 488 response with 301 Warning header indicating "incompatible network address format".[TS24229-6.1-47]

488 response SHOULD include a Warning header field value explaining why the offer was rejected.[RFC3261-13.3-9]

4.4 OPTIONS

4.4.1 UE-OP-B-1-AKA - OPTIONS request (Sends OPTIONS)

[NAME]

UE-OP-B-1-AKA - OPTIONS request (Sends OPTIONS)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly sends OPTIONS request.

[REFERENCE] TS24.229 A.2.1.3

RFC3261 11

RFC3261 11.1

[REQUIREMENT]

NONE



[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

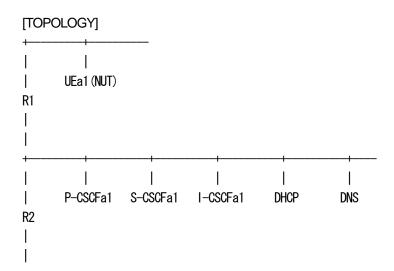
 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::30

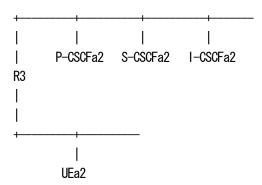
 DNS
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50

UEa2 : 3ffe:501:ffff:2000::1000
P-CSCFa2 : 3ffe:501:ffff:200::10
I-CSCFa2 : 3ffe:501:ffff:200::20
S-CSCFa2 : 3ffe:501:ffff:200::30





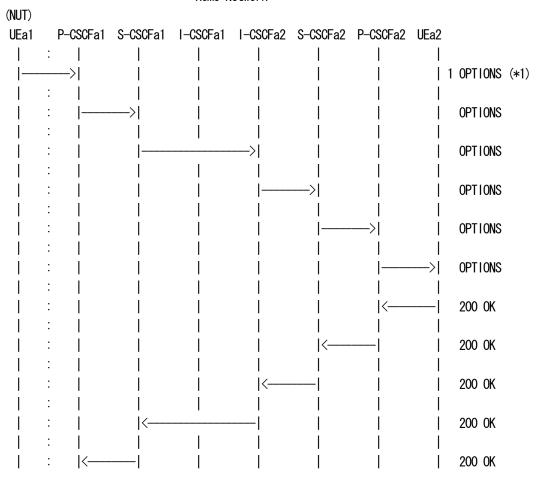


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]







:			
<			2 200 OK
:			

1 NUT sends OPTIONS 2 NUT receives 200 OK

=== Message example ===

1. OPTIONS NUT -> P-CSCF

OPTIONS sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74b1a Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

Proxy-Require: sec-agree

Require: sec-agree

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76tm

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188522@under.test.com

CSeq: 1 OPTIONS

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Accept: application/sdp,application/3gpp-ims+xml

Content-Length: 0

2. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74b1a

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76tm

To: <sip:UEa2_public_1@under.test.com>;tag=314160

Call-ID: 3848276298220188522@under.test.com

CSeq: 1 OPTIONS Supported: path

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE Accept: application/sdp, application/3gpp-ims+xml

Accept-Encoding: identity Accept-Language: en Allow-Events: reg

Content-Type: application/sdp

Content-Length: 147

v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com



S=-

c=IN IP6 nodea2.under.test.com t=0 0 m=audio 49172 RTP/AVP 0 b=AS:75 a=rtpmap:0 PCMU/8000

[OBSERVABLE RESULTS]

*1: 1 OPTIONS request from NUT to P-CSCF.

See generic_OPTIONS

4.4.2 UE-OP-B-2-AKA - OPTIONS request (Receives OPTIONS)

[NAME]

UE-OP-B-2-AKA - OPTIONS request (Receives OPTINOS)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly sends 200 response to OPTIONS.

[REFERENCE] TS24.229 A.2.1.3 RFC3261 11 RFC3261 11.2

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

.....



HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

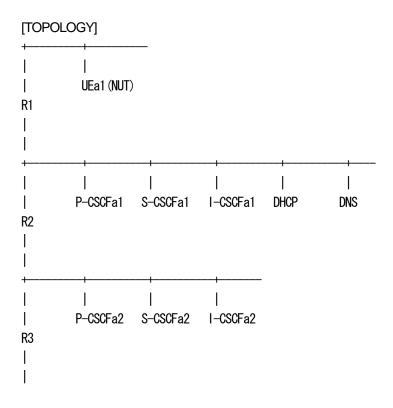
 DHCP
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30





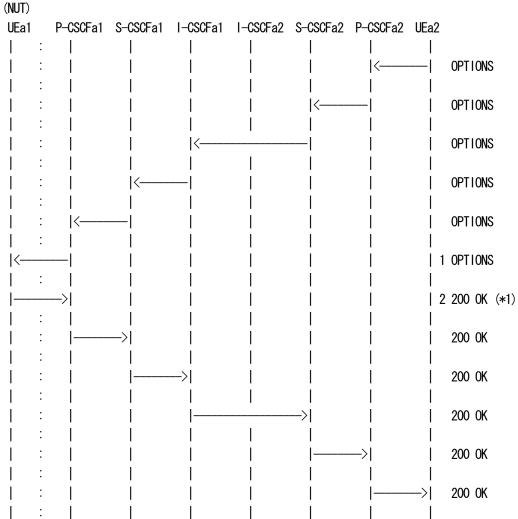


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]





- 1 NUT receives OPTIONS
- 2 NUT sends 200 OK



=== Message example ===

1. OPTIONS P-CSCF -> NUT

OPTIONS sip:UEa1_public_1@under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431h23.1,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.1;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bK871y12.1;received=3ffe:501:ffff:100::20,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK764z87.1;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bK361k21.1;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bK834y72.2

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=314160

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188533@under.test.com

CSeq: 1 OPTIONS

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Length: 0

2. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431h23.1;r

eceived=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.1;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bK871y12.1;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK764z87.1;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bK361k21.1;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bK834y72.2

From: <sip:UEa2_public_1@under.test.com>;tag=314160

To: <sip:UEa1_public_1@under.test.com>;tag=9fxced76tm

Call-ID: 3848276298220188533@under.test.com

CSeq: 1 OPTIONS

Allow: INVITE,ACK,CANCEL,OPTIONS,BYE

Accept: application/sdp,application/3gpp-ims+xml

Accept-Encoding: gzip Accept-Language: en Allow-Events: reg Supported: path

Content-Type: application/sdp

Content-Length: 147

v=0

o=UEa1 2890844526 2890844526 IN IP6 node.under.test.com



S=-

c=IN IP6 node.under.test.com t=0 0 m=audio 49172 RTP/AVP 0 b=AS:75 a=rtpmap:0 PCMU/8000

[OBSERVABLE RESULTS]

*1: 2 200 OK respose from NUT to P-CSCF.

See generic_200-OPTIONS

4.5 SIP timer

4.5.1 UE-TM-B-1-AKA - Timer B expiration to INVITE

[NAME]

UE-TM-B-1-AKA - Timer B expiration to INVITE

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 stops retransmitting INVITE after time B expired.

[REFERENCE]

TS24.229 7.7

RFC3261 17.1.1.2

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com



private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::10

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::30

 DNS
 :
 3ffe:501:ffff:100::40

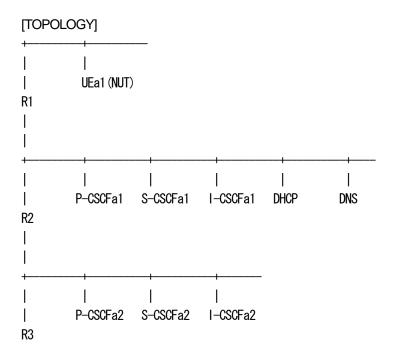
 DHCP
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

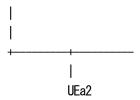
 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30







[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network (NUT) P-CSCFa1 UEa2 UEa1 P-CSCFa1 | 1. INVITE —Timer B started 2. INVITE 3. INVITE 4. INVITE 5. INVITE 6. INVITE 7. INVITE -Timer B fired(128sec) 8. 200 OK 9. No request> (*1)

- 1-7. NUT sends INVITE
- 8. NUT reseives 200 OK
- 9. <No request>



=== Message example ===

1-7. INVITE NUT -> P-CSCF

INVITE sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

Require: sec-agree

Proxy-Require: sec-agree

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa1 2890844526 2890844526 IN IP6 node.under.test.com

s=

c=IN IP6 node.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

8. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Record-Route: <sip:p.a2.under.test.com;lr>,<sip:s.a2.under.test.com;lr>,

<sip:s.a1.under.test.com;lr>,<sip:p.a1.under.test.com:10001;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:



Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Content-Type: application/sdp

Content-Length: 153

v=0

o=UEa2 2890844527 2890844527 IN IP6 nodea2.under.test.com

S=

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 3456 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

9. <No request>

[OBSERVABLE RESULTS]

*1:9 No request

The client transaction MUST NOT generate an ACK.[RFC3261-17.1-16]

4.5.2 UE-TM-B-2-AKA - Timer D expiration

[NAME]

UE-TM-B-2-AKA - Timer D expiration

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that UEa1 properly sends ACK to 486(Busy Here) before timer D expired.

[REFERENCE]

TS24.229 7.7

RFC3261 17.1.1.2



[REQUIREMENT] NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::10

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

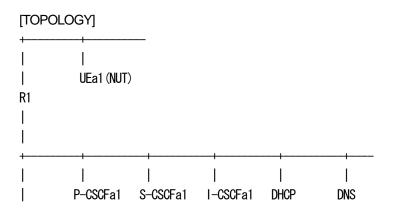
 DHCP
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

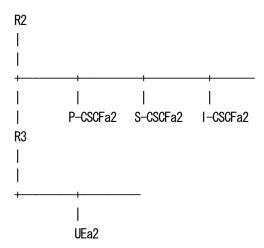
 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30





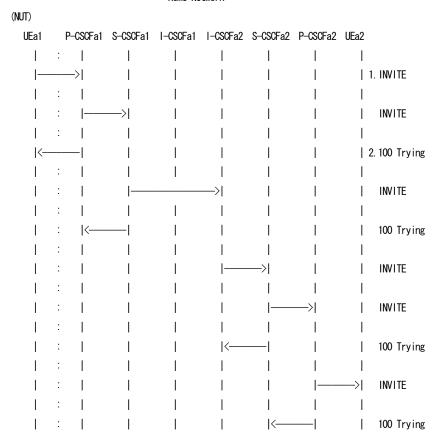


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network





		:	1	I	1	I	I	1 1		
		:	1	I			I	<	486	Busy Here
		:	1	I		I	I			
		:	1	I			I	>	ACK	
		:	I	I		I	I	1 1		
		:	I	I	1	I	<	-	486	Busy Here
		:	I	I	1	I	I	1 1		
	1	:	I	I	1	I	>	·	ACK	
		:	I	I		I	I	1 1		
		:	I	I		<	I	1 1	486	Busy Here
		:	I	I		I	I	1 1		
		:	I	I	1	>	I	1 1	ACK	
		:	I	I	1	I	I	1 1		
		:	I	<		1	I	1 1	486	Busy Here
		:	I	I	1	I	I	1 1		
		:	I		>	I	I	1 1	ACK	
		:	I	I	1	I	I	1 1		
		:	<	I	1	I	I	1 1	486	Busy Here
		:	I	I		I	I	1 1		
		:	>	I		I	I	1 1	ACK	
	I	:	I	I	1	I	I	1 1		
	<		-	I	1	I	I	1 1	3. 486	Busy Here
		:	I	I	1	I	I	1 1		
		>	·	I	1	I	I	1 1	4. ACK	—Timer D has started
		:	I	I		I	I	1 1		
	<		-	I	1	I	I	1 1	5. 486	Busy Here (Sends before 128sec)
	1	:	I	I	1	I	I	1 1		
		>	·	I	1	I	l	I I	6. ACK	(*1)
	1	:	i I	I	1	I	l	I I		
-									Time	r D (>128 sec) fired (UDP case)
	I	:	I			1	l	1 1		

- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 486 Busy Here
- 4 NUT sends ACK
- 5 NUT receives 486 Busy Here
- 6 NUT sends ACK

===	Message	example	===
-----	---------	---------	-----

1. INVITE NUT -> P-CSCF



INVITE sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

Require: sec-agree Proxy-Require: sec-agree

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa1 2890844526 2890844526 IN IP6 node.under.test.com

S=

c=IN IP6 node.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

2. 100 Trying P-CSCF -> NUT

SIP/2.0 100 Trying

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

3. 486 Busy Here P-CSCF -> NUT

SIP/2.0 486 Busy Here

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

Call-ID: 3848276298220188511@under.test.com



From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314259

CSeq: 1 INVITE Content-Length: 0

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

As regards the message 5-6, please refer to the message 3-4 in this.

[OBSERVABLE RESULTS]

*1: 6 ACK form NUT to P-CSCF.

See generic_ACK-non2XX

Any retransmissions of the final response that are received while in the "Completed" state MUST cause the ACK to be re-passed to the transport layer for retransmission.[RFC3261-17.1-25]

4.5.3 UE-TM-B-3-AKA - Timer H expiration

[NAME]

UE-TM-B-3-AKA - Timer H expiration

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]



To verify that UEa1 stops resending 4XX-6XX after timer H expired .

[REFERENCE] TS24.229 7.7 RFC3261 17.2.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

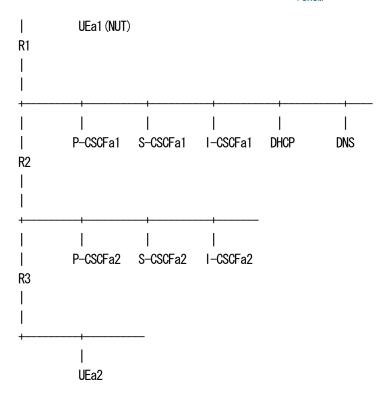
 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30

[TOPOLOGY]							
+							
1	- 1						



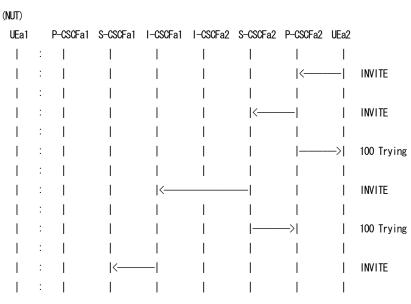


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network





1 : 1				>I	1	100 Trying
1 : 1		1		1	1	I
: <		1	1	1	1	INVITE
:		1		1	1	I
:		>	1	1	1	100 Trying
:		1	1	1	1	I
<		1	1	1	1	1 INVITE
:		1		1	1	I
:	>	- 1		1		100 Trying
:				1	1	I
>				1	1	2 4XX-6XX(ex. 488) Timer H start
:				1	1	I
>				1	1	3 4XX-6XX
:				1	1	I
>				1	1	4 4XX-6XX
:				1	1	I
						timer H fired (128sec)
:		1	1	1	1	I
:		1	1	1	1	5 <no retry="">(*1)</no>
:		1		1	1	1

1 NUT receives INVITE

2-4 NUT sends 4XX-6XX

5 <No retry>

=== Message example ====

1. INVITE P-CSCF -> NUT

INVITE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE



Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa2 2890844526 2890844526 IN FOO nodea2.under.test.com

S=

c=IN FOO nodea2.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PMCU/20000

2-4. 4XX-6XX NUT -> P-CSCF

SIP/2.0 488 Not Acceptable Here

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;r

eceived=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Warning: 301 UEa1_public_1 "incompatible network address format"

Content-Length: 0

5. <No retry>

[OBSERVABLE RESULTS]

*1:5 No Retry



4.5.4 UE-TM-B-4-AKA - Timer J expiratoin

[NAME]

UE-TM-B-4-AKA - Timer J expiration

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly sends 481(Transaction Does Not Exist) to CANCEL after time J expired .

[REFERENCE]

TS24.229 7.7

RFC3261 17.2.2

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

 UEa1(NUT)
 :
 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40



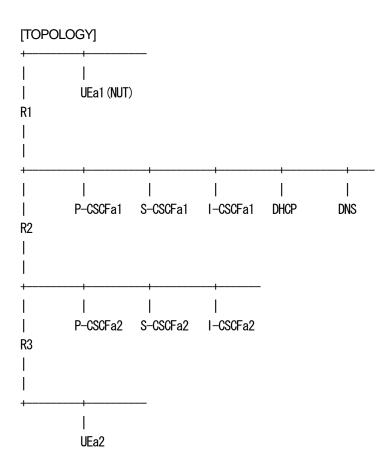
DHCP : 3ffe:501:ffff:100::50

 UEa2
 :
 3ffe:501:ffff:2000::1000

 P-CSCFa2
 :
 3ffe:501:ffff:200::10

 I-CSCFa2
 :
 3ffe:501:ffff:200::20

 S-CSCFa2
 :
 3ffe:501:ffff:200::30



[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network

(NUT)

 UEa1
 P-CSCFa1
 S-CSCFa1
 I-CSCFa1
 I-CSCFa2
 S-CSCFa2
 P-CSCFa2
 UEa2

 |
 :
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 |
 <td



1		ı	l 1	I	I	I	1 1		
 	:	 		 	 	' < I	' ' 		INVITE
	:			 	 	' 	 >		100 Trying
 	:	 		 <		 			INVITE
1	:	 			 	 >			100 Trying
 	:	 	 <		 	 	 		INVITE
 	:	 			 >	 	 		100 Trying
l l	:	 <			 	 	 		INVITE
 	:	 	 >	 	 	 	 		100 Trying
 <	:	 	 	 	 	 	 	1	INVITE
 	:	 >	 	 	 	 	 		100 Trying
 	:	 	 	 	 	 	 	2	180 Ringing
 	:	 >	 	 	 	 	 		180 Ringing
 	:	 	 >	 	 	 	 		180 Ringing
l I	:	 		 	 >	 	 		180 Ringing
 	:	 		 	 	 >	 		180 Ringing
l I	:	 	 	 	 	 	 >		180 Ringing
i I	:	 	· 	 	 	 	 <		CANCEL
	:	 		 	1 	' /			CANCE
	:	 	! ! 	! !	! !				
 	:	 	 	 -	 	 -	> 		200 OK
 	:	 		< 		 	 		CANCEL
 	:	 	 	 	 	> 	 		200 OK



1 : 1	<	——I	I	1		CANCEL
:	1		I	1		I
:	1			—>		200 OK
:	1			- 1		I
: <	i	İ	İ	i		CANCEL
:	1		I	1		I
1 : 1		—>	ĺ	İ	l	200 OK
1 : 1	i	İ	i	İ	i I	i I
<	i	i	i İ	İ	ļ	3 CANCEL
1 : 1	i	i	i I	İ	ŀ	İ
	•					Timer J Start
1 : 1	1	ı	ı	1	I	1
· · ·		i	i I	i	İ	200 OK
i : i	1	i	i I	i	ŀ	1
>	i	i	i I	i	İ	4 200 OK
1 : 1	i	i	i I	i	i	1
 <	·	i	i I	i	·	, CANCEL
	i	ı İ	i I	i	i I	
>	i	i İ	i i	i	i i	, 200 OK
1 : 1	i	i I	i I	i	i	
<	i	ı İ	i I	i	i I	CANCEL
1 : 1	i	ı İ	ı İ	i I	i I	
>	i	' 	ı I	' 	ı I	200 OK
:	' 		! I	ı I	ı İ	
						Timer J (128 sec) fired
1 : 1	1	1	ı	1	I	1
· <	1	l I	l I	I I	I I	5 CANCEL
:	ı	I I	ı	I I	l I	O ONNOLL
	ı	l I	l I	I I	l I	6 481 Transaction Does Not Exist (*1)
>	1	l I	l I	l I	I	0 401 Transaction Dues Not Exist (*1)
:	I	I	I	I	l	I

- 1 NUT receives INVITE
- 2 NUT sends 180 Ringing
- 3 NUT receives CANCEL
- 4 NUT sends 200 OK
- 5 NUT receives CANCEL
- 6 NUT sends 481 Transaction Does Not Exist

=== Message example ===

1. INVITE P-CSCF -> NUT

INVITE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0



Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233,

SIP/2.0/UDPs.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com

s=

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

2. 180 Ringing NUT -> P-CSCF

SIP/2.0 180 Ringing

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

From: <sip:UEa2 public 1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

.....



CSeq: 1 INVITE Content-Length: 0

3. CANCEL P-CSCF -> NUT

CANCEL sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233

Max-Forwards: 70

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 CANCEL Content-Length: 0

4. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;received=3ffe:501:ffff:100::10

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=314160

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 CANCEL Content-Length: 0

5. CANCEL P-CSCF -> NUT

CANCEL sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233

Max-Forwards: 70

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 CANCEL Content-Length: 0

6. 481 Transaction Does Not Exist NUT -> P-CSCF

SIP/2.0 481 Transaction Does Not Exist

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;received=3ffe:501:ffff:100::10

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=314163

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 CANCEL



Content-Length: 0

[OBSERVABLE RESULTS]

*1: 6 481 Transaction Does Not Exist from NUT to P-CSCF.

See generic_3XX-6XX

- Exception{

* To

If a request contained a To tag in the request, the To header field in the response MUST equal that of the request.[RFC3261-8.2-41]

The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261-8.2-44]

}

The UAS SHOULD respond to the CANCEL with a 481 (Call Transaction Does Not Exist). [RFC3261-9.2-1]

4.5.5 UE-TM-B-5-AKA - Timer F expiration (In Session)

[NAME]

UE-TM-B-5-AKA - Timer F expiration (In Session)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that UEa1 properly stops sending CANCEL after timer F expired.

[REFERENCE]

TS24.229 7.7

RFC3261 17.1.2.2

[REQUIREMENT]

NONE



[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com
private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

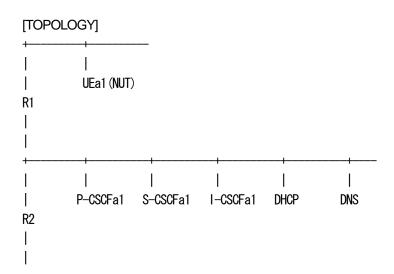
 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::30

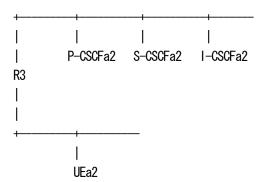
 DNS
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50

UEa2 : 3ffe:501:ffff:2000::1000
P-CSCFa2 : 3ffe:501:ffff:200::10
I-CSCFa2 : 3ffe:501:ffff:200::20
S-CSCFa2 : 3ffe:501:ffff:200::30





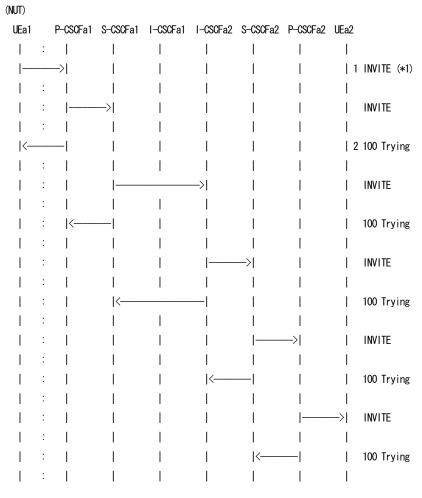


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network





1	:		1	1		I	<	180 Ringing
	:	I	1	1		I	l I	
	:	1	1	1	l	<	l I	180 Ringing
	:	1	1	1	l	l	l I	
	:	1	1	1	<	-	l I	180 Ringing
	:	1		1		l	l I	
	:	1	<		·	l	l I	180 Ringing
	:	I	I	1		l	l I	
	:	<	-	I	I	I	l I	180 Ringing
	:	I	I	1				
<		-	I	1		I		3 180 Ringing
	:	I	I	1		I	l I	
	>	>	1	!	<u> </u>	I	 	4 CANCEL
	:	ļ	I	l				
								Timer F started and Timer E is interval
	:	1	1	1		l	l I	5 01105
	;	> 	1	1		l	l I	5 CANCEL
	: ,	1	1	1	 	1	 	C OANOE!
	;	>	1	1	1	1	 	6 CANCEL
1	. ,	 	1	1	1	l I	 	7 CANCEL
	>	′I 	1	1	l I	1	 	/ CANCEL
 	>	 	1	1	I I	1	 	8 CANCEL
	:	′1 	1	1	I I	! 	, , , ,	O UNIOLE
		1		1	ı	1	·	-Timer F fired (128sec)
ı	:	I	ı	ı	I	ı		
i I	:	' 	i	i I		I	 .	9 <no retry="">(*1)</no>
i	:			i I			 	3 / X -/

- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 180 Ringing
- 4-8 NUT send CANCEL
- 9 < No retry>

=== Message example ===

1. INVITE NUT -> P-CSCF

INVITE sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70



From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

Require: sec-agree

Proxy-Require: sec-agree

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa1 2890844526 2890844526 IN IP6 node.under.test.com

S=-

c=IN IP6 node.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

2. 100 Trying P-CSCF -> NUT

SIP/2.0 100 Trying

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

3. 180 Ringing P-CSCF -> NUT

SIP/2.0 180 Ringing

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0



4-8. CANCEL NUT -> P-CSCF

CANCEL sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 CANCEL Content-Length: 0

9. <No retry>

[OBSERVABLE RESULTS]

*1:9 No retry

4.6 Sending Response

4.6.1 UE-SR-B-1-AKA - Sending 400 response

[NAME]

UE-SR-B-1-AKA - Sending 400 response.

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that UEa1 sends 400(Bad Request) response to illegal INVITE request that included SDP and Content-Length header with the value 0.

[REFERENCE] TS24.229 A.2.1.4.1 RFC3261 18.3



[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::10

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::50

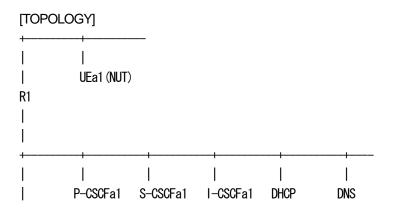
 DHCP
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

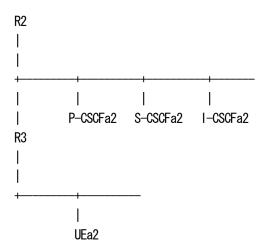
 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30







[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network

(NUT)

(INOI)									
UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2		
1	:	1		1	I	1			
<		1		1	1	1	- 1	1 INVITE with Content-Length:0 (with no Body)	
	:	1		1	1	1	-		
	>	1		1	I	1	1:	2 400 Bad Request(*1)	
1	:	1		1	I	1			
<							;	3 ACK	
1	: 1	1	1	1	1	1	- 1		

- 1 NUT receives INVITE.
- 2 NUT sends 400 Bad Request.
- 3 NUT receives ACK.

=== Message example ===

1. INVITE P-CSCF -> NUT

INVITE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,



SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: application/sdp

Content-Length: 0

v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com

S=

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

2. 400 Bad Request NUT -> P-CSCF

SIP/2.0 400 Bad Request

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20.SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0



3. ACK P-CSCF -> NUT

ACK sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 2 400 Bad Request from NUT to P-CSCF.

See generic_3XX-6XX

- Exception{

* To

If a request contained a To tag in the request, the To header field in the response MUST equal that of the request.[RFC3261-8.2-41]

The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261-8.2-44])

4.6.2 UE-SR-B-2-AKA - Sending 404 response

[NAME]

UE-SR-B-2-AKA - Sending 404 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that UEa1 sends 404 (Not Found)response to INVITE that has other destination Request-URI.



[REFERENCE] TS24.229 A.2.1.4.1 RFC3261 8.2.2.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

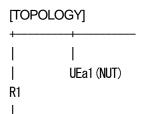
 DNS
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

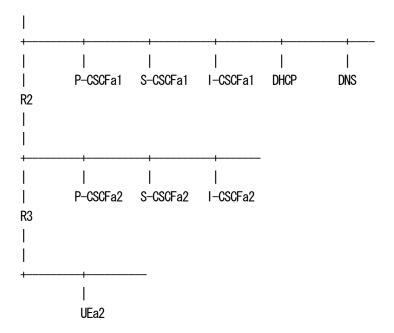
 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30



358



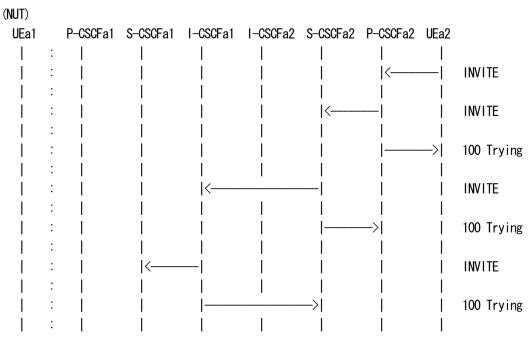


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network





: <			INVITE
			100 Trying
·			1 INVITE
: >			100 Trying
:			2 404 Not Found (*1)
:			3 ACK
: : >			404 Not Found
: -			ACK
:			404 Not Found
:			ACK
			404 Not Found
	 <		ACK
		 >	404 Not Found
		 <	ACK
			404 Not Found
		 	ACK
] : []	1		

- 1 NUT receives INVITE.
- 2 NUT sends 404 Not Found.
- 3 NUT receives ACK.

=== N	lessage	example	===
-------	---------	---------	-----

1. INVITE P-CSCF -> NUT INVITE sip:UEa1_public_1@nooooode.under.test.com:1357 SIP/2.0



Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1 public 1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com

S=

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

2. 404 Not Found NUT -> P-CSCF

SIP/2.0 404 Not Found

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

From: <sip:UEa2 public 1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

.....



CSeq: 1 INVITE Content-Length: 0

3. ACK P-CSCF -> NUT

ACK sip:UEa1_public_1@nooooode.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 2 404 Not Found from NUT to P-CSCF.

See generic_3XX-6XX

- Exception{

* To

If a request contained a To tag in the request, the To header field in the response MUST equal that of the request.[RFC3261-8.2-41]

The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261-8.2-44])

}

4.6.3 UE-SR-B-3-AKA - Sending 405 response

[NAME]

UE-SR-B-3-AKA - Sending 405 response.

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that UEa1 sends 405 (Method Not Allowed) response to REGISTER request.



[REFERENCE] TS24.229 A.2.1.4.1 RFC3261 8.2.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::50

 DHCP
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

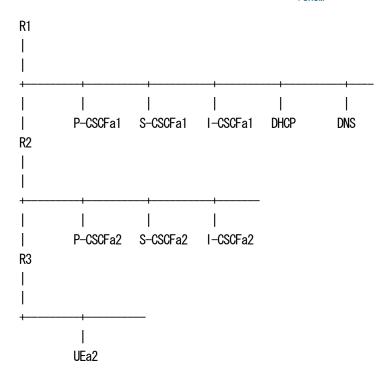
 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30







[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network

(NUT)								
UEa1		P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
- 1	:		1	1	1			1
<			1	1	1	I		1 REGISTER
	:	I	1	1	1	I		1
		->	1	1	1	1		2 405 Method Not Allowed (*1)
1		1	1	ı	1	1	1	I

- 1 NUT receives REGISTER.
- 2 NUT sends 405 Method Not Allowed.

=== Message example ===

1. REGISTER P-CSCF -> NUT REGISTER sip:under.test.com SIP/2.0



```
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233, SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds7
```

Max-Forwards: 69

Authorization: Digest username="UEa2_private@under.test.com", realm="under.test.com",

nonce="", uri="sip:under.test.com", response="",integrity-protected="no"

From: <sip:UEa2 public 1@under.test.com>;tag=4fa3

To: <sip:UEa2_public_1@under.test.com>

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

CSeq: 1 REGISTER

Require: path Supported: path

Path: <sip:term@p.a1.under.test.com;lr>

Content-Length: 0

2. 405 Method Not Allowed NUT -> P-CSCF

SIP/2.0 405 Method Not Allowed

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

From: <sip:UEa2_public_1@under.test.com>;tag=4fa3 To: <sip:UEa2_public_1@under.test.com>;tag=414259 Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

CSeq: 1 REGISTER

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Content-Length: 0

[OBSERVABLE RESULTS]

*1: 2 405 Method Not Allowed from NUT to P-CSCF.

```
See generic_3XX-6XX
```

```
- Exception{
```

* To

If a request contained a To tag in the request, the To header field in the response MUST equal that of the request.[RFC3261-8.2-41]

The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261-8.2-44])

}



- Header Field:

The response MUST include an Allow header field containing a list of valid methods for the indicated address.[RFC3261-8.2-6][RFC3261-21.4-4]

4.6.4 UE-SR-B-4-AKA - Sending 406 response

[NAME]

UE-SR-B-4-AKA - Sending 406 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that UEa1 sends 406(Not Acceptable) response to illegal INVITE request that included Accept header with wrong value.

[REFERENCE]

TS24.229 A.2.1.4.1

RFC3261 21.4.7

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000 Router(R1) : 3ffe:501:ffff:1000::1



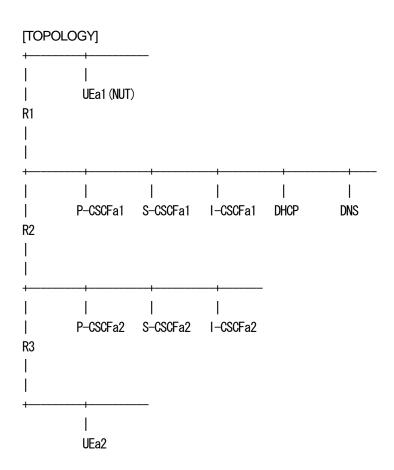
P-CSCFa1 : 3ffe:501:ffff:100::10
I-CSCFa1 : 3ffe:501:ffff:100::20
S-CSCFa1 : 3ffe:501:ffff:100::30
DNS : 3ffe:501:ffff:100::40
DHCP : 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30



[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

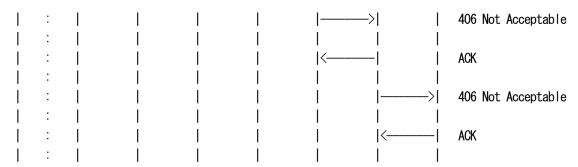
[PROCEDURE]



Home Network

(NUT)								
UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2	
:						 <	 	INVITE
.	 				 <	 		INVITE
		İ	 	i	 	i	> > 	100 Trying
: :	i I I	i I	 <	 	—İ İ	i I	i I	INVITE
:	 	 	 	 	 	> 	 	100 Trying
:		< 	 					INVITE
;	 <	 1		 	—> 			100 Trying INVITE
		; 	¦ >	İ	İ	İ	 	100 Trying
: <	 	 	 	 	 	 	 1	INVITE
:	 	 >						100 Trying
· · · · · · · · · · · · · · · ·	> > 				 	 	 2 - 	406 Not Acceptable (*1)
 :	i I	i i	i I	i I	i I	i I	 3 	ACK
:	 	> 	 	 	 	 	 	406 Not Acceptable
:	<	 						ACK
;	 	 <	—∕ 	 	 		 	406 Not Acceptable ACK
	 		 	 	 >	 	 	406 Not Acceptable
; ; ;	 	i I	; <	<u> </u>	 	i I	; 	ACK
:	I	I				1		





1 NUT receives INVITE.

2 NUT sends 406 Not Acceptable.

3 NUT receives ACK.

=== Message example ===

1. INVITE P-CSCF -> NUT

INVITE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg Accept: foo/baa

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com

S=-



c=IN IP6 nodea2.under.test.com t=0 0 m=audio 49172 RTP/AVP 0 b=AS:75 a=rtpmap:0 PCMU/8000

2. 406 Not Acceptable NUT -> P-CSCF

SIP/2.0 406 Not Acceptable

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

3. ACK P-CSCF -> NUT

ACK sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233

Max-Forwards: 70

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 2 406 Not Acceptable from NUT to P-CSCF.

See generic_3XX-6XX

- Exception{

* To

If a request contained a To tag in the request, the To header field in the response MUST equal that of the request.[RFC3261-8.2-41]



The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261-8.2-44])

}

4.6.5 UE-SR-B-5-AKA - Sending 414 response

[NAME]

UE-SR-B-5-AKA - Sending 414 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that UEa1 sends 414(Request-URI Too Large) response to INVITE request that included too large Request-URI for UEa1.

[REFERENCE]

TS24.229 A.2.1.4.1

RFC3261 21.4.12

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]



UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::10

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

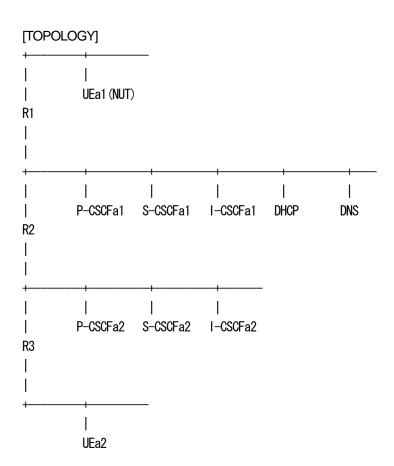
 DHCP
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30



[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".



[PROCEDURE]

Home Network

(NUT)									
UEa1		P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2	
-	:	1	I		1	I		1	
	:	 	 	 	1	 	<	— <u> </u>	INVITE
	:		 						
	:		l	l		<	— 	- 1	INVITE
l		l I	l I	l I	l I	l I	l I	1	100 Truing
ı		l I	l I	l I	l I	l I		> 	100 Trying
, 	:	l I	i I	 <	I	' i	i I	i	INVITE
i i	:	İ	i		1	i	i I	i	THE THE THE THE THE THE THE THE THE THE
İ	:	İ	i	i	i		>	i	100 Trying
İ	:	İ	ĺ	Ì	Ì	ĺ	Ì	İ	
1	:	1	<		1	I	1	1	INVITE
	:	1	I	1	1	I		1	
	:		1			—>I		1	100 Trying
-	:	1	I	1	1	I	1	1	
- 1	:	<	——I		I	I		I	INVITE
	:		I		I	I		I	
- 1	:			→	I	l		- 1	100 Trying
	:		 		!	 			
<			l I	l	l I	l I		1	INVITE
l		l I	l N	l I	l I	l I	l I	- 1	100 Truing
1			—> 	l I	1	l I	l I	1	100 Trying
 		-> >	l I	 	ı	l I	l I	1	414 Request-URI Too Large (*1)
i	:	1	i	i i	i I	i	i i		THE REQUEST ON TOO Large (FI)
· <			i	i	i	i	i	3	ACK
İ	:	İ	İ	İ	İ	İ	i	İ	
1	:		—>	1	1	I		1	414 Request-URI Too Large
- 1	:		I		I	I		-	
-	:	<	—-I	1	1	1	1	1	ACK
- 1	:		I		I	I		- 1	
-	:		l	>	I	I		1	414 Request-URI Too Large
- 1	:		I		I	I		I	
- 1	:	I	<	—I	I	I	1	- 1	ACK
1	:	1	1	1	1	1	1		
	:					—>	 		414 Request-URI Too Large
1	:				l				AOV.
1	:			<		 	1		ACK
1	٠	I	I	I	I	I	I	I	



	:		1	1	- 1		>	414 Request-URI Too Large
-	:		1	1	1	1	1	
-	:		1	1	1	<	-	ACK
-	:		1	1	I	1	1	
-	:		1	1	I	1	>	414 Request-URI Too Large
-	:			1		1	1	
-	:			I		1	<	ACK
- 1	:	- 1	1	ı	1	1	1 1	

1 NUT receives INVITE.

2 NUT sends 414 Request-URI Too Large.

3 NUT receives ACK.

=== Message example ===

1. INVITE P-CSCF -> NUT

INVITE sip:UEa1_public_1@node.under.test.com:1357;foo=baaaaa... SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: rea

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com

S=-



c=IN IP6 nodea2.under.test.com t=0 0 m=audio 49172 RTP/AVP 0 b=AS:75 a=rtpmap:0 PCMU/8000

2. 414 Request-URI Too Large NUT -> P-CSCF

SIP/2.0 414 Request-URI Too Large

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

3. ACK P-CSCF -> NUT

ACK sip:UEa1_public_1@node.under.test.com:1357;foo=baaaaa... SIP/2.0 Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 2 414 Request-URI Too Larg from NUT to P-CSCF.

See generic_3XX-6XX

- Exception{

* To

If a request contained a To tag in the request, the To header field in the response MUST equal that of the request.[RFC3261-8.2-41]



The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261-8.2-44])

}

4.6.6 UE-SR-B-6-AKA - Sending 415 response

[NAME]

UE-SR-B-6-AKA - Sending 415 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that UEa1 sends 415(Unsupported Media Type) response to INVITE request that included Content-Type header with unsupported media type.

[REFERENCE]

TS24.229 A.2.1.4.1

RFC3261 8.2.3

RFC3261 21.4.13

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

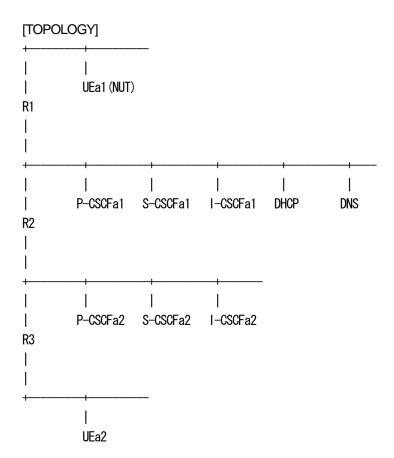


[ADDRESS]

UEa1(NUT) 3ffe:501:ffff:1000::1000

Router(R1) 3ffe:501:ffff:1000::1 P-CSCFa1 3ffe:501:ffff:100::10 I-CSCFa1 3ffe:501:ffff:100::20 S-CSCFa1 3ffe:501:ffff:100::30 DNS 3ffe:501:ffff:100::40 **DHCP** 3ffe:501:ffff:100::50

UEa2 3ffe:501:ffff:2000::1000 P-CSCFa2 3ffe:501:ffff:200::10 I-CSCFa2 3ffe:501:ffff:200::20 S-CSCFa2 3ffe:501:ffff:200::30



[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".



[PROCEDURE]

Home Network

(NUT)								
UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	1-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2	
1	: [1			1		- 1	
	:	 			1	<		INVITE
	:	l I				l l		IAN/ITE
	. 1	1	I	l	<	—— 	 	INVITE
1		1	l I	ı	l I		> >	100 Trying
i I	: I	i	i I	ı İ	ı İ	i	/ I	100 TryTing
i	: 1	i	<	'	i	i	i	INVITE
ĺ	: 1	ĺ	İ		ĺ	İ	ĺ	
1	:	I				>I	1	100 Trying
-	: [1			-	1	- 1	
	:	<				1	I	INVITE
1	:	1			1	I		
	:	!			—>	l		100 Trying
1	:	l I		l	l	1	- 1	IAN/ITC
1	:	—— 	l I	l I	l I	1	l I	INVITE
i I	: I	' 	>l	ı İ	ı İ	i	ı İ	100 Trying
i	:	i	1	İ	i	i	i	,
<	I	ĺ	İ		ĺ	Ì	ĺ	1 INVITE
1	:	I			-	1	I	
- 1	:	>I			- 1	1	- 1	100 Trying
	:	I				1		
	>I	1				I		2 415 Unsupported Media Type(*1)
	:	!				l		0.101/
<	·	1	l	l	l	1	- 1	3 ACK
1	·	> >	l I	l I	l I	l I	l I	415 Unsupported Media Type
i I	:	1	' 	i I	i I	i	i	
i	: <	i	i	İ	i	i	i	ACK
1	: [I	1		I	1	1	
1	:	I	—>		-	1	1	415 Unsupported Media Type
- 1	:	1			- 1	1	- 1	
I	: [<	——I		I	1	I	ACK
l	:	 	 		1		1	
	:				—>			415 Unsupported Media Type
l I	.	l I		I	l I		-	ACV
I	· 1	I	<		——I	I	I	ACK



-	:	-		1	I	1 1	- 1	
1	:	-	I	1	I	>	- 1	415 Unsupported Media Type
-	:	-	1	1	1	1 1	- 1	
-	:	-	1	1	1	<	- 1	ACK
-	:	-	1	1	1	1 1	- 1	
-	:	-	1	1	1		>I	415 Unsupported Media Type
-	:	-	1	1	1	1 1	- 1	
1	:	-	1	1	1	<		ACK
1	:	- 1	1	1			- 1	

1 NUT receives INVITE.

2 NUT sends 415 Unsupported Media Type.

3 NUT receives ACK.

=== Message example ===

1. INVITE P-CSCF -> NUT

INVITE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233,SIP/2.0/UDP

s.a 1. under. test. com; branch=z 9hG4bK431e418c4.2;

 $received = 3 ffe: 501: ffff: 100:: 30, SIP/2.0/UDP\ i. a 1. under. test. com; branch = z 9 hG4bKnashds 418c5a; and the complex of the compl$

 $received = 3 ffe: 501: ffff: 100:: 20, SIP/2.0/UDP\ s. a2. under. test. com; branch = z9hG4bK721e418c657u; branch = z9hG4bK7$

 $received = 3 ffe: 501: ffff: 200:: 30, SIP/2.0/UDP\ p.a2. under. test. com; branch = z9hG4bKnaghc45ca8; branch =$

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: foo/baa Content-Length: 7

foo=baa



2. 415 Unsupported Media Type NUT -> P-CSCF

SIP/2.0 415 Unsupported Media Type

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Accept: application/sdp Content-Length: 0

3. ACK P-CSCF -> NUT

ACK sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 2 415 Unsupported Media Type from NUT to P-CSCF.

```
See generic_3XX-6XX
```

```
- Exception{
```

* To

If a request contained a To tag in the request, the To header field in the response MUST equal that of the request.[RFC3261-8.2-41]

The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261-8.2-44])

}



- Header Field:

The server MUST return a list of acceptable formats using the Accept, Accept-Encoding, or Accept-Language header field, depending on the specific problem with the content.[RFC3261-21.4-8]

* Accept

The response MUST contain an Accept header field listing the types of all bodies it understands, in the event the request contained bodies of types not supported by the UAS.[RFC3261-8.2-22]

* Accept-Encoding

If the request contained content encodings not understood by the UAS, the response MUST contain an Accept-Encoding header field listing the encodings understood by the UAS.[RFC3261-8.2-23]

* Accept-Language

If the request contained content with languages not understood by the UAS, the response MUST contain an Accept-Language header field indicating the languages understood by the UAS.[RFC3261-8.2-24]

4.6.7 UE-SR-B-7-AKA - Sending 416 response

[NAME]

UE-SR-B-7-AKA - Sending 416 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that UEa1 sends 416 (Unsupported URI Scheme) response to INVITE that has illeagal scheme in Request-URI.

[REFERENCE] TS24.229 A.2.1.4.1 RFC3261 8.2.2.1

[REQUIREMENT]

NONE



[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

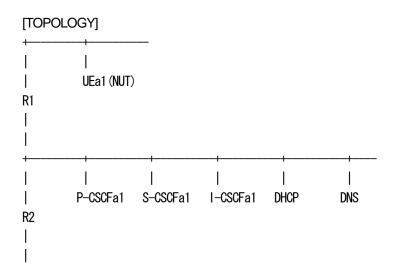
 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

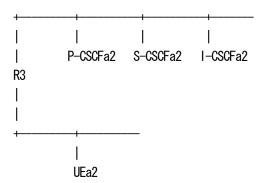
 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::50

UEa2 : 3ffe:501:ffff:2000::1000
P-CSCFa2 : 3ffe:501:ffff:200::10
I-CSCFa2 : 3ffe:501:ffff:200::20
S-CSCFa2 : 3ffe:501:ffff:200::30





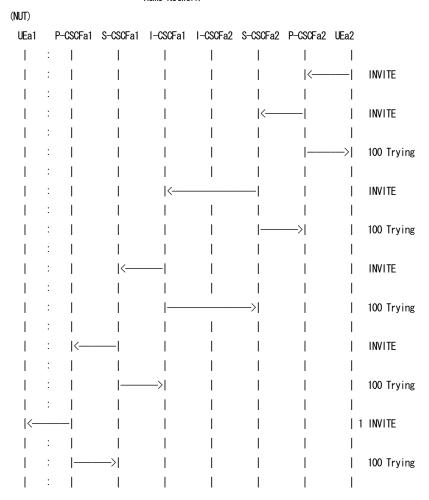


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network





1 31						1 0 440 1		0.1(4)
>	I	l	I	I	I	2 416 L	Insupported URI	Scheme (*1)
:			- 1					
<	-		1	I	1	3 ACK		
:		1	1	1	1	1		
: -	>	1	1	I	1	416 L	Insupported URI	Scheme
1 : 1	1	1	-	I	1	1		
: <-	I	1	1	I	1	ACK		
1 : 1	1	1	1	I	1	I		
1 : 1		>I	1	I	1	416 L	Insupported URI	Scheme
1 : 1	1	1	1	I	1	I		
1 : 1	<		1	I	1	ACK		
1 : 1	1	1	1	I	1	I		
1 : 1	1			>I	1	416 L	Insupported URI	Scheme
1 : 1	1	1	1	I	1	I		
1 : 1	1	<			1	ACK		
1 : 1	1	1	- 1	1	1	1		
· · · ·	i	İ	İ			416 L	Insupported URI	Scheme
· · ·	i	i	i	i	i	i		
· · ·	·	i	i	<	i	, ACK		
1	i	i	i	1	i	1		
1 . 1	ı	ı	ı	1	l I	\ /16	Incumported IIDI	Sahama
1	I	ı				—> 416 L	Insupported URI	SUITELLE
1 : 1	I	I	I	I	I	I		
1 : 1	1	1	- 1	- 1	<	ACK		

- 1 NUT receives INVITE.
- 2 NUT sends 416 Unsupported URI Scheme.
- 3 NUT receives ACK.

=== Message example ===

1. INVITE P-CSCF -> NUT

INVITE foo:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,

 $SIP/2.0/UDP\ s.a2.under.test.com; branch=z9hG4bK721e418c657u; received=3ffe:501:ffff:200::30, and branch=z9hG4bK721e418c657u; received=3ffe:501:ffff:200::30, and branch=z9hG4bK721e418c657u; received=3ffe:501:ffff:200::30, and branch=z9hG4bK721e418c657u; received=3ffe:501:ffff:200::30, and branch=z9hG4bK721e418c657u; received=3ffe:501:ffff:200::30, and branch=z9hG4bK721e418c657u; received=3ffe:501:ffff:200::30, and branch=z9hG4bK721e418c657u; received=3ffe:501:ffff:200::30, and branch=z9hG4bK721e418c657u; received=3ffe:501:ffff:200::30, and branch=z9hG4bK721e418c657u; received=3ffe:501:ffff:200::30, and branch=z9hG4bK721e418c657u; received=3ffe:501:ffff:200::30, and branch=z9hG4bK721e418c657u; received=3ffe:501:ffff:200::30, and branch=z9hG4bK721e418c657u; received=3ffe:501:ffff:200::30, and branch=z9hG4bK721e418c657u; received=3ffe:501:ffff:200::30, and branch=z9hG4bK721e418c657u; received=3ffe:501:ffff:200::30, and branch=z9hG4bK721e418c657u; received=3ffe:501:ffff:200::300, and branch=z9hG4bK721e418c657u; received=3ffe:501:ffff:200::301:fff:200::$

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl



To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com

S=

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

2. 416 Unsupported URI Scheme NUT -> P-CSCF

SIP/2.0 416 Unsupported URI Scheme

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE
Content-Length: 0

3. ACK P-CSCF -> NUT

ACK foo:UEa1 public 1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

385



Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 2 416 Unsupported URI Scheme from NUT to P-CSCF.

See generic_3XX-6XX

- Exception{

* To

If a request contained a To tag in the request, the To header field in the response MUST equal that of the request.[RFC3261-8.2-41]

The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261-8.2-44])

}

4.6.8 UE-SR-B-8-AKA - Sending 420 response

[NAME]

UE-SR-B-8-AKA - Sending 420 response.

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that UEa1 sends 420(Bad Extention) response to INVITE request that included Require header with wrong value.

[REFERENCE]

TS24.229 A.2.1.4.1

RFC3261 8.2.2.3

RFC3261 21.4.15

[REQUIREMENT]



NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

 UEa1(NUT)
 :
 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

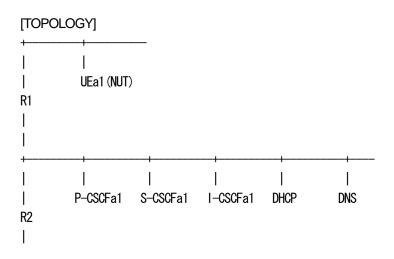
DHCP : 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

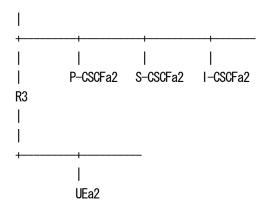
 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30





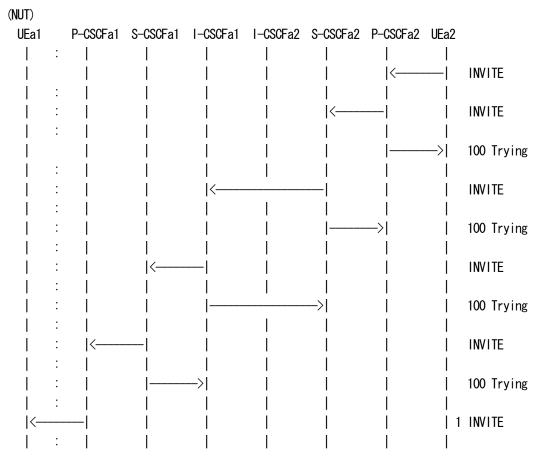


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network





: >	100 Trying
	 2 420 Bad Extention(*1)
	I 3 ACK I
	420 Bad Extention
	ACK
	420 Bad Extention
	ACK
	420 Bad Extention
	ACK
	420 Bad Extention
	ACK
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	420 Bad Extention
	ACK

- 1 NUT receives INVITE.
- 2 NUT sends 420 Bad Extention.
- 3 NUT receives ACK.

=== Message example ===

1. INVITE P-CSCF -> NUT

INVITE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,



<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Require: foo Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com

S=-

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

2. 420 Bad Extention NUT -> P-CSCF

SIP/2.0 420 Bad Extention

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Unsupported: foo Content-Length: 0

3. ACK P-CSCF -> NUT



ACK sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 2 420 Bad Extention from NUT to P-CSCF.

See generic_3XX-6XX

- Exception{

* To

If a request contained a To tag in the request, the To header field in the response MUST equal that of the request.[RFC3261-8.2-41]

The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261-8.2-44])

}

- Header Field:
 - * Unsupported

The server MUST include a list of the unsupported extensions in an Unsupported header field in the response.[RFC3261-21.4-9]

The UAS MUST add an Unsupported header field, and list in it those options it does not understand amongst those in the Require header field of the request.[RFC3261-8.2-17]

4.6.9 UE-SR-B-9-AKA - Sending 480/486 response

[NAME]

UE-SR-B-9-AKA - Sending 480/486 response.

[TARGET]

IMS User Equipment (NUT)

391



[PURPOSE]

To verify that the UEa1 sends 480 (Temporarily Unavailable) / 486 (Busy Here) to INVITE when UEa1 is busy.

[REFERENCE]

TS24.229 A.2.1.4.1

RFC3261 13.3.1.3

RFC3261 21.4.18

RFC3261 21.4.24

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50

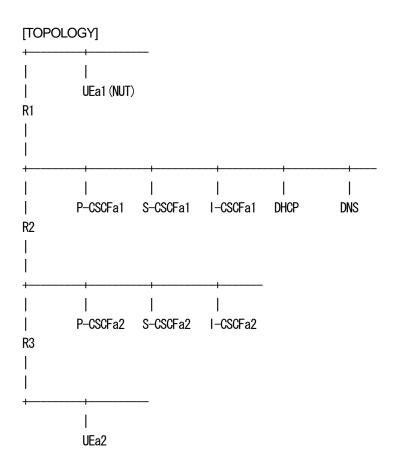
 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30





[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]



1 : 1 1 1	1 1 1	
	·	l 100 Trying
	1 1 1	
· · · · · · · · · · · · · · · · · · ·	i i i	INVITE
	i i i	1
· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	l 100 Trying
	1 1 1	
	i i i	INVITE
	i i i	
: >	1 1 1	100 Trying
1 : 1 1 1	1 1 1	I
	1 1 1	1 INVITE
1 : 1 1	1 1 1	
: >	1 1 1	100 Trying
1 : 1 1 1	1 1 1	
>	1 1 1	2 480 (Temporarily Unavailable) / 486 (Busy Her) (*1)
1 : 1 1 1	1 1 1	
	1 1 1	3 ACK
1 : 1 1 1	1 1 1	
: >	1 1 1	480 (Temporarily Unavailable) / 486 (Busy Here)
1 : 1 1	1 1 1	I
: <	1 1 1	ACK
1 : 1 1	1 1 1	I
: >	1 1 1	480 (Temporarily Unavailable) / 486 (Busy Here)
1 : 1 1	1 1 1	1
: <	1 1 1	ACK
1 : 1 1	1 1 1	1
	>	480 (Temporarily Unavailable) / 486 (Busy Her)
1 : 1 1	1 1 1	1
:		ACK
1 : 1 1	1 1 1	1
1 : 1 1	——>	480 (Temporarily Unavailable) / 486 (Busy Here)
1 : 1 1	1 1 1	1
1 : 1 1	<	ACK
1 : 1 1	1 1 1	1
1 : 1 1	I I I	-> 480 (Temporarily Unavailable) / 486 (Busy Here)
1 : 1 1	1 1 1	I
1 : 1 1 1		- ACK
1 : 1 1 1	1 1 1	I

- 1 NUT receives INVITE.
- 2 NUT sends 480 Temporarily Unavailable / 486 Busy Here.
- 3 NUT receives ACK.



=== Message example ===

1. INVITE P-CSCF -> NUT

INVITE sip:UEa1 public 1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com

S=-

c=IN IP6 nodea2.under.test.com

t=00

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

2. 486 Busy Here NUT -> P-CSCF

SIP/2.0 486 Busy Here

Via: SIP/2.0/UDP

p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,SIP/2.0/UDP



i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,SIP/2.0/UDP

[3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91 From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259 Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

3. ACK P-CSCF -> NUT

ACK sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259 Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 2 480 Temporarily Unavailable/486 Busy Here from NUT to P-CSCF.

See generic_3XX-6XX

- Exception{

* To

If a request contained a To tag in the request, the To header field in the response MUST equal that of the request.[RFC3261-8.2-41]

The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261-8.2-44])

}

4.6.10 UE-SR-B-10-AKA - Sending 482 response

[NAME]

UE-SR-B-10-AKA - Sending 482 response.



[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 sends 482(Loop Detected) response when the UEa1 detected loop.

[REFERENCE]

TS24.229 A.2.1.4.1

RFC3261 8.2.2.2

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50

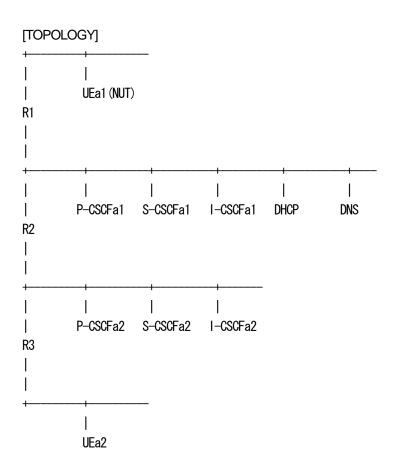
 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30





[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

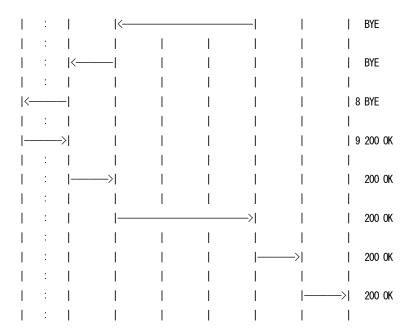


1 : 1	1	1		1
1 : 1	1	<		INVITE
				L 100 Toular
		I	> 	100 Trying
· i · i	<	i		INVITE
1 : 1	I	1		I
		>		100 Trying
: <				I INVITE
1 : 1	1	1		I
	>	1		100 Trying
: {				 1 INVITE
		İ		
: 	1	1		100 Trying
> :		I		2 180 Ringing
: 	i i	i		180 Ringing
	1	1		
				< Do not answer the call >
	>			ı 180 Ringing
1 : 1	1	1		l
		<u> </u>		180 Ringing
		 	 >	 180 RInging
			1	
1 : 1	1	1	>	180 Ringing
	<			INVITE
1 : 1		>		I 100 Trying
	i			
<	I	1		INVITE
	 			100 Truing
	 	/I		100 Trying
<	I	l	·	3 INVITE
: >		 		100 Trying
>				4 482 Loop Detected (*1)
	•	,	•	



1 : 1	ı	I	I	I	1 1	
· <	1		 		 	5 ACK
:	 	 	 	 		402 Loop Datastad
: > :	1 [I 	 	I 	 	482 Loop Detected
: <	-	<u> </u>		<u> </u>		ACK
;	 	 >	 	 	 	482 Loop Detected
:		l	 	 		ACK
			! 	! 	! ! 	AUN
:	[>			482 Loop Detected
.	1 	 	 <	 		ACK
	 	 	 	 		< Answer the call >
	! 	! <u> </u>	! 	! [Allower Life Call /
> >	 	 	 	 	 	6 200 OK
: 	1				' ' 	200 OK
:	 >	 	 	 	 	200 OK
:	/				' ' 	200 OK
;	 	 I	>	 		200 OK
:	1		 	>	 	200 OK
:	[>	200 OK
:	1		 		/	200 OK
:	[< 	ACK
:	1		 	 <	' ' 	ACK
:	 <	 	 	 	 	ACK
· · · ·	1	l	l	' 	I I	7.4.
: <	 	 	 	 	 	ACK
<	1		 		' ' 	7 ACK
:	 	 	 	 	 <	BYE
:	1	' 				JIL .
:	 	 	 	<		BYE
:	I	I	I	I	I I	





- 1 NUT receives INVITE
- 2 NUT sends 180 Ringing
- 3 NUT receives INVITE(from different path)
- 4 NUT sends 482 Loop Detected
- 5 NUT receives ACK
- 6 NUT sends 200 OK
- 7 NUT receives ACK
- 8 NUT receives BYE
- 9 NUT sends 200 OK

=== Message example ===

1. INVITE P-CSCF -> NUT

INVITE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30, SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl



To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com

S=

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

2. 180 Ringing NUT -> P-CSCF

SIP/2.0 180 Ringing

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE
Content-Length: 0

3. INVITE P-CSCFa1 -> NUT

INVITE sip:UEa1 public 1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c234,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.3;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP i.a2.under.test.com;branch=z9hG4bKnashds418c5b;received=3ffe:501:ffff:100::20,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,



SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2 public 1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com

S=-

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

4. 482 Loop Detected NUT -> P-CSCFa3

SIP/2.0 482 Loop Detected

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c234;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.3;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a2.under.test.com;branch=z9hG4bKnashds418c5b;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414260

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0



5. ACK P-CSCFa3 -> NUT

ACK sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c234

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414260

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

6. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Content-Type: application/sdp

Content-Length: 153

v=0

o=UEa1 2890844527 2890844527 IN IP6 node.under.test.com

S=-

c=IN IP6 node.under.test.com

t=0.0

m=audio 3456 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

7. ACK P-CSCF -> NUT



ACK sip:UEa1 public 1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c234,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.3;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657v;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca9;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba92

Max-Forwards: 66

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

8. BYE P-CSCF -> NUT

BYE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c235,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.4;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657x;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca10;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba93

Max-Forwards: 66

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

9. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c235;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.4;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657x;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca10;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba93

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0



[OBSERVABLE RESULTS]

*1: 4 482 Loop Detected from NUT to P-CSCF.

See generic_3XX-6XX

- Exception{

* To

If a request contained a To tag in the request, the To header field in the response MUST equal that of the request.[RFC3261-8.2-41]

The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261-8.2-44])

}

UE-SR-B-11-AKA - Sinding 489 response

[NAME]

UE-SR-B-11-AKA - Sending 489 response.

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that UEa1 sends 489(Bad Event) response to NOTIFY request that included Event header with wrong value.

[REFERENCE]

TS24.229 A.2.1.4.1

RFC3265 3.1.6.1

RFC3265 3.2.4

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id sip:UEa1_public_1@under.test.com



private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

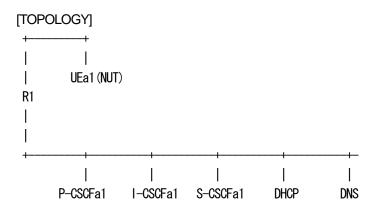
 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

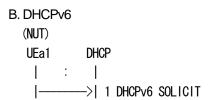
 DHCP
 :
 3ffe:501:ffff:100::50



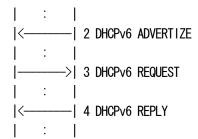
[INITIALIZATION]

Set up IP Address by A or B.

A. Router Advertisement

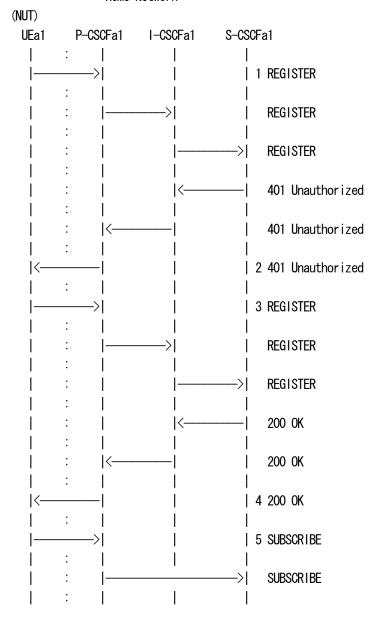




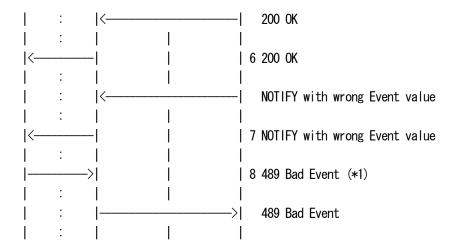


[PROCEDURE]

Home Network







1 NUT sends REGISTER

2 NUT receives 401 Unauthorized

3 NUT sends REGISTER

4 NUT receives 200 OK

5 NUT sends SUBSCRIBE

6 NUT receives 200 OK

7 NUT receives NOTIFY

8 NUT sends 489 Bad Event

=== Message example ===

As regards the message 1-6, please refer to the message 1-6 in UE-RG-B-1-AKA.

7. NOTIFY P-CSCFa1 -> NUT

NOTIFY sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.1,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.1;received=3ffe:501:ffff:100::30

Max-Forwards: 69

From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

CSeq: 2 NOTIFY

Contact: <sip:s.a1.under.test.com>

Subscription-State: active; expires=600000

Event: foo

Content-Type: application/reginfo+xml

Content-Length: (...)



```
<?xml version="1.0"?>
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="0" state="full">
     <registration aor="sip:UEa1_public_1@under.test.com" id="a7" state="active">
          <contact id="76" state="active" event="registered">
              <uri>sip:UEa1_public_1@node.under.test.com</uri>
          </contact>
     </registration>
</reginfo>
8. 489 Bad Event NUT -> P-CSCFa1
SIP/2.0 489 Bad Event
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.1;
received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.1;
received=3ffe:501:ffff:100::30
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 2 NOTIFY
Allow-Events: reg
Content-Length: 0
[OBSERVABLE RESULTS]
*1: 8 489 Bad Even from NUT to P-CSCF.
      See generic 3XX-6XX
       - Exception{
        * To
             -If the To header field in the request did not contain a tag, the URI
              in the To header field in the response MUST equal the URI in the To
              header field. [RFC3261-8.2-42]
             -If the To header field in the request did not contain a tag, the UAS
              MUST add a tag to the To header field in the response. [RFC3261-8.2-43]
         }
```

4.6.12 UE-SR-B-12-AKA - Sending 500 response



[NAME]

UE-SR-B-12-AKA - Sending 500 response.

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that UEa1 sends 500 response to BYE request that included CSeq header with wrong value (smaller than INVITE's).

[REFERENCE]

TS24.229 A.2.1.4.1

RFC3261 12.2.2

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::50

 DHCP
 :
 3ffe:501:ffff:100::50

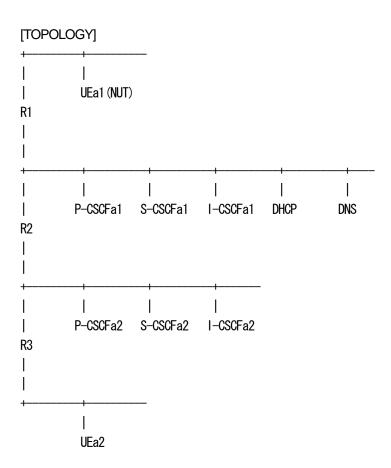


 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30



[INITIALIZATION]

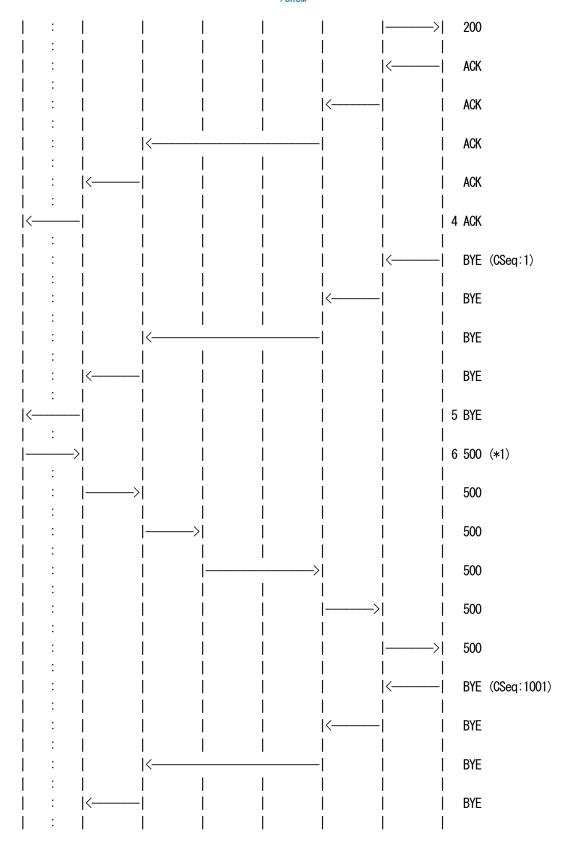
UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

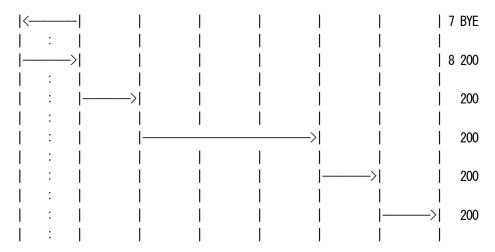


:		<	·	INVITE
			 >	100 Trying
	 <	 		INVITE
		 >		100 Trying
	 			INVITE
	 	> >		100 Trying
: -			 	INVITE
	>			100 Trying
:			 1	INVITE
				100 Trying
:				180
: >			 	180
	>			180
	 			180
		 >		180
			 >	180
:			3	200
:			 ! :	200
	 > 		 	200
	 			200
		 >		200
:				









1 NUT receives INVITE

2 NUT sends 180 Ringing

3 NUT sends 200 OK

4 NUT receives ACK

5 NUT receives BYE

6 NUT sends 500 Server Internal Error

7 NUT receives BYE

8 NUT sends 200 OK

=== Message example ===

1. INVITE P-CSCF -> NUT

INVITE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1000 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE



Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com

S=-

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

2. 180 Ringing NUT -> P-CSCF

SIP/2.0 180 Ringing

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1000 INVITE Content-Length: 0

3. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259



Call-ID: 3848276298220188511@under.test.com

CSeq: 1000 INVITE

Contact: <sip:UEa1_public_1@node.under.test.com:1357>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Content-Type: application/sdp

Content-Length: 153

v=0

o=UEa1 2890844527 2890844527 IN IP6 node.under.test.com

S=

c=IN IP6 node.under.test.com

t=0.0

m=audio 3456 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

4. ACK P-CSCF -> NUT

ACK sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c234,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.3;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657v;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca9;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba92

Max-Forwards: 66

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1000 ACK Content-Length: 0

5. BYE P-CSCF -> NUT

BYE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c235,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.4;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657x;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca10;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba93

Max-Forwards: 66

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl



To: <sip:UEa1_public_1@under.test.com>;tag=414259 Call-ID: 3848276298220188511@under.test.com

CSeq: 1 BYE Content-Length: 0

6. 500 Server Internal Error NUT -> P-CSCF

SIP/2.0 500 Server Internal Error

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c235;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.4;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657x;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca10;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba93

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 BYE Content-Length: 0

7. BYE P-CSCF -> NUT

BYE sip:UEa1_public_1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c235,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.4;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657x;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca10;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba93

Max-Forwards: 66

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1001 BYE Content-Length: 0

8. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c235;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.4;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657x;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca10;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba93

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl



To: <sip:UEa1_public_1@under.test.com>;tag=414259 Call-ID: 3848276298220188511@under.test.com

CSeq: 1001 BYE Content-Length: 0

[OBSERVABLE RESULTS]

*1: 6 500 Server Internal Error from NUT to P-CSCF.

See generic_3XX-6XX

- Exception{

* To

If the To header field in the request did not contain a tag, the URI in the To header field in the response MUST equal the URI in the To header field. [RFC3261-8.2-42]

If the To header field in the request did not contain a tag, the UAS MUST add a tag to the To header field in the response. [RFC3261-8.2-43]

4.6.13 UE-SR-B-13-AKA - Sending 505 response

[NAME]

UE-SR-B-13-AKA - Sending 505 response.

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that UEa1 sends 505(Version Not Supported) response to INVITE that has illeagal SIP version in Request-Line.

[REFERENCE] TS24.229 A.2.1.4.1 RFC3261 21.5.6



[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::30

 DNS
 :
 3ffe:501:ffff:100::40

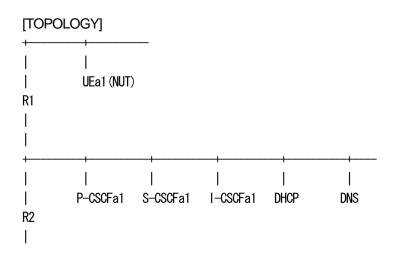
 DHCP
 :
 3ffe:501:ffff:100::50

 UEa2
 :
 3ffe:501:ffff:2000::1000

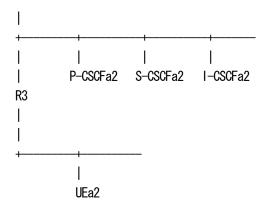
 P-CSCFa2
 :
 3ffe:501:ffff:200::10

 I-CSCFa2
 :
 3ffe:501:ffff:200::20

 S-CSCFa2
 :
 3ffe:501:ffff:200::30





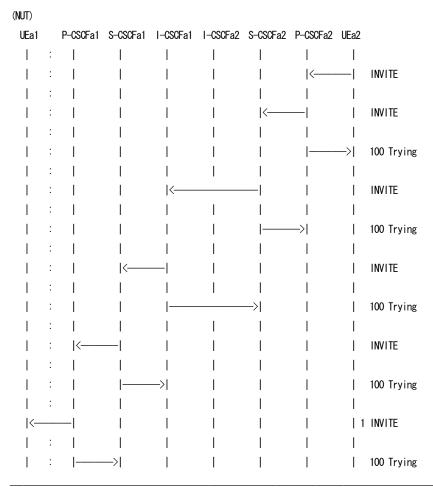


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network





1 : 1		1	I	1	1	
>	1	1	1	1	1	2 505 Version Not Supported (*1)
1 : 1	1	-	1	1		
<	1	1	I	1	- 1	3 ACK
:	1	1	1	1		I
:	->	- 1	- 1	I	1	505 Version Not Supported
] :]	1	1	I	I		I
: <		I	I	I	- 1	ACK
:	I	1	I	I	I	I
:		>	I	I		505 Version Not Supported
1 : 1	I	I	I	I		I
:	<	——	I	I	I	ACK
:		1	I	l		<u> </u>
:				>I		505 Version Not Supported
:		1	I			1
		<		I	l	ACK
	- 1	I	l	1		
	1	1	l I		—> -—>	505 Version Not Supported
1 . 1	l I	l I	l I	l Iz	l	l ACK
1 . 1	1	ı	1	<	I	ACK
1 . 1	1	I	1	1	I I	I > 505 Version Not Supported
1 . 1	I I	l I	l I	l I	I	> 505 Version Not Supported
1 : 1	ı I	ı I	l I	l I	 <	ACK
1 . 1	ı I	i	i	i		

- 1 NUT receives INVITE.
- 2 NUT sends 505 Version Not Supported.
- 3 NUT receives ACK.

=== Message example ===

1. INVITE P-CSCF -> NUT

INVITE sip:UEa1_public_1@node.under.test.com:1357 SIP/9.8

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30, SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;received=3ffe:501:ffff:100::20,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds45ba91

Record-Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>



Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com

S=

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

2. 505 Version Not Supported NUT -> P-CSCF

SIP/2.0 505 Version Not Supported

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds418c5a;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45ca8;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;

branch=z9hG4bKnashds45ba91

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

3. ACK P-CSCF -> NUT

ACK sip:UEa1_public_1@node.under.test.com:1357 SIP/9.8

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233



Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=10fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=414259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 2 505 Version Not Supported from NUT to P-CSCF.

See generic_3XX-6XX

- Exception{

* To

If a request contained a To tag in the request, the To header field in the response MUST equal that of the request.[RFC3261-8.2-41]

The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261-8.2-44])
}

4.7 Receiving Response

4.7.1 UE-RR-B-1-AKA - Receiving 100 response

[NAME]

UE-RR-B-1-AKA - Receiving 100 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 100 (Trying) response.

[REFERENCE]

TS24.229 A.2.1.4.1



RFC3261 8.1.3.2 RFC3265 3.2.4

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:fff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

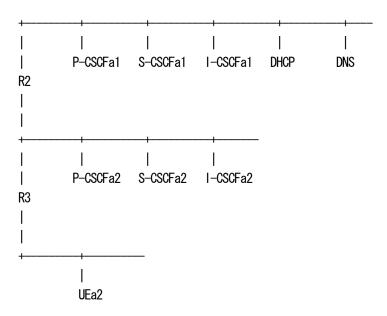
 S-CSCFa2
 : 3ffe:501:ffff:200::30

UEa1 (NUT)

R1

i

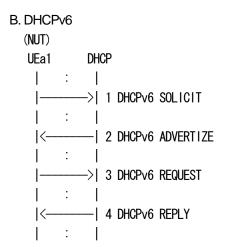




[INITIALIZATION]

Set up IP Address by A or B.

A. Router Advertisement



[PROCEDURE]

Home Network



	2 100 Trying
: >	 3 REGISTER
: <	 4 100 Trying
	 :
	 5 <wait 4="" check="" re-transmission="" sec="" sending="" to=""></wait>
1 : 1 1	(Re-transmission by Timer E is sending after initial REGISTER)
:	REGISTER
: : <	
: :	
:	l
1 : 1 : 1	
 	6 401 Unauthorized
> :	7 REGISTER (*1)
:	
: (REGISTER
	200 OK
: : <	 200 0K
: \(8 200 OK
: >	 9 SUBSCRIBE
1 : 1 : 1	
:	10 100 Trying
> :	11 SUBSCRIBE
	12 100 Trying
	:
1 1	ı



1 : 1 1	13 <wait 4="" sec<="" th=""><th>to check ser</th><th>nding re-tran</th><th>nsmission></th></wait>	to check ser	nding re-tran	nsmission>							
				ng after initial SUBSCRIBE)							
] :]]	1										
: >	SUBSCRIBE										
: : <	200 OK										
	200 010										
<	14 200 OK										
	[
: <	NOTIFY										
·	15 NOTIFY										
· · · · · · · · · · · · · · · · · · ·	TO HOTH I										
>	16 200 OK (*2)										
: > :	200 OK										
	I I	I	1	I							
>	1 1	I	1	17 OPTIONS							
		l									
	 	l I	1	18 100 Trying 							
>	 	İ		 19 OPTIONS							
1 : 1 1	1 1	1	1	I							
<	I I	l	1	20 100 Trying							
		l I	 	 							
	' ' 	l I		· ·							
i : i i	I I	İ	İ	21 <wait 4="" check="" re-transmission="" sec="" sending="" to=""></wait>							
] :]]	1 1	I	1	(Re-transmission by Timer E is							
		l I		sending after initial OPTIONS)							
: :	 	l I		I OPTIONS							
	 I I	i	1								
:	>	I	1	OPTIONS							
	1 1	1	1								
		—> 	 	OPTIONS							
	·	' 	· ->	I OPTIONS							
1 : 1 1	1 1	1	1	I							
	1 1	1	>	OPTIONS							
				 200 OK							
ı · I I	1 I	I	<	200 UK							

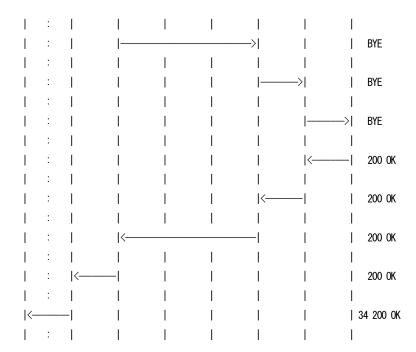


ı		I	I 1	I	I	I	l I	I
ı İ	:	i I	! 	! 	! 	' <	' ' 	200 0K
İ	:				' 	` 	' ' 	
İ	:				<			200 OK
ı	:	I	l 1		I	I	l I	I
	:	I	<		I	I	l I	200 OK
	:	l			I	I		l
	:	<	I 1		l	l	l l	200 OK
	:	I	l				l l	I
<-		-			l	l		22 200 0K
	:	1						
	>	·	l		l	l	 	23 INVITE (*3)
	:	1			l	l		
<-		·		<u> </u> 	l	 -	 	24 100 Trying
l I		l I	l 	 	l I	 		 25 <wait 7="" check="" re-transmission="" sec="" stoping="" to=""> (*4)</wait>
 		I I	l 	<u> </u> 	I I	I I		(Re-transmission by Timer A is
' 	:	i I	' ' 	! 	! 	! 	' ' 	stopped after receiving 100 response)
i	:				I	I	' ' 	
İ	:	>	I I	· 	I	I	I I	INVITE
	:	1				· 		
	:	l		>	l		l l	INVITE
	:	I	I I		l		l l	I
	:	<	l		l	l	l l	100 Trying
	:	I	l !		l		l l	I
	:	1			>			INVITE
	:	ļ			<u> </u>	<u> </u>	 	
	:	1	<		 	 	 	100 Trying
l I		 	l 	l	 	I >	 	I INVITE
l I		I I	l 	 	I I	/ 		INVITE
' 	:	i I	' ' 	! 	' <	! 	' ' 	l 100 Trying
i	:			· 	 I	I	I I	
İ	:	i I					>	INVITE
	:	I	l 1		I	I	l I	I
	:	l			I	<		100 Trying
	:				l	l		l
	:				l	l	<	180 Ringing
	:				l	l		I
	:			<u> </u>	<u> </u>	<		180 Ringing
	:						 	<u> </u>
	:				<	 -	 	180 Ringing
I	:	I	I	l	I	I	ı l	I



:				1.4				
:			1	<		l I	. I	180 Ringing
:				 		l !	. I	
	Ċ		<	l I 	l	l 	. I	180 Ringing
:	1	:		 	l	l !	. I	
:	<				1			26 180 Ringing
:	l	:		1 1	l		I	
:		:		1 1			<i< td=""><td>200 OK</td></i<>	200 OK
:		:	1	l I	I		I	
:		:	1	l I	I	<	I	200 OK
:		:	I	l l	l	l I	I	
:	- 1	:		l l	<		I	200 OK
:		:	1	1 1	I		I	
:	-	:	1	<	I		I	200 OK
:	-	:	1	1 1	I		I	
←		:	<	1 1	I	l 1	I	200 OK
:		:	1	1 1	I		I	
	<		1	l l	I		I	27 200 OK
:		:	1	1 1	I		I	
:		>	1	1 1	I		I	28 ACK (*5)
:	1	:	I	1 1	I	l 1	I	
:	1	:	>	1 1	I		ı	ACK
:	1	:	I	1 1	I		ı	
:	1	:	I		>		ı	ACK
:	i	:	l		I		i	
:	i	:	I	I I	I		i	ACK
:	i	:	I	 I I	I	I I	i	
:	i	:	I	 I I	I	I I		ACK
	i		I	 I I	I	I I	· · · · · · · · · · · · · · · · · · ·	
:			1	 I I	! 	' ' I I	I	 29 RYF
< 30 100 Trying :	i		' 	 I I	' 	' ' I I		20 512
:		•	! .l	! ! ! !	! 	' ' I I	'	30 100 Trying
	1		1	! ! ! !	! !	! ! ! !		l 30 100 Hymg
	! !		1	1 I 1 I	I I	l !		21 DVE
	1		1	l l l l	I I	l 	, i	ן או טוב
:	l Iz	•	I I	l l l l	 	l 		22 100 Truing
<			1	l l	1	l I		32 100 Trying
	1		1	l l	1		- 1	
	1		1	1 I	1	l		•
	1	:	I	1 l	1	l	. I	
	Ċ		1	I I	I	l	 	33 (Wait 4 sec to check sending re-transmission)
: (Re-transmission by Timer E is			1		I	 -		
: sending after initial BYE)	Ċ		1		I	l l	I	sending after initial BYE)
		:	I	I I	I		I	
: > BYE		:	>	I I	I	l I	I	BYE





- 1 NUT sends REGISTER
- 2 NUT receives 100 Trying
- 3 NUT sends REGISTER
- 4 NUT receives 100 Trying
- 5 < Wait 4 sec to check sending re-transmission>
- 6 NUT receives 401 Unauthorized
- 7 NUT sends REGISTER for authentication
- 8 NUT receives 200 OK
- 9 NUT sends SUBSCRIBE
- 10 NUT receives 100 Trying
- 11 NUT sends SUBSCRIBE
- 12 NUT receives 100 Trying
- 13 < Wait 4 sec to check sending re-transmission>
- 14 NUT receives 200 OK
- 15 NUT receives NOTIFY
- 16 NUT sends 200 OK
- 17 NUT sends OPTIONS
- 18 NUT receives 100 Trying
- 19 NUT sends OPTIONS
- 20 NUT receives 100 Trying
- 21 < Wait 4 sec to check sending re-transmission>
- 22 NUT receives 200 OK
- 23 NUT sends INVITE
- 24 NUT receives 100 Trying
- 25 < Wait 7 sec to check stoping re-transmission>



26 NUT receives 180 Ringing
27 NUT receives 200 OK
28 NUT sends ACK
29 NUT sends BYE
30 NUT receives 100 Trying
31 NUT sends BYE
32 NUT receives 100 Trying
33 <Wait 4 sec to check stoping re-transmission>
34 NUT receives 200 OK

=== Message example ===

As regards the message 1, please refer to the message 1 in UE-RG-B-1-AKA.

2. 100 Trying P-CSCF -> NUT

SIP/2.0 100 Trying

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashds7

From: <sip:UEa1_public_1@under.test.com>;tag=4fa3

To: <sip:UEa1_public_1@under.test.com>

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

CSeq: 1 REGISTER Content-Length: 0

As regards the message 3, please refer to the message 1 in UE-RG-B-1-AKA.

As regards the message 4, please refer to the message 2 in this.

5. < Wait 4 sec to check sending re-transmission.>

As regards the message 6-9, please refer to the message 2-5 in UE-RG-B-1-AKA.

10. 100 Trying P-CSCF -> NUT

SIP/2.0 100 Trying

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsa1

From: <sip:UEa1_public_1@under.test.com>;tag=31415

To: <sip:UEa1_public_1@under.test.com>



Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE Content-Length: 0

As regards the message 11, please refer to the message 5 in UE-RG-B-1-AKA. As regards the message 12, please refer to the message 10 in this.

13. < Wait 4 sec to check sending re-transmission.>

As regards the message 14-16, please refer to the message 6-8 in UE-RG-B-1-AKA. As regards the message 17, please refer to the message 1 in UE-OP-B-1-AKA.

18. 100 Trying P-CSCF -> NUT SIP/2.0 100 Trying

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74b1a

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76tm

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188522@under.test.com

CSeq: 1 OPTIONS Content-Length: 0

As regards the message 19, please refer to the message 1 in UE-OP-B-1-AKA. As regards the message 20, please refer to the message 18 in this.

21. <Wait 4 sec to check sending re-transmission.>

As regards the message 22, please refer to the message 2 in UE-OP-B-1-AKA. As regards the message 23, please refer to the message 1 in UE-SE-B-2-AKA.

24. 100 Trying P-CSCF -> NUT SIP/2.0 100 Trying

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>
Call-ID: 3848276298220188511@under.test.com



CSeq: 1 INVITE Content-Length: 0

25. < Wait 7 sec to check stoping re-transmission.>

As regards the message 26-29, please refer to the message 3-6 in UE-SE-B-2-AKA.

30. 100 Trying P-CSCF -> NUT

SIP/2.0 100 Trying

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf11

 $From: <\!\!sip: UEa1_public_1 @under.test.com >; tag=9fxced76sl$

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

As regards the message 31, please refer to the message 6 in UE-SE-B-2-AKA. As regards the message 32, please refer to the message 30 in this.

33. <Wait 4 sec to check sending re-transmission.>

As regards the message 34, please refer to the message 7 in UE-SE-B-2-AKA.

[OBSERVABLE RESULTS]

*1: 7 REGISTER for authentication from NUT to P-CSCF.

See generic_Auth_REGISTER

*2: 16 NOTIFY 200 OK from NUT to P-CSCF.

See generic_200-NOTIFY

*3: 23 INVITE from NUT to P-CSCF.

See generic_INVITE



*4: 25 Wait 7 sec to check stoping re-transmission

In the "Proceeding" state, the client transaction SHOULD NOT retransmit the request any longer. [RFC3261-17.1-17]

*5: 28 ACK from NUT to P-CSCF.

See generic_ACK

4.7.2 UE-RR-B-2-AKA - Receiving 181 response (Call transfer by S-CSCFa2 to UEa2')

[NAME]

UE-RR-B-2-AKA - Receiving 181 response (Call transfer by S-CSCFa2 to UEa2')

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 181 (Call is Being Forwarded) response, and verify that the UEa1 properly creates an ACK request and a 200 (OK) response to BYE.

[REFERENCE]

TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com



[PARAMETER(TESTER)]

public-user-id : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

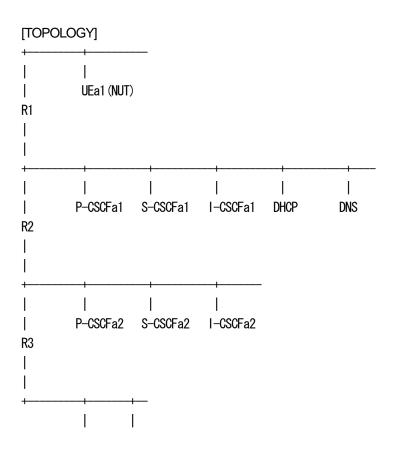
 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::50

UEa2 : 3ffe:501:ffff:2000::1000
UEa2' : 3ffe:501:ffff:2000::1001
P-CSCFa2 : 3ffe:501:ffff:200::10
I-CSCFa2 : 3ffe:501:ffff:200::20
S-CSCFa2 : 3ffe:501:ffff:200::30





UEa2 UEa2'

[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network

(NUT)								
UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2	UEa2'
:	1	1	1	1	I	1	1	I
	->	1	I	I	I	I	I	1 INVITE
:	I	I	I	I	I	I	I	I
:		->	1	I	I		I	INVITE
:	I	I	I	I	I	I	I	I
<		1	1	l	l	1	 	2 100 Trying
:		1	I	1	l		 	
:	1			->	l	1	 	INVITE
:		1	1	l	l	l		
.	I\—	— 	1	I	l I	l I	l I	100 Trying
.	1	1	1	l I	->l >l	l I	l I	I INVITE
1 :	ı	i I	' 	l I	1	1	İ	
1 :	İ	 <		' I	i	i	i	l 100 Trying
1 :	i	1	1	i	i	i	i	
	İ	i	i	İ		->	i	INVITE
:	İ	i	i	İ	İ	İ	İ	İ
:	I	1	1	<		1	ı	100 Trying
:	1	1	1	1	I	1	I	1
:	1	1	1	I	I		->	INVITE
:	1	1	1	1	1	1	I	I
:	1	1	1	1	<	-	Ι	100 Trying
:	I	1	I	I	I	1	I	I
:	I	I	I	I	I	<	—I	180 Ringing
:	I	I	I	I	I	1	I	I
:	I	1	I	1	<	-	I	180 Ringing
:	1	!		1	l		!	
:	I	1	1	<	— <u> </u>	1		180 Ringing
:	I		1	1	1	1		
1 :	I		1	— <u> </u>	1	1	l ı	180 Ringing
1 :	ļ	I	I	I	I	I	I	I



: <	1 1	1 1 1	180 Ringing
: 			 3 180 Ringing
:	<u> </u>		 Timer C fired
			 CANCEL
			 200 0K
			 CANCEL
			I
:			200 0K
			487
		>	ACK
	i i	 	487
		 	ACK
:	 		 181 Call is Being Forwarded
: : 	 		 181 Call is Being Forwarded
: : <			 181 Call is Being Forwarded
	i i		I
:			4 181 Call is Being Forwarded
		> 	INVITE
			> INVITE
:		 	100
			180 Ringing
			l 180 Ringing
	 	 	 180 Ringing
: : 	 		 180 Ringing
	•	· ' '	. 2 5



1 :	1 1 1	1	ı	1	l I	
•	 <	·		' 	' ' 	180 Ringing
] :	1 1	1				
<	I I I	I				5 180 Ringing
:		I	1		 	
:		l		<	 	200 OK
1 ·		ı	 	 		200 OK
	, , , , 	·			' 	200 011
:	1 1	<	-			200 OK
:		I				
:						200 OK
:		ı	1	I I		200 OK
		·		' 	' ' 	200 011
<		I		1		6 200 OK
:		I	1	1		
>		1		[7 ACK (*1)
; :		l I	1	l 	 	ACK
1 :		i		[' ' 	Non
:	l I)			ACK
1 :	I I I	I				
:		1	>	[ACK
1 :		l I	1	 	 >	ACK
		i I	1	! [•	AUN
· 	 I I I	İ		<		BYE
1 :	I I I	I				
:		I	<			BYE
: ·		I	 _	 		BYE
· · · ·	\-\-\-\-\-\-\-\-\-\-\-\-\-\-\-\-\-\-\	1	1	 	 	DIE
· :	<	İ	İ	[]	· ·	BYE
] :	I I I	1	1	1		
<		I				8 BYE
:		 	1	[9 200 OK (*2)
> :	ı ı ı 	<u> </u>	1	 		J ∠UU UN (₹∠)
· 	>		1	· [200 OK
:	1 1		1	1		
:	l I———)		 -	200 OK
:		I				



200 OK	1	1	>	 -	- 1	1	1		:	
	1	1		1	- 1	- 1	- 1		:	
200 OK	>I			1	- 1	- 1	- 1		:	
	1	1	1	1	1		1	- 1		- 1

- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 180 Ringing from UEa2
- 4 NUT receives 181 Call Is Being Forwarded
- 5 NUT receives 180 Ringing from UEa2'
- 6 NUT receives 200 OK
- 7 NUT sends ACK
- 8 NUT receives BYE
- 9 NUT sends 200 OK

=== Message example ===

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 180 Ringing P-CSCF -> NUT

SIP/2.0 180 Ringing

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

4. 181 Call Is Being Forwarded P-CSCF -> NUT

SIP/2.0 181 Call Is Being Forwarded

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

5. 180 Ringing P-CSCF -> NUT

SIP/2.0 180 Ringing



Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314260

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

6, 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Record-Route: <sip:p.a2.under.test.com;lr>,<sip:s.a2.under.test.com;lr>,

<sip:s.a1.under.test.com;lr>,<sip:p.a1.under.test.com:10001;lr> From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314260 Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@3nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Content-Type: application/sdp

Content-Length: 153

v=0

o=UEa2 2890844527 2890844527 IN IP6 3nodea2.under.test.com

c=IN IP6 3nodea2.under.test.com

t=0.0

m=audio 3456 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

7. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@3nodea2.under.test.com:22222 SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf10 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314260 Call-ID: 3848276298220188511@under.test.com



CSeq: 1 ACK Content-Length: 0

8. BYE P-CSCF -> NUT

BYE sip:UEa1 public 1@node.under.test.com:1357 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c501,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bKnashdsa2.3;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c9.1;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghds30;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1001]:22222;branch=z9hG4bKnashdsb3

Max-Forwards: 66

From: <sip:UEa2_public_1@under.test.com>;tag=314260
To: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

9. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c501;

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bKnashdsa2.3;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c9.1;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghds30;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1001]:22222;branch=z9hG4bKnashdsb3

From: <sip:UEa2_public_1@under.test.com>;tag=314260

To: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

[OBSERVABLE RESULTS]

*1: 4 181 Call is Being Forwarded from NUT to P-CSCF.

See generic_180-INVITE

*2: 7 ACK from NUT to P-CSCF.

See generic_ACK



*3: 9 BYE 200 OK from NUT to P-CSCF.

See generic_200-BYE

4.7.3 UE-RR-B-3-AKA - Receiving 182 response (Request is queued by P-CSCFa2)

[NAME]

UE-RR-B-3-AKA - Receiving 182 response (Request is queued by P-CSCFa2)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 182 (Queued) response, and verify that the UEa1 properly creates an ACK request and a 200 (OK) response to BYE.

[REFERENCE]

TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000



 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

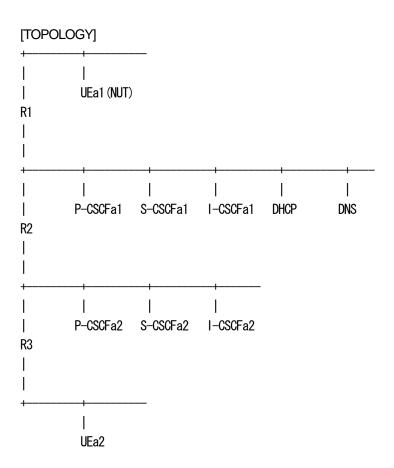
 DNS
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30



[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]



Home Network

(NUT)							
UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
 	: > ·	 		 	 		 1 INVITE
	· :	> > 				 	I INVITE
; < 	 :	i I	i i	İ		i i	2 100 Trying
 	: :	 		-> 		 	INVITE
 	: < :	— -	l !				100 Trying
	; ; ·	 <	 	 !	-> 		INVITE 100 Trying
 	: : :	 	 		 	 ->	INVITE
 	:				 -	1	 100 Trying
	:				 <	 	 182 Queued
 	· : :		 	 < 	 	 	I 182 Queued
i I	: İ : İ	 < 	 	—i I	i I	i I	l 182 Queued
 	: < :	 	 		 	 	182 Queued
< 	 : ·					 	3 182 Queued > INVITE
 	:	İ	 		 	 <	
 	: :	 	 	 	 <	 	 180 Ringing
	:			 <	 -		 180 Ringing
 	: : ·	 <	 	 	 	 	 180 Ringing
ı	. 1	ı	ı	I	I	1	1



:	<						180	Ringing
· < · ·			 	 	 	 	 4 180	Ringing
· :			 	 	 	 <	200	OK
· :			 	 	 <	 	200	OK
· : ·			 	 <	 	 	200	OK
· : ·		 <	 	 	 	 	200	OK
· : ·	 <		 	 	 	 	200	OK
ı ·		 	 	 	 	 	5 200	OK
· > ·		 	I 	 	 	 	6 ACK	(*1)
· : ·	 >	 	 	 	 	 	ACK	
· : ·		 	I 	>	 	 	ACK	
· : ·		 	 	 	 >	 	ACK	
· : ·		 	 	 	 	 > 	ACK	
· : ·		 	 	 	 	 < 	BYE	
· : ·		 	 	 	 <	 	BYE	
· : ·		 < 	I 	 	 	 	BYE	
· : ·	 <	 	 	 	 	 	BYE	
· < ·		 	 	 	 	 	7 BYE	
: > ·	 	 	 	 	 	 	8 200	OK (*2)
· : ·	> >	 	I 	 	 	 	200	OK
, · : :		 	I I	>	 		200	OK
		•	•	•	•		'	



:			 >		200 OK
:					
:				>	200 OK
:					

1 NUT sends INVITE

2 NUT receives 100 Trying

3 NUT receives 182 Queued

4 NUT receives 180 Ringing

5 NUT receives 200 OK

6 NUT sends ACK

7 NUT receives BYE

8 NUT sends 200 OK

=== Message example ===

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 182 Queued P-CSCF -> NUT

SIP/2.0 182 Queued

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

As regards the message 4-8, please refer to the message 3-7 in UE-SE-B-1-AKA.

[OBSERVABLE RESULTS]

*1: 6 ACK from NUT to P-CSCF.

See generic_ACK

*2: 8 BYE 200 OK from NUT to P-CSCF.

See generic_200-BYE



4.7.4 UE-RR-B-4-AKA - Receiving 183 responsee

[NAME]

UE-RR-B-4-AKA - Receiving 183 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 183 (Session Progress) response, and verify that the UEa1 properly process a 200 (OK) response and creates an ACK request and a 200 (OK) response to BYE.

[REFERENCE]

TS24.229 A.2.1.4.1

RFC3261 8.1.3.2

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

 UEa1(NUT)
 :
 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::20



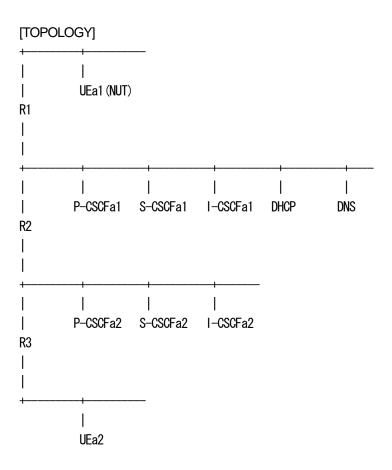
S-CSCFa1 : 3ffe:501:ffff:100::30 DNS : 3ffe:501:ffff:100::40 DHCP : 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30



[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network

(NUT)

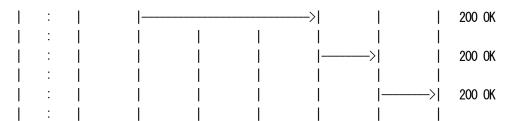


UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
: 	> >	l I	l I	l I	l I		 1 INVITE
:	 	 >	 	 	 	 	 INVITE
: <	 	 	 	 			 2 100 Trying
:	 	 		 >			 INVITE
:	 <	 	 	 	 		 100 Trying
: :	 	 	 	 	 ->	 	 INVITE
: :	 	 <	<u> </u>	 	 	 	 100 Trying
: :	 	 	 	 	 	 ->	 INVITE
: :				 <	 		 100 Trying
: :	l I	 	l I	l I		 	 -> INVITE
	İ	İ	l I	l I	 <	 	 100 Trying
	İ	İ	i I	i I	i I	 <	
i : i :	İ	İ	i i	i i	 <	 	183 Session Progress
	İ	İ	İ	 	 I		183 Session Progress
		 /	<u> </u>	` !			183 Session Progress
:			I				
:	< 	I 					183 Session Progress
:	I 						3 183 Session Progress
:			 	 			— 180 Ringing
:	 	 	 		< 	— -	180 Ringing
:	 	 	 	< 	— 		180 Ringing



:	ing
:	ing
	ing
: 200 0K	
: 200 OK	
: < 200 0K	
: < 200 0K	
< 5 200 0K	
: > ACK	
: ACK	
:	
:	
:	
: BYE	
: < BYE	
: <	
<	
>	* 2)
: > 200 0K	





1 NUT sends INVITE

2 NUT receives 100 Trying

3 NUT receives 183 Session Progress

4 NUT receives 180 Ringing

5 NUT receives 200 OK

6 NUT sends ACK

7 NUT receives BYE

8 NUT sends 200 OK

=== Message example ===

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 183 Session Progress P-CSCF -> NUT

SIP/2.0 183 Session Progress

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

As regards the message 4-8, please refer to the message 3-7 in UE-SE-B-1-AKA.

[OBSERVABLE RESULTS]

*1: 6 ACK from NUT to P-CSCF.

See generic_ACK

*2: 8 BYE 200 from NUT to P-CSCF.



See generic_200-BYE

4.7.5 UE-RR-B-5-AKA - Receiving 202 response

[NAME]

UE-RR-B-5-AKA - Receiving 202 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 202 (Accepted) response, and verify that the UEa1 properly creates a 200 (OK) response to NOTIFY.

[REFERENCE]

TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

 UEa1(NUT)
 : 3ffe:501:ffff:1000::1000

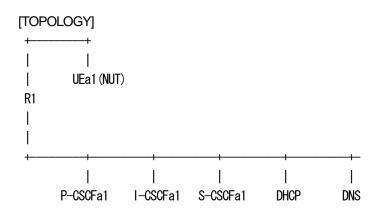
 Router(R1)
 : 3ffe:501:ffff:1000::1

 P-CSCFa1
 : 3ffe:501:ffff:100::20

 I-CSCFa1
 : 3ffe:501:ffff:100::20



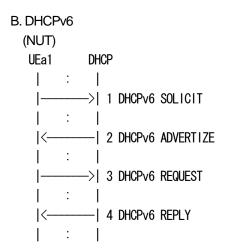
S-CSCFa1 : 3ffe:501:ffff:100::30 DNS : 3ffe:501:ffff:100::40 DHCP : 3ffe:501:ffff:100::50



[INITIALIZATION]

Set up IP Address by A or B.

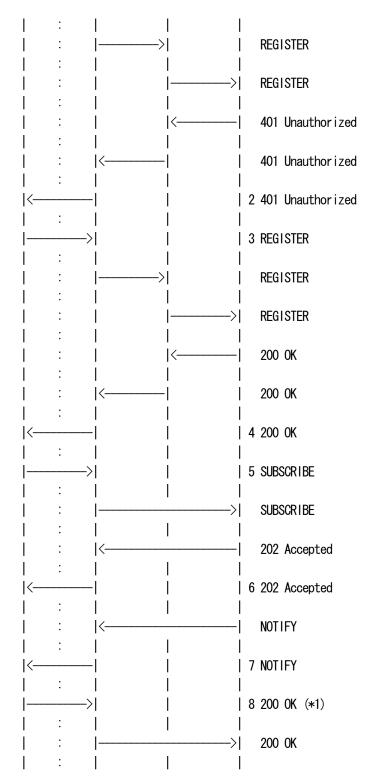
A. Router Advertisement



[PROCEDURE]

Home Network





1 NUT sends REGISTER 2 NUT receives 401 Unauthorized



3 NUT sends REGISTER for authentication

4 NUT receives 200 OK

5 NUT sends SUBSCRIBE

6 NUT receives 202 Accepted

7 NUT receives NOTIFY

8 NUT sends 200 OK

=== Message example ===

As regards the message 1-5, please refer to the message 1-5 in UE-RG-B-1-AKA.

6. 202 Accepted P-CSCF -> NUT

SIP/2.0 202 Accepted

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashdsa1

Record-Route: <sip:p.a1.under.test.com:10001;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=31415
To: <sip:UEa1_public_1@under.test.com>;tag=151170

Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE

Contact: <sip:s.a1.under.test.com>

Allow-Events: reg Expires: 600000 Content-Length: 0

As regards the message 7-8, please refer to the message 7-8 in UE-RG-B-1-AKA.

[OBSERVABLE RESULTS]

*1: 8 NOTIFY 200 OK from NUT to P-CSCF.

See generic_200-NOTIFY

4.7.6 UE-RR-B-6-AKA - Receiving 400 response

[NAME]

UE-RR-B-6-AKA - Receiving 400 response



[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 400 (Bad Request) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE]

TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000 Router(R1) : 3ffe:501:ffff:1000::1

P-CSCFa1 : 3ffe:501:ffff:100::10
I-CSCFa1 : 3ffe:501:ffff:100::20
S-CSCFa1 : 3ffe:501:ffff:100::30
DNS : 3ffe:501:ffff:100::40
DHCP : 3ffe:501:ffff:100::50

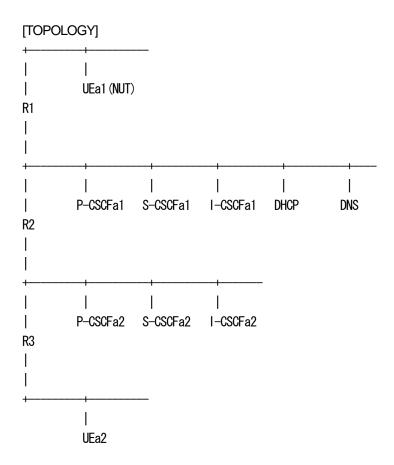
 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30





[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network

(NUT)							
UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
:							
	->						1 INVITE
:							[
<						1	2 400 Bad Request
:							[
	->			1			3 ACK (*1)
:						1	

1 NUT sends INVITE



2 NUT receives 400 Bad Request 3 NUT sends ACK

=== Message example ===

As regards the message 1, please refer to the message 1 in UE-SE-B-1-AKA.

2. 400 Bad Request P-CSCF -> NUT

SIP/2.0 400 Bad Request

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

3. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 3 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.7 UE-RR-B-7-AKA - Receiving 404 response

[NAME]

UE-RR-B-7-AKA - Receiving 404 response



[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 404 (Not Found) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE]

TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

DHCP

S-CSCFa2

 UEa1(NUT)
 : 3ffe:501:ffff:1000::1000

 Router(R1)
 : 3ffe:501:ffff:1000::1

 P-CSCFa1
 : 3ffe:501:ffff:100::20

 I-CSCFa1
 : 3ffe:501:ffff:100::30

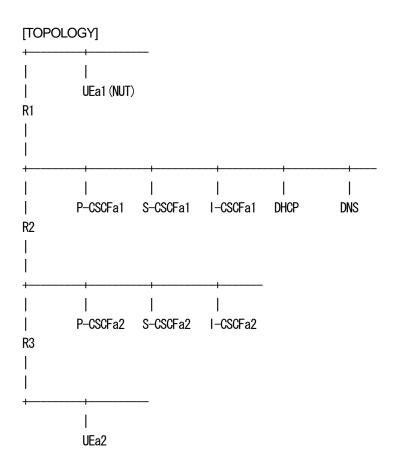
 S-CSCFa1
 : 3ffe:501:ffff:100::40

UEa2 : 3ffe:501:ffff:2000::1000
P-CSCFa2 : 3ffe:501:ffff:200::10
I-CSCFa2 : 3ffe:501:ffff:200::20

3ffe:501:ffff:100::50

3ffe:501:ffff:200::30



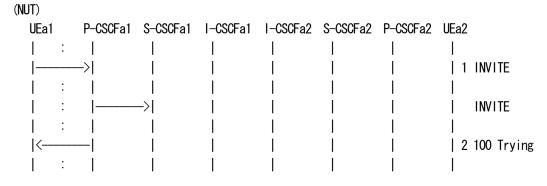


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network





:	INVITE
:	
	l I I
:	INVITE
: 	100 Trying
	404 Not Found
	ACK
:	
	i i
	ACK
: <	404 Not Found
	ACK
:	
	l I I
	

- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 404 Not Found
- 4 NUT sends ACK

=== Message example ===

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 404 Not Found P-CSCF -> NUT

SIP/2.0 404 Not Found

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE



Content-Length: 0

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.8 UE-RR-B-8-AKA - Receiving 405 response

[NAME]

UE-RR-B-8-AKA - Receiving 405 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 405 (Method Not Allowed) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE] TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE



[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com
private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

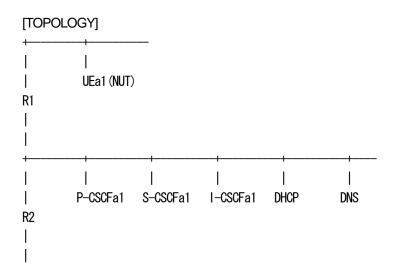
 P-CSCFa1
 :
 3ffe:501:ffff:100::40

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

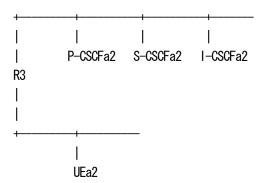
 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::50

UEa2 : 3ffe:501:ffff:2000::1000
P-CSCFa2 : 3ffe:501:ffff:200::10
I-CSCFa2 : 3ffe:501:ffff:200::20
S-CSCFa2 : 3ffe:501:ffff:200::30







[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network

(NUT)UEa1 P-CSCFa1 S-CSCFa1 I-CSCFa2 S-CSCFa2 P-CSCFa2 UEa2 | 1 INVITE INVITE | 2 100 Trying INVITE 100 Trying INVITE 100 Trying INVITE 100 Trying INVITE I 100 Trying



1	:	1	1	I	1	<	—I	405 Method Not Allowed
	:	I	1		1	1	-	
	:		1		1		->	ACK
	:	I	1		1	1	-	
	:		1		<	——I	-	405 Method Not Allowed
	:		1		1	1	-	
	:	1	1			>	-	ACK
	:	1	1		- 1	1	-	
	:	1	1	<	—	1	-	405 Method Not Allowed
	:	1	1	1	-	1	-	
	:	1	1		—>	1	-	ACK
	:	1	1	1	-	1	-	
	:	<		——I		1	- [405 Method Not Allowed
	:	I	1		1	1	-	
	:				1	1	-	ACK
	:		1		-	I	-	
	: <-		1		1	1	-	405 Method Not Allowed
	:	I	1		1	1	-	
	:	>	1			I	-	ACK
	:		1		-	I	-	
 <-	I	I	1		1	I	3	3 405 Method Not Allowed
	:	I	1		1	I	- 1	
	>I		1		1	I	4	1 ACK (*1)
	:		- 1		1	I		

- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 405 Method Not Allowed
- 4 NUT sends ACK

=== Message example ===

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 405 Method Not Allowed P-CSCF -> NUT

SIP/2.0 405 Method Not Allowed

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE



Allow: INVITE
Content-Length: 0

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.9 UE-RR-B-9-AKA - Receiving 406 response

[NAME]

UE-RR-B-9-AKA - Receiving 406 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 406 (Not Acceptable) response, and verify that the UEa1 properly creates a initial INVITE request.

[REFERENCE] TS24.229 A.2.1.4.1

[REQUIREMENT]



NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

 UEa1(NUT)
 :
 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

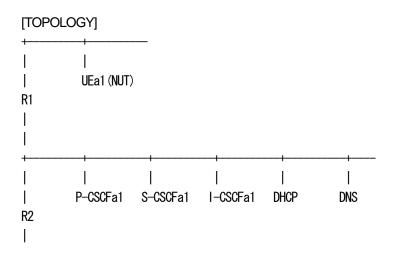
 DHCP
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

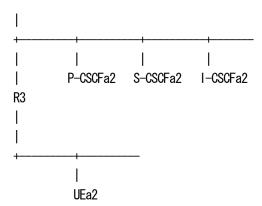
 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30





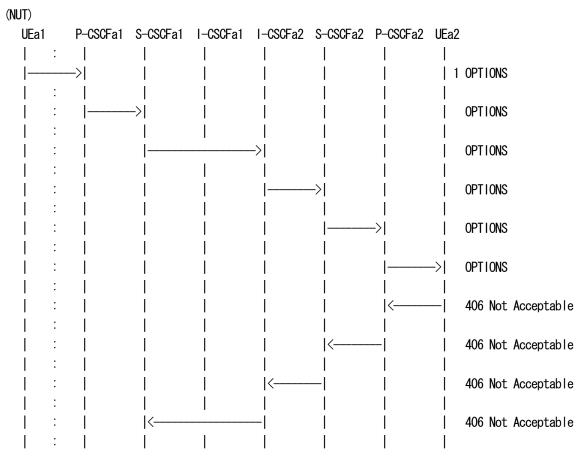


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

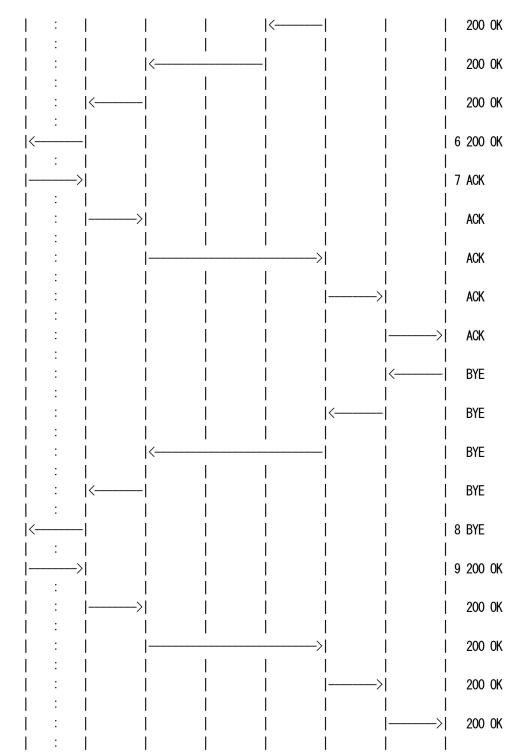
Home Network





: <	406 Not Acceptable
	2 406 Not Acceptable
	INVITE
:	 INVITE
:	
	INVITE
:	
	180 Ringing
:	
:	
	 < 200 0K





1 NUT sends OPTIONS

2 NUT receives 406 Not Acceptable

3 NUT sends INVITE



4 NUT receives 100 Trying 5 NUT receives 180 Ringing 6 NUT receives 200 OK 7 NUT sends ACK 8 NUT receives BYE 9 NUT sends 200 OK

=== Message example ===

As regards the message 1, please refer to the message 1 in UE-OP-B-1-AKA.

2. 406 Not Acceptable P-CSCF -> NUT

SIP/2.0 406 Not Acceptable

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74b1a

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76tm

To: <sip:UEa2_public_1@under.test.com>;tag=314071 Call-ID: 3848276298220188522@under.test.com

CSeq: 1 OPTIONS Content-Length: 0

As regards the message 3-9, please refer to the message 1-7 in UE-SE-B-1-AKA.

[OBSERVABLE RESULTS]

*1: 3 INVITE from NUT to P-CSCF.

See generic_INVITE

4.7.10 UE-RR-B-10-AKA - Receiving 410 response

[NAME]

UE-RR-B-10-AKA - Receiving 410 response

[TARGET]

IMS User Equipment (NUT)



[PURPOSE]

To verify that the UEa1 properly process a 410 (Gone) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE] TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::10

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

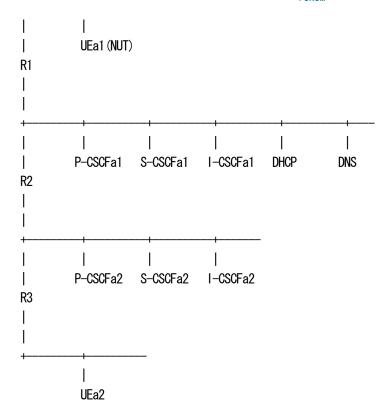
 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30

[TOPOLOGY]

+----



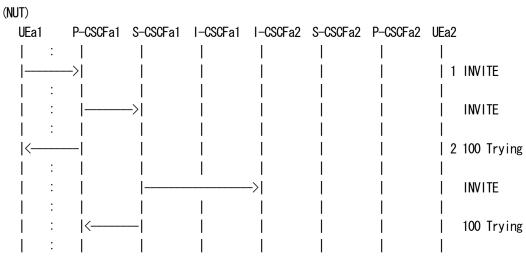


[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network





:] I		 	>	 		INVI	TE
· : ·	 	 <	I 	 	 		100	Trying
· :	 		 		 >		I INVI	TE
: :	 		 -	 <	 -		100	Trying
: :	 -		 -		 -	 >	 INVI	TE
: :	 		 		 <		 100	Trying
: :	 		 			 <	 410	Gone
: :	<u> </u>		 			 >	 ACK	
: :			 		 <		 410	Gone
: :	 	 	 	 	 >	 	 ACK	
: :	 	 	 	 <	 	 	 410	Gone
: :	 	 	 	 >	 	 	 ACK	
 : :	 	 	 	 	 	 		Gone
: :	 	 	 >]	 	 	 	 ACK	
: :	' <		 	 	, 			Gone
, . : .	 >	 	 	 	 		ACK	dono
: !/		 	 	 	 	 	3 410	Gono
:	 	 	 	 	 			
> :	 	 	 	 	 	 	4 ACK 	(*1)

- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 410 Gone
- 4 NUT sends ACK



=== Message example ===

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 410 Gone P-CSCF -> NUT

SIP/2.0 410 Gone

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.11 UE-RR-B-11-AKA - Receiving 413 response

[NAME]

UE-RR-B-11-AKA - Receiving 413 response

[TARGET]

IMS User Equipment (NUT)



[PURPOSE]

To verify that the UEa1 properly process a 413 (Request Entity Too Large) response, and verify that atheUEa1 properly creates an ACK request.

[REFERENCE] TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

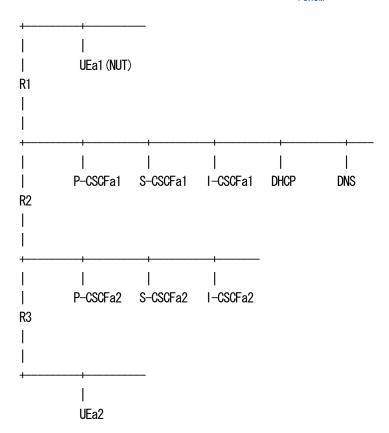
 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30

[TOPOLOGY]





[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network



: 	
: 	
: 100 Trying	
:	
: 100 Trying	
: 413 Request Entity Too L	arge
: with Retry—Afterr	
: ACK	
: 413 Request Entity Too L	arge
: with Retry—Afterr	
: ACK	
: (413 Request Entity Too L	arge
: with Retry-Afterr	
: ACK	
:	orgo
: with Retry-Afterr	.aı gc
: ACK	
: <	.arge
: with Retry-After	·
: > ACK	
< 3 413 Request Entity Too L	.arge
: with Retry-After	
> 4 ACK (*1)	
: 5 <check (within="" a<="" invite="" no="" td=""><td>a Retry-After time)> (*2)</td></check>	a Retry-After time)> (*2)

¹ NUT sends INVITE

² NUT receives 100 Trying

³ NUT receives 413 Request Entity Too Large with Retry-Afterr



4 NUT sends ACK 5 <Check no INVITE (Within a Retry-After time)>

=== Message example ===

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 413 Request Entity Too Large P-CSCF -> NUT

SIP/2.0 413 Request Entity Too Large

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Retry-After: 30 Content-Length: 0

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

5. < Check no INVITE (Within a Retry-After time)>

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

*2: 5 Check no INVITE (Within a Retry-After time) from NUT to P-CSCF.



4.7.12 UE-RR-B-12-AKA - Receiving 414 response

[NAME]

UE-RR-B-12-AKA - Receiving 414 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 414 (Request-URI Too Large) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE]

TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

 UEa1(NUT)
 :
 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30



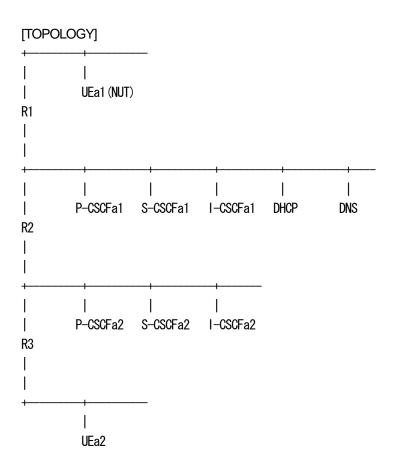
DNS : 3ffe:501:ffff:100::40 DHCP : 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30



[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network

(NUT)

 UEa1
 P-CSOFa1
 S-CSOFa1
 I-CSOFa1
 I-CSOFa2
 S-CSOFa2
 P-CSOFa2
 UEa2

 |
 |
 |
 |
 |
 |
 |
 |
 |



>	1	I	1	1	1 INVITE
1 : 1	1			1	
<	1		1	1	2 414 Request-URI Too Large
1 : 1	1			1	
>	1		- 1	I	3 ACK (*1)
1 : 1	1	- 1	1	- 1	1

- 1 NUT sends INVITE
- 2 NUT receives 414 Request-URI Too Large
- 3 NUT sends ACK

===	Message	example	
-----	---------	---------	--

As regards the message 1, please refer to the message 1 in UE-SE-B-1-AKA.

2. 414 Request-URI Too Large P-CSCF -> NUT

SIP/2.0 414 Request-URI Too Large

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

3. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 3 ACK from NUT to P-CSCF.



See generic_ACK-non2XX

4.7.13 UE-RR-B-13-AKA - Receiving 415 response

[NAME]

UE-RR-B-13-AKA - Receiving 415 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 415 (Unsupported Media Type) response, and verify that the UEa1 properly creates an ACK request and retry modified INVITE request.

[REFERENCE]

TS24.229 A.2.1.4.1

[REQUIREMENT]

Two media type support.

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000 Router(R1) : 3ffe:501:ffff:1000::1 P-CSCFa1 : 3ffe:501:ffff:100::10



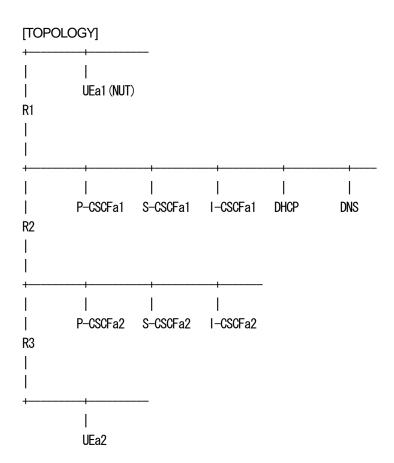
 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::30

 DNS
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50

UEa2 : 3ffe:501:ffff:2000::1000
P-CSCFa2 : 3ffe:501:ffff:200::10
I-CSCFa2 : 3ffe:501:ffff:200::20
S-CSCFa2 : 3ffe:501:ffff:200::30



[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network

(NUT)



UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
:		1	1	1	1	1	
 :	-> 	l I	l I	l I	l I	l I	1 INVITE
1 :		->	İ	İ	İ	İ	I INVITE
:	I	1	I	I	1	I	1
<	— 		1				2 100 Trying
:		 	I	->	I		I INVITE
:	1	1	1	1	1	1	1
:	<			1	1	1	100 Trying
	l I	1	l I	 	 ->	1	I INVITE
:	İ	·	İ	i I	1	İ	1
:	1	<		—I	1	I	100 Trying
:		1	1	1	 	 _>	 INVITE
:		i I	 	ı İ	ı İ		
:	1	1	1	<		1	100 Trying
:		1	1	1	1	1	NAME
1 :	l I	l I	l I	l I	l I		→ INVITE
· :	İ	·	İ	·	<		l 100 Trying
:	1	1	1	1	1	1	1
:		1	 	1	1	<	— 415 Unsupported Media Type
:		İ		İ	İ	 	-> ACK
:	1	1	1	1	1	1	I
:					<	— 	415 Unsupported Media Type
	l I	l I	l I	l I	 	-> >	I ACK
:	İ	İ	İ	İ	İ	İ	İ
:	1	1	1	<	—l	1	415 Unsupported Media Type
:	l I	l I	l I	 	 ->	1	 ACK
:	' 	İ	' 	İ	1	i I	Non
:	1	<		—	1	1	415 Unsupported Media Type
:			1		1		
1 :	l l		1	->} 	I I	I I	ACK
	<	—İ	i	i	i	İ	415 Unsupported Media Type
1 :	I	I	1	I	I	I	1
:		->	1		l		ACK



1 : 1						1
<	1	1	1	1	1	3 415 Unsupported Media Type
1 : 1	1	1	1	1	1	
>	1	1	1	1	1	4 ACK (*1)
1 : 1	1		- 1			1

1 NUT sends INVITE

2 NUT receives 100 Trying

- 3 NUT receives 415 Unsupported Media Type
- 4 NUT sends ACK

=== Message example ===

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 415 Unsupported Media Type P-CSCF -> NUT

SIP/2.0 415 Unsupported Media Type

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Accept: application/sdp Content-Length: 0

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.



See generic_ACK-non2XX

4.7.14 UE-RR-B-14-AKA - Response 480 response

[NAME]

UE-RR-B-14-AKA - Receiving 480 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 480 (Temporarily Unavailable) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE]

TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000 Router(R1) : 3ffe:501:ffff:1000::1 P-CSCFa1 : 3ffe:501:ffff:100::10



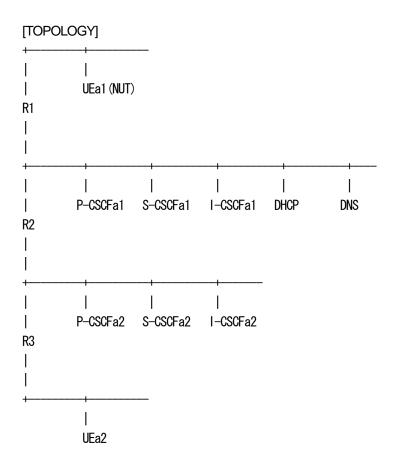
 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::30

 DNS
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50

UEa2 : 3ffe:501:ffff:2000::1000
P-CSCFa2 : 3ffe:501:ffff:200::10
I-CSCFa2 : 3ffe:501:ffff:200::20
S-CSCFa2 : 3ffe:501:ffff:200::30



[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network

(NUT)



UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	1-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
:	1	1		1	1	1	
	->	1		1	1	1	1 INVITE
:	1	1		1	1	1	
<		1		1	1	1	2 480 Temporarily Unavailable
:	1	1		1	1	1	
	->	1		1	1	1	3 ACK (*1)
1 :	1	1	1	1	1	1	

- 1 NUT sends INVITE
- 2 NUT receives 480 Temporarily Unavailable
- 3 NUT sends ACK

=== Message example ===

As regards the message 1, please refer to the message 1 in UE-SE-B-1-AKA.

2. 480 Temporarily Unavailable P-CSCF -> NUT

SIP/2.0 480 Temporarily Unavailable

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE
Content-Length: 0

3. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]



*1: 3 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.15 UE-RR-B-15-AKA - Receiving 482 response

[NAME]

UE-RR-B-15-AKA - Receiving 482 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 482 (Loop Detected) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE]

TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000 Router(R1) : 3ffe:501:ffff:1000::1



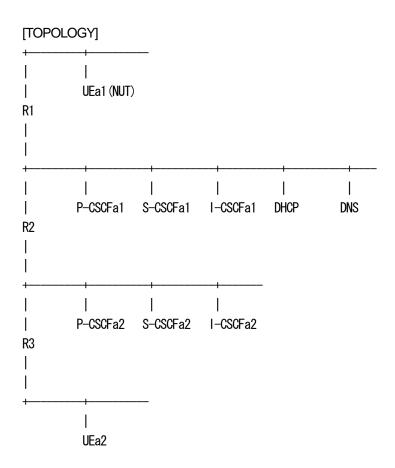
P-CSCFa1 : 3ffe:501:ffff:100::10
I-CSCFa1 : 3ffe:501:ffff:100::20
S-CSCFa1 : 3ffe:501:ffff:100::30
DNS : 3ffe:501:ffff:100::40
DHCP : 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30



[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]



Home Network

(NUT)
------	---

101/								
UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	1-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2	UEa3
:								
ļ	>						1	INVITE
:								
<							2	482 Loop Detected
:								
	>						3	ACK (*1)
:		1				1	Ī	

- 1 NUT sends INVITE
- 2 NUT receives 482 Loop Detected
- 3 NUT sends ACK

=== Message example ===

As regards the message 1, please refer to the message 1 in UE-SE-B-1-AKA.

2. 482 Loop Detected P-CSCF -> NUT

SIP/2.0 482 Loop Detected

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

3. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0



[OBSERVABLE RESULTS]

*1: 3 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.16 UE-RR-B-16-AKA - Receiving 483 response

[NAME]

UE-RR-B-16-AKA - Receiving 483 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 483 (Too Many Hops) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE]

TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]



UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::10

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::30

 DNS
 :
 3ffe:501:ffff:100::40

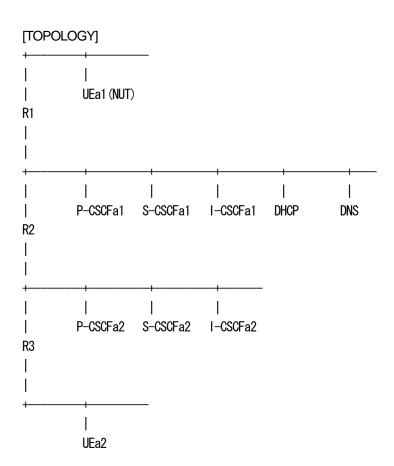
 DHCP
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30



[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".



[PROCEDURE]

Home Network

(NUT)		ionio moenor					
UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
: 	 > 						 1 INVITE
· · · · · · · · · ·	 	 > 		 		 	I INVITE
 :	İ	i I	i i	i i	i i	i i	2 100 Trying
:	l I	 		-> 			INVITE
:	< 	 	 			 	100 Trying
;	 	 /	 	 	-> 	 	INVITE 100 Trying
	i I			 	 	 ->	100 Tryffig INVITE
; ;	l I			 <	 	 	 100 Trying
:	 				 <	 	 483 Too Many Hops
	 	 	 		 	 -> 	I ACK
		 		 <	_ _ 	 	483 Too Many Hops
:	l I				-> 	l l	ACK
:		<		— 			483 Too Many Hops
:	 <	 		->} 	 	 	ACK 483 Too Many Hops
	 	¦ ->	 	 			ACK
: <	 	 		 			 3 483 Too Many Hops
: 	 >		 	 			 4 ACK (*1)



1 NUT sends INVITE

2 NUT receives 100 Trying

3 NUT receives 483 Too Many Hops

4 NUT sends ACK

=== Message example ===

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 483 Too Many Hops P-CSCF -> NUT

SIP/2.0 483 Too Many Hops

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

 $From: <\!\!sip: UEa1_public_1@under.test.com\!\!>; tag=9fxced76sl$

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX



4.7.17 UE-RR-B-17-AKA - Receiving 484 response

[NAME]

UE-RR-B-17-AKA - Receiving 484 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 484 (Address Incomplete) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE]

TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

Router(R1) : 3ffe:501:ffff:1000::1
P-CSCFa1 : 3ffe:501:ffff:100::20
I-CSCFa1 : 3ffe:501:ffff:100::20
S-CSCFa1 : 3ffe:501:ffff:100::30
DNS : 3ffe:501:ffff:100::40
DHCP : 3ffe:501:ffff:100::50

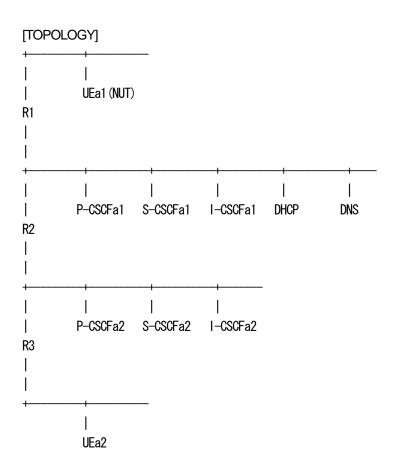


 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30



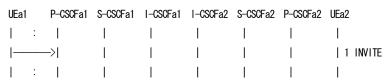
[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network

(NUT)





: >	1 1			INVITE
1 : 1	1 1	1		
<	1 1	1	-	2 100 Trying
1 : 1	1 1	1	1	
	>I	İ	İ	INVITE
1 : 1	l İ	İ	Ī	·
: <	i	i	i	100 Trying
1 : 1 : 1	i	i	i	
· · · · · · · · · · · · · · · · · · ·	i i—	> >	i	INVITE
1 : 1	i	1	i	1
:	' ' I	i	i	100 Trying
• •	1 1	i	i	100 11 11116
1 . 1		' I	' 	484 Address Incomplete
1 . 1 . 1	1 1	, ,	1	404 Addi ess i licolipiete
1 . 1 . 1	· · · · · · · · · · · · · · · · · · ·	> >	1	ACK
1 . 1 . 1	1 1	71	1	AUI
	1 1	1	1	40.4 Adduses Inservalete
: (l I	1	484 Address Incomplete
	l l	l I	1	 AOV
•	>}	l I	1	ACK
:	1 1	1	1	104.411 1 1
: <	1 1	1	1	484 Address Incomplete
	1 1	1		
: >		1		ACK
	1 1	1		<u> </u>
<	1 1	I		3 484 Address Incomplete
:	1 1	I		l
>	1 1	1		4 ACK (*1)
:			1	

- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 484 Address Incomplete
- 4 NUT sends ACK

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 484 Address Incomplete P-CSCF -> NUT SIP/2.0 484 Address Incomplete Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9



From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314259 Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314259 Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.18 UE-RR-B-18-AKA - Receiving 485 response

[NAME]

UE-RR-B-18-AKA - Receiving 485 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 485 (Ambiguous) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE] TS24.229 A.2.1.4.1

501



[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::50

 DHCP
 :
 3ffe:501:ffff:100::50

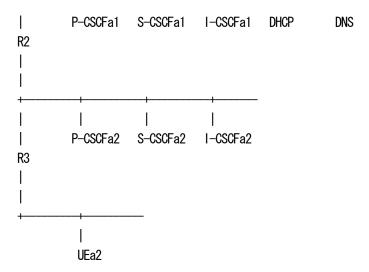
 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30

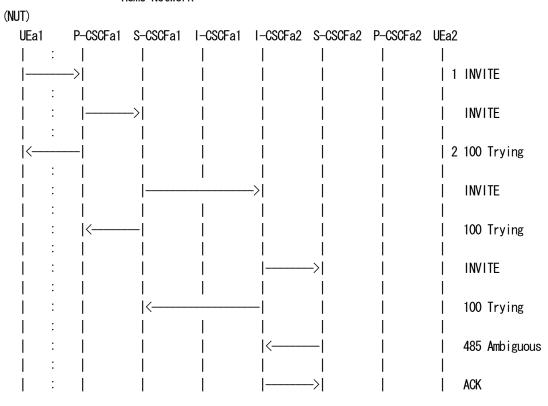




UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network





:					1		
:		<					485 Ambiguous
:					[
:			>]	}			ACK
:					[
:	<						485 Ambiguous
:							
:	>						ACK
:							
<	-						3 485 Ambiguous
:							
	->						4 ACK (*1)
:							

- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 485 Ambiguous
- 4 NUT sends ACK

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 485 Ambiguous P-CSCF -> NUT

SIP/2.0 485 Ambiguous

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1_a0@node.under.test.com>

Contact: <sip:UEa2_public_1_b1@node.under.test.com>

Contact: <sip:UEa2_public_1_c2@node.under.test.com>

Content-Length: 0

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>



Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.19 UE-RR-B-19-AKA - Receiving 488 response

[NAME]

UE-RR-B-19-AKA - Receiving 488 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process 488 (Not Acceptable Here) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE]

TS24.229 6.1.2

TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com



HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::10

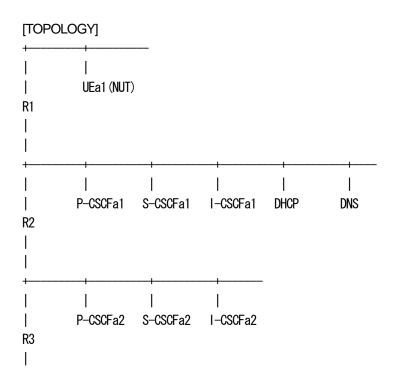
 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::30

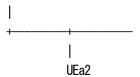
 DNS
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50

UEa2 : 3ffe:501:ffff:2000::1000
P-CSCFa2 : 3ffe:501:ffff:200::10
I-CSCFa2 : 3ffe:501:ffff:200::20
S-CSCFa2 : 3ffe:501:ffff:200::30







UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network

(NUT)								
UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2	
:	I	I	I	1	I	I		
	>	I		I	I		1	INVITE
:		I		I	I		-	
:		->		I	I			INVITE
:		I		I	I			
<		I		I	I		2	100 Trying
:		I		I	I			
:		-		->	I			INVITE
:								
:	<	—			 			100 Trying
:	l	l		l	1			
:	l	l			->			INVITE
:	l			l	l			400 T. I
:	l	<		 	l	l		100 Trying
:	l	l		l	l			IAD (ITE
1 :	I	l	I	l		- >		INVITE
1 :	I	l	I	1	l	I		100 Ti
1 .	I	l I	I	<	— 	I	-	100 Trying
1 .	l I	l I	Į I	l I	l I	Į I	 ->	INVITE
1 .	l I	l I	l I	l I	l I	1	-/I I	INVIIL
1 .	I I	l I	l I	l I	 <	I I	1	100 Trying
	l I	ı I	ı I	l I	1	ı I	' 	100 H y Hig
1 .	l I	l I	l I	l I	l I	 <	_ ! !	488 Not Acceptable Here
1 :	ı I	l I	ı I	l I	l I	1	ı	400 NOT ACCEPTABLE LICIE
1 :	i I	' I	' 	' I	' I		-> ->	ACK
1 :	İ	' I	' 	' I	' I	' 	1	
1 :	i	i	i	i	 <	i	ı	488 Not Acceptable Here
' '	'	'	ı	'	1 `	ı	'	



	:			I		1	
	:			1		>I	ACK
	:	1	I	- 1	1	1	
	:	1		<	I	1	488 Not Acceptable Here
	:	1	1	1	1	1	
	:	1	I		>I	1	ACK
	:	1	I	- 1	1	1	
	:	1	<	 	1	1	488 Not Acceptable Here
	:	1	1	1	1	1	
	:	1	l	 > }	1	1	ACK
	:	1	1	1	1	1	
	:	<	—I	1	1	1	488 Not Acceptable Here
	:	1	1	1	1	1	
	:		->	1	1	1	ACK
	:	1	1	1	1	1	
< <u> </u>		—I	1	1	1	1	3 488 Not Acceptable Here
	:	1		1	1	1	
		->		1	1	1	4 ACK (*1)
	:	1	1	- 1	1	1	

- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 488 Not Acceptable Here
- 4 NUT sends ACK

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 488 Not Acceptable Here P-CSCF -> NUT

SIP/2.0 488 Not Acceptable Here

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Warning: 301 nodea2 "Incompatible network address format"

Content-Length: 0

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9



Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314259 Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.20 UE-RR-B-20-AKA - Receiving 501 response

[NAME]

UE-RR-B-20-AKA - Receiving 501 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 501 (Not Implemented) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE]

TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com



HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

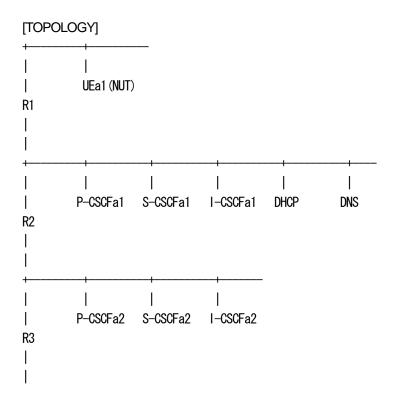
 DHCP
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30



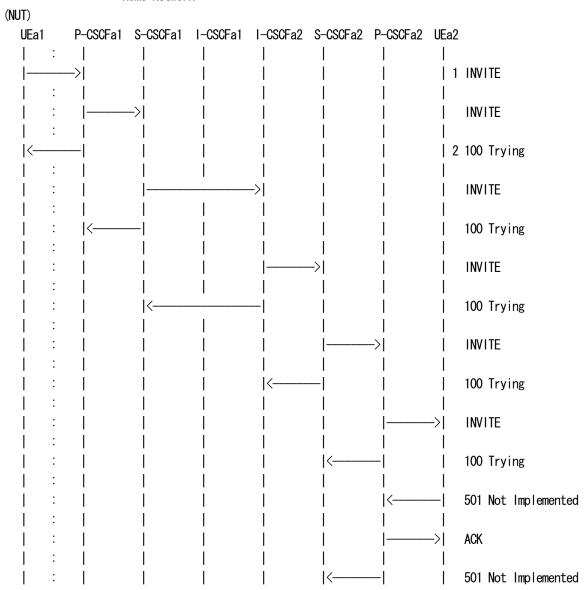




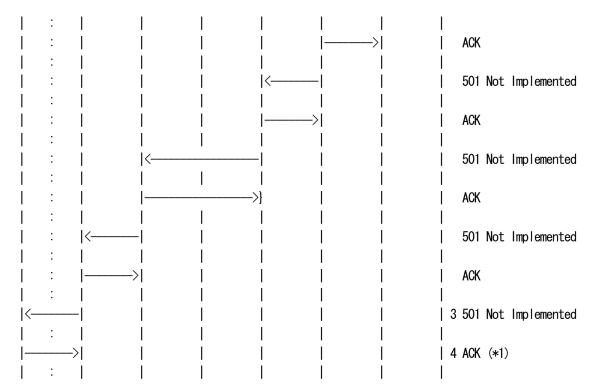
UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network







- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 501 Not Implemented
- 4 NUT sends ACK

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 501 Not Implemented P-CSCF -> NUT

SIP/2.0 501 Not Implemented

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

 $From: <\!\!sip: UEa1_public_1 @under.test.com>; tag=9fxced76sl$

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0



Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.21 UE-RR-B-21-AKA - Receivning 502 response

[NAME]

UE-RR-B-21-AKA - Receiving 502 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 502 (Bad Gateway) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE]

TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com
private-user-id : UEa1_private@under.test.com



contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

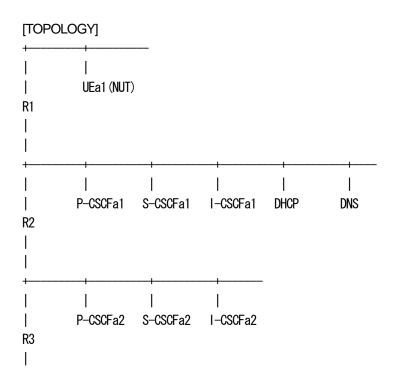
 DHCP
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30



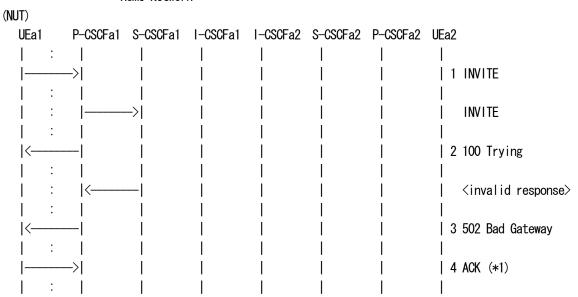




UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network



- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 502 Bad Gateway
- 4 NUT sends ACK

=== Message example ===

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 502 Bad Gateway P-CSCF -> NUT SIP/2.0 502 Bad Gateway

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9



From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314259 Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314259 Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.22 UE-RR-B-22-AKA - Receiving 505 response

[NAME]

UE-RR-B-22-AKA - Receiving 505 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 505 (Version Not Supported) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE] TS24.229 A.2.1.4.1



[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::50

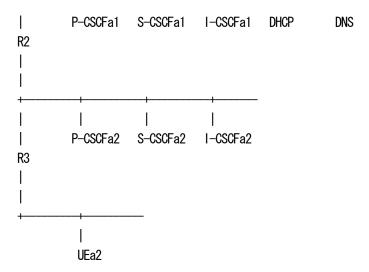
 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30

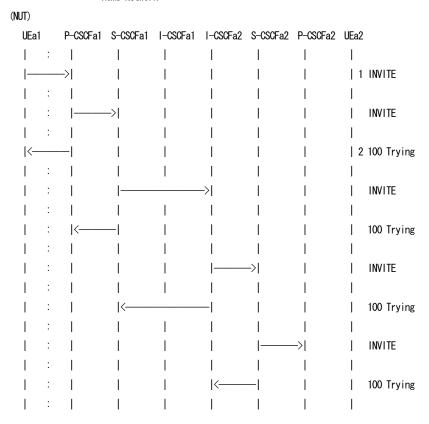




UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network





1	:	1	1	I	I	I	ļ:	>	INVITE
1	:					- 1			
	:				1	<	——		100 Trying
	:		1			1	1	1	
	:		1		I	1	<	-	505 Version Not Supported
	:	1	1	1		I	1	Ι	
1	:	1	1	1	I	1	[:	>	ACK
	:				1	I	1		
	:			1		<		1	505 Version Not Supported
	:					I	[
	:	1	1	- 1	1		—>	1	ACK
	:					I	[
	:			1	<		1	1	505 Version Not Supported
	:	1				I	1		
	:	1				—>	1	1	ACK
	:					I	[
	:		<			I	1	1	505 Version Not Supported
	:		1		1	1	1		
	:	1			> }	I	1	1	ACK
	:		1			I	1	1	
	:	<			1	1	1		505 Version Not Supported
	:		1		I	1	1	I	
	:		>		1	1	1	I	ACK
	:	1	1	1	1		1	I	
<-		-	1	1	1		1	3	505 Version Not Supported
	:	1	1	ı	I		1	I	
		->	1	1	I	1	1	4	ACK (*1)
	:	1	1	1	I	1	1	I	

- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 505 Version Not Supported
- 4 NUT sends ACK

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 505 Version Not Supported P-CSCF -> NUT SIP/2.0 505 Version Not Supported Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9



From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314259 Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314259 Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.23 UE-RR-B-23-AKA - Receiving 513 response

[NAME]

UE-RR-B-23-AKA - Receiving 513 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 513 (Message Too Large) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE] TS24.229 A.2.1.4.1



[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::50

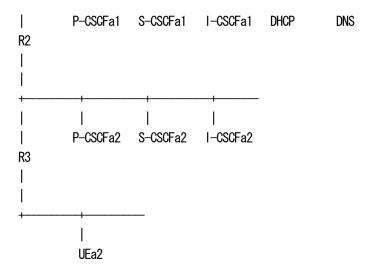
 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30

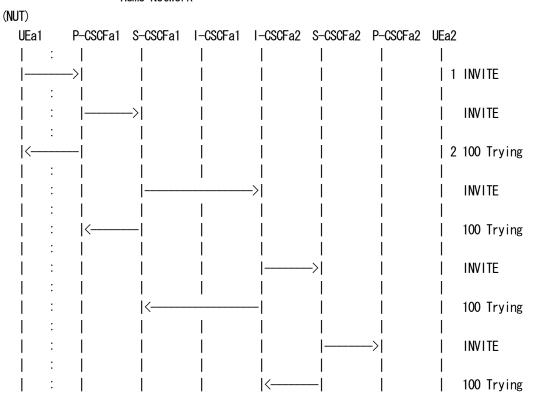




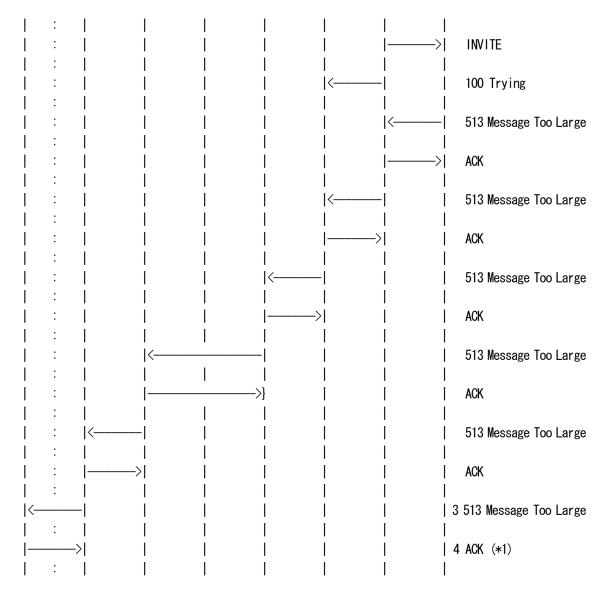
UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network







- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 513 Message Too Large
- 4 NUT sends ACK

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 513 Message Too Large P-CSCF -> NUT SIP/2.0 513 Message Too Large



Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.24 UE-RR-B-24-AKA - Receiving 600 response

[NAME]

UE-RR-B-24-AKA - Receiving 600 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 600 (Busy Everywhere) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE]



TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

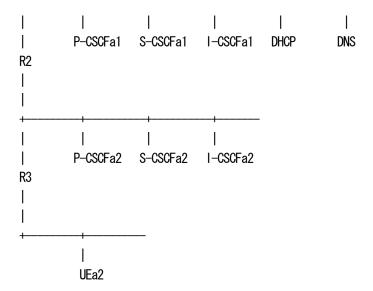
 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30

[TOPOLOGY]



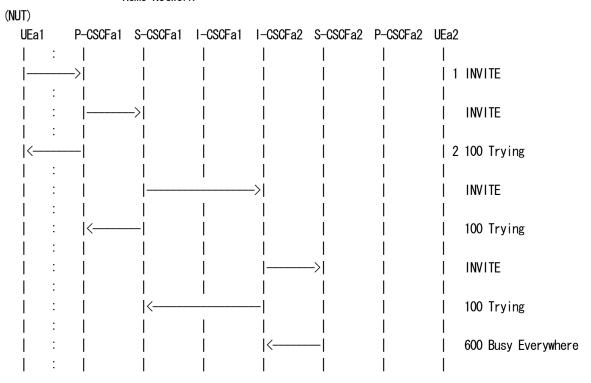




UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network





:		>	A	CK
] :]				
: <	 		60	00 Busy Everywhere
] :]				
:	 >}		A(CK
:				
: <			60	00 Busy Everywhere
: >			A(CK
<			3 60	00 Busy Everywhere
>			4 A(CK (*1)
	1			

- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 600 Busy Everywhere
- 4 NUT sends ACK

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 600 Busy Everywhere P-CSCF -> NUT

SIP/2.0 600 Busy Everywhere

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314259



Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.25 UE-RR-B-25-AKA - Receiving 603 response

[NAME]

UE-RR-B-25-AKA - Receiving 603 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 603 (Decline) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE]

TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]



public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::10

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

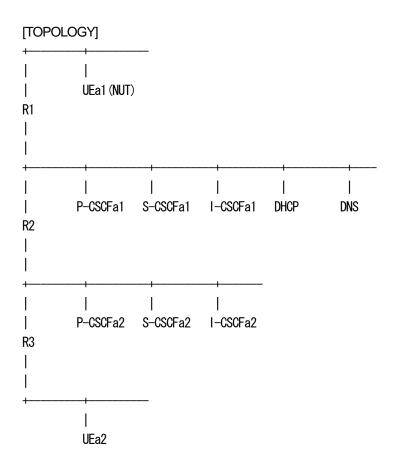
 DHCP
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30





UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network

	Г	Tome inetwor	K				
(NUT)							
UEa1		S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
 	: > ·						 1 INVITE
	: :	-> > 			 		I INVITE
< 	i :	İ	i I	i I	i I	i I	2 100 Trying
İ	:	 		-> 	l I		INVITE
 	: < :	 	 	 	 	 	100 Trying
 	; ;	 	 	 	-> 	 	INVITE
 	: :	< 		— 	 	 	100 Trying
 	: :	 	 	 	 	-> 	INVITE
	:	 	l I	< 	— -	l I	100 Trying
	:						-> INVITE
	; ;				<	— 	100 Trying
	· : ·					< 	— 603 Decline -> ACK
	· : ·				 <	İ	
	· : ·		 	 		—ı ->l	OOS DECTINE ACK
 	:			 <	 		AON 603 Decline
	:						000 Decime



:		I	>	İ		ACK
:		I	I			
:		<	I			603 Decline
:		1	1	[
:			 >}			ACK
:		1	1	[
:	<	1	1			603 Decline
:		1	1			
:	>	I	I			ACK
:		1	1			
 <		1	1			3 603 Decline
:		1	1			
	—>	1				4 ACK (*1)
:		I	I			

- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 603 Decline
- 4 NUT sends ACK

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 603 Decline P-CSCF -> NUT

SIP/2.0 603 Decline

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl To: <sip:UEa2_public_1@under.test.com>;tag=314259



Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.26 UE-RR-B-26-AKA - Receiving 604 response

[NAME]

UE-RR-B-26-AKA - Receiving 604 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 604 (Does not exist anywhere) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE]

TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]



public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::10

 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

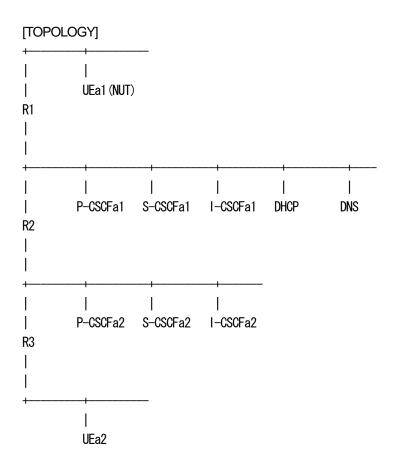
 DHCP
 :
 3ffe:501:ffff:100::50

 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30





[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network

(NUT)	,	IOIIO NOCIIOI	IX				
UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	IJFa2
:							
ļ	>I	i	i	i	i	i	' 1 INVITE
	1	i	i i	i	i	i	
1 .		-> >	i I	i	i	i i	I INVITE
1 :	i	1	i I	i	i I	i I	
· ·	l	i	i i	i	i	i	2 100 Trying
1 :	i	i	ı I	i	ı I	i I	2 100 11 yilig
1 .	i I	ļ	Į.	_\]	ı I	i I	I INVITE
1 :	ı I		ı	1	ı	ı I	
1 .	 <		ı I	i	l I	ı I	100 Trying
1 .	I N	i	ı I	i	ı I	i I	100 11 y 111g
1 .	i I		ı I	 	->	i I	I INVITE
1 .	ı I		ı I	i I	1	ı I	
1 .	ı I	 <	ı	! !	l I	l I	l 100 Trying
1 .	ı I	1	ı	1	l I	l I	100 Hymg
1 .	1	1	l I	 <	I I	1	604 Does Not Exist Anywhere
1 .	ı	1	l I		 	l I	004 DOES NOT EXIST ANyWhere
1 .	l I	1	l I	1	l N	l I	 AOV
1 .	ı	1	I		-> ->	I	ACK
1 .	l I	l Iz	ļ	ı	l I	l I	COA Deep Net Eviet American
1 .	l I	<	1	—	l I	l I	604 Does Not Exist Anywhere
1 .	ı	1		l N	ı	I	 AOV
1 .	1	1	1	-> }	l	l	ACK
:		1	1	1	l I	1	
1 :	<	—I	l		l	l	604 Does Not Exist Anywhere
:	l			!	l		
:		-> >	1		l	 	ACK
:	l				l		
<		1	1	 	l	1	3 604 Does Not Exist Anywhere
:	I	l	l	l	l	l	
[—>	1	-	1			4 ACK (*1)
:	l			l			1

1 NUT sends INVITE



2 NUT receives 100 Trying 3 NUT receives 604 Does not exist anywhere 4 NUT sends ACK

=== Message example ===

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 604 Does Not Exist Anywhere P-CSCF -> NUT

SIP/2.0 604 Does Not Exist Anywhere

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.27 UE-RR-B-27-AKA - Receiving 606 response

[NAME]

UE-RR-B-27-AKA - Receiving 606 response



[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 606 (Not Acceptable) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE]

TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

Router(R1) : 3ffe:501:ffff:1000::1
P-CSCFa1 : 3ffe:501:ffff:100::10
I-CSCFa1 : 3ffe:501:ffff:100::20
S-CSCFa1 : 3ffe:501:ffff:100::30
DNS : 3ffe:501:ffff:100::40
DHCP : 3ffe:501:ffff:100::50

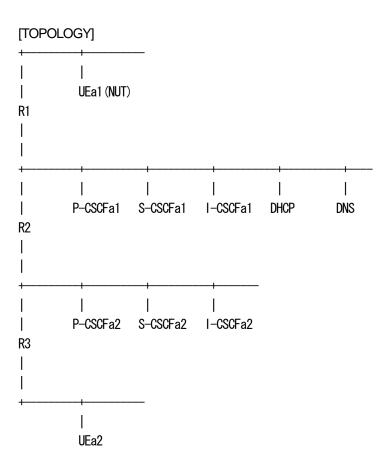
 UEa2
 :
 3ffe:501:ffff:2000::1000

 P-CSCFa2
 :
 3ffe:501:ffff:200::10

 I-CSCFa2
 :
 3ffe:501:ffff:200::20



S-CSCFa2 : 3ffe:501:ffff:200::30

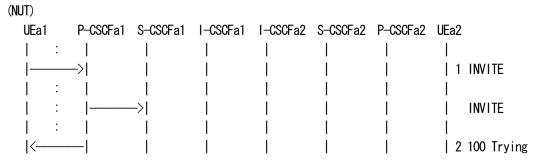


[INITIALIZATION]

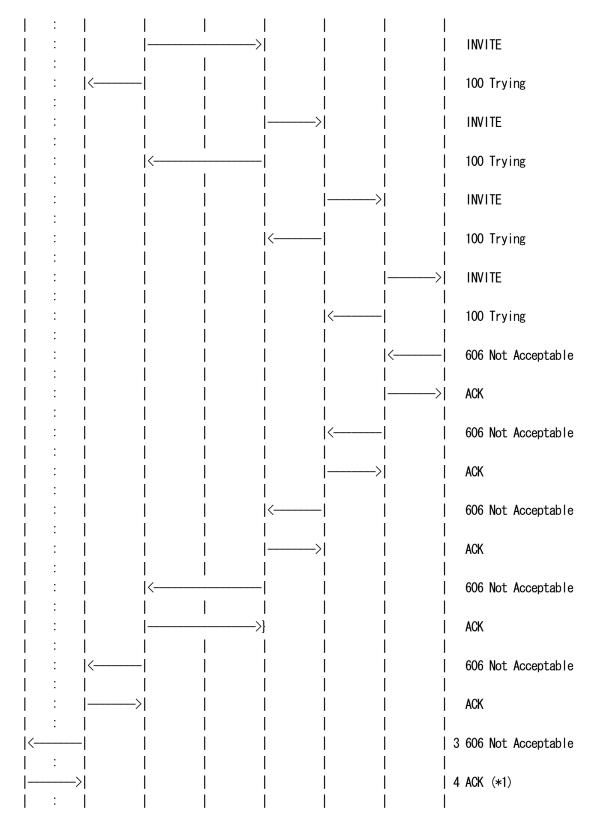
UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network







1 NUT sends INVITE



2 NUT receives 100 Trying 3 NUT receives 606 Not Acceptable 4 NUT sends ACK

=== Message example ===

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 606 Not Acceptable P-CSCF -> NUT

SIP/2.0 606 Not Acceptable

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.28 UE-RR-B-28-AKA - Reception of 504 response to Session initiation

[NAME]

UE-RR-B-28-AKA - Reception of 504 response to Session initiation



[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly performs the procedures for initial registration after received 504 (Server Time-out) response containing a P-Asserted-Identity header field set to the SIP URI of the Path header field during the registration and a Content-Type header field set to a "application/3gpp-ims+xml" and related IM CM subsystem XML body.

[REFERENCE] TS24.229 5.1.2A.1.6 TS24.229 A.2.1.4.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com

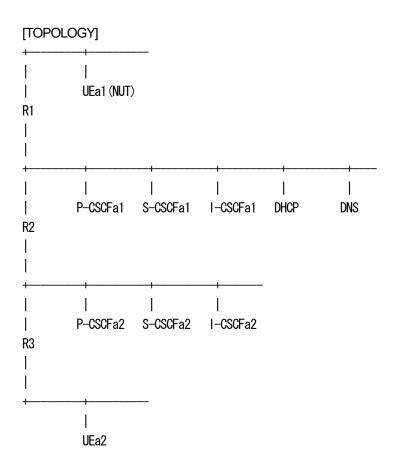
[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

Router(R1) : 3ffe:501:ffff:1000::1
P-CSCFa1 : 3ffe:501:ffff:100::10
I-CSCFa1 : 3ffe:501:ffff:100::20
S-CSCFa1 : 3ffe:501:ffff:100::30
DNS : 3ffe:501:ffff:100::40
DHCP : 3ffe:501:ffff:100::50



UEa2 : 3ffe:501:ffff:2000::1000
P-CSCFa2 : 3ffe:501:ffff:200::10
I-CSCFa2 : 3ffe:501:ffff:200::20
S-CSCFa2 : 3ffe:501:ffff:200::30



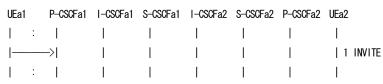
[INITIALIZATION]

UEa1(NUT) must be registered with the tester by executing the scenario "UE-INI-B-1-AKA". For details of "UE-INI-B-1-AKA", refer to the profile "UE-RG-B-1-AKA".

[PROCEDURE]

Home Network

(NUT)





:							
: (
:							
: :	ACK						
: <							
: >							
> :	5 REGISTER (*1)						
: 	REGISTER						
: 	REGISTER						
: 	401 Unauthorized						
: \ :	401 Unauthorized						
\(6 401 Unauthorized						
> :	7 REGISTER for authentication (*2)						
: > :	REGISTER for authentication						
: 	REGISTER for authentication						
: 	200 0K 						
: \	200 OK						
 :	8 200 0K						
 	9 SUBSCRIBE (*3)						
	SUBSCRIBE						
:	200 0K						
	ı						



<		10 200 OK
1 : 1		1
: <		NOTIFY
1 : 1		1
<		11 NOTIFY
1 : 1		1
>		12 200 OK (*4)
1 : 1		1
:		> 200 0K
1 : 1	1	1

- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 504 Server Time-out
- 4 NUT sends ACK
- 5 NUT sends REGISTER
- 6 NUT receives 401 Unauthorized
- 7 NUT sends REGISTER for authentication
- 8 NUT receives 200 OK
- 9 NUT sends SUBSCRIBE
- 10 NUT receives 200 OK
- 11 NUT receives NOTIFY
- 12 NUT sends 200 OK

=== Message example ===

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1-AKA.

3. 504 Server Time-out P-CSCF -> NUT

SIP/2.0 504 Server Time-out

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

P-Asserted-Identity: <sip:term@p.a1.under.test.com>

Content-Type: application/3gpp-ims+xml

Content-Length: (...)

<?xml version="1.0" encoding="UTF-8"?>

<ims-3gpp version="1">

<alternative-service>

<type>%x72.65.73.74.6F.72.61.74.69.6F.6E</type>



<reason>operator configurable reason</reason>
<action>%x69.6E.69.74.69.61.6C.2D.72.65.67.69.73.74.72.61.74.69.6F.6E</action>
</alternative-service>
</ims-3gpp>

4. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9 Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0

As regards the message 5-12, please refer to the message 11-18 in UE-RG-B-14-AKA.

[OBSERVABLE RESULTS]

*1: 5 REGISTER from NUT to P-CSCF

See generic_REGISTER

*2: 7 REGISTER for authentication from NUT to P-CSCF

See generic_Auth_REGISTER

*3: 9 SUBSCRIBE from NUT to P-CSCF

See generic_SUBSCRIBE

*4: 12 NOTIFY 200 OK from NUT to P-CSCF

See generic_200-NOTIFY

4.8 SigComp

4.8.1 UE-SC-B-1-AKA - SigComp for IMS (Sends INVITE and receives BYE)



[NAME]

UE-SC-B-1-AKA - SigComp for IMS (Sends INVITE and receives BYE)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly uses SigComp to signaling.

- (1) To verify that the UEa1 properly compress SIP messages.
- (2) To verify that the UEa1 properly decompress compressed messages.
- (3)To verify that the UEa1 finished compertment when it is deregistered.

[REFERENCE]

TS24.229 8.1.1

TS24.229 8.1.2

TS24.229 8.1.3

RFC34864

RFC34865

RFC5049 9.1

RFC5049 9.4

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

public-user-id(UEa2) : sip:UEa2_public_1@under.test.com

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com



[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::10

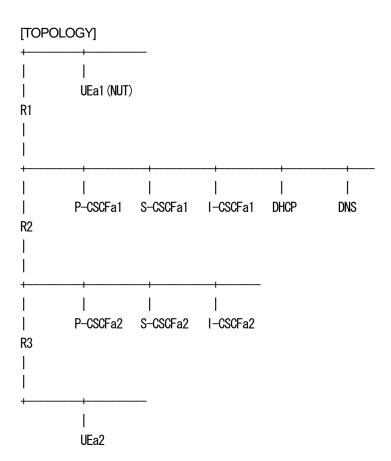
 I-CSCFa1
 :
 3ffe:501:ffff:100::20

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::40

 DHCP
 :
 3ffe:501:ffff:100::50

UEa2 : 3ffe:501:ffff:2000::1000
P-CSCFa2 : 3ffe:501:ffff:200::10
I-CSCFa2 : 3ffe:501:ffff:200::20
S-CSCFa2 : 3ffe:501:ffff:200::30

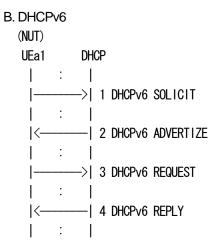


[INITIALIZATION]

Set up IP Address using A or B.



A. Router Advertisement



[PROCEDURE]

Home Network

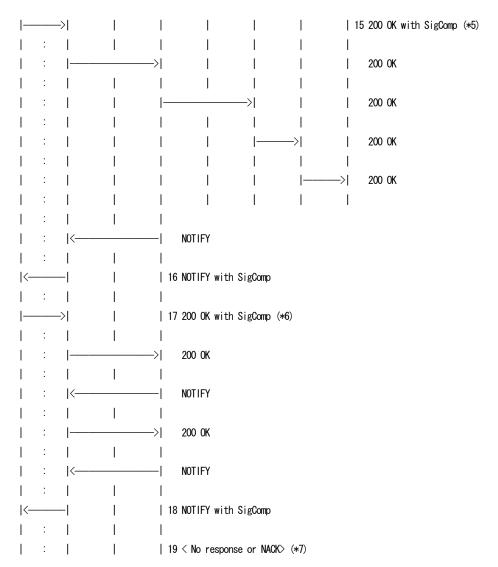


<		1	4 200 (OK with/with	nout SigCom	þ					
: 	: >										
:	: :	 	SUBSCRIBE								
: :		\	 200 (200 0K							
: <	: 	 	 6 200 (K with Sig(Comp						
: :		<u> </u>	 NOTIF								
' : /			1	Y with Sig	lomo.						
:											
:	>I ∶ I	I 		OK with Sig(JOTHD (*2 <i>)</i>						
:		l	—> 200 (
:				-CSCFa2 S-	-CSCFa2 P- 	CSCFa2 UEa2 	2				
	>	1			1		9 INVITE with SigComp (*3)				
:			> >	1	 		INVITE				
:			l I	1	 	1 I	10 100 Trying with SigComp				
:			 	 ->			INVITE				
:		ζ	 	 	 		100 Trying				
: :	: :		 	 ;	 		INVITE				
: :	: :		 <	 -	 		100 Trying				
: :	: :		l I	 	 >		INVITE				
: :	: :	<u> </u>	l I	 <	 -	1 I	100 Trying				
· : :	- -		i I	 	 	 >	INVITE				
:	. ' 										
:	·		 	1		1 I	100 Trying				
:	: I		<u> </u>	<u> </u>	I	<	180 Ringing				



:	1		l I		I	I	I	I I	
:	İ	:	' ' 		! 	! 	' <	' 	180 Ringing
:	İ	:							
:	-	:	l I			<			180 Ringing
:	1	:				l	l		
:		:	l l		<			l	180 Ringing
:			 /		 	 	 	 	190 Pinging
	 		l I		 	I 	I 	 	100 Kiligilig
:	 <		·		' 				11 180 Ringing with SigComp
:	1	:				l	l		
:	-	:					l	<	200 OK
:			 			<u> </u>		 	
:		:	 		 	 	<	 	200 UK
:	 	:	 		I 	I <	I 	 	200 OK
:	i		·		' 				
:	1	:			<	l	l		200 OK
:	-	:	l I						
	1		<				l	l	200 OK
:		:	 		 	 	 -	 	10 000 0V:+l- C:C
	1	:	 		 	I I	I I	 	12 200 OK WILH SIGNOID
:			 I I						13 ACK with SigComp (*4)
:	1	:				l	l		
:	-	:		>		l	l		ACK
:	1	:	 		<u> </u>		l	<u> </u>	
:		:	 		 	>	 -	 	ACK
:	ı	:	 		 	I I	I >	 	ACK
:	i	:	' ' 		' 	' 	'	' 	Non
:	1	:				l	l	>	ACK
:	1	:				l	l		
:	1	:						<	BYE
:		:							DVE
:	1		 		 	 	\	 	BYE
:	' 	:	ı l		ı <	I 	' 	' 	BYE
:	i	:	· ' 			l			
< 14 BYE with SigComp	1	:	<						BYE
	1	:			l	l	l		
	<		 		<u> </u>	 -	 -		14 BYE with SigComp
	I	:	I I		l	l	I	l	





- 1 NUT sends REGISTER with/without SigComp
- 2 NUT receives 401 Unauthorized with/without SigComp
- 3 NUT sends REGISTER for authentication with/without SigComp
- 4 NUT receives 200 OK with/without SigComp
- 5 NUT sends SUBSCRIBE with SigComp
- 6 NUT receives 200 OK with SigComp
- 7 NUT receives NOTIFY with SigComp
- 8 NUT sends 200 OK with SigComp
- 9 NUT sends INVITE with SigComp
- 10 NUT receives 100 Trying with SigComp
- 11 NUT receives 180 Ringing with SigComp
- 12 NUT receives 200 OK with SigComp
- 13 NUT sends ACK with SigComp
- 14 NUT receives BYE with SigComp



15 NUT sends 200 OK with SigComp 16 NUT receives NOTIFY with SigComp 17 NUT sends 200 OK with SigComp 18 NUT receives NOTIFY with SigComp 19 < NUT sends no response or NACK >

=== Message example ===

1. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashds7

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa3

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com;comp=sigcomp;

sigcomp-id=urn:uuid:00ffde92-0916-1952-2008fa82a473>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username=" UEa1_private@under.test.com", realm="under.test.com", nonce="",

uri="sip:under.test.com", response=""

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=23456789; spi-s=12345678;

port-c=2468; port-s=1357

Require: sec-agree

Proxy-Require: sec-agree

CSeq: 1 REGISTER

Supported: path Content-Length: 0

2. 401 Unauthorized P-CSCF -> NUT

SIP/2.0 401 Unauthorized

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:5060;branch=z9hG4bKnashds7

From: <sip:UEa1_public_1@under.test.com>;tag=4fa3

To: <sip:UEa1_public_1@under.test.com>;tag=5ef4

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

WWW-Authenticate: Digest realm="under.test.com",

nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

CSeq: 1 REGISTER Content-Length: 0



3. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds8;comp=sigcomp;

sigcomp-id="urn:uuid:00ffde92-0916-1952-2008fa82a473"

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4

To: <sip:UEa1_public_1@under.test.com>

Contact: <sip:UEa1_public_1@node.under.test.com:1357;comp=sigcomp;sigcomp-id=urn:

uuid:00ffde92-0916-1952-2008fa82a473>;expires=600000

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", algorithm=AKAv1-MD5, nonce="I1U8vpY3qJhiuZNrke/NaponGSCcLm5iR+WCRkWYoM",

uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; mode="trans"; alg=hmac-sha-1-96; spi-c=23456789; spi-s=12345678;

port-c=2468; port-s=1357

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Require: sec-agree
Proxy-Require: sec-agree
CSeq: 2 REGISTER
Supported: path
Content-Length: 0

4. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds8;comp=sigcomp;

sigcomp-id="urn:uuid:00ffde92-0916-1952-2008fa82a473"

Path: <sip:term@p.a1.under.test.com;lr>

Service-Route: <sip:orig@s.a1.under.test.com;lr>

From: <sip:UEa1_public_1@under.test.com>;tag=4fa4

To: <sip:UEa1_public_1@under.test.com>;tag=5ef5

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

Contact: <sip:UEa1_public_1@node.under.test.com:1357;comp=sigcomp;sigcomp-id=urn:

uuid:00ffde92-0916-1952-2008fa82a473>;expires=600000

CSeq: 2 REGISTER

P-Associated-URI: <sip:UEa1_public_1@under.test.com>

Date: Wed, 11 July 2001 08:49:37 GMT

Content-Length: 0

5. SUBSCRIBE NUT -> P-CSCF

SUBSCRIBE sip:UEa1_public_1@under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds7;comp=sigcomp;



sigcomp-id="um:uuid:00ffde92-0916-1952-2008fa82a473"

Max-Forwards: 70

Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr> P-Access-Network-Info: 3GPP-UTRAN-TDD;utran-cell-id-3gpp=123456A1BDS23

From: <sip:UEa1_public_1@under.test.com>;tag=31415

To: <sip:UEa1_public_1@under.test.com>

Require: sec-agree

Proxy-Require: sec-agree

Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

CSeq: 61 SUBSCRIBE

Allow-Events: reg

Event: reg

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Expires: 600000

Contact: <sip:UEa1_public_1@node.under.test.com:1357;comp=sigcomp;

sigcomp-id=um:uuid:00ffde92-0916-1952-2008fa82a473>

Content-Length: 0

6.200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds7;comp=sigcomp;

sigcomp-id="urn:uuid:00ffde92-0916-1952-2008fa82a473"

Record-Route: <sip:p.a1.under.test.com:10001;lr;comp=sigcomp;

sigcomp-id=urn:uuid:11edab92-0916-1952-2008ec24b5678>

From: <sip:UEa1_public_1@under.test.com>;tag=31415

To: <sip:UEa1_public_1@under.test.com>;tag=151170

Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

CSeq: 61 SUBSCRIBE

Allow-Events: reg Expires: 600000

Contact: <sip:s.a1.under.test.com>

Content-Length: 0

7. NOTIFY P-CSCF -> NUT

NOTIFY sip:UEa1_public_1@node.under.test.com:1357;comp=sigcomp;

sigcomp-id=um:uuid:00ffde92-0916-1952-2008fa82a473 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.1;comp=sigcomp;

sigcomp-id="um:uuid:11edab92-0916-1952-2008ec24b5678",SIP/2.0/UDP s.a1.under.test.com;

branch=z9hG4bK332b23.1;received=3ffe:501:ffff:100::30

Max-Forwards: 69

From: <sip:UEa1_public_1@under.test.com>;tag=151170



```
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 62 NOTIFY
Subscription-State: active; expires=600000
Event: reg
Content-Type: application/reginfo+xml
Contact: <sip:s.a1.under.test.com>
Content-Length: (...)
<?xml version="1.0"?>
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="0" state="full">
     <registration aor="sip:UEa1_public_1@under.test.com" id="a7" state="active">
         <contact id="76" state="active" event="registered">
              <uri>sip:UEa1_public_1@node.under.test.com</uri>
         </contact>
     </registration>
</reginfo>
8. 200 OK NUT -> P-CSCF
SIP/2.0 200 OK
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.1;comp=sigcomp;
sigcomp-id="um:uuid:11edab92-0916-1952-2008ec24b5678";received=3ffe:501:ffff:100::10,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.1;received=3ffe:501:ffff:100::30
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 62 NOTIFY
P-Access-Network-Info: 3GPP-UTRAN-TDD;utran-cell-id-3gpp=123456A1BDS23
Content-Length: 0
9. INVITE NUT -> P-CSCF
INVITE sip:UEa2_public_1@under.test.com SIP/2.0
Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9;comp=sigcomp;
sigcomp-id="urn:uuid:00ffde92-0916-1952-2008fa82a473"
Route: <sip:p.a1.under.test.com:10001;lr>,<sip:orig@s.a1.under.test.com;lr>
Max-Forwards: 70
From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa2_public_1@under.test.com>
Call-ID: 3848276298220188511@under.test.com
CSeq: 1 INVITE
Contact: <sip:UEa1_public_1@node.under.test.com:1357;comp=sigcomp;
```



sigcomp-id=um:uuid:00ffde92-0916-1952-2008fa82a473>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

Require: sec-agree Proxy-Require: sec-agree

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

P-Access-Network-Info: 3GPP-UTRAN-TDD;utran-cell-id-3gpp=123456A1BDS23

Content-Type: application/sdp

Content-Length: 154

v=0

o=UEa1 2890844526 2890844526 IN IP6 node.under.test.com

s=

c=IN IP6 node.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

10. 100 Trying P-CSCF -> NUT

SIP/2.0 100 Trying

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf9;comp=sigcomp;

sigcomp-id="um:uuid:00ffde92-0916-1952-2008fa82a473"

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>
Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0

11. 180 Ringing P-CSCF -> NUT

SIP/2.0 180 Ringing

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf99;comp=sigcomp;

sigcomp-id="urn:uuid:00ffde92-0916-1952-2008fa82a473"

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314159

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE Content-Length: 0



12, 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74bf99;comp=sigcomp;

sigcomp-id="urn:uuid:00ffde92-0916-1952-2008fa82a473"

Record-Route: <sip:p.a2.under.test.com;lr>,<sip:s.a2.under.test.com;lr>,

<sip:s.a1.under.test.com;lr>,<sip:p.a1.under.test.com:10001;lr;comp=sigcomp;</p>

sigcomp-id=urn:uuid:11edab92-0916-1952-2008ec24b5678>

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314159

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Content-Type: application/sdp

Content-Length: 153

v=0

o=UEa2 2890844527 2890844527 IN IP6 nodea2.under.test.com

S=

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 3456 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

13. ACK NUT -> P-CSCF

ACK sip:UEa2_public_1@nodea2.under.test.com:22222 SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bK74b769;comp=sigcomp;

sigcomp-id="urn:uuid:00ffde92-0916-1952-2008fa82a473"

Route: <sip:p.a1.under.test.com:10001;lr;comp=sigcomp;

sigcomp-id=um:uuid:11edab92-0916-1952-2008ec24b5678>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314159

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK Content-Length: 0



14. BYE P-CSCF -> NUT

BYE sip:UEa1_public_1@node.under.test.com:1357;comp=sigcomp;

sigcomp-id=um:uuid:00ffde92-0916-1952-2008fa82a473 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c4.2;

comp=sigcomp;sigcomp-id="urn:uuid:11edab92-0916-1952-2008ec24b5678",

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bKnashds7;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c4.1;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghds8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds7

Max-Forwards: 66

From: <sip:UEa2_public_1@under.test.com>;tag=314159

To: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

15. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c4.2;comp=sigcomp;

sigcomp-id="um:uuid:11edab92-0916-1952-2008ec24b5678";received=3ffe:501:ffff:100::10,

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bKnashds7;received=3ffe:501:ffff:100::30,

SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c4.1;received=3ffe:501:ffff:200::30,

SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghds8;received=3ffe:501:ffff:200::10,

SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds7

From: <sip:UEa2_public_1@under.test.com>;tag=314159

To: <sip:UEa1 public 1@under.test.com>;tag=9fxced76sl

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE

P-Access-Network-Info: 3GPP-UTRAN-TDD;utran-cell-id-3gpp=123456A1BDS23

Content-Length: 0

16. NOTIFY P-CSCF -> NUT

NOTIFY sip:UEa1_public_1@node.under.test.com:1357;comp=sigcomp;

sigcomp-id=urn:uuid:00ffde92-0916-1952-2008fa82a473 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.1;

comp=sigcomp;sigcomp-id="urn:uuid:11edab92-0916-1952-2008ec24b5678",

SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.1;received=3ffe:501:ffff:100::30

Max-Forwards: 69

From: <sip:UEa1_public_1@under.test.com>;tag=151170

To: <sip:UEa1_public_1@under.test.com>;tag=31415



```
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 43 NOTIFY
Subscription-State: terminated
Event: reg
Content-Type: application/reginfo+xml
Contact: <sip:s.a1.under.test.com>
Content-Length: (...)
<?xml version="1.0"?>
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="1" state="full">
     <registration aor="sip:UEa1 public 1@under.test.com" id="as9" state="terminated">
       <contact id="76" state="terminated" event="rejected">
            <uri>sip:UEa1_public_1@node.under.test.com</uri>
       </contact>
     </registration>
   </reginfo>
17. 200 OK NUT -> P-CSCF
SIP/2.0 200 OK
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.1;comp=sigcomp;
sigcomp-id="um:uuid:11edab92-0916-1952-2008ec24b5678";received=3ffe:501:ffff:100::10,
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.1;received=3ffe:501:ffff:100::30
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 43 NOTIFY
P-Access-Network-Info: 3GPP-UTRAN-TDD;utran-cell-id-3gpp=123456A1BDS23
Content-Length: 0
18. NOTIFY P-CSCF -> NUT
NOTIFY sip:UEa1_public_1@node.under.test.com:1357;comp=sigcomp;
sigcomp-id=um:uuid:00ffde92-0916-1952-2008fa82a473 SIP/2.0
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.1;
comp=sigcomp;sigcomp-id="urn:uuid:11edab92-0916-1952-2008ec24b5678",
SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.1;received=3ffe:501:ffff:100::30
Max-Forwards: 69
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 44 NOTIFY
Subscription-State: terminated
```



[OBSERVABLE RESULTS]

*1: 5 SUBSCRIBE from NUT to P-CSCF

See generic_SUBSCRIBE

- Header Field:
 - * Contact

If UE would like to receive subsequent requests within the same dialog in the UAS->UAC direction compressed, UE SHOULD add the parameter comp=sigcomp to the URI in the Contact header field. [RFC3486-4-4]

If UE sends a compressed request, UE SHOULD add the parameter comp=sigcomp to the URI in the Contact header field[RFC3486-4-6]

A SIP/SigComp application placing its URI with the 'comp=sigcomp' parameter in a header field MUST add a 'sigcomp-id' parameter with its SIP/SigComp identifier to that URI.[RFC5049-9.1-9]

The SIP URI 'sigcomp-id' parameter MUST contain a URN [RFC2141]. [RFC5049-9.1-7]

URN MUST be persistent as long as the application stores compartment state related to other SIP/SigComp applications.[RFC5049-9.1-2]

* P-Access-Network-Info



UE SHALL insert a P-Access-Network-Info header into any request for a dialog, any subsequent request (except ACK requests and CANCEL requests) or response (except CANCEL responses) within a dialog or any request for a standalone method[TS24229-5.1-396]

* Via

If UE sends a compressed request, UE SHOULD add the parameter comp=sigcomp to the topmost entry of the Via header field. [RFC3486-4-8]

A SIP/SigComp application generating its own Via entry containing the 'comp=sigcomp' parameter MUST add a 'sigcomp-id' parameter with its SIP/SigComp identifier to that Via entry.[RFC5049-9.1-10]

The Via 'sigcomp-id' parameter MUST contain a URN [RFC2141]. [RFC5049-9.1-8]

URN MUST be persistent as long as the application stores compartment state related to other SIP/SigComp applications.[RFC5049-9.1-2]

- Sigcomp behavior:

UE SHOULD compress the requests and responses if UE generates these containning a P-Access-Network-Info header with a value of "3GPP-GERAN", "3GPP-UTRAN-FDD", "3GPP-UTRAN-TDD", "3GPP-E-UTRAN-TDD", "3GPP-E-UTRAN-TDD", "3GPP2-1X", "3GPP2-1X-HRPD", "3GPP2-UMB", "IEEE-802.11", "IEEE-802.11a", "IEEE-802.11b" or IEEE-802.11g", or "IEEE-802.11n".[TS24229-8.1-11]

*2: 8 200 OK to NOTIFY from NUT to P-CSCF

See generic_200-NOTIFY

- Header Field:

* P-Access-Network-Info

UE SHALL insert a P-Access-Network-Info header into any request for a dialog, any subsequent request (except ACK requests and CANCEL requests) or response (except CANCEL responses) within a dialog or any request for a standalone method.[TS24229-5.1-396]

UE SHALL insert a P-Access-Network-Info header into any response to a request for a dialog, any subsequent request (except CANCEL requests) or response (except CANCEL responses) within a dialog or



any response to a standalone method. [TS24229-5.1-447]

- Sigcomp behavior:

UE SHOULD compress the requests and responses if UE generates these containning a P-Access-Network-Info header with a value of "3GPP-GERAN", "3GPP-UTRAN-FDD", "3GPP-UTRAN-TDD", "3GPP-E-UTRAN-TDD", "3GPP-E-UTRAN-TDD", "3GPP2-1X", "3GPP2-1X-HRPD", "3GPP2-UMB", "IEEE-802.11", "IEEE-802.11b" or IEEE-802.11g", or "IEEE-802.11n".[TS24229-8.1-11]

If the topmost Via header field contains the parameter comp=sigcomp, the response SHOULD be compressed.[RFC3486-5-1]

*3: 9 INVITE from NUT to P-CSCF

See generic_INVITE

- Header Field:
 - * Contact

If UE would like to receive subsequent requests within the same dialog in the UAS->UAC direction compressed, UE SHOULD add the parameter comp=sigcomp to the URI in the Contact header field. [RFC3486-4-4]

If UE sends a compressed request, UE SHOULD add the parameter comp=sigcomp to the URI in the Contact header field[RFC3486-4-6]

A SIP/SigComp application placing its URI with the 'comp=sigcomp' parameter in a header field MUST add a 'sigcomp-id' parameter with its SIP/SigComp identifier to that URI.[RFC5049-9.1-9]

The SIP URI 'sigcomp-id' parameter MUST contain a URN [RFC2141]. [RFC5049-9.1-7]

URN MUST be persistent as long as the application stores compartment state related to other SIP/SigComp applications.[RFC5049-9.1-2]

* P-Access-Network-Info

UE SHALL insert a P-Access-Network-Info header into any request for a dialog, any subsequent request (except ACK requests and CANCEL requests) or response (except CANCEL responses) within a dialog or any request for a standalone method[TS24229-5.1-396]



* Via

If UE sends a compressed request, UE SHOULD add the parameter comp=sigcomp to the topmost entry of the Via header field. [RFC3486-4-8]

A SIP/SigComp application generating its own Via entry containing the 'comp=sigcomp' parameter MUST add a 'sigcomp-id' parameter with its SIP/SigComp identifier to that Via entry.[RFC5049-9.1-10]

The Via 'sigcomp-id' parameter MUST contain a URN [RFC2141]. [RFC5049-9.1-8]

URN MUST be persistent as long as the application stores compartment state related to other SIP/SigComp applications.[RFC5049-9.1-2]

- Sigcomp behavior:

UE SHOULD compress the requests and responses if UE generates these containning a P-Access-Network-Info header with a value of "3GPP-GERAN", "3GPP-UTRAN-FDD", "3GPP-UTRAN-TDD", "3GPP-E-UTRAN-FDD", "3GPP-E-UTRAN-TDD", "3GPP2-1X", "3GPP2-1X-HRPD", "3GPP2-UMB", "IEEE-802.11", "IEEE-802.11a", "IEEE-802.11b" or IEEE-802.11g", or "IEEE-802.11n".[TS24229-8.1-11]

*4: 13 ACK from NUT to P-CSCF

See generic_ACK

- Header Field:

* Via

If UE sends a compressed request, UE SHOULD add the parameter comp=sigcomp to the topmost entry of the Via header field. [RFC3486-4-8]

A SIP/SigComp application generating its own Via entry containing the 'comp=sigcomp' parameter MUST add a 'sigcomp-id' parameter with its SIP/SigComp identifier to that Via entry.[RFC5049-9.1-10]

The Via 'sigcomp-id' parameter MUST contain a URN [RFC2141]. [RFC5049-9.1-8]

URN MUST be persistent as long as the application stores compartment state related to other SIP/SigComp applications.[RFC5049-9.1-2]



- Sigcomp behavior:

If the next-hop URI contains the parameter comp=sigcomp, the UE SHOULD compress the request using SigComp.[RFC3486-4-1][RFC5049-9.4-1]

*5: 15 200 OK to BYE from NUT to P-CSCF

See generic 200-BYE

- Header Field:

* P-Access-Network-Info

UE SHALL insert a P-Access-Network-Info header into any request for a dialog, any subsequent request (except ACK requests and CANCEL requests) or response (except CANCEL responses) within a dialog or any request for a standalone method[TS24229-5.1-396]

UE SHALL insert a P-Access-Network-Info header into any response to a request for a dialog, any subsequent request (except CANCEL requests) or response (except CANCEL responses) within a dialog or any response to a standalone method.[TS24229-5.1-447]

- Sigcomp behavior:

UE SHOULD compress the requests and responses if UE generates these containning a P-Access-Network-Info header with a value of "3GPP-GERAN", "3GPP-UTRAN-FDD", "3GPP-UTRAN-TDD", "3GPP-E-UTRAN-TDD", "3GPP-E-UTRAN-TDD", "3GPP2-1X", "3GPP2-1X-HRPD", "3GPP2-UMB", "IEEE-802.11", "IEEE-802.11b" or IEEE-802.11g", or "IEEE-802.11n".[TS24229-8.1-11]

If the topmost Via header field contains the parameter comp=sigcomp, the response SHOULD be compressed.[RFC3486-5-1]

*6: 17 200 OK to NOTIFY from NUT to P-CSCF

See generic_200-NOTIFY

- Header Field:

* P-Access-Network-Info

UE SHALL insert a P-Access-Network-Info header into any request for a dialog, any subsequent request (except ACK requests and CANCEL requests) or response (except CANCEL responses) within a dialog or any request for a standalone method[TS24229-5.1-396]

UE SHALL insert a P-Access-Network-Info header into any response to



a request for a dialog, any subsequent request (except CANCEL requests) or response (except CANCEL responses) within a dialog or any response to a standalone method. [TS24229-5.1-447]

- Sigcomp behavior:

UE SHOULD compress the requests and responses if UE generates these containning a P-Access-Network-Info header with a value of "3GPP-GERAN", "3GPP-UTRAN-FDD", "3GPP-UTRAN-TDD", "3GPP-E-UTRAN-FDD", "3GPP-E-UTRAN-TDD", "3GPP2-1X", "3GPP2-1X-HRPD", "3GPP2-UMB", "IEEE-802.11", "IEEE-802.11a", "IEEE-802.11b" or IEEE-802.11g", or "IEEE-802.11n".[TS24229-8.1-11]

If the topmost Via header field contains the parameter comp=sigcomp, the response SHOULD be compressed.[RFC3486-5-1]

*7: 19 No response or send NACK

- Sigcomp behavior:

UE SHALL finish the compertment when the UE is deregistered.

[TS24229-8.1-6]

4.8.2 UE-SC-B-2-AKA - SigComp for IMS (Receive INVITE and send BYE)

[NAME]

UE-SC-B-2-AKA - SigComp for IMS (Receive INVITE and send BYE)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly uses SigComp to signaling.

- (1)To verify that the UEa1 properly compress SIP messages.
- (2) To verify that the UEa1 properly decompress compressed messages.

[REFERENCE]

TS24.229 8.1.2

TS24.229 8.1.3



RFC3486 4 RFC3486 5 RFC5049 9.1 RFC5049 9.4

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

public-user-id : sip:UEa1_public_1@under.test.com private-user-id : UEa1_private@under.test.com

Contact_URI : sip:UEa1_public_1@node.under.test.com

HOMENETWORK Domain : sip:under.test.com

[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com S-CSCFa1 : sip:s.a1.under.test.com

public-URI(UEa2) : sip:UEa2_public_1@under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000

 Router(R1)
 :
 3ffe:501:ffff:1000::1

 P-CSCFa1
 :
 3ffe:501:ffff:100::20

 I-CSCFa1
 :
 3ffe:501:ffff:100::30

 S-CSCFa1
 :
 3ffe:501:ffff:100::40

 DNS
 :
 3ffe:501:ffff:100::50

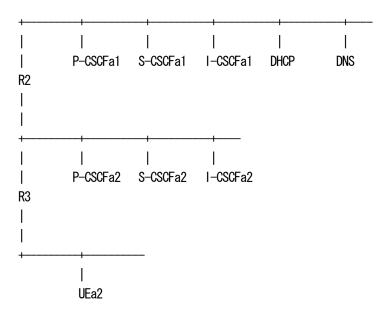
 UEa2
 : 3ffe:501:ffff:2000::1000

 P-CSCFa2
 : 3ffe:501:ffff:200::10

 I-CSCFa2
 : 3ffe:501:ffff:200::20

 S-CSCFa2
 : 3ffe:501:ffff:200::30

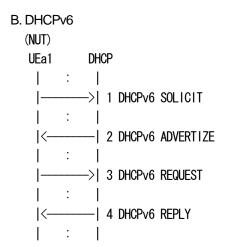




[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement



[PROCEDURE]

Home Network

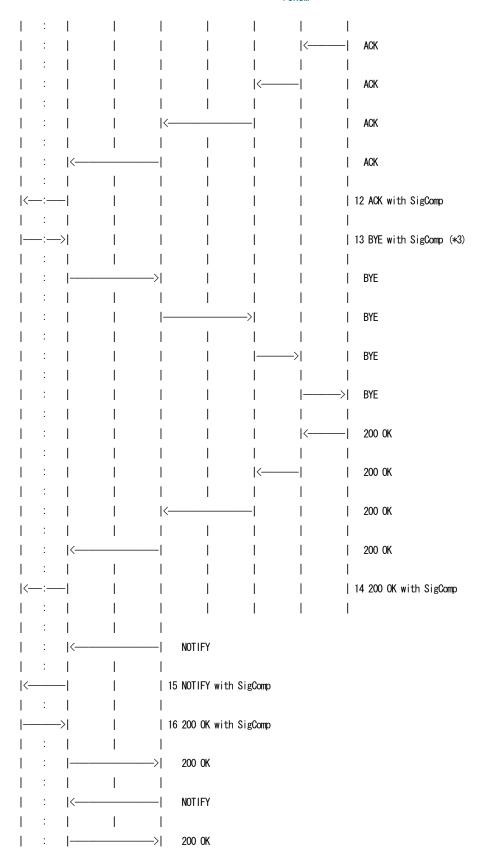


	REGISTER
:	REGISTER
: : 	401 Unauthorized
	401 Unauthorized
: \(2 401 Unauthorized with/without SigComp
: >	3 REGISTER with/without SigComp
: :	REGISTER
: : >	REGISTER
: : 	
:	200 OK
: <	4 200 OK with/without SigComp
: >	5 SUBSCRIBE with SigComp
: :	SUBSCRIBE
: : <	200 OK
: <	6 200 OK with SigComp
:	NOTIFY
: <	7 NOTIFY with SigComp
:	8 200 OK with SigComp
:	200 OK
	I-CSOFa2 S-CSOFa2 P-CSOFa2 UEa2
1 : 1 1	



	:	1		 	<	- 1	INVITE
	· : ·				- -	> 	100 Trying
	· : ·			 <			INVITE
	:	1		1	>		100 Trying
	:	1	<	 - 	1 1		INVITE
	:	1	 	 >	1 1		100 Trying
	:	<	 		I I	 	INVITE
	: :	 	>I >I		1 I	 	100 Trying
 <-	: -:				I I	 	9 INVITE with SigComp
	: :		 >			 	100 Trying
 	: -:>	 			I I	 	10 180 Ringing with SigComp (*1)
	: :		 >	 	I I	 	180 Ringing
	:	1	 	->	I I	 	180 Ringing
	: :	 	l	 >		1	180 Ringing
	: :	 	l	1	>	1	180 Ringing
	: :	 			-	>	180 Ringing
 	: :>	 		 	1 I		11 200 OK with SigComp (*2)
	: :				I I		200 OK
	: :	 		 ->	1 I		200 OK
	: :	 		 >			200 OK
 	: :	 		 	>	 	200 OK
	: :	 	 	 	-	——> ——>	200 OK







1 NUT sends REGISTER with/without SigComp

2 NUT receives 401 Unauthorized with/without SigComp

3 NUT sends REGISTER with/without SigComp

4 NUT receives 200 OK with/without SigComp

5 NUT sends SUBSCRIBE with SigComp

6 NUT receives 200 OK with SigComp

7 NUT receives NOTIFY with SigComp

8 NUT sends 200 OK with SigComp

9 NUT receives INVITE with SigComp

10 NUT sends 180 Ringing with SigComp

11 NUT sends 200 OK with SigComp

12 NUT receives ACK with SigComp

13 NUT sends BYE with SigComp

14 NUT receives 200 OK with SigComp

15 NUT receives NOTIFY with SigComp

16 NUT sends 200 OK with SigComp

=== Message example ===

As regards the message 1-8, please refer to the message 1-8 in UE-SC-B-1-AKA.

9. INVITE P-CSCFa1 -> NUT

INVITE sip:UEa1_public_1@node.under.test.com:1357;

comp=sigcomp;sigcomp-id=urn:uuid:00ffde92-0916-1952-2008fa82a473 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

comp=sigcomp;sigcomp-id="urn:uuid:11edab92-0916-1952-2008ec24b5678",SIP/2.0/UDP

s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,SIP/2.0/UDP

i.a1.under.test.com;branch=z9hG4bKnashds7;received=3ffe:501:ffff:100::20,SIP/2.0/UDP

s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP

p.a2.under.test.com;branch=z9hG4bKnaghc45;received=3ffe:501:ffff:200::10,SIP/2.0/UDP

[3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds7

Record-Route: <sip:p.a1.under.test.com:10001;lr;comp=sigcomp;sigcomp-id=urn:

uuid:11edab92-0916-1952-2008ec24b5678>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 65

From: <sip:UEa2_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa1_public_1@under.test.com>

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>

570



Content-Type: application/sdp

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Accept: application/sdp,application/3gpp-ims+xml

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

Content-Length: 154

v=0

o=UEa2 2890844526 2890844526 IN IP6 nodea2.under.test.com

S=

c=IN IP6 nodea2.under.test.com

t=0.0

m=audio 49172 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

10. 180 Ringing NUT -> P-CSCFa1

SIP/2.0 180 Ringing

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

comp=sigcomp;sigcomp-id="urn:uuid:11edab92-0916-1952-2008ec24b5678";

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds7;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45;

received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds7

From: <sip:UEa2_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=2i3rjojgp2hopr

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

P-Access-Network-Info: 3GPP-UTRAN-TDD;utran-cell-id-3gpp=123456A1BDS23

Content-Length: 0

11. 200 OK NUT -> P-CSCFa1

SIP/2.0 200 OK

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

comp=sigcomp;sigcomp-id="urn:uuid:11edab92-0916-1952-2008ec24b5678";

received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK431e418c4.2;

received=3ffe:501:ffff:100::30,SIP/2.0/UDP i.a1.under.test.com;branch=z9hG4bKnashds7;

received=3ffe:501:ffff:100::20,SIP/2.0/UDP s.a2.under.test.com;branch=z9hG4bK721e418c657u;

received=3ffe:501:ffff:200::30,SIP/2.0/UDP p.a2.under.test.com;branch=z9hG4bKnaghc45;

571



received=3ffe:501:ffff:200::10,SIP/2.0/UDP [3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds7

Record-Route: <sip:p.a1.under.test.com:10001;lr;comp=sigcomp;

sigcomp-id=urn:uuid:11edab92-0916-1952-2008ec24b5678>,

<sip:s.a1.under.test.com;lr>,<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

From: <sip:UEa2_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=2i3rjojgp2hopr

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact: <sip:UEa1_public_1@node.under.test.com:1357;

comp=sigcomp;sigcomp-id=um:uuid:00ffde92-0916-1952-2008fa82a473>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

P-Access-Network-Info: 3GPP-UTRAN-TDD;utran-cell-id-3gpp=123456A1BDS23

Content-Type: application/sdp

Content-Length: 153

v=0

o=UEa1 2890844526 2890844526 IN IP6 node.under.test.com

S=

c=IN IP6 node.under.test.com

t=0.0

m=audio 3456 RTP/AVP 0

b=AS:75

a=rtpmap:0 PCMU/8000

12. ACK P-CSCFa1 -> NUT

ACK sip:UEa1_public_1@node.under.test.com:1357;

comp=sigcomp;sigcomp-id=urn:uuid:00ffde92-0916-1952-2008fa82a473 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;

comp=sigcomp;sigcomp-id="urn:uuid:11edab92-0916-1952-2008ec24b5678",SIP/2.0/UDP

s.a1.under.test.com;branch=z9hG4bK431e418c4.2;received=3ffe:501:ffff:100::30,SIP/2.0/UDP

s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP

p.a2.under.test.com;branch=z9hG4bKnaghc45;received=3ffe:501:ffff:200::10,SIP/2.0/UDP

[3ffe:501:ffff:2000::1000]:22222;branch=z9hG4bKnashds7

Max-Forwards: 66

From: <sip:UEa2_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa1_public_1@under.test.com>;tag=314159

Call-ID: 3848276298220188511@under.test.com

CSeq: 1 ACK

Content-Length: 0



13. BYE NUT -> P-CSCFa1

BYE sip:UEa2_public_1@nodea2.under.test.com:22222 SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashlpswmfp;

comp=sigcomp;sigcomp-id="urn:uuid:00ffde92-0916-1952-2008fa82a473"

Route: <sip:p.a1.under.test.com:10001;lr;comp=sigcomp;sigcomp-id=um:uuid:

11edab92-0916-1952-2008ec24b5678>,<sip:s.a1.under.test.com;lr>,

<sip:s.a2.under.test.com;lr>,<sip:p.a2.under.test.com;lr>

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314159

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=256; spi-s=257; port-c=10002; port-s=10001

Require: sec-agree

Proxy-Require: sec-agree

P-Access-Network-Info: 3GPP-UTRAN-TDD;utran-cell-id-3gpp=123456A1BDS23

Content-Length: 0

14. 200 OK P-CSCFa1 -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashlpswmfp;comp=sigcomp;

sigcomp-id="urn:uuid:00ffde92-0916-1952-2008fa82a473"

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76sl

To: <sip:UEa2_public_1@under.test.com>;tag=314159

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE Content-Length: 0

15. NOTIFY P-CSCFa1 -> NUT

NOTIFY sip:UEa1_public_1@node.under.test.com:1357;comp=sigcomp;sigcomp-id=urn:

uuid:00ffde92-0916-1952-2008fa82a473 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.1;

comp=sigcomp;sigcomp-id="urn:uuid:11edab92-0916-1952-2008ec24b5678",SIP/2.0/UDP

s.a1.under.test.com;branch=z9hG4bK332b23.1;received=3ffe:501:ffff:100::30

Max-Forwards: 69

From: <sip:UEa1_public_1@under.test.com>;tag=151170

To: <sip:UEa1_public_1@under.test.com>;tag=31415

Call-ID: b89rjhnedlrfjflslj40a222@under.test.com

CSeq: 43 NOTIFY

Subscription-State: terminated

'3



```
Event: reg
Content-Type: application/reginfo+xml
Contact: <sip:s.a1.under.test.com>
Content-Length: (...)
<?xml version="1.0"?>
<reginfo xmlns="urn:ietf:params:xml:ns:reginfo" version="1" state="full">
     <registration aor="sip:UEa1_public_1@under.test.com" id="as9" state="terminated">
       <contact id="76" state="terminated" event="rejected">
           <uri>sip:UEa1_public_1@node.under.test.com</uri>
       </contact>
     </registration>
   </reginfo>
16. 200 OK NUT -> P-CSCFa1
SIP/2.0 200 OK
Via: SIP/2.0/UDP p.a1.under.test.com:10001;branch=z9hG4bK240f34.1;
comp=sigcomp;sigcomp-id="urn:uuid:11edab92-0916-1952-2008ec24b5678";
received=3ffe:501:ffff:100::10,SIP/2.0/UDP s.a1.under.test.com;branch=z9hG4bK332b23.1;
received=3ffe:501:ffff:100::30
From: <sip:UEa1_public_1@under.test.com>;tag=151170
To: <sip:UEa1_public_1@under.test.com>;tag=31415
Call-ID: b89rjhnedlrfjflslj40a222@under.test.com
CSeq: 43 NOTIFY
P-Access-Network-Info: 3GPP-UTRAN-TDD;utran-cell-id-3gpp=123456A1BDS23
Content-Length: 0
[OBSERVABLE RESULTS]
*1: 10 180 Ringing from NUT to P-CSCF
      See generic_180-INVITE
        - Header Field:
          * P-Access-Network-Info
            UE SHALL insert a P-Access-Network-Info header into any request for
            a dialog, any subsequent request (except ACK requests and CANCEL
            requests) or response (except CANCEL responses) within a dialog or
            any request for a standalone method[TS24229-5.1-396]
```



UE SHALL insert a P-Access-Network-Info header into any response to a request for a dialog, any subsequent request (except CANCEL requests) or response (except CANCEL responses) within a dialog or any response to a standalone method.[TS24229-5.1-447]

- Sigcomp behavior:

UE SHOULD compress the requests and responses if UE generates these containning a P-Access-Network-Info header with a value of "3GPP-GERAN", "3GPP-UTRAN-FDD", "3GPP-UTRAN-TDD", "3GPP-E-UTRAN-TDD", "3GPP2-1X", "3GPP2-1X-HRPD", "3GPP2-UMB", "IEEE-802.11", "IEEE-802.11a", "IEEE-802.11b" or IEEE-802.11g", or "IEEE-802.11n".[TS24229-8.1-11]

If the topmost Via header field contains the parameter comp=sigcomp, the response SHOULD be compressed.[RFC3486-5-1]

*2: 11 200 OK from NUT to P-CSCF

See generic_200-INVITE

- Header Field:
 - * Contact

UE SHOULD add comp=sigcomp to the Contact header field of the response if the URI of the next upstream hop in the route set contained the parameter comp=sigcomp.[RFC3486-5-5]

A SIP/SigComp application placing its URI with the 'comp=sigcomp' parameter in a header field MUST add a 'sigcomp-id' parameter with its SIP/SigComp identifier to that URI.[RFC5049-9.1-9]

The SIP URI 'sigcomp-id' parameter MUST contain a URN [RFC2141]. [RFC5049-9.1-7]

URN MUST be persistent as long as the application stores compartment state related to other SIP/SigComp applications.[RFC5049-9.1-2]

* P-Access-Network-Info

UE SHALL insert a P-Access-Network-Info header into any request for a dialog, any subsequent request (except ACK requests and CANCEL requests) or response (except CANCEL responses) within a dialog or any request for a standalone method[TS24229-5.1-396]



UE SHALL insert a P-Access-Network-Info header into any response to a request for a dialog, any subsequent request (except CANCEL requests) or response (except CANCEL responses) within a dialog or any response to a standalone method.[TS24229-5.1-447]

- Sigcomp behavior:

UE SHOULD compress the requests and responses if UE generates these containning a P-Access-Network-Info header with a value of "3GPP-GERAN", "3GPP-UTRAN-FDD", "3GPP-UTRAN-TDD", "3GPP-E-UTRAN-TDD", "3GPP2-1X", "3GPP2-1X-HRPD", "3GPP2-UMB", "IEEE-802.11", "IEEE-802.11a", "IEEE-802.11b" or IEEE-802.11g", or "IEEE-802.11n".[TS24229-8.1-11]

If the topmost Via header field contains the parameter comp=sigcomp, the response SHOULD be compressed.[RFC3486-5-1]

*3: 13 BYE from NUT to P-CSCF

See generic_BYE

- Header Field:
 - * P-Access-Network-Info UE SHALL insert a P-Access-Network-Info header into any request for a dialog, any subsequent request (except ACK requests and CANCEL requests) or response (except CANCEL responses) within a dialog or
 - any request for a standalone method[TS24229-5.1-396]

* Via

If UE sends a compressed request, UE SHOULD add the parameter comp=sigcomp to the topmost entry of the Via header field. [RFC3486-4-8]

A SIP/SigComp application generating its own Via entry containing the 'comp=sigcomp' parameter MUST add a 'sigcomp-id' parameter with its SIP/SigComp identifier to that Via entry.[RFC5049-9.1-10]

The Via 'sigcomp-id' parameter MUST contain a URN [RFC2141]. [RFC5049-9.1-8]

URN MUST be persistent as long as the application stores compartment state related to other SIP/SigComp applications.[RFC5049-9.1-2]



- Sigcomp behavior:

UE SHOULD compress the requests and responses if UE generates these containning a P-Access-Network-Info header with a value of "3GPP-GERAN", "3GPP-UTRAN-FDD", "3GPP-UTRAN-TDD", "3GPP-E-UTRAN-TDD", "3GPP2-1X", "3GPP2-1X-HRPD", "3GPP2-UMB", "IEEE-802.11", "IEEE-802.11a", "IEEE-802.11b" or IEEE-802.11g", or "IEEE-802.11n".[TS24229-8.1-11]

If the next-hop URI contains the parameter comp=sigcomp, the UE SHOULD compress the request using SigComp.[RFC3486-4-1][RFC5049-9.4-1]



Appendix Mapping table

Following number described in "OBSERVABLE RESULTS" corresponds to the section number of reference documents. e.g.) TS24229-5.1-41 > TS24.2295.1.1.2.1

NO.	Reference	NO.	Reference	NO.	Reference	NO.	Reference
TS24229-4.1-1	TS24.229 4.1	TS24229-4.1-37	TS24.229 4.1	TS24229-4.4-13	TS24.229 4.4.10	TS24229-5.1-12	TS24.229 5.1.1.1A
TS24229-4.1-2	TS24.229 4.1	TS24229-4.1-38	TS24.229 4.1	TS24229-4.4-14	TS24.229 4.4.10	TS24229-5.1-13	TS24.229 5.1.1.1A
TS24229-4.1-3	TS24.229 4.1	TS24229-4.1-39	TS24.229 4.1	TS24229-4.4-15	TS24.229 4.4.10	TS24229-5.1-14	TS24.229 5.1.1.1A
TS24229-4.1-4	TS24.229 4.1	TS24229-4.2-1	TS24.229 4.2	TS24229-4.4-16	TS24.229 4.4.10	TS24229-5.1-15	TS24.229 5.1.1.1A
TS24229-4.1-5	TS24.229 4.1	TS24229-4.2-2	TS24.229 4.2	TS24229-4.5-1	TS24.229 4.5.3.2	TS24229-5.1-16	TS24.229 5.1.1.1A
TS24229-4.1-6	TS24.229 4.1	TS24229-4.2-3	TS24.229 4.2	TS24229-4.5-2	TS24.229 4.5.4	TS24229-5.1-17	TS24.229 5.1.1.1B.1
TS24229-4.1-7	TS24.229 4.1	TS24229-4.2-4	TS24.229 4.2	TS24229-4.5-3	TS24.229 4.5.4	TS24229-5.1-18	TS24.229 5.1.1.1B.1
TS24229-4.1-8	TS24.229 4.1	TS24229-4.2-5	TS24.229 4.2	TS24229-4.5-4	TS24.229 4.5.5	TS24229-5.1-19	TS24.229 5.1.1.1B.2
TS24229-4.1-9	TS24.229 4.1	TS24229-4.2-6	TS24.229 4.2	TS24229-4.5-5	TS24.229 4.5.5	TS24229-5.1-20	TS24.229 5.1.1.2.1
TS24229-4.1-10	TS24.229 4.1	TS24229-4.2-7	TS24.229 4.2	TS24229-4.5-6	TS24.229 4.5.5	TS24229-5.1-21	TS24.229 5.1.1.2.1
TS24229-4.1-11	TS24.229 4.1	TS24229-4.2-8	TS24.229 4.2	TS24229-4.5-7	TS24.229 4.5.5	TS24229-5.1-22	TS24.229 5.1.1.2.1
TS24229-4.1-12	TS24.229 4.1	TS24229-4.2-9	TS24.229 4.2	TS24229-4.5-8	TS24.229 4.5.5	TS24229-5.1-23	TS24.229 5.1.1.2.1
TS24229-4.1-13	TS24.229 4.1	TS24229-4.2-10	TS24.229 4.2	TS24229-4.7-1	TS24.229 4.7	TS24229-5.1-24	TS24.229 5.1.1.2.1
TS24229-4.1-14	TS24.229 4.1	TS24229-4.2-11	TS24.229 4.2	TS24229-4.7-2	TS24.229 4.7	TS24229-5.1-25	TS24.229 5.1.1.2.1
TS24229-4.1-15	TS24.229 4.1	TS24229-4.2-12	TS24.229 4.2A	TS24229-4.8-1	TS24.229 4.8.1	TS24229-5.1-26	TS24.229 5.1.1.2.1
TS24229-4.1-16	TS24.229 4.1	TS24229-4.2-13	TS24.229 4.2A	TS24229-4.9-1	TS24.229 4.9.1	TS24229-5.1-27	TS24.229 5.1.1.2.1
TS24229-4.1-17	TS24.229 4.1	TS24229-4.2-14	TS24.229 4.2A	TS24229-4.9-2	TS24.229 4.9.3.1	TS24229-5.1-28	TS24.229 5.1.1.2.1
TS24229-4.1-18	TS24.229 4.1	TS24229-4.2-15	TS24.229 4.2A	TS24229-4.9-3	TS24.229 4.9.3.1	TS24229-5.1-29	TS24.229 5.1.1.2.1
TS24229-4.1-19	TS24.229 4.1	TS24229-4.2-16	TS24.229 4.2B	TS24229-4.9-4	TS24.229 4.9.3.2	TS24229-5.1-30	TS24.229 5.1.1.2.1
TS24229-4.1-20	TS24.229 4.1	TS24229-4.2-17	TS24.229 4.2B	TS24229-4.9-5	TS24.229 4.9.3.3	TS24229-5.1-31	TS24.229 5.1.1.2.1
TS24229-4.1-21	TS24.229 4.1	TS24229-4.2-18	TS24.229 4.2B	TS24229-4.9-6	TS24.229 4.9.3.3	TS24229-5.1-32	TS24.229 5.1.1.2.1
TS24229-4.1-22	TS24.229 4.1	TS24229-4.2-19	TS24.229 4.2B	TS24229-4.9-7	TS24.229 4.9.3.3	TS24229-5.1-33	TS24.229 5.1.1.2.1
TS24229-4.1-23	TS24.229 4.1	TS24229-4.3-1	TS24.229 4.3	TS24229-4.9-8	TS24.229 4.9.3.3	TS24229-5.1-34	TS24.229 5.1.1.2.1
TS24229-4.1-24	TS24.229 4.1	TS24229-4.3-2	TS24.229 4.3	TS24229-4.9-9	TS24.229 4.9.3.3	TS24229-5.1-35	TS24.229 5.1.1.2.1
TS24229-4.1-25	TS24.229 4.1	TS24229-4.4-1	TS24.229 4.4.1	TS24229-4.9-10	TS24.229 4.9.3.3	TS24229-5.1-36	TS24.229 5.1.1.2.1
TS24229-4.1-26	TS24.229 4.1	TS24229-4.4-2	TS24.229 4.4.1	TS24229-5.1-1	TS24.229 5.1.0	TS24229-5.1-37	TS24.229 5.1.1.2.1
TS24229-4.1-27	TS24.229 4.1	TS24229-4.4-3	TS24.229 4.4.1	TS24229-5.1-2	TS24.229 5.1.1.1	TS24229-5.1-38	TS24.229 5.1.1.2.1
TS24229-4.1-28	TS24.229 4.1	TS24229-4.4-4	TS24.229 4.4.1	TS24229-5.1-3	TS24.229 5.1.1.1	TS24229-5.1-39	TS24.229 5.1.1.2.1
TS24229-4.1-29	TS24.229 4.1	TS24229-4.4-5	TS24.229 4.4.3	TS24229-5.1-4	TS24.229 5.1.1.1	TS24229-5.1-40	TS24.229 5.1.1.2.1
TS24229-4.1-30	TS24.229 4.1	TS24229-4.4-6	TS24.229 4.4.6	TS24229-5.1-5	TS24.229 5.1.1.1	TS24229-5.1-41	TS24.229 5.1.1.2.1
TS24229-4.1-31	TS24.229 4.1	TS24229-4.4-7	TS24.229 4.4.6	TS24229-5.1-6	TS24.229 5.1.1.1	TS24229-5.1-42	TS24.229 5.1.1.2.1
TS24229-4.1-32	TS24.229 4.1	TS24229-4.4-8	TS24.229 4.4.6	TS24229-5.1-7	TS24.229 5.1.1.1	TS24229-5.1-43	TS24.229 5.1.1.2.1
TS24229-4.1-33	TS24.229 4.1	TS24229-4.4-9	TS24.229 4.4.7	TS24229-5.1-8	TS24.229 5.1.1.1	TS24229-5.1-44	TS24.229 5.1.1.2.1
TS24229-4.1-34	TS24.229 4.1	TS24229-4.4-10	TS24.229 4.4.7	TS24229-5.1-9	TS24.229 5.1.1.1	TS24229-5.1-45	TS24.229 5.1.1.2.1
TS24229-4.1-35	TS24.229 4.1	TS24229-4.4-11	TS24.229 4.4.7	TS24229-5.1-10	TS24.229 5.1.1.1	TS24229-5.1-46	TS24.229 5.1.1.2.1
TS24229-4.1-36	TS24.229 4.1	TS24229-4.4-12	TS24.229 4.4.10	TS24229-5.1-11	TS24.229 5.1.1.1A	TS24229-5.1-47	TS24.229 5.1.1.2.1



NO.	Reference	NO.	Reference	NO.	Reference	NO.	Reference
TS24229-5.1-48	TS24.229 5.1.1.2.1	TS24229-5.1-89	TS24.229 5.1.1.2.2	TS24229-5.1-130	TS24.229 5.1.1.3	TS24229-5.1-171	TS24.229 5.1.1.4.1
TS24229-5.1-49	TS24.229 5.1.1.2.1	TS24229-5.1-90	TS24.229 5.1.1.2.2	TS24229-5.1-131	TS24.229 5.1.1.3	TS24229-5.1-172	TS24.229 5.1.1.4.1
TS24229-5.1-50	TS24.229 5.1.1.2.1	TS24229-5.1-91	TS24.229 5.1.1.2.2	TS24229-5.1-132	TS24.229 5.1.1.3	TS24229-5.1-173	TS24.229 5.1.1.4.1
TS24229-5.1-51	TS24.229 5.1.1.2.1	TS24229-5.1-92	TS24.229 5.1.1.2.2	TS24229-5.1-133	TS24.229 5.1.1.3	TS24229-5.1-174	TS24.229 5.1.1.4.1
TS24229-5.1-52	TS24.229 5.1.1.2.1	TS24229-5.1-93	TS24.229 5.1.1.2.3	TS24229-5.1-134	TS24.229 5.1.1.3	TS24229-5.1-175	TS24.229 5.1.1.4.1
TS24229-5.1-53	TS24.229 5.1.1.2.1	TS24229-5.1-94	TS24.229 5.1.1.2.3	TS24229-5.1-135	TS24.229 5.1.1.3	TS24229-5.1-176	TS24.229 5.1.1.4.1
TS24229-5.1-54	TS24.229 5.1.1.2.1	TS24229-5.1-95	TS24.229 5.1.1.2.3	TS24229-5.1-136	TS24.229 5.1.1.3	TS24229-5.1-177	TS24.229 5.1.1.4.1
TS24229-5.1-55	TS24.229 5.1.1.2.1	TS24229-5.1-96	TS24.229 5.1.1.2.3	TS24229-5.1-137	TS24.229 5.1.1.3A	TS24229-5.1-178	TS24.229 5.1.1.4.1
TS24229-5.1-56	TS24.229 5.1.1.2.1	TS24229-5.1-97	TS24.229 5.1.1.2.3	TS24229-5.1-138	TS24.229 5.1.1.3A	TS24229-5.1-179	TS24.229 5.1.1.4.1
TS24229-5.1-57	TS24.229 5.1.1.2.1	TS24229-5.1-98	TS24.229 5.1.1.2.3	TS24229-5.1-139	TS24.229 5.1.1.3A	TS24229-5.1-180	TS24.229 5.1.1.4.1
TS24229-5.1-58	TS24.229 5.1.1.2.1	TS24229-5.1-99	TS24.229 5.1.1.2.3	TS24229-5.1-140	TS24.229 5.1.1.3A	TS24229-5.1-181	TS24.229 5.1.1.4.1
TS24229-5.1-59	TS24.229 5.1.1.2.1	TS24229-5.1-100	TS24.229 5.1.1.2.3	TS24229-5.1-141	TS24.229 5.1.1.3A	TS24229-5.1-182	TS24.229 5.1.1.4.1
TS24229-5.1-60	TS24.229 5.1.1.2.1	TS24229-5.1-101	TS24.229 5.1.1.2.3	TS24229-5.1-142	TS24.229 5.1.1.3A	TS24229-5.1-183	TS24.229 5.1.1.4.2
TS24229-5.1-61	TS24.229 5.1.1.2.1	TS24229-5.1-102	TS24.229 5.1.1.2.4	TS24229-5.1-143	TS24.229 5.1.1.3A	TS24229-5.1-184	TS24.229 5.1.1.4.2
TS24229-5.1-62	TS24.229 5.1.1.2.1	TS24229-5.1-103	TS24.229 5.1.1.2.4	TS24229-5.1-144	TS24.229 5.1.1.3A	TS24229-5.1-185	TS24.229 5.1.1.4.2
TS24229-5.1-63	TS24.229 5.1.1.2.1	TS24229-5.1-104	TS24.229 5.1.1.2.4	TS24229-5.1-145	TS24.229 5.1.1.3A	TS24229-5.1-186	TS24.229 5.1.1.4.2
TS24229-5.1-64	TS24.229 5.1.1.2.1	TS24229-5.1-105	TS24.229 5.1.1.2.4	TS24229-5.1-146	TS24.229 5.1.1.4.1	TS24229-5.1-187	TS24.229 5.1.1.4.2
TS24229-5.1-65	TS24.229 5.1.1.2.1	TS24229-5.1-106	TS24.229 5.1.1.2.4	TS24229-5.1-147	TS24.229 5.1.1.4.1	TS24229-5.1-188	TS24.229 5.1.1.4.2
TS24229-5.1-66	TS24.229 5.1.1.2.1	TS24229-5.1-107	TS24.229 5.1.1.2.4	TS24229-5.1-148	TS24.229 5.1.1.4.1	TS24229-5.1-189	TS24.229 5.1.1.4.2
TS24229-5.1-67	TS24.229 5.1.1.2.1	TS24229-5.1-108	TS24.229 5.1.1.2.4	TS24229-5.1-149	TS24.229 5.1.1.4.1	TS24229-5.1-190	TS24.229 5.1.1.4.2
TS24229-5.1-68	TS24.229 5.1.1.2.1	TS24229-5.1-109	TS24.229 5.1.1.2.4	TS24229-5.1-150	TS24.229 5.1.1.4.1	TS24229-5.1-191	TS24.229 5.1.1.4.2
TS24229-5.1-69	TS24.229 5.1.1.2.2	TS24229-5.1-110	TS24.229 5.1.1.2.4	TS24229-5.1-151	TS24.229 5.1.1.4.1	TS24229-5.1-192	TS24.229 5.1.1.4.2
TS24229-5.1-70	TS24.229 5.1.1.2.2	TS24229-5.1-111	TS24.229 5.1.1.2.5	TS24229-5.1-152	TS24.229 5.1.1.4.1	TS24229-5.1-193	TS24.229 5.1.1.4.3
TS24229-5.1-71	TS24.229 5.1.1.2.2	TS24229-5.1-112	TS24.229 5.1.1.2.6	TS24229-5.1-153	TS24.229 5.1.1.4.1	TS24229-5.1-194	TS24.229 5.1.1.4.3
TS24229-5.1-72	TS24.229 5.1.1.2.2	TS24229-5.1-113	TS24.229 5.1.1.2.6	TS24229-5.1-154	TS24.229 5.1.1.4.1	TS24229-5.1-195	TS24.229 5.1.1.4.3
TS24229-5.1-73	TS24.229 5.1.1.2.2	TS24229-5.1-114	TS24.229 5.1.1.2.6	TS24229-5.1-155	TS24.229 5.1.1.4.1	TS24229-5.1-196	TS24.229 5.1.1.4.3
TS24229-5.1-74	TS24.229 5.1.1.2.2	TS24229-5.1-115	TS24.229 5.1.1.2.6	TS24229-5.1-156	TS24.229 5.1.1.4.1	TS24229-5.1-197	TS24.229 5.1.1.4.3
TS24229-5.1-75	TS24.229 5.1.1.2.2	TS24229-5.1-116	TS24.229 5.1.1.2.6	TS24229-5.1-157	TS24.229 5.1.1.4.1	TS24229-5.1-198	TS24.229 5.1.1.4.3
TS24229-5.1-76	TS24.229 5.1.1.2.2	TS24229-5.1-117	TS24.229 5.1.1.2.6	TS24229-5.1-158	TS24.229 5.1.1.4.1	TS24229-5.1-199	TS24.229 5.1.1.4.3
TS24229-5.1-77	TS24.229 5.1.1.2.2	TS24229-5.1-118	TS24.229 5.1.1.3	TS24229-5.1-159	TS24.229 5.1.1.4.1	TS24229-5.1-200	TS24.229 5.1.1.4.4
TS24229-5.1-78	TS24.229 5.1.1.2.2	TS24229-5.1-119	TS24.229 5.1.1.3	TS24229-5.1-160	TS24.229 5.1.1.4.1	TS24229-5.1-201	TS24.229 5.1.1.4.4
TS24229-5.1-79	TS24.229 5.1.1.2.2	TS24229-5.1-120	TS24.229 5.1.1.3	TS24229-5.1-161	TS24.229 5.1.1.4.1	TS24229-5.1-202	TS24.229 5.1.1.4.4
TS24229-5.1-80	TS24.229 5.1.1.2.2	TS24229-5.1-121	TS24.229 5.1.1.3	TS24229-5.1-162	TS24.229 5.1.1.4.1	TS24229-5.1-203	TS24.229 5.1.1.4.4
TS24229-5.1-81	TS24.229 5.1.1.2.2	TS24229-5.1-122	TS24.229 5.1.1.3	TS24229-5.1-163	TS24.229 5.1.1.4.1	TS24229-5.1-204	TS24.229 5.1.1.4.4
TS24229-5.1-82	TS24.229 5.1.1.2.2	TS24229-5.1-123	TS24.229 5.1.1.3	TS24229-5.1-164	TS24.229 5.1.1.4.1	TS24229-5.1-205	TS24.229 5.1.1.4.4
TS24229-5.1-83	TS24.229 5.1.1.2.2	TS24229-5.1-124	TS24.229 5.1.1.3	TS24229-5.1-165	TS24.229 5.1.1.4.1	TS24229-5.1-206	TS24.229 5.1.1.4.4
TS24229-5.1-84	TS24.229 5.1.1.2.2	TS24229-5.1-125	TS24.229 5.1.1.3	TS24229-5.1-166	TS24.229 5.1.1.4.1	TS24229-5.1-207	TS24.229 5.1.1.4.4
TS24229-5.1-85	TS24.229 5.1.1.2.2	TS24229-5.1-126	TS24.229 5.1.1.3	TS24229-5.1-167	TS24.229 5.1.1.4.1	TS24229-5.1-208	TS24.229 5.1.1.4.5
TS24229-5.1-86	TS24.229 5.1.1.2.2	TS24229-5.1-127	TS24.229 5.1.1.3	TS24229-5.1-168	TS24.229 5.1.1.4.1	TS24229-5.1-209	TS24.229 5.1.1.4.6
TS24229-5.1-87	TS24.229 5.1.1.2.2	TS24229-5.1-128	TS24.229 5.1.1.3	TS24229-5.1-169	TS24.229 5.1.1.4.1	TS24229-5.1-210	TS24.229 5.1.1.4.6
TS24229-5.1-88	TS24.229 5.1.1.2.2	TS24229-5.1-129	TS24.229 5.1.1.3	TS24229-5.1-170	TS24.229 5.1.1.4.1	TS24229-5.1-211	TS24.229 5.1.1.4.6



NO.	Reference	NO.	Reference	NO.	Reference	NO.	Reference
TS24229-5.1-212	TS24.229 5.1.1.4.6	TS24229-5.1-253	TS24.229 5.1.1.5.3	TS24229-5.1-294	TS24.229 5.1.1.6.1	TS24229-5.1-335	TS24.229 5.1.1.6.6
TS24229-5.1-213	TS24.229 5.1.1.4.6	TS24229-5.1-254	TS24.229 5.1.1.5.4	TS24229-5.1-295	TS24.229 5.1.1.6.1	TS24229-5.1-336	TS24.229 5.1.1.6.6
TS24229-5.1-214	TS24.229 5.1.1.4.6	TS24229-5.1-255	TS24.229 5.1.1.5.4	TS24229-5.1-296	TS24.229 5.1.1.6.1	TS24229-5.1-337	TS24.229 5.1.1.6.6
TS24229-5.1-215	TS24.229 5.1.1.5.1	TS24229-5.1-256	TS24.229 5.1.1.5.4	TS24229-5.1-297	TS24.229 5.1.1.6.1	TS24229-5.1-338	TS24.229 5.1.1.6.6
TS24229-5.1-216	TS24.229 5.1.1.5.1	TS24229-5.1-257	TS24.229 5.1.1.5.4	TS24229-5.1-298	TS24.229 5.1.1.6.1	TS24229-5.1-339	TS24.229 5.1.1.6.6
TS24229-5.1-217	TS24.229 5.1.1.5.1	TS24229-5.1-258	TS24.229 5.1.1.5.4	TS24229-5.1-299	TS24.229 5.1.1.6.1	TS24229-5.1-340	TS24.229 5.1.1.6.6
TS24229-5.1-218	TS24.229 5.1.1.5.1	TS24229-5.1-259	TS24.229 5.1.1.5.4	TS24229-5.1-300	TS24.229 5.1.1.6.1	TS24229-5.1-341	TS24.229 5.1.1.7
TS24229-5.1-219	TS24.229 5.1.1.5.1	TS24229-5.1-260	TS24.229 5.1.1.5.4	TS24229-5.1-301	TS24.229 5.1.1.6.1	TS24229-5.1-342	TS24.229 5.1.1.7
TS24229-5.1-220	TS24.229 5.1.1.5.1	TS24229-5.1-261	TS24.229 5.1.1.5.5	TS24229-5.1-302	TS24.229 5.1.1.6.1	TS24229-5.1-343	TS24.229 5.1.1.7
TS24229-5.1-221	TS24.229 5.1.1.5.1	TS24229-5.1-262	TS24.229 5.1.1.5.6	TS24229-5.1-303	TS24.229 5.1.1.6.1	TS24229-5.1-344	TS24.229 5.1.1.7
TS24229-5.1-222	TS24.229 5.1.1.5.1	TS24229-5.1-263	TS24.229 5.1.1.5.6	TS24229-5.1-304	TS24.229 5.1.1.6.1	TS24229-5.1-345	TS24.229 5.1.1.7
TS24229-5.1-223	TS24.229 5.1.1.5.1	TS24229-5.1-264	TS24.229 5.1.1.5.6	TS24229-5.1-305	TS24.229 5.1.1.6.1	TS24229-5.1-346	TS24.229 5.1.1.7
TS24229-5.1-224	TS24.229 5.1.1.5.1	TS24229-5.1-265	TS24.229 5.1.1.5.6	TS24229-5.1-306	TS24.229 5.1.1.6.1	TS24229-5.1-347	TS24.229 5.1.2.1
TS24229-5.1-225	TS24.229 5.1.1.5.1	TS24229-5.1-266	TS24.229 5.1.1.5.6	TS24229-5.1-307	TS24.229 5.1.1.6.1	TS24229-5.1-348	TS24.229 5.1.2.1
TS24229-5.1-226	TS24.229 5.1.1.5.1	TS24229-5.1-267	TS24.229 5.1.1.5.6	TS24229-5.1-308	TS24.229 5.1.1.6.1	TS24229-5.1-349	TS24.229 5.1.2.1
TS24229-5.1-227	TS24.229 5.1.1.5.1	TS24229-5.1-268	TS24.229 5.1.1.5.6	TS24229-5.1-309	TS24.229 5.1.1.6.1	TS24229-5.1-350	TS24.229 5.1.2.1
TS24229-5.1-228	TS24.229 5.1.1.5.1	TS24229-5.1-269	TS24.229 5.1.1.5.6	TS24229-5.1-310	TS24.229 5.1.1.6.1	TS24229-5.1-351	TS24.229 5.1.2.1
TS24229-5.1-229	TS24.229 5.1.1.5.1	TS24229-5.1-270	TS24.229 5.1.1.5.6	TS24229-5.1-311	TS24.229 5.1.1.6.1	TS24229-5.1-352	TS24.229 5.1.2.1
TS24229-5.1-230	TS24.229 5.1.1.5.1	TS24229-5.1-271	TS24.229 5.1.1.5.7	TS24229-5.1-312	TS24.229 5.1.1.6.1	TS24229-5.1-353	TS24.229 5.1.2.1
TS24229-5.1-231	TS24.229 5.1.1.5.1	TS24229-5.1-272	TS24.229 5.1.1.5.7	TS24229-5.1-313	TS24.229 5.1.1.6.2	TS24229-5.1-354	TS24.229 5.1.2.2
TS24229-5.1-232	TS24.229 5.1.1.5.1	TS24229-5.1-273	TS24.229 5.1.1.5.12	TS24229-5.1-314	TS24.229 5.1.1.6.2	TS24229-5.1-355	TS24.229 5.1.2A.1.1
TS24229-5.1-233	TS24.229 5.1.1.5.1	TS24229-5.1-274	TS24.229 5.1.1.5.12	TS24229-5.1-315	TS24.229 5.1.1.6.2	TS24229-5.1-356	TS24.229 5.1.2A.1.1
TS24229-5.1-234	TS24.229 5.1.1.5.1	TS24229-5.1-275	TS24.229 5.1.1.5A	TS24229-5.1-316	TS24.229 5.1.1.6.2	TS24229-5.1-357	TS24.229 5.1.2A.1.1
TS24229-5.1-235	TS24.229 5.1.1.5.1	TS24229-5.1-276	TS24.229 5.1.1.5A	TS24229-5.1-317	TS24.229 5.1.1.6.2	TS24229-5.1-358	TS24.229 5.1.2A.1.1
TS24229-5.1-236	TS24.229 5.1.1.5.1	TS24229-5.1-277	TS24.229 5.1.1.5A	TS24229-5.1-318	TS24.229 5.1.1.6.2	TS24229-5.1-359	TS24.229 5.1.2A.1.1
TS24229-5.1-237	TS24.229 5.1.1.5.1	TS24229-5.1-278	TS24.229 5.1.1.5A	TS24229-5.1-319	TS24.229 5.1.1.6.2	TS24229-5.1-360	TS24.229 5.1.2A.1.1
TS24229-5.1-238	TS24.229 5.1.1.5.1	TS24229-5.1-279	TS24.229 5.1.1.5A	TS24229-5.1-320	TS24.229 5.1.1.6.2	TS24229-5.1-361	TS24.229 5.1.2A.1.1
TS24229-5.1-239	TS24.229 5.1.1.5.1	TS24229-5.1-280	TS24.229 5.1.1.5B	TS24229-5.1-321	TS24.229 5.1.1.6.2	TS24229-5.1-362	TS24.229 5.1.2A.1.1
TS24229-5.1-240	TS24.229 5.1.1.5.1	TS24229-5.1-281	TS24.229 5.1.1.5B	TS24229-5.1-322	TS24.229 5.1.1.6.2	TS24229-5.1-363	TS24.229 5.1.2A.1.1
TS24229-5.1-241	TS24.229 5.1.1.5.1	TS24229-5.1-282	TS24.229 5.1.1.5B	TS24229-5.1-323	TS24.229 5.1.1.6.3	TS24229-5.1-364	TS24.229 5.1.2A.1.1
TS24229-5.1-242	TS24.229 5.1.1.5.1	TS24229-5.1-283	TS24.229 5.1.1.5B	TS24229-5.1-324	TS24.229 5.1.1.6.3	TS24229-5.1-365	TS24.229 5.1.2A.1.1
TS24229-5.1-243	TS24.229 5.1.1.5.1	TS24229-5.1-284	TS24.229 5.1.1.5B	TS24229-5.1-325	TS24.229 5.1.1.6.3	TS24229-5.1-366	TS24.229 5.1.2A.1.1
TS24229-5.1-244	TS24.229 5.1.1.5.1	TS24229-5.1-285	TS24.229 5.1.1.5B	TS24229-5.1-326	TS24.229 5.1.1.6.3	TS24229-5.1-367	TS24.229 5.1.2A.1.1
TS24229-5.1-245	TS24.229 5.1.1.5.1	TS24229-5.1-286	TS24.229 5.1.1.5B	TS24229-5.1-327	TS24.229 5.1.1.6.3	TS24229-5.1-368	TS24.229 5.1.2A.1.1
TS24229-5.1-246	TS24.229 5.1.1.5.1	TS24229-5.1-287	TS24.229 5.1.1.5B	TS24229-5.1-328	TS24.229 5.1.1.6.3	TS24229-5.1-369	TS24.229 5.1.2A.1.1
TS24229-5.1-247	TS24.229 5.1.1.5.3	TS24229-5.1-288	TS24.229 5.1.1.5B	TS24229-5.1-329	TS24.229 5.1.1.6.3	TS24229-5.1-370	TS24.229 5.1.2A.1.1
TS24229-5.1-248	TS24.229 5.1.1.5.3	TS24229-5.1-289	TS24.229 5.1.1.6.1	TS24229-5.1-330	TS24.229 5.1.1.6.4	TS24229-5.1-371	TS24.229 5.1.2A.1.1
TS24229-5.1-249	TS24.229 5.1.1.5.3	TS24229-5.1-290	TS24.229 5.1.1.6.1	TS24229-5.1-331	TS24.229 5.1.1.6.4	TS24229-5.1-372	TS24.229 5.1.2A.1.1
TS24229-5.1-250	TS24.229 5.1.1.5.3	TS24229-5.1-291	TS24.229 5.1.1.6.1	TS24229-5.1-332	TS24.229 5.1.1.6.4	TS24229-5.1-373	TS24.229 5.1.2A.1.1
TS24229-5.1-251	TS24.229 5.1.1.5.3	TS24229-5.1-292	TS24.229 5.1.1.6.1	TS24229-5.1-333	TS24.229 5.1.1.6.4	TS24229-5.1-374	TS24.229 5.1.2A.1.1
TS24229-5.1-252	TS24.229 5.1.1.5.3	TS24229-5.1-293	TS24.229 5.1.1.6.1	TS24229-5.1-334	TS24.229 5.1.1.6.5	TS24229-5.1-375	TS24.229 5.1.2A.1.1



NO.	Reference	NO.	Reference	NO.	Reference	NO.	Reference
TS24229-5.1-376	TS24.229 5.1.2A.1.1	TS24229-5.1-417	TS24.229 5.1.2A.1.4	TS24229-5.1-458	TS24.229 5.1.3.1	TS24229-5.1-499	TS24.229 5.1.6.1
TS24229-5.1-377	TS24.229 5.1.2A.1.1	TS24229-5.1-418	TS24.229 5.1.2A.1.5	TS24229-5.1-459	TS24.229 5.1.3.1	TS24229-5.1-500	TS24.229 5.1.6.1
TS24229-5.1-378	TS24.229 5.1.2A.1.1	TS24229-5.1-419	TS24.229 5.1.2A.1.5	TS24229-5.1-460	TS24.229 5.1.3.1	TS24229-5.1-501	TS24.229 5.1.6.1
TS24229-5.1-379	TS24.229 5.1.2A.1.1	TS24229-5.1-420	TS24.229 5.1.2A.1.5	TS24229-5.1-461	TS24.229 5.1.3.1	TS24229-5.1-502	TS24.229 5.1.6.1
TS24229-5.1-380	TS24.229 5.1.2A.1.1	TS24229-5.1-421	TS24.229 5.1.2A.1.5	TS24229-5.1-462	TS24.229 5.1.3.1	TS24229-5.1-503	TS24.229 5.1.6.1
TS24229-5.1-381	TS24.229 5.1.2A.1.1	TS24229-5.1-422	TS24.229 5.1.2A.1.5	TS24229-5.1-463	TS24.229 5.1.3.1	TS24229-5.1-504	TS24.229 5.1.6.2
TS24229-5.1-382	TS24.229 5.1.2A.1.1	TS24229-5.1-423	TS24.229 5.1.2A.1.5	TS24229-5.1-464	TS24.229 5.1.3.1	TS24229-5.1-505	TS24.229 5.1.6.2
TS24229-5.1-383	TS24.229 5.1.2A.1.1	TS24229-5.1-424	TS24.229 5.1.2A.1.6	TS24229-5.1-465	TS24.229 5.1.3.1	TS24229-5.1-506	TS24.229 5.1.6.2
TS24229-5.1-384	TS24.229 5.1.2A.1.1	TS24229-5.1-425	TS24.229 5.1.2A.1.6	TS24229-5.1-466	TS24.229 5.1.3.1	TS24229-5.1-507	TS24.229 5.1.6.2
TS24229-5.1-385	TS24.229 5.1.2A.1.1	TS24229-5.1-426	TS24.229 5.1.2A.2	TS24229-5.1-467	TS24.229 5.1.3.1	TS24229-5.1-508	TS24.229 5.1.6.2
TS24229-5.1-386	TS24.229 5.1.2A.1.1	TS24229-5.1-427	TS24.229 5.1.2A.2	TS24229-5.1-468	TS24.229 5.1.3.1	TS24229-5.1-509	TS24.229 5.1.6.2
TS24229-5.1-387	TS24.229 5.1.2A.1.1	TS24229-5.1-428	TS24.229 5.1.2A.2	TS24229-5.1-469	TS24.229 5.1.3.1	TS24229-5.1-510	TS24.229 5.1.6.2
TS24229-5.1-388	TS24.229 5.1.2A.1.1	TS24229-5.1-429	TS24.229 5.1.2A.2	TS24229-5.1-470	TS24.229 5.1.3.1	TS24229-5.1-511	TS24.229 5.1.6.2
TS24229-5.1-389	TS24.229 5.1.2A.1.1	TS24229-5.1-430	TS24.229 5.1.2A.2	TS24229-5.1-471	TS24.229 5.1.3.1	TS24229-5.1-512	TS24.229 5.1.6.2
TS24229-5.1-390	TS24.229 5.1.2A.1.1	TS24229-5.1-431	TS24.229 5.1.2A.2	TS24229-5.1-472	TS24.229 5.1.3.1	TS24229-5.1-513	TS24.229 5.1.6.2
TS24229-5.1-391	TS24.229 5.1.2A.1.1	TS24229-5.1-432	TS24.229 5.1.2A.2	TS24229-5.1-473	TS24.229 5.1.3.1	TS24229-5.1-514	TS24.229 5.1.6.2
TS24229-5.1-392	TS24.229 5.1.2A.1.1	TS24229-5.1-433	TS24.229 5.1.2A.2	TS24229-5.1-474	TS24.229 5.1.3.1	TS24229-5.1-515	TS24.229 5.1.6.2A
TS24229-5.1-393	TS24.229 5.1.2A.1.1	TS24229-5.1-434	TS24.229 5.1.2A.2	TS24229-5.1-475	TS24.229 5.1.3.1	TS24229-5.1-516	TS24.229 5.1.6.2A
TS24229-5.1-394	TS24.229 5.1.2A.1.1	TS24229-5.1-435	TS24.229 5.1.2A.2	TS24229-5.1-476	TS24.229 5.1.3.1	TS24229-5.1-517	TS24.229 5.1.6.2A
TS24229-5.1-395	TS24.229 5.1.2A.1.1	TS24229-5.1-436	TS24.229 5.1.2A.2	TS24229-5.1-477	TS24.229 5.1.3.1	TS24229-5.1-518	TS24.229 5.1.6.3
TS24229-5.1-396	TS24.229 5.1.2A.1.1	TS24229-5.1-437	TS24.229 5.1.2A.2	TS24229-5.1-478	TS24.229 5.1.3.1	TS24229-5.1-519	TS24.229 5.1.6.4
TS24229-5.1-397	TS24.229 5.1.2A.1.1	TS24229-5.1-438	TS24.229 5.1.2A.2	TS24229-5.1-479	TS24.229 5.1.3.1	TS24229-5.1-520	TS24.229 5.1.6.4
TS24229-5.1-398	TS24.229 5.1.2A.1.1	TS24229-5.1-439	TS24.229 5.1.2A.2	TS24229-5.1-480	TS24.229 5.1.4.1	TS24229-5.1-521	TS24.229 5.1.6.4
TS24229-5.1-399	TS24.229 5.1.2A.1.1	TS24229-5.1-440	TS24.229 5.1.2A.2	TS24229-5.1-481	TS24.229 5.1.4.1	TS24229-5.1-522	TS24.229 5.1.6.4
TS24229-5.1-400	TS24.229 5.1.2A.1.1	TS24229-5.1-441	TS24.229 5.1.2A.2	TS24229-5.1-482	TS24.229 5.1.4.1	TS24229-5.1-523	TS24.229 5.1.6.4
TS24229-5.1-401	TS24.229 5.1.2A.1.1	TS24229-5.1-442	TS24.229 5.1.2A.2	TS24229-5.1-483	TS24.229 5.1.4.1	TS24229-5.1-524	TS24.229 5.1.6.5
TS24229-5.1-402	TS24.229 5.1.2A.1.1	TS24229-5.1-443	TS24.229 5.1.2A.2	TS24229-5.1-484	TS24.229 5.1.4.1	TS24229-5.1-525	TS24.229 5.1.6.6
TS24229-5.1-403	TS24.229 5.1.2A.1.1	TS24229-5.1-444	TS24.229 5.1.2A.2	TS24229-5.1-485	TS24.229 5.1.4.1	TS24229-5.1-526	TS24.229 5.1.6.8.1
TS24229-5.1-404	TS24.229 5.1.2A.1.1	TS24229-5.1-445	TS24.229 5.1.2A.2	TS24229-5.1-486	TS24.229 5.1.4.1	TS24229-5.1-527	TS24.229 5.1.6.8.1
TS24229-5.1-405	TS24.229 5.1.2A.1.1	TS24229-5.1-446	TS24.229 5.1.2A.2	TS24229-5.1-487	TS24.229 5.1.4.1	TS24229-5.1-528	TS24.229 5.1.6.8.1
TS24229-5.1-406	TS24.229 5.1.2A.1.1	TS24229-5.1-447	TS24.229 5.1.2A.2	TS24229-5.1-488	TS24.229 5.1.4.1	TS24229-5.1-529	TS24.229 5.1.6.8.1
TS24229-5.1-407	TS24.229 5.1.2A.1.1	TS24229-5.1-448	TS24.229 5.1.2A.2	TS24229-5.1-489	TS24.229 5.1.4.1	TS24229-5.1-530	TS24.229 5.1.6.8.2
TS24229-5.1-408	TS24.229 5.1.2A.1.1	TS24229-5.1-449	TS24.229 5.1.2A.2	TS24229-5.1-490	TS24.229 5.1.4.1	TS24229-5.1-531	TS24.229 5.1.6.8.2
TS24229-5.1-409	TS24.229 5.1.2A.1.1	TS24229-5.1-450	TS24.229 5.1.2A.2	TS24229-5.1-491	TS24.229 5.1.4.1	TS24229-5.1-532	TS24.229 5.1.6.8.2
TS24229-5.1-410	TS24.229 5.1.2A.1.1	TS24229-5.1-451	TS24.229 5.1.2A.2	TS24229-5.1-492	TS24.229 5.1.4.1	TS24229-5.1-533	TS24.229 5.1.6.8.2
TS24229-5.1-411	TS24.229 5.1.2A.1.1	TS24229-5.1-452	TS24.229 5.1.2A.2	TS24229-5.1-493	TS24.229 5.1.6.1	TS24229-5.1-534	TS24.229 5.1.6.8.2
TS24229-5.1-412	TS24.229 5.1.2A.1.1	TS24229-5.1-453	TS24.229 5.1.2A.2	TS24229-5.1-494	TS24.229 5.1.6.1	TS24229-5.1-535	TS24.229 5.1.6.8.2
TS24229-5.1-413	TS24.229 5.1.2A.1.2	TS24229-5.1-454	TS24.229 5.1.3.1	TS24229-5.1-495	TS24.229 5.1.6.1	TS24229-5.1-536	TS24.229 5.1.6.8.2
TS24229-5.1-414	TS24.229 5.1.2A.1.3	TS24229-5.1-455	TS24.229 5.1.3.1	TS24229-5.1-496	TS24.229 5.1.6.1	TS24229-5.1-537	TS24.229 5.1.6.8.2
TS24229-5.1-415	TS24.229 5.1.2A.1.4	TS24229-5.1-456	TS24.229 5.1.3.1	TS24229-5.1-497	TS24.229 5.1.6.1	TS24229-5.1-538	TS24.229 5.1.6.8.2
TS24229-5.1-416	TS24.229 5.1.2A.1.4	TS24229-5.1-457	TS24.229 5.1.3.1	TS24229-5.1-498	TS24.229 5.1.6.1	TS24229-5.1-539	TS24.229 5.1.6.8.2



NO.	Reference	NO.	Reference	NO.	Reference	NO.	Reference
TS24229-5.1-540	TS24.229 5.1.6.8.2	TS24229-5.1-581	TS24.229 5.1.6.8.3	TS24229-5.1-622	TS24.229 5.1.6.10	TS24229-6.1-38	TS24.229 6.1.2
TS24229-5.1-541	TS24.229 5.1.6.8.2	TS24229-5.1-582	TS24.229 5.1.6.8.3	TS24229-5.1-623	TS24.229 5.1.8	TS24229-6.1-39	TS24.229 6.1.2
TS24229-5.1-542	TS24.229 5.1.6.8.2	TS24229-5.1-583	TS24.229 5.1.6.8.3	TS24229-5.1-624	TS24.229 5.1.8	TS24229-6.1-40	TS24.229 6.1.3
TS24229-5.1-543	TS24.229 5.1.6.8.2	TS24229-5.1-584	TS24.229 5.1.6.8.3	TS24229-5.1-625	TS24.229 5.1.8	TS24229-6.1-41	TS24.229 6.1.3
TS24229-5.1-544	TS24.229 5.1.6.8.2	TS24229-5.1-585	TS24.229 5.1.6.8.3	TS24229-6.1-1	TS24.229 6.1.1	TS24229-6.1-42	TS24.229 6.1.3
TS24229-5.1-545	TS24.229 5.1.6.8.2	TS24229-5.1-586	TS24.229 5.1.6.8.3	TS24229-6.1-2	TS24.229 6.1.1	TS24229-6.1-43	TS24.229 6.1.3
TS24229-5.1-546	TS24.229 5.1.6.8.2	TS24229-5.1-587	TS24.229 5.1.6.8.4	TS24229-6.1-3	TS24.229 6.1.1	TS24229-6.1-44	TS24.229 6.1.3
TS24229-5.1-547	TS24.229 5.1.6.8.2	TS24229-5.1-588	TS24.229 5.1.6.8.4	TS24229-6.1-4	TS24.229 6.1.1	TS24229-6.1-45	TS24.229 6.1.3
TS24229-5.1-548	TS24.229 5.1.6.8.2	TS24229-5.1-589	TS24.229 5.1.6.8.4	TS24229-6.1-5	TS24.229 6.1.1	TS24229-6.1-46	TS24.229 6.1.3
TS24229-5.1-549	TS24.229 5.1.6.8.2	TS24229-5.1-590	TS24.229 5.1.6.8.4	TS24229-6.1-6	TS24.229 6.1.1	TS24229-6.1-47	TS24.229 6.1.3
TS24229-5.1-550	TS24.229 5.1.6.8.2	TS24229-5.1-591	TS24.229 5.1.6.8.4	TS24229-6.1-7	TS24.229 6.1.1	TS24229-6.1-48	TS24.229 6.1.3
TS24229-5.1-551	TS24.229 5.1.6.8.2	TS24229-5.1-592	TS24.229 5.1.6.8.4	TS24229-6.1-8	TS24.229 6.1.1	TS24229-6.1-49	TS24.229 6.1.3
TS24229-5.1-552	TS24.229 5.1.6.8.2	TS24229-5.1-593	TS24.229 5.1.6.8.4	TS24229-6.1-9	TS24.229 6.1.1	TS24229-6.1-50	TS24.229 6.1.3
TS24229-5.1-553	TS24.229 5.1.6.8.2	TS24229-5.1-594	TS24.229 5.1.6.8.4	TS24229-6.1-10	TS24.229 6.1.1	TS24229-7.2A-1	TS24.229 7.2A.2.3
TS24229-5.1-554	TS24.229 5.1.6.8.2	TS24229-5.1-595	TS24.229 5.1.6.8.4	TS24229-6.1-11	TS24.229 6.1.1	TS24229-7.2A-2	TS24.229 7.2A.2.3
TS24229-5.1-555	TS24.229 5.1.6.8.2	TS24229-5.1-596	TS24.229 5.1.6.8.4	TS24229-6.1-12	TS24.229 6.1.1	TS24229-7.2A-3	TS24.229 7.2A.4.2
TS24229-5.1-556	TS24.229 5.1.6.8.2	TS24229-5.1-597	TS24.229 5.1.6.8.4	TS24229-6.1-13	TS24.229 6.1.1	TS24229-7.2A-4	TS24.229 7.2A.4.2
TS24229-5.1-557	TS24.229 5.1.6.8.2	TS24229-5.1-598	TS24.229 5.1.6.8.4	TS24229-6.1-14	TS24.229 6.1.1	TS24229-7.2A-5	TS24.229 7.2A.4.3
TS24229-5.1-558	TS24.229 5.1.6.8.2	TS24229-5.1-599	TS24.229 5.1.6.8.4	TS24229-6.1-15	TS24.229 6.1.1	TS24229-7.2A-6	TS24.229 7.2A.4.3
TS24229-5.1-559	TS24.229 5.1.6.8.2	TS24229-5.1-600	TS24.229 5.1.6.8.4	TS24229-6.1-16	TS24.229 6.1.1	TS24229-7.2A-7	TS24.229 7.2A.4.3
TS24229-5.1-560	TS24.229 5.1.6.8.2	TS24229-5.1-601	TS24.229 5.1.6.8.4	TS24229-6.1-17	TS24.229 6.1.1	TS24229-7.2A-8	TS24.229 7.2A.4.3
TS24229-5.1-561	TS24.229 5.1.6.8.2	TS24229-5.1-602	TS24.229 5.1.6.8.4	TS24229-6.1-18	TS24.229 6.1.1	TS24229-7.2A-9	TS24.229 7.2A.4.3
TS24229-5.1-562	TS24.229 5.1.6.8.2	TS24229-5.1-603	TS24.229 5.1.6.8.4	TS24229-6.1-19	TS24.229 6.1.1	TS24229-7.2A-10	TS24.229 7.2A.4.3
TS24229-5.1-563	TS24.229 5.1.6.8.2	TS24229-5.1-604	TS24.229 5.1.6.8.4	TS24229-6.1-20	TS24.229 6.1.1	TS24229-7.2A-11	TS24.229 7.2A.4.3
TS24229-5.1-564	TS24.229 5.1.6.8.2	TS24229-5.1-605	TS24.229 5.1.6.8.4	TS24229-6.1-21	TS24.229 6.1.1	TS24229-7.2A-12	TS24.229 7.2A.4.3
TS24229-5.1-565	TS24.229 5.1.6.8.3	TS24229-5.1-606	TS24.229 5.1.6.8.4	TS24229-6.1-22	TS24.229 6.1.1	TS24229-7.2A-13	TS24.229 7.2A.4.3
TS24229-5.1-566	TS24.229 5.1.6.8.3	TS24229-5.1-607	TS24.229 5.1.6.8.4	TS24229-6.1-23	TS24.229 6.1.1	TS24229-7.2A-14	TS24.229 7.2A.4.3
TS24229-5.1-567	TS24.229 5.1.6.8.3	TS24229-5.1-608	TS24.229 5.1.6.8.4	TS24229-6.1-24	TS24.229 6.1.1	TS24229-7.2A-15	TS24.229 7.2A.4.3
TS24229-5.1-568	TS24.229 5.1.6.8.3	TS24229-5.1-609	TS24.229 5.1.6.8.4	TS24229-6.1-25	TS24.229 6.1.1	TS24229-7.2A-16	TS24.229 7.2A.5.2.1
TS24229-5.1-569	TS24.229 5.1.6.8.3	TS24229-5.1-610	TS24.229 5.1.6.8.4	TS24229-6.1-26	TS24.229 6.1.2	TS24229-7.2A-17	TS24.229 7.2A.5.2.1
TS24229-5.1-570	TS24.229 5.1.6.8.3	TS24229-5.1-611	TS24.229 5.1.6.9	TS24229-6.1-27	TS24.229 6.1.2	TS24229-7.2A-18	TS24.229 7.2A.5.2.2
TS24229-5.1-571	TS24.229 5.1.6.8.3	TS24229-5.1-612	TS24.229 5.1.6.10	TS24229-6.1-28	TS24.229 6.1.2	TS24229-7.2A-19	TS24.229 7.2A.5.2.2
TS24229-5.1-572	TS24.229 5.1.6.8.3	TS24229-5.1-613	TS24.229 5.1.6.10	TS24229-6.1-29	TS24.229 6.1.2	TS24229-7.2A-20	TS24.229 7.2A.5.2.2
TS24229-5.1-573	TS24.229 5.1.6.8.3	TS24229-5.1-614	TS24.229 5.1.6.10	TS24229-6.1-30	TS24.229 6.1.2	TS24229-7.2A-21	TS24.229 7.2A.5.2.4
TS24229-5.1-574	TS24.229 5.1.6.8.3	TS24229-5.1-615	TS24.229 5.1.6.10	TS24229-6.1-31	TS24.229 6.1.2	TS24229-7.2A-22	TS24.229 7.2A.5.2.5
TS24229-5.1-575	TS24.229 5.1.6.8.3	TS24229-5.1-616	TS24.229 5.1.6.10	TS24229-6.1-32	TS24.229 6.1.2	TS24229-7.2A-23	TS24.229 7.2A.5.2.5
TS24229-5.1-576	TS24.229 5.1.6.8.3	TS24229-5.1-617	TS24.229 5.1.6.10	TS24229-6.1-33	TS24.229 6.1.2	TS24229-7.2A-24	TS24.229 7.2A.5.2.5
TS24229-5.1-577	TS24.229 5.1.6.8.3	TS24229-5.1-618	TS24.229 5.1.6.10	TS24229-6.1-34	TS24.229 6.1.2	TS24229-7.2A-25	TS24.229 7.2A.5.2.7
TS24229-5.1-578	TS24.229 5.1.6.8.3	TS24229-5.1-619	TS24.229 5.1.6.10	TS24229-6.1-35	TS24.229 6.1.2	TS24229-7.2A-26	TS24.229 7.2A.5.2.7
TS24229-5.1-579	TS24.229 5.1.6.8.3	TS24229-5.1-620	TS24.229 5.1.6.10	TS24229-6.1-36	TS24.229 6.1.2	TS24229-7.2A-27	TS24.229 7.2A.5.2.7
TS24229-5.1-580	TS24.229 5.1.6.8.3	TS24229-5.1-621	TS24.229 5.1.6.10	TS24229-6.1-37	TS24.229 6.1.2	TS24229-7.2A-28	TS24.2297.2A.8.2



NO.	Reference	NO.	Reference	NO.	Reference	NO.	Reference
TS24229-7.2A-29	TS24.229 7.2A.8.2	TS24229-7.2A-41	TS24.229 7.2A.10.3	TS24229-7.6-6	TS24.2297.6.3	TS24229-8.1-2	TS24.229 8.1.1
TS24229-7.2A-30	TS24.229 7.2A.8.2	TS24229-7.2A-42	TS24.229 7.2A.10.3	TS24229-7.6-7	TS24.2297.6.4.1	TS24229-8.1-3	TS24.229 8.1.1
TS24229-7.2A-31	TS24.229 7.2A.9.2	TS24229-7.2A-43	TS24.229 7.2A.10.3	TS24229-7.6-8	TS24.2297.6.4.3	TS24229-8.1-4	TS24.229 8.1.1
TS24229-7.2A-32	TS24.229 7.2A.9.2	TS24229-7.2A-44	TS24.229 7.2A.10.3	TS24229-7.6-9	TS24.2297.6.4.3	TS24229-8.1-5	TS24.229 8.1.1
TS24229-7.2A-33	TS24.229 7.2A.9.2	TS24229-7.2A-45	TS24.229 7.2A.10.3	TS24229-7.6-10	TS24.2297.6.5	TS24229-8.1-6	TS24.229 8.1.1
TS24229-7.2A-34	TS24.229 7.2A.10.3	TS24229-7.2A-46	TS24.229 7.2A.10.3	TS24229-7.6-11	TS24.2297.6.5	TS24229-8.1-7	TS24.229 8.1.1
TS24229-7.2A-35	TS24.229 7.2A.10.3	TS24229-7.2A-47	TS24.229 7.2A.10.3	TS24229-7.7-1	TS24.2297.7	TS24229-8.1-8	TS24.229 8.1.1
TS24229-7.2A-36	TS24.229 7.2A.10.3	TS24229-7.6-1	TS24.229 7.6.1	TS24229-7.7-2	TS24.229 7.7	TS24229-8.1-9	TS24.229 8.1.1
TS24229-7.2A-37	TS24.229 7.2A.10.3	TS24229-7.6-2	TS24.229 7.6.1	TS24229-7.8-1	TS24.229 7.8	TS24229-8.1-10	TS24.229 8.1.1
TS24229-7.2A-38	TS24.229 7.2A.10.3	TS24229-7.6-3	TS24.229 7.6.1	TS24229-7.9-1	TS24.229 7.9.2	TS24229-8.1-11	TS24.229 8.1.2
TS24229-7.2A-39	TS24.229 7.2A.10.3	TS24229-7.6-4	TS24.229 7.6.3	TS24229-7.9-2	TS24.229 7.9.3	TS24229-8.1-12	TS24.229 8.1.2
TS24229-7.2A-40	TS24.229 7.2A.10.3	TS24229-7.6-5	TS24.229 7.6.3	TS24229-8.1-1	TS24.229 8.1.1	TS24229-8.1-13	TS24.229 8.1.3



NO.	Reference	NO.	Reference	NO.	Reference	NO.	Reference
TS33203-4-1	TS33.203 4	TS33203-6.1-2	TS33.203 6.1	TS33203-6.3-3	TS33.203 6.3	TS33203-7.1-29	TS33.203 7.1
TS33203-4-2	TS33.203 4	TS33203-6.1-3	TS33.203 6.1	TS33203-6.3-4	TS33.203 6.3	TS33203-7.1-30	TS33.203 7.1
TS33203-4-3	TS33.203 4	TS33203-6.1-4	TS33.203 6.1	TS33203-6.3-5	TS33.203 6.3	TS33203-7.1-31	TS33.203 7.1
TS33203-4-4	TS33.203 4	TS33203-6.1-5	TS33.203 6.1	TS33203-6.4-1	TS33.203 6.4	TS33203-7.1-32	TS33.203 7.1
TS33203-4-5	TS33.203 4	TS33203-6.1-6	TS33.203 6.1	TS33203-6.4-2	TS33.203 6.4	TS33203-7.1-33	TS33.203 7.1
TS33203-5.1-1	TS33.203 5.1.1	TS33203-6.1-7	TS33.203 6.1	TS33203-6.4-3	TS33.203 6.4	TS33203-7.1-34	TS33.203 7.1
TS33203-5.1-2	TS33.203 5.1.1	TS33203-6.1-8	TS33.203 6.1	TS33203-6.4-4	TS33.203 6.4	TS33203-7.1-35	TS33.203 7.1
TS33203-5.1-3	TS33.203 5.1.2	TS33203-6.1-9	TS33.203 6.1.1	TS33203-6.4-5	TS33.203 6.4	TS33203-7.2-1	TS33.203 7.2
TS33203-5.1-4	TS33.203 5.1.2	TS33203-6.1-10	TS33.203 6.1.1	TS33203-6.4-6	TS33.203 6.4	TS33203-7.2-2	TS33.203 7.2
TS33203-5.1-5	TS33.203 5.1.2	TS33203-6.1-11	TS33.203 6.1.1	TS33203-6.4-7	TS33.203 6.4	TS33203-7.2-3	TS33.203 7.2
TS33203-5.1-6	TS33.203 5.1.3	TS33203-6.1-12	TS33.203 6.1.1	TS33203-6.5-1	TS33.203 6.5	TS33203-7.2-4	TS33.203 7.2
TS33203-5.1-7	TS33.203 5.1.3	TS33203-6.1-13	TS33.203 6.1.1	TS33203-6.5-2	TS33.203 6.5	TS33203-7.2-5	TS33.203 7.2
TS33203-5.1-8	TS33.203 5.1.3	TS33203-6.1-14	TS33.203 6.1.1	TS33203-6.5-3	TS33.203 6.5	TS33203-7.2-6	TS33.203 7.2
TS33203-5.1-9	TS33.203 5.1.3	TS33203-6.1-15	TS33.203 6.1.1	TS33203-7.1-1	TS33.203 7.1	TS33203-7.2-7	TS33.203 7.2
TS33203-5.1-10	TS33.203 5.1.3	TS33203-6.1-16	TS33.203 6.1.1	TS33203-7.1-2	TS33.203 7.1	TS33203-7.2-8	TS33.203 7.2
TS33203-5.1-11	TS33.203 5.1.3	TS33203-6.1-17	TS33.203 6.1.1	TS33203-7.1-3	TS33.203 7.1	TS33203-7.2-9	TS33.203 7.2
TS33203-5.1-12	TS33.203 5.1.4	TS33203-6.1-18	TS33.203 6.1.1	TS33203-7.1-4	TS33.203 7.1	TS33203-7.2-10	TS33.203 7.2
TS33203-5.1-13	TS33.203 5.1.4	TS33203-6.1-19	TS33.203 6.1.1	TS33203-7.1-5	TS33.203 7.1	TS33203-7.2-11	TS33.203 7.2
TS33203-5.1-14	TS33.203 5.1.4	TS33203-6.1-20	TS33.203 6.1.1	TS33203-7.1-6	TS33.203 7.1	TS33203-7.2-12	TS33.203 7.2
TS33203-5.1-15	TS33.203 5.1.4	TS33203-6.1-21	TS33.203 6.1.1	TS33203-7.1-7	TS33.203 7.1	TS33203-7.2-13	TS33.203 7.2
TS33203-5.1-16	TS33.203 5.1.4	TS33203-6.1-22	TS33.203 6.1.2.1	TS33203-7.1-8	TS33.203 7.1	TS33203-7.3-1	TS33.203 7.3.1
TS33203-5.1-17	TS33.203 5.1.4	TS33203-6.1-23	TS33.203 6.1.2.1	TS33203-7.1-9	TS33.203 7.1	TS33203-7.3-2	TS33.203 7.3.1.1
TS33203-5.1-18	TS33.203 5.1.4	TS33203-6.1-24	TS33.203 6.1.2.1	TS33203-7.1-10	TS33.203 7.1	TS33203-7.3-3	TS33.203 7.3.1.1
TS33203-5.1-19	TS33.203 5.1.4	TS33203-6.1-25	TS33.203 6.1.2.2	TS33203-7.1-11	TS33.203 7.1	TS33203-7.3-4	TS33.203 7.3.1.1
TS33203-5.1-20	TS33.203 5.1.4	TS33203-6.1-26	TS33.203 6.1.2.2	TS33203-7.1-12	TS33.203 7.1	TS33203-7.3-5	TS33.203 7.3.1.2
TS33203-5.1-21	TS33.203 5.1.4	TS33203-6.1-27	TS33.203 6.1.2.2	TS33203-7.1-13	TS33.203 7.1	TS33203-7.3-6	TS33.203 7.3.1.3
TS33203-5.1-22	TS33.203 5.1.4	TS33203-6.1-28	TS33.203 6.1.2.2	TS33203-7.1-14	TS33.203 7.1	TS33203-7.3-7	TS33.203 7.3.1.4
TS33203-5.2-1	TS33.203 5.2	TS33203-6.1-29	TS33.203 6.1.2.3	TS33203-7.1-15	TS33.203 7.1	TS33203-7.3-8	TS33.203 7.3.1.4
TS33203-5.2-2	TS33.203 5.2	TS33203-6.1-30	TS33.203 6.1.2.3	TS33203-7.1-16	TS33.203 7.1	TS33203-7.3-9	TS33.203 7.3.1.4
TS33203-5.2-3	TS33.203 5.2	TS33203-6.1-32	TS33.203 6.1.3	TS33203-7.1-17	TS33.203 7.1	TS33203-7.3-10	TS33.203 7.3.1.4
TS33203-5.2-4	TS33.203 5.2	TS33203-6.1-33	TS33.203 6.1.3	TS33203-7.1-18	TS33.203 7.1	TS33203-7.3-11	TS33.203 7.3.2.1
TS33203-5.2-5	TS33.203 5.2	TS33203-6.1-34	TS33.203 6.1.4	TS33203-7.1-19	TS33.203 7.1	TS33203-7.3-12	TS33.203 7.3.2.1
TS33203-5.2-6	TS33.203 5.2	TS33203-6.1-35	TS33.203 6.1.4	TS33203-7.1-20	TS33.203 7.1	TS33203-7.3-13	TS33.203 7.3.2.2
TS33203-5.2-7	TS33.203 5.2	TS33203-6.1-36	TS33.203 6.1.4	TS33203-7.1-21	TS33.203 7.1	TS33203-7.3-14	TS33.203 7.3.2.3
TS33203-5.3-1	TS33.203 5.3	TS33203-6.1-37	TS33.203 6.1.4	TS33203-7.1-22	TS33.203 7.1	TS33203-7.4-1	TS33.203 7.4
TS33203-5.4-1	TS33.203 5.4	TS33203-6.2-1	TS33.203 6.2	TS33203-7.1-23	TS33.203 7.1	TS33203-7.4-2	TS33.203 7.4
TS33203-5.4-2	TS33.203 5.4	TS33203-6.2-2	TS33.203 6.2	TS33203-7.1-24	TS33.203 7.1	TS33203-7.4-3	TS33.203 7.4
TS33203-5.4-3	TS33.203 5.4	TS33203-6.2-3	TS33.203 6.2	TS33203-7.1-25	TS33.203 7.1	TS33203-7.4-4	TS33.203 7.4
TS33203-5.4-4	TS33.203 5.4	TS33203-6.2-4	TS33.203 6.2	TS33203-7.1-26	TS33.203 7.1	TS33203-7.4-5	TS33.203 7.4.1a
TS33203-5.4-5	TS33.203 5.4	TS33203-6.3-1	TS33.203 6.3	TS33203-7.1-27	TS33.203 7.1	TS33203-7.4-6	TS33.203 7.4.1a
TS33203-6.1-1	TS33.203 6.1	TS33203-6.3-2	TS33.203 6.3	TS33203-7.1-28	TS33.203 7.1	TS33203-7.4-7	TS33.203 7.4.1a



NO.	Reference	NO.	Reference	NO.	Reference	NO.	Reference
TS33203-7.4-8	TS33.203 7.4.1a	TS33203-7.4-28	TS33.203 7.4.1a	TS33203-7.4-48	TS33.203 7.4.2a	TS33203-8.1-6	TS33.203 8.1
TS33203-7.4-9	TS33.203 7.4.1a	TS33203-7.4-29	TS33.203 7.4.1a	TS33203-9-4	TS33.203 9	TS33203-8.1-7	TS33.203 8.1
TS33203-7.4-10	TS33.203 7.4.1a	TS33203-7.4-30	TS33.203 7.4.1a	TS33203-9-5	TS33.203 9	TS33203-8.1-8	TS33.203 8.1
TS33203-7.4-11	TS33.203 7.4.1a	TS33203-7.4-31	TS33.203 7.4.2a	TS33203-9-6	TS33.203 9	TS33203-8.1-9	TS33.203 8.1
TS33203-7.4-12	TS33.203 7.4.1a	TS33203-7.4-32	TS33.203 7.4.2a	TS33203-9-7	TS33.203 9	TS33203-8.1-10	TS33.203 8.1
TS33203-7.4-13	TS33.203 7.4.1a	TS33203-7.4-33	TS33.203 7.4.2a	TS33203-9-8	TS33.203 9	TS33203-8.1-11	TS33.203 8.1
TS33203-7.4-14	TS33.203 7.4.1a	TS33203-7.4-34	TS33.203 7.4.2a	TS33203-9-9	TS33.203 9	TS33203-8.2-1	TS33.203 8.2
TS33203-7.4-15	TS33.203 7.4.1a	TS33203-7.4-35	TS33.203 7.4.2a	TS33203-9-10	TS33.203 9	TS33203-8.2-2	TS33.203 8.2
TS33203-7.4-16	TS33.203 7.4.1a	TS33203-7.4-36	TS33.203 7.4.2a	TS33203-7.4-49	TS33.203 7.4.2a	TS33203-9-1	TS33.203 9
TS33203-7.4-17	TS33.203 7.4.1a	TS33203-7.4-37	TS33.203 7.4.2a	TS33203-7.4-50	TS33.203 7.4.2a	TS33203-9-2	TS33.203 9
TS33203-7.4-18	TS33.203 7.4.1a	TS33203-7.4-38	TS33.203 7.4.2a	TS33203-7.5-1	TS33.203 7.5	TS33203-9-3	TS33.203 9
TS33203-7.4-19	TS33.203 7.4.1a	TS33203-7.4-39	TS33.203 7.4.2a	TS33203-8-1	TS33.203 8	TS33203-9-4	TS33.203 9
TS33203-7.4-20	TS33.203 7.4.1a	TS33203-7.4-40	TS33.203 7.4.2a	TS33203-8-2	TS33.203 8	TS33203-9-5	TS33.203 9
TS33203-7.4-21	TS33.203 7.4.1a	TS33203-7.4-41	TS33.203 7.4.2a	TS33203-8-3	TS33.203 8	TS33203-9-6	TS33.203 9
TS33203-7.4-22	TS33.203 7.4.1a	TS33203-7.4-42	TS33.203 7.4.2a	TS33203-8-4	TS33.203 8	TS33203-9-7	TS33.203 9
TS33203-7.4-23	TS33.203 7.4.1a	TS33203-7.4-43	TS33.203 7.4.2a	TS33203-8.1-1	TS33.203 8.1	TS33203-9-8	TS33.203 9
TS33203-7.4-24	TS33.203 7.4.1a	TS33203-7.4-44	TS33.203 7.4.2a	TS33203-8.1-2	TS33.203 8.1	TS33203-9-9	TS33.203 9
TS33203-7.4-25	TS33.203 7.4.1a	TS33203-7.4-45	TS33.203 7.4.2a	TS33203-8.1-3	TS33.203 8.1	TS33203-9-10	TS33.203 9
TS33203-7.4-26	TS33.203 7.4.1a	TS33203-7.4-46	TS33.203 7.4.2a	TS33203-8.1-4	TS33.203 8.1		
TS33203-7.4-27	TS33.203 7.4.1a	TS33203-7.4-47	TS33.203 7.4.2a	TS33203-8.1-5	TS33.203 8.1		



Copyright (C) 2005-2010 IPv6 Forum. All Rights Reserved.

This original documentation is produced by SIP IPv6 SWG members of Certification WG in the IPv6 Promotion Council. The SWG members currently include Nippon Telegraph and Telephone Corporation (NTT), Yokogawa Electric Corporation, University of New Hampshire InterOperability Laboratory (UNH-IOL), and NTT Advanced Technology Corporation (NTT-AT). No part of this documentation may be reproduced for any purpose without prior permission.



Authors' List

Timothy Winters (UNH-IOL)
Yoshio Yoshida (NTT-AT)
Nobuyuki Yajima (NTT-AT)
Takaaki Tanaka(NTT-AT)
Kenzo Kodama (NTT-AT)
Naomi Orimo(NTT-AT)
Yoshihiro Inoue (NTT-AT)
Hiroko Nakagawa(NTT-AT)