

IPv6 Ready Logo Phase 2
IP Multimedia Subsystem

Test Profile
User Equipment

Version 0.1.0

IPv6 Forum
Converged Test Specification
IPv6 Logo Committee
IPv6 Promotion Council (Japan)

<http://www.ipv6forum.org>
<http://www.ipv6ready.org>



Modification Record

Version 0.1.0 Feb. 27, 2009 - First release



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:



4.1.9 UE-RG-B-9	- Reception of 481 response to subscription for the registration state event package	108
4.1.10 UE-RG-B-10	- Reception of a new service-route to reregistration.....	114
4.1.11 UE-RG-B-11	- Reception of 423 response to reregistration	123
4.1.12 UE-RG-B-12	- Reception of 408 response to reregistration.....	129
4.1.13 UE-RG-B-13	- Reception of 500 response to reregistration.....	137
4.1.14 UE-RG-B-14	- Reception of 504 response to reregistration.....	146
4.1.15 UE-RG-B-15	- Timer F expiration (Registration).....	155
4.1.16 UE-RG-B-16	- Reception of 401 response with no Security-Server header to initial registration.....	163
4.1.17 UE-RG-B-17	- Charge from the old SAs to the new SAs	168
4.1.18 UE-RG-B-18	- Reception of 403 response to initial registration	179
4.1.19 UE-RG-B-19	- Invalid authentication parameter	190
4.1.20 UE-RG-B-20	- User-initiated deregistration and dialog release	198
4.1.21 UE-RG-B-21	- Reception of 401 response to user-initiated deregistration	207
4.1.22 UE-RG-B-22	- Reception of 503 response to subscription for the registration state event package	213
4.2	Session Establishment.....	217
4.2.1 UE-SE-B-1	- Session initiation and termination (Sends INVITE and receives BYE).....	217
4.2.2 UE-SE-B-2	- Session initiation and termination (Sends INVITE and sends BYE).....	224
4.2.3 UE-SE-B-3	- Session initiation and termination (Receives INVITE and receives BYE).....	231
4.2.4 UE-SE-B-4	- Session initiation and termination (Receives INVITE and sends BYE).....	239
4.2.5 UE-SE-B-5	- Call Cancellation (Sends INVITE and sends CANCEL)	247
4.2.6 UE-SE-B-6	- Call Cancellation (Receives INVITE and receives CANCEL).....	253
4.2.7 UE-SE-B-7	- SIP response received from the P-CSCF outside of the registration.....	260
4.2.8 UE-SE-B-8	- SIP Request received from the P-CSCF outside of the registration.....	268
4.2.9 UE-SE-B-9	- Receiving 503 response to INVITE	271
4.2.10 UE-SE-B-10	- Receiving forked 180 and response.....	280
4.3	SDP	290
4.3.1 UE-SD-B-1	- SDP offer which included one or more media lines which was offered with several codecs (Receives INVITE and sends BYE).....	290
4.3.2 UE-SD-B-2	- SDP offer which included an IP address type that is not supported (Receives INVITE and sends BYE)	297
4.4	OPTIONS.....	303
4.4.1 UE-OP-B-1	- OPTIONS request (Sends OPTIONS)	303
4.4.2 UE-OP-B-2	- OPTIONS request (Receives OPTIONS).....	307
4.5	SIP timer.....	311
4.5.1 UE-TM-B-1	- Timer B expiration to INVITE.....	311
4.5.2 UE-TM-B-2	- Timer D expiration	315
4.5.3 UE-TM-B-3	- Timer H expiration	320
4.5.4 UE-TM-B-4	- Timer J expiration.....	325



4.5.5 UE-TM-B-5 - Timer F expiration (In Session)	332
4.6 Sending Response	337
4.6.1 UE-SR-B-1 - Sending 400 response	337
4.6.2 UE-SR-B-2 - Sending 404 response	341
4.6.3 UE-SR-B-3 - Sending 405 response	346
4.6.4 UE-SR-B-4 - Sending 406 response	349
4.6.5 UE-SR-B-5 - Sending 414 response	354
4.6.6 UE-SR-B-6 - Sending 415 response	359
4.6.7 UE-SR-B-7 - Sending 416 response	365
4.6.8 UE-SR-B-8 - Sending 420 response	370
4.6.9 UE-SR-B-9 - Sending 480/486 response	375
4.6.10 UE-SR-B-10 - Sending 482 response	380
4.6.11 UE-SR-B-11 - Sending 489 response	390
4.6.12 UE-SR-B-12 - Sending 500 response	397
4.6.13 UE-SR-B-13 - Sending 505 response	405
4.7 Receiving Response	410
4.7.1 UE-RR-B-1 - Receiving 100 response	410
4.7.2 UE-RR-B-2 - Receiving 181 response (Call transfer by S-CSCFa2 to UEa2')	421
4.7.3 UE-RR-B-3 - Receiving 182 response (Request is queued by P-CSCFa2)	429
4.7.4 UE-RR-B-4 - Receiving 183 response	434
4.7.5 UE-RR-B-5 - Receiving 202 response	439
4.7.6 UE-RR-B-6 - Receiving 400 response	443
4.7.7 UE-RR-B-7 - Receiving 404 response	446
4.7.8 UE-SR-B-8 - Receiving 405 response	450
4.7.9 UE-RR-B-9 - Receiving 406 response	454
4.7.10 UE-RR-B-10 - Receiving 410 response	459
4.7.11 UE-RR-B-11 - Receiving 413 response	463
4.7.12 UE-RR-B-12 - Receiving 414 response	467
4.7.13 UE-RR-B-13 - Receiving 415 response	471
4.7.14 UE-RR-B-14 - Response 480 response	475
4.7.15 UE-RR-B-15 - Receiving 482 response	478
4.7.16 UE-RR-B-16 - Receiving 483 response	481
4.7.17 UE-RR-B-17 - Receiving 484 response	485
4.7.18 UE-RR-B-18 - Receiving 485 response	488
4.7.19 UE-RR-B-19 - Receiving 488 response	492
4.7.20 UE-RR-B-20 - Receiving 501 response	496
4.7.21 UE-RR-B-21 - Receiving 502 response	500
4.7.22 UE-RR-B-22 - Receiving 505 response	503
4.7.23 UE-RR-B-23 - Receiving 513 response	508
4.7.24 UE-RR-B-24 - Receiving 600 response	512
4.7.25 UE-RR-B-25 - Receiving 603 response	515
4.7.26 UE-RR-B-26 - Receiving 604 response	519
4.7.27 UE-RR-B-27 - Receiving 606 response	523
4.8 SigComp	527



4.8.1 UE-SC-B-1 - SigComp for IMS (Sends INVITE and receives BYE).....	527
4.8.2 UE-SC-B-2 - SigComp for IMS (Receive INVITE and send BYE).....	547
AUTHORS' LIST	565



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 results in the category of OBSERVABLE RESULTS.
Refer to Section 3.

Acronyms

UE	- IMS User Equipment
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 Interface
NNI	- Network-Network Interface



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(Relase 7)
(<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/rfc4896.txt>)
- (14) RFC5049: Applying Signaling Compression (SigComp) to the Session Initiation Protocol (SIP) (<http://www.ietf.org/rfc/rfc5049.txt>)

[IMS AKA and Security Association]

- (15) TS.33.203: 3G security; Access security for IP-based services (Release 7)
(<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>)



Index

ex . [RFC3261 X.X.X]

Please refer to the the section in RFC3261



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 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]
- If the @ sign is present in a SIP or SIPS URI, the user field MUST NOT be empty.[RFC3261 19.1.1]
- Using the fully-qualified domain name form is RECOMMENDED in the host part.[RFC3261 19.1.1]
- The special characters MUST be in a quoted string to be used within a parameter value.[RFC3261 25.1]
- Request-Line:
 - Applications sending SIP messages MUST include a SIP-Version of "SIP/2.0". [RFC3261 7.1]
 - Implementations MUST send upper-case. [RFC3261 7.1]
- Header fields:
 - It is RECOMMENDED that header fields which are needed for proxy processing (Via, Route, Record-Route, Proxy-Require, Max-Forwards, and



Proxy-Authorization, for example) appear towards the top of the message to facilitate rapid parsing. [RFC3261 7.3.1]

-If Contact, From, and To header fields contain URI with a comma, question mark or semicolon, the URI MUST be enclosed in angle brackets (< and >). [RFC3261 20]

* Content-Length

-Applications SHOULD use this field to indicate the size of the message-body to be transferred.[RFC3261 20.14]

* 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]

* To

-All SIP implementations MUST support the SIP URI scheme. [RFC3261 8.1.1.2]

3.2 generic_REGISTER

Generic judgement items for REGISTER request.

See generic_sip_message

-The initial registration SHALL be authenticated at any time.[TS33.203 5.1.2]

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

- Request-Line:

-Request-URI SHALL be set to the SIP URI of the domain name of the home network.[TS24.229 5.1.1.2]

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

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

-The "userinfo" and "@" components of the SIP URI MUST NOT be present. [RFC3261 10.2]

- 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. [TS24.229 5.1.1.2]

-A valid SIP request formulated by a UAC MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via header fields. [RFC3261 8.1.1]



-The client MUST add both a Require and Proxy-Require header field with the value "sec-agree" to its request.[RFC3329 2.3.1]

* Authorization header

- The username directive in Authorization header field SHALL be set to the value of the private user identity.[TS24.229 5.1.1.2]
- The realm directive in Authorization header field SHALL be set to the value of the domain name of the home network.[TS24.229 5.1.1.2]
- The uri directive in Authorization header field SHALL be set to the SIP URI of the domain name of the home network.[TS24.229 5.1.1.2]
- The nonce directive in Authorization header field SHALL be empty. [TS24.229 5.1.1.2]
- The response directive in Authorization header field SHALL be empty. [TS24.229 5.1.1.2]

- WWW-Authenticate, Authorization, Proxy-Authenticate or Proxy-Authorization MUST NOT be combined into a single header field row. [RFC3261 7.3.1]

* Contact

- Contact header field SHALL be set to SIP URIs containing the IP address of the UE in the hostport parameter or FQDN. [TS24.229 5.1.1.2]
- The hostport parameter in Contact header field SHALL include the protected server port value if the REGISTER request is protected by a security association.[TS24.229 5.1.1.2]

- UACs SHOULD NOT use the "action" parameter.[RFC3261 10.2]
- 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]

* Content-length

- The Content-Length header field value MUST be set to zero. [RFC3261 20.14]

* CSeq

- The method in the CSeq header field MUST match that of the request. [RFC3261 8.1.1.5]
- The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261 8.1.1.5] [RFC3261 20.16]
- The sequence number value in the CSeq header field MUST be less



than 2^{31} . [RFC3261 8.1.1.5]

* From

-From header field SHALL be set to the SIP URI that contains the public user identity to be registered or deregistered.[TS24.229 5.1.1.2]

-The From field MUST contain a new "tag" parameter, chosen by the UAC.[RFC3261 8.1.1.3]

* Max-Forwards

-A UAC MUST insert a Max-Forwards header field into each request it originates. [RFC3261 8.1.1.6]

-The Max-Forwards header field value SHOULD be 70. [RFC3261 8.1.1.6]

* To

-To header field SHALL be set to the SIP URI that contains the public user identity to be registered.[TS24.229 5.1.1.2]

-A request outside of a dialog MUST NOT contain a To tag. [RFC3261 8.1.1.2]

-An address-of-record field included in To header field MUST be a SIP URI or SIPS URI.[RFC3261 10.2]

* P-Access-Network-Info

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

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455 4.2.2.1]

* Proxy-Require

-A UAC MUST insert a Proxy-Require header field into the request listing the option tag for that extension. [RFC3261 8.1.1.9]

* Security-Client

-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.[TS24.229 5.1.1.2]

-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 2.3.1]



* Supported

- The option tag "path " SHALL be contained in the Supported header field.[TS24.229 5.1.1.2]
- The UA SHOULD include the option tag "path" as a header field value in all Supported header fields.[RFC3327 5.1]
- The UA SHOULD include a Supported header field in all requests. [RFC3327 5.1]

* Via

- The IP address or FQDN of the UE SHALL be included in the sent-by field of the Via header field.[TS24.229 5.1.1.2]
- The protected server port value SHALL be included in the sent-by field of the Via header field for the UDP.[TS24.229 5.1.1.2]
- A UAC MUST insert a Via into that request. [RFC3261 8.1.1.7]
- The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261 8.1.1.7]
- The Via header field value MUST contain a branch parameter. [RFC3261 8.1.1.7]
- The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261 8.1.1.7]
- The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261 18.1.1]
- The usage of an FQDN in sent-by field is RECOMMENDED. [RFC3261 18.1.1]

- Security Associations behavior

- ESP confidentiality SHALL be used in transport mode between UE and P-CSCF.[TS33.203 6.2]
- ESP integrity SHALL be used in transport mode between UE and P-CSCF. [TS33.203 6.3]
- A Security-setup-line SHALL be included in REGISTER request in order to start the security mode set-up procedure.[TS33.203 7.2]
- The integrity and confidentiality of the REGISTER request for authentication and all following SIP messages SHALL be protected. [TS33.203 7.2]

3.3 generic_Auth_REGISTER

Generic judgement items for Auth_REGISTER request.

See generic_sip_message

- The header fields SHALL be populated as defined for the initial request with



Authorization header field that includes value as received in the realm directive in the WWW Authenticate header field, and the private user identity and the correct authentication challenge response calculated.[TS24.229 5.1.1.5.1]

- The empty line MUST be present even if the message-body is not.[RFC3261 7]
- The client SHOULD NOT retry the same request without modification.
[RFC3261 21.4]

- Systems using the Path mechanism SHOULD use appropriate mechanisms to provide message integrity and mutual authentication.[RFC3327 6.1]

- Request-Line

- The Request-URI MUST NOT contain unescaped space control characters.
[RFC3261 7.1]
- The Request-URI MUST NOT be enclosed in "<>". [RFC3261 7.1]
- The "userinfo" and "@" components of the SIP URI MUST NOT be present.
[RFC3261 10.2]

- Header fields

- A valid SIP request formulated by a UAC MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via header fields. [RFC3261 8.1.1]
- The client MUST add both a Require and Proxy-Require header field with the value "sec-agree" to its request.[RFC3329 2.3.1]
- A subsequent SIP requests MUST also have both a Require and Proxy-Require header fields with the value "sec-agree".[RFC3329 2.3.1]

- * Authorization

- WWW-Authenticate, Authorization, Proxy-Authenticate or Proxy-Authorization MUST NOT be combined into a single header field row. [RFC3261 7.3.1]

- * Call-ID

- 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.[TS24.229 5.1.1.5.1]
- The Call-ID header field SHOULD be the same in each registration from a UA.[RFC3261 8.1.1.4]
- All registrations from a UAC SHOULD use the same Call-ID header field value for registrations sent to a particular registrar.
[RFC3261 10.2]



- * Contact
 - UACs SHOULD NOT use the "action" parameter.[RFC3261 10.2]
 - 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]
- * Content-length
 - The Content-Length header field value MUST be set to zero.[RFC3261 20.14]
- * CSeq
 - The method in the CSeq header field MUST match that of the request. [RFC3261 8.1.1.5]
 - The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261 8.1.1.5] [RFC3261 20.16]
 - The sequence number value in the CSeq header field MUST be less than $2^{*}31$. [RFC3261 8.1.1.5]
 - A UA MUST increment the CSeq value by one for each REGISTER request with the same Call-ID.[RFC3261 10.2]
- * From
 - The From field MUST contain a new "tag" parameter, chosen by the UAC.[RFC3261 8.1.1.3]
- * Max-Forwards
 - A UAC MUST insert a Max-Forwards header field into each request it originates. [RFC3261 8.1.1.6]
 - The Max-Forwards header field value SHOULD be 70. [RFC3261 8.1.1.6]
- * P-Called-Party-ID
 - A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455 4.2.2.1]
- * Proxy-Require
 - A UAC MUST insert a Proxy-Require header field into the request listing the option tag for that extension. [RFC3261 8.1.1.9]
- * Security-Client
 - 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. [TS24.229 5.1.1.5.1]



-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 2.3.1]

* Security-Verify

-The Security-Verify header field SHALL be mirrored the content of the Security-Server header field received in the 401 (Unauthorized) response. [TS24.229 5.1.1.5.1]

-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 2.3.1]

* Supported

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

-The UA SHOULD include a Supported header field in all requests. [RFC3327 5.1]

* To

-A request outside of a dialog MUST NOT contain a To tag. [RFC3261 8.1.1.2]

-An address-of-record field included in To header field MUST be a SIP URI or SIPS URI.[RFC3261 10.2]

* Via

-A UAC MUST insert a Via into that request. [RFC3261 8.1.1.7]

-The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261 8.1.1.7]

-The Via header field value MUST contain a branch parameter. [RFC3261 8.1.1.7]

-The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261 8.1.1.7]

-The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261 18.1.1]

-The usage of an FQDN in sent-by field is RECOMMENDED. [RFC3261 18.1.1]

- Security Association behavior

-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.[TS24.229 5.1.1.5.1]

- 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.
[TS24.229 5.1.1.5.1]
- The parameters received in the Security-Server header field SHALL be used to setup the temporary set of security associations.
[TS24.229 5.1.1.5.1]
- REGISTER request SHALL be sent using the temporary set of security associations to protect the message.[TS24.229 5.1.1.5.1]

- ESP confidentiality SHALL be used in transport mode between UE and P-CSCF.[TS33.203 6.2]
- ESP integrity SHALL be used in transport mode between UE and P-CSCF.
[TS33.203 6.3]
- The integrity and confidentiality of the REGISTER request for authentication and all following SIP messages SHALL be protected.
[TS33.203 7.2]
- 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.[TS33.203 7.2]

- The REGISTER request for authentication to the P-CSCF SHALL be protected with the new outbound SA.[TS33.203 7.4.1a]

- 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 2.3.1]
- All clients MUST select HTTP Digest, TLS, IPsec, or any stronger method for the protection of the second request.[RFC3329 5]

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]
- Registration refreshes SHOULD be sent to the same network address as the original registration.[RFC3261 10.2.4]
- Systems using the Path mechanism SHOULD use appropriate mechanisms to



provide message integrity and mutual authentication.[RFC3327 6.1]

- Request-Line

- Request-URI SHALL be set to the SIP URI of the domain name of the home network.[TS24.229 5.1.1.4]
- The Request-URI MUST NOT contain unescaped space control characters. [RFC3261 7.1]
- The Request-URI MUST NOT be enclosed in "<>". [RFC3261 7.1]
- The "userinfo" and "@" components of the SIP URI MUST NOT be present. [RFC3261 10.2]

- 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. [TS24.229 5.1.1.4]
- A valid SIP request formulated by a UAC MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via header fields. [RFC3261 8.1.1]
- The client MUST add both a Require and Proxy-Require header field with the value "sec-agree" to its request.[RFC3329 2.3.1]
- A subsequent SIP requests MUST also have both a Require and Proxy-Require header fields with the value "sec-agree".[RFC3329 2.3.1]

* Authorization header

- The username directive in Authorization header field SHALL be set to the value of the private user identity.[TS24.229 5.1.1.4]
- 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.[TS24.229 5.1.1.4]
- The uri directive in Authorization header field SHALL be set to the SIP URI of the domain name of the home network. [TS24.229 5.1.1.4]
- The nonce directive in Authorization header field SHALL be set to last received nonce value.[TS24.229 5.1.1.4]
- The response directive in Authorization header field SHALL be set to the last calculated response value.[TS24.229 5.1.1.4]
- WWW-Authenticate, Authorization, Proxy-Authenticate or Proxy-Authorization MUST NOT be combined into a single header field row. [RFC3261 7.3.1]

* From

- From header field SHALL be set to the SIP URI that contains the public user identity to be registered or deregistered.[TS24.229 5.1.1.4]
- The From field MUST contain a new "tag" parameter, chosen by the



UAC.[RFC3261 8.1.1.3]

* Call-ID

- The Call-ID header field SHOULD be the same in each registration from a UA.[RFC3261 8.1.1.4]
- All registrations from a UAC SHOULD use the same Call-ID header field value for registrations sent to a particular registrar. [RFC3261 10.2]
- A UA SHOULD use the same Call-ID for all registrations during a single boot cycle.[RFC3261 10.2.4]

* Contact

- Contact header field SHALL be set to IP address or FQDN and protected server port value. [TS24.229 5.1.1.4]
- UACs SHOULD NOT use the "action" parameter.[RFC3261 10.2]
- 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]

* Content-length

- The Content-Length header field value MUST be set to zero. [RFC3261 20.14]

* CSeq

- The method in the CSeq header field MUST match that of the request. [RFC3261 8.1.1.5]
- The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261 8.1.1.5] [RFC3261 20.16]
- The sequence number value in the CSeq header field MUST be less than 2^{31} . [RFC3261 8.1.1.5]
- A UA MUST increment the CSeq value by one for each REGISTER request with the same Call-ID.[RFC3261 10.2]

* Max-Forwards

- A UAC MUST insert a Max-Forwards header field into each request it originates. [RFC3261 8.1.1.6]
- The Max-Forwards header field value SHOULD be 70. [RFC3261 8.1.1.6]

* P-Called-Party-ID

- A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455 4.2.2.1]



* Proxy-Require

-A UAC MUST insert a Proxy-Require header field into the request listing the option tag for that extension. [RFC3261 8.1.1.9]

* Security-Client

-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.[TS24.229 5.1.1.4]

-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 2.3.1]

* Security-Verify

-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. [TS24.229 5.1.1.4]

-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 2.3.1]

* Supported

-The option tag "path" SHALL be contained in Supported header field. [TS24.229 5.1.1.4][RFC3327 5.1]

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

-The UA SHOULD include a Supported header field in all requests. [RFC3327 5.1]

* To

-To header field SHALL be set to the SIP URI that contains the public user identity to be registered.[TS24.229 5.1.1.4]

-A request outside of a dialog MUST NOT contain a To tag. [RFC3261 8.1.1.2]

-An address-of-record field included in To header field MUST be a SIP URI or SIPS URI.[RFC3261 10.2]

* Via

-The IP address or FQDN of the UE and the protected server port value for the UDP SHALL be included in Via header field..



[TS24.229 5.1.1.4]

- A UAC MUST insert a Via into that request. [RFC3261 8.1.1.7]
- The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261 8.1.1.7]
- The Via header field value MUST contain a branch parameter. [RFC3261 8.1.1.7]
- The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261 8.1.1.7]
- The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261 18.1.1]
- The usage of an FQDN in sent-by field is RECOMMENDED. [RFC3261 18.1.1]
- Security Association behavior
 - The reregistration SHALL be sent over the existing set of security associations that is associated with the related contact address. [TS24.229 5.1.1.4]
 - The REGISTER request SHALL be protected using a security association established as a result of an earlier registration.[TS24.229 5.1.1.4]
 - ESP confidentiality SHALL be used in transport mode between UE and P-CSCF.[TS33.203 6.2]
 - ESP integrity SHALL be used in transport mode between UE and P-CSCF. [TS33.203 6.3]
 - A Security-setup-line SHALL be included in REGISTER request in order to start the security mode set-up procedure.[TS33.203 7.2]
 - The integrity and confidentiality of the REGISTER request for authentication and all following SIP messages SHALL be protected. [TS33.203 7.2]
 - The first message in this registration SHOULD be protected with an SA created by a previous successful authentication if one exists. [TS33.203 7.3.1.4]
 - An already active pair of security associations SHALL be used to protect the REGISTER request.[TS33.203 7.4]
 - The REGISTER request SHALL be protected with the old outbound security association if the initial REGISTER request was protected. [TS33.203 7.4.1a]
 - A particular security association SHALL protect the certain messages in the authentication.[TS33.203 7.4.1a]
- 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 2.3.1]

3.5 generic_de_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]
- Systems using the Path mechanism SHOULD use appropriate mechanisms to provide message integrity and mutual authentication.[RFC3327 6.1]
- Request-Line
 - Request-URI SHALL be set to the SIP URI of the domain name of the home network.[TS24.229 5.1.1.6]
 - The Request-URI MUST NOT contain unescaped space control characters. [RFC3261 7.1]
 - The Request-URI MUST NOT be enclosed in "<>". [RFC3261 7.1]
 - The "userinfo" and "@" components of the SIP URI MUST NOT be present. [RFC3261 10.2]
- Header fields
 - Expires header or the expires parameter of the Contact header field SHALL be set to the value of zero.[TS24.229 5.1.1.6]
 - A valid SIP request formulated by a UAC 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 10.2.2]
 - The client MUST add both a Require and Proxy-Require header field with the value "sec-agree" to its request.[RFC3329 2.3.1]
 - A subsequent SIP requests MUST also have both a Require and Proxy-Require header fields with the value "sec-agree".[RFC3329 2.3.1]
- * Authorization
 - The username directive in Authorization header field SHALL be set to the value of the private user identity.[TS24.229 5.1.1.6]
 - The realm directive in Authorization header field SHALL be set to the value as received in the realm directive in the WWW-Authenticate header.[TS24.229 5.1.1.6]
 - The uri directive in Authorization header field SHALL be set to the SIP URI of the domain name of the home network. [TS24.229 5.1.1.6]



- The nonce directive in Authorization header field SHALL be set to last received nonce value.[TS24.229 5.1.1.6]
- The response directive in Authorization header field SHALL be set to the last calculated response value.[TS24.229 5.1.1.6]
- WWW-Authenticate, Authorization, Proxy-Authenticate or Proxy-Authorization MUST NOT be combined into a single header field row. [RFC3261 7.3.1]

* Call-ID

- The Call-ID header field SHOULD be the same in each registration from a UA.[RFC3261 8.1.1.4]
- All registrations from a UAC SHOULD use the same Call-ID header field value for registrations sent to a particular registrar. [RFC3261 10.2]

* Contact

- Contact header field SHALL be set to either the value of "*" or SIP URI(s) that contain(s) in the hostport parameter the IP address of the UE or FQDN and the protected server port value. [TS24.229 5.1.1.6]
- UACs SHOULD NOT use the "action" parameter.[RFC3261 10.2]
- 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]

* Content-length

- The Content-Length header field value MUST be set to zero. [RFC3261 20.14]

* CSeq

- The method in the CSeq header field MUST match that of the request. [RFC3261 8.1.1.5]
- The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261 8.1.1.5] [RFC3261 20.16]
- The sequence number value in the CSeq header field MUST be less than 2^{31} . [RFC3261 8.1.1.5]
- A UA MUST increment the CSeq value by one for each REGISTER request with the same Call-ID.[RFC3261 10.2]

* From

- From header field SHALL be set to the SIP URI that contains the public user identity to be registered or deregistered.[TS24.229 5.1.1.6]



-The From field MUST contain a new "tag" parameter, chosen by the UAC.[RFC3261 8.1.1.3]

* Max-Forwards

- A UAC MUST insert a Max-Forwards header field into each request it originates. [RFC3261 8.1.1.6]
- The Max-Forwards header field value SHOULD be 70. [RFC3261 8.1.1.6]

* P-Called-Party-ID

- A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455 4.2.2.1]

* Proxy-Require

- A UAC MUST insert a Proxy-Require header field into the request listing the option tag for that extension. [RFC3261 8.1.1.9]

* 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.[TS24.229 5.1.1.6]
- 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 2.3.1]

* Security-Verify

- 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. [TS24.229 5.1.1.6]
- 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 2.3.1]

* Supported

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

* To



- To header field SHALL be set to the SIP URI that contains the public user identity to be deregistered.[TS24.229 5.1.1.6]
- A request outside of a dialog MUST NOT contain a To tag. [RFC3261 8.1.1.2]
- An address-of-record field included in To header field MUST be a SIP URI or SIPS URI.[RFC3261 10.2]

* Via

- The IP address or FQDN of the UE and the protected server port value for the UDP SHALL be included in Via header field. [TS24.229 5.1.1.6]
- A UAC MUST insert a Via into that request. [RFC3261 8.1.1.7]
- The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261 8.1.1.7]
- The Via header field value MUST contain a branch parameter. [RFC3261 8.1.1.7]
- The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261 8.1.1.7]
- The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261 18.1.1]
- The usage of an FQDN in sent-by field is RECOMMENDED. [RFC3261 18.1.1]

- Security Association behavior

- The REGISTER request SHALL be protected using a security association established as a result of an earlier registration.[TS24.229 5.1.1.6]
- ESP confidentiality SHALL be used in transport mode between UE and P-CSCF.[TS33.203 6.2]
- ESP integrity SHALL be used in transport mode between UE and P-CSCF. [TS33.203 6.3]
- A Security-setup-line SHALL be included in REGISTER request in order to start the security mode set-up procedure.[TS33.203 7.2]
- The integrity and confidentiality of the REGISTER request for authentication and all following SIP messages SHALL be protected. [TS33.203 7.2]
- 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 2.3.1]



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]

- Request-Line:

- Request-URI SHALL be set to the resource to which the UE wants to be subscribed to.[TS24.229 5.1.1.3]
- The Request-URI MUST NOT contain unescaped space control characters. [RFC3261 7.1]
- The Request-URI MUST NOT be enclosed in "<>". [RFC3261 7.1]
- The initial Request-URI of the message SHOULD be set to the value of the URI in the To field.[RFC3261 8.1.1.1]

- Header fields:

- A valid SIP request formulated by a UAC MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via header fields. [RFC3261 8.1.1]
- These requests MUST also have both a Require and Proxy-Require header fields with the value "sec-agree".[RFC3329 2.3.1]

* 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 3.3.7]

* Contact

- Contact header field SHALL be set to IP address or FQDN and protected server port value as in the initial registration. [TS24.229 5.1.1.3]
- The protected server port SHALL be included in the address in the Contact header field if UE did not insert a GRUU..[TS24.229 5.1.2A.1]
- 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 8.1.1.8]
- UAC MUST provide a SIP or SIPS URI with global scope in the Contact header field of the request.[RFC3261 12.1.2]
- 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]



- * Content-length
 - The Content-Length header field value MUST be set to zero.
[RFC3261 20.14]
- * CSeq
 - The method in the CSeq header field MUST match that of the request.
[RFC3261 8.1.1.5]
 - The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261 8.1.1.5]
[RFC3261 20.16]
 - The sequence number value in the CSeq header field MUST be less than $2^{*}31$. [RFC3261 8.1.1.5]
- * Event
 - Event header field SHALL be set to the "reg" event package.
[TS24.229 5.1.1.3]
 - Subscribers MUST include exactly one "Event" header in SUBSCRIBE requests, indicating to which event or class of events they are subscribing.
[RFC3265 3.1.2]
 - There MUST be exactly one event type listed per event header.
[RFC3265 7.2.1]
- * Expires
 - Expires header field SHALL be set to 600 000 seconds as the value desired for the duration of the subscription.[TS24.229 5.1.1.3]
 - 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.[TS24.229 5.1.1.3]
 - The From field MUST contain a new "tag" parameter, chosen by the UAC.
[RFC3261 8.1.1.3]
- * Max-Forwards
 - A UAC MUST insert a Max-Forwards header field into each request it originates. [RFC3261 8.1.1.6]
 - The Max-Forwards header field value SHOULD be 70.[RFC3261 8.1.1.6]
- * P-Called-Party-ID
 - A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP



request or response.[RFC3455 4.2.2.1]

* 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. [TS24.229 5.1.2A.1]
- 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.[TS24.229 5.1.2A.1]

* Proxy-Require

- A UAC MUST insert a Proxy-Require header field into the request listing the option tag for that extension. [RFC3261 8.1.1.9]

* Route

- A proper preloaded Route header value SHALL be built in Route header for all new dialogs and standalone transactions.[TS24.229 5.1.2A.1]
- A list of Route header values made out of the P-CSCF URI and the values received in the Service-Route header saved from the 200 (OK) response to the last registration SHALL be built in Route header.[TS24.229 5.1.2A.1]
- If the request contains a Route header field, the request SHOULD be sent to the locations derived from its topmost value.[RFC3261 8.1.2]

* Security-Verify

- 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 2.3.1]
- These requests MUST contain a Security-Verify header field that mirrors the server's list received previously in the Security- Server header field. [RFC3329 2.3.1]

* To

- To header field SHALL be set to a SIP URI that contains the public user identity used for subscription.[TS24.229 5.1.1.3]
- A request outside of a dialog MUST NOT contain a To tag; the tag in the To field of a request identifies the peer of the dialog. [RFC3261 8.1.1.2]

* Via

- The protected server port SHALL be included in the Via header entry relating to the UE.[TS24.229 5.1.2A.1]
- A UAC MUST insert a Via into that request. [RFC3261 8.1.1.7]
- The protocol name and protocol version in the Via header field MUST be



- SIP and 2.0. [RFC3261 8.1.1.7]
- The Via header field value MUST contain a branch parameter.
[RFC3261 8.1.1.7]
- The branch ID MUST always begin with the characters "z9hG4bK".
[RFC3261 8.1.1.7]
- The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261 18.1.1]
- The usage of an FQDN in sent-by field is RECOMMENDED.
[RFC3261 18.1.1]

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.
[TS24.229 5.1.1.3]
- The empty line MUST be present even if the message-body is not.[RFC3261 7]
- Request-Line:
 - The Request-URI MUST NOT contain unescaped space control characters.
[RFC3261 7.1]
 - The Request-URI MUST NOT be enclosed in "<>". [RFC3261 7.1]
 - 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 12.2.1.1]
- Header fields:
 - A valid SIP request formulated by a UAC MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via header fields. [RFC3261 8.1.1]
 - A subsequent SIP requests MUST also have both a Require and Proxy-Require header fields with the value "sec-agree".[RFC3329 2.3.1]
- * 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 3.3.7]
- * Call-ID



- The Call-ID header field MUST be the same for all requests and responses sent by either UA in a dialog.[RFC3261 8.1.1.4]
- The Call-ID of the request MUST be set to the Call-ID of the dialog.[RFC3261 12.2.1.1]

* Contact

- The protected server port SHALL be included in the address in the Contact header field if UE did not insert a GRUU..[TS24.229 5.1.2A.1]
- 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]

* Content-length

- The Content-Length header field value MUST be set to zero.[RFC3261 20.14]

* CSeq

- The method in the CSeq header field MUST match that of the request.[RFC3261 8.1.1.5]
- The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer.[RFC3261 8.1.1.5]
[RFC3261 20.16]
- The sequence number value in the CSeq header field MUST be less than $2^{*}31$. [RFC3261 8.1.1.5]
- Requests within a dialog MUST contain strictly monotonically increasing and contiguous CSeq sequence numbers in each direction.
[RFC3261 12.2.1.1]
- The value of the local sequence number MUST be incremented by one if the local sequence number is not empty.[RFC3261 12.2.1.1]
- The value of the local sequence number MUST be placed into the CSeq header field if the local sequence number is not empty.[RFC3261 12.2.1.1]
- The method field in the CSeq header field value MUST match the method of the request.[RFC3261 12.2.1.1]

* Event

- Subscribers MUST include exactly one "Event" header in SUBSCRIBE requests, indicating to which event or class of events they are subscribing.[RFC3265 3.1.2]
- There MUST be exactly one event type listed per event header.[RFC3265 7.2.1]

* 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 12.2.1.1]
-The tag in the From header field of the request MUST be set to the local tag of the dialog ID.[RFC3261 12.2.1.1]

* Max-Forwards

-A UAC MUST insert a Max-Forwards header field into each request it originates. [RFC3261 8.1.1.6]
-The Max-Forwards header field value SHOULD be 70. [RFC3261 8.1.1.6]

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455 4.2.2.1]

* Proxy-Require

-A UAC MUST insert a Proxy-Require header field into the request listing the option tag for that extension. [RFC3261 8.1.1.9]

* Route

-If the request contains a Route header field, the request SHOULD be sent to the locations derived from its topmost value.
[RFC3261 8.1.2]
-The UAC MUST NOT add a Route header field to the request.
[RFC3261 12.2.1.1]
-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 12.2.1.1]

* Security-Verify

-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 2.3.1]

-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 2.3.1]



* To

- The URI in the To field of the request MUST be set to the remote URI from the dialog state.[RFC3261 12.2.1.1]
- The tag in the To header field of the request MUST be set to the remote tag of the dialog ID.[RFC3261 12.2.1.1]

* Via

- The protected server port SHALL be included in the Via header entry relating to the UE.[TS24.229 5.1.2A.1]
- A UAC MUST insert a Via into that request. [RFC3261 8.1.1.7]
- The protocol name and protocol version in the Via header field MUST be SIP and 2.0.[RFC3261 8.1.1.7]
- The Via header field value MUST contain a branch parameter. [RFC3261 8.1.1.7]
- The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261 8.1.1.7]
- The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261 18.1.1]
- The usage of an FQDN in sent-by field is RECOMMENDED. [RFC3261 18.1.1]

3.8 generic_200-NOTIFY

Generic judgement items for 200-NOTIFY response.

See generic_sip_message

- The empty line MUST be present even if the message-body is not. [RFC3261 7]
- TUs SHOULD respond immediately to non-INVITE requests.[RFC3261 17.1]

- 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 8.1.1.4]
- The Call-ID header field of the response MUST equal the Call-ID header field of the request.[RFC3261 8.2.6.2]

* Content-length

- The Content-Length header field value MUST be set to zero. [RFC3261 20.14]

* CSeq



- The CSeq header field of the response MUST equal the CSeq field of the request.[RFC3261 8.2.6.2]
- * From
 - The From field of the response MUST equal the From header field of the request.[RFC3261 8.2.6.2]
- * P-Called-Party-ID
 - A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455 4.2.2.1]
- * 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 8.2.6.2]
- * Via
 - The Via header field values in the response MUST equal the Via header field values in the request.[RFC3261 8.2.6.2]
 - The Via header field values in the response MUST maintain the same ordering.[RFC3261 8.2.6.2]
 - 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 18.2.1]
 - The "sent-by" parameter MUST contain the source address from which the packet was received.[RFC3261 18.2.1]
 - 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 18.2.2]

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]
 - The Request-URI MUST NOT be enclosed in "<>". [RFC3261 7.1]
 - The initial Request-URI of the message SHOULD be set to the value of the URI in the To field.[RFC3261 8.1.1.1]



- Header fields:
 - A valid SIP request formulated by a UAC MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via header fields. [RFC3261 8.1.1]
 - These requests MUST also have both a Require and Proxy-Require header fields with the value "sec-agree".[RFC3329 2.3.1]
- * Allow
 - A UA that supports INVITE MUST also support ACK, CANCEL and BYE. [RFC3261 13.1]
 - 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 3.3.7]
- * Contact
 - The protected server port SHALL be included in the address in the Contact header field if UE did not insert a GRUU..[TS24.229 5.1.2A.1]
 - 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 8.1.1.8]
 - UAC MUST provide a SIP or SIPS URI with global scope in the Contact header field of the request.[RFC3261 12.1.2]
 - 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]
- * Content-Encoding
 - If the body has not undergone any encoding such as compression, then Content-Encoding MUST be omitted. [RFC3261 7.4.1]
- * 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]
- * CSeq
 - The method in the CSeq header field MUST match that of the request.



[RFC3261 8.1.1.5]

-The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261 8.1.1.5]
[RFC3261 20.16]

-The sequence number value in the CSeq header field MUST be less than $2^{*}31$. [RFC3261 8.1.1.5]

* From

-The From field MUST contain a new "tag" parameter, chosen by the UAC.
[RFC3261 8.1.1.3]

* Max-Forwards

-A UAC MUST insert a Max-Forwards header field into each request it originates. [RFC3261 8.1.1.6]
-The Max-Forwards header field value SHOULD be 70.[RFC3261 8.1.1.6]

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455 4.2.2.1]

* Route

-A proper preloaded Route header value SHALL be built in Route header for all new dialogs and standalone transactions.[TS24.229 5.1.2A.1]
-A list of Route header values made out of the P-CSCF URI and the values received in the Service-Route header saved from the 200 (OK) response to the last registration SHALL be built in Route header.[TS24.229 5.1.2A.1]

-If the request contains a Route header field, the request SHOULD be sent to the locations derived from its topmost value.[RFC3261 8.1.2]

* 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.
[TS24.229 5.1.2A.1]
-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.[TS24.229 5.1.2A.1]

* Proxy-Require

-A UAC MUST insert a Proxy-Require header field into the request listing the option tag for that extension. [RFC3261 8.1.1.9]

* Security-Verify



- 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 2.3.1]
- These requests MUST contain a Security-Verify header field that mirrors the server's list received previously in the Security- Server header field.
[RFC3329 2.3.1]
- * Supported
 - A Supported header field SHOULD be present in the INVITE.
[RFC3261 13.2.1]
- * To
 - A request outside of a dialog MUST NOT contain a To tag; the tag in the To field of a request identifies the peer of the dialog. [RFC3261 8.1.1.2]
- * Via
 - The protected server port SHALL be included in the Via header entry relating to the UE.[TS24.229 5.1.2A.1]
 - A UAC MUST insert a Via into that request. [RFC3261 8.1.1.7]
 - The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261 8.1.1.7]
 - The Via header field value MUST contain a branch parameter.
[RFC3261 8.1.1.7]
 - The branch ID MUST always begin with the characters "z9hG4bK".
[RFC3261 8.1.1.7]
 - The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261 18.1.1]
 - The usage of an FQDN in sent-by field is RECOMMENDED.
[RFC3261 18.1.1]
- Bodies fields:
 - The SDP payloads SHALL not be encrypted.[TS24.229 6.1.1]
 - Only SDP payload SHALL be contained in SIP messages when the SDP payload must be included in the message.[TS24.229 6.1.1]
 - A SDP offer and at least one media description SHALL be contained in an INVITE request generated by a UE.[TS24.229 6.1.2]
 - The Session Description Protocol MUST be supported by all user agents as a means to describe sessions.[RFC3261 13.2.1]
 - Whitespace MUST NOT be used on either side of the "=" sign. [RFC4566 5]
 - v,o,s,(c),t,m,(c) lines are REQUIRED in the SDP message.
(c line MUST include session level information or all of media information)
[RFC4566 5]



-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 "()" is OPTIONAL)[RFC4566 5]

* 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]

* s line

-There MUST be one and only one "s=" field per session description.

[RFC4566 5.3]

-The "s=" field MUST NOT be empty. [RFC4566 5.3]

-If a session has no meaningful name, the value "s= " SHOULD be used.

[RFC4566 5.3]

* 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]

-A session-level "c=" field MUST NOT specify Multiple addresses or "c=" lines.[RFC4566 5.7]

-The slash notation for multiple addresses MUST NOT be used for IP unicast addresses on a media-level.[RFC4566 5.7]

* 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.[TS24.229 6.1.1]

3.10 generic_180-INVITE

Generic judgement items for 180-INVITE response.

9. generic_180-INVITE

See generic_sip_message

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

- Header fields:

* Call-ID



-The Call-ID header field of the response MUST equal the Call-ID header field of the request.[RFC3261 8.2.6.2]

* Content-length

-The Content-Length header field value MUST be set to zero.
[RFC3261 20.14]

* CSeq

-The CSeq header field of the response MUST equal the CSeq field of the request.[RFC3261 8.2.6.2]

* From

-The From field of the response MUST equal the From header field of the request.[RFC3261 8.2.6.2]

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455 4.2.2.1]

* 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 8.2.6.2]
-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 8.2.6.2]

* Via

-The Via header field values in the response MUST equal the Via header field values in the request.[RFC3261 8.2.6.2]
-The Via header field values in the response MUST maintain the same ordering.[RFC3261 8.2.6.2]
-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 18.2.1]
-The "sent-by" parameter MUST contain the source address from which the packet was received.[RFC3261 18.2.1]
-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 18.2.2]



3.11 generic_200-INVITE

Generic judgement items for 200-INVITE response.

See generic_sip_message

- Header fields:

-A 2xx response to an INVITE SHOULD contain the Allow header field and the Supported header field.[RFC3261 13.3.1.4]

* Allow

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

* 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 3.3.7]

* Call-ID

-The Call-ID header field MUST be the same for all requests and responses sent by either UA in a dialog.[RFC3261 8.1.1.4]
-The Call-ID header field of the response MUST equal the Call-ID header field of the request.[RFC3261 8.2.6.2]

* Contact

- The protected server port SHALL be included in the address in the Contact header field if UE did not insert a GRUU. [TS24.229 5.1.2A.2]
-The UAS MUST add a Contact header field to the response.
[RFC3261 12.1.1]
-The URI provided in the Contact header field MUST be a SIP or SIPS URI.[RFC3261 12.1.1]
-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]

* Content-Encoding

-If the body has not undergone any encoding such as compression, then Content-Encoding MUST be omitted. [RFC3261 7.4.1]

* 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]

* CSeq

-The CSeq header field of the response MUST equal the CSeq field of the request.[RFC3261 8.2.6.2]

* From

-The From field of the response MUST equal the From header field of the request.[RFC3261 8.2.6.2]

* P-Called-Party-ID

-A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455 4.2.2.1]

* 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 12.1.1]

-Record-Route header field values MUST maintain the order of Record-Route values from the request. [RFC3261 12.1.1]

* 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 8.2.6.2]

-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 8.2.6.2]

-The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261 8.2.6.2]

* Via

-The Via header field values in the response MUST equal the Via header field values in the request.[RFC3261 8.2.6.2]

-The Via header field values in the response MUST maintain the same ordering.[RFC3261 8.2.6.2]

-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 18.2.1]

-The "sent-by" parameter MUST contain the source address from which the packet was received.[RFC3261 18.2.1]



-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 18.2.2]

- Bodies fields:

- The SDP payloads SHALL not be encrypted.[TS24.229 6.1.1]
- Only SDP payload SHALL be contained in SIP messages when the SDP payload must be included in the message.[TS24.229 6.1.1]
- 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 13.2.1]
- The Session Description Protocol MUST be supported by all user agents as a means to describe sessions.[RFC3261 13.2.1]
- The 2xx MUST contain an answer if the INVITE request contained an offer and the UAS had not yet sent an answer.[RFC3261 13.3.1.4]
- Whitespace MUST NOT be used on either side of the "=" sign. [RFC4566 5]
- v,o,s,(c),t,m,(c) lines are REQUIRED in the SDP message.
(c line MUST include session level information or all of media information) [RFC4566 5]
- 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 "()" is OPTIONAL)[RFC4566 5]

* 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]

* s line

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

* 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]
- A session-level "c=" field MUST NOT specify Multiple addresses or "c=" lines.[RFC4566 5.7]
- The slash notation for multiple addresses MUST NOT be used for IP unicast addresses on a media-level.[RFC4566 5.7]



* 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.[TS24.229 6.1.1]

3.12 generic_ACK

Generic judgement items for ACK request.

See generic_sip_message

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

- Request-Line:

- The Request-URI MUST NOT contain unescaped space control characters. [RFC3261 7.1]
- The Request-URI MUST NOT be enclosed in "<>". [RFC3261 7.1]
- 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 12.2.1.1]

- Header fields:

- A valid SIP request formulated by a UAC 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 8.1.1.4]
- The Call-ID of the request MUST be set to the Call-ID of the dialog. [RFC3261 12.2.1.1]

* Content-length

- The Content-Length header field value MUST be set to zero. [RFC3261 20.14]

* CSeq

- The method in the CSeq header field MUST match that of the request. [RFC3261 8.1.1.5]
- The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261 8.1.1.5]
- [RFC3261 20.16]



- The sequence number value in the CSeq header field MUST be less than 2^{31} . [RFC3261 8.1.1.5]
 - Requests within a dialog MUST contain strictly monotonically increasing and contiguous CSeq sequence numbers in each direction. [RFC3261 12.2.1.1]
 - The value of the local sequence number MUST be incremented by one if the local sequence number is not empty. [RFC3261 12.2.1.1]
 - The value of the local sequence number MUST be placed into the CSeq header field if the local sequence number is not empty. [RFC3261 12.2.1.1]
 - The method field in the CSeq header field value MUST match the method of the request. [RFC3261 12.2.1.1]
- * From
- The From URI of the request MUST be set to the local URI from the dialog state. [RFC3261 12.2.1.1]
 - The tag in the From header field of the request MUST be set to the local tag of the dialog ID. [RFC3261 12.2.1.1]
- * Max-Forwards
- A UAC MUST insert a Max-Forwards header field into each request it originates. [RFC3261 8.1.1.6]
 - The Max-Forwards header field value SHOULD be 70. [RFC3261 8.1.1.6]
- * P-Called-Party-ID
- A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response. [RFC3455 4.2.2.1]
- * Route
- If the request contains a Route header field, the request SHOULD be sent to the locations derived from its topmost value. [RFC3261 8.1.2]
 - The UAC MUST NOT add a Route header field to the request. [RFC3261 12.2.1.1]
 - 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 12.2.1.1]
- * To
- The URI in the To field of the request MUST be set to the remote URI from the dialog state. [RFC3261 12.2.1.1]
 - The tag in the To header field of the request MUST be set to the remote tag of the dialog ID. [RFC3261 12.2.1.1]



* Via

- The protected server port SHALL be included in the Via header entry relating to the UE.[TS24.229 5.1.2A.1]
- A UAC MUST insert a Via into that request. [RFC3261 8.1.1.7]
- The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261 8.1.1.7]
- The Via header field value MUST contain a branch parameter. [RFC3261 8.1.1.7]
- The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261 8.1.1.7]
- The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261 18.1.1]
- The usage of an FQDN in sent-by field is RECOMMENDED. [RFC3261 18.1.1]

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]
- Request-Line:
 - The Request-URI MUST NOT contain unescaped space control characters. [RFC3261 7.1]
 - The Request-URI MUST NOT be enclosed in "<>". [RFC3261 7.1]
 - 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 12.2.1.1]
- Header fields:
 - A valid SIP request formulated by a UAC MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via header fields. [RFC3261 8.1.1]
 - These requests MUST also have both a Require and Proxy-Require header fields with the value "sec-agree".[RFC3329 2.3.1]
- * Call-ID
 - The Call-ID header field MUST be the same for all requests and responses sent by either UA in a dialog.[RFC3261 8.1.1.4]
 - The Call-ID of the request MUST be set to the Call-ID of the dialog. [RFC3261 12.2.1.1]



- * Content-length
 - The Content-Length header field value MUST be set to zero.
[RFC3261 20.14]
- * CSeq
 - The method in the CSeq header field MUST match that of the request.
[RFC3261 8.1.1.5]
 - The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261 8.1.1.5]
[RFC3261 20.16]
 - The sequence number value in the CSeq header field MUST be less than $2^{*}31$. [RFC3261 8.1.1.5]
 - Requests within a dialog MUST contain strictly monotonically increasing and contiguous CSeq sequence numbers in each direction.
[RFC3261 12.2.1.1]
 - The value of the local sequence number MUST be incremented by one if the local sequence number is not empty.[RFC3261 12.2.1.1]
 - The value of the local sequence number MUST be placed into the CSeq header field if the local sequence number is not empty.[RFC3261 12.2.1.1]
 - The method field in the CSeq header field value MUST match the method of the request.[RFC3261 12.2.1.1]
- * From
 - The From URI of the request MUST be set to the local URI from the dialog state.[RFC3261 12.2.1.1]
 - The tag in the From header field of the request MUST be set to the local tag of the dialog ID.[RFC3261 12.2.1.1]
- * Max-Forwards
 - A UAC MUST insert a Max-Forwards header field into each request it originates. [RFC3261 8.1.1.6]
 - The Max-Forwards header field value SHOULD be 70.[RFC3261 8.1.1.6]
- * P-Called-Party-ID
 - A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455 4.2.2.1]
- * Route
 - If the request contains a Route header field, the request SHOULD be sent to the locations derived from its topmost value.[RFC3261 8.1.2]
 - The UAC MUST NOT add a Route header field to the request.
[RFC3261 12.2.1.1]
 - 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 12.2.1.1]

* Proxy-Require

-A UAC MUST insert a Proxy-Require header field into the request listing the option tag for that extension. [RFC3261 8.1.1.9]

* Security-Verify

-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 2.3.1]
-These requests MUST contain a Security-Verify header field that mirrors the server's list received previously in the Security- Server header field.
[RFC3329 2.3.1]

* To

-The URI in the To field of the request MUST be set to the remote URI from the dialog state.[RFC3261 12.2.1.1]
-The tag in the To header field of the request MUST be set to the remote tag of the dialog ID.[RFC3261 12.2.1.1]

* Via

-The protected server port SHALL be included in the Via header entry relating to the UE.[TS24.229 5.1.2A.1]
-A UAC MUST insert a Via into that request. [RFC3261 8.1.1.7]
-The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261 8.1.1.7]
-The Via header field value MUST contain a branch parameter.
[RFC3261 8.1.1.7]
-The branch ID MUST always begin with the characters "z9hG4bK".
[RFC3261 8.1.1.7]
-The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261 18.1.1]
-The usage of an FQDN in sent-by field is RECOMMENDED.
[RFC3261 18.1.1]

3.14 generic_200-BYE

Generic judgement items for 200-BYE response.

See generic_sip_message



- The empty line MUST be present even if the message-body is not. [RFC3261 7]
- TUs SHOULD respond immediately to non-INVITE requests.[RFC3261 17.1]
- 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 8.1.1.4]
 - The Call-ID header field of the response MUST equal the Call-ID header field of the request.[RFC3261 8.2.6.2]
 - * Content-length
 - The Content-Length header field value MUST be set to zero. [RFC3261 20.14]
 - * CSeq
 - The CSeq header field of the response MUST equal the CSeq field of the request.[RFC3261 8.2.6.2]
 - * From
 - The From field of the response MUST equal the From header field of the request.[RFC3261 8.2.6.2]
 - * P-Called-Party-ID
 - A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455 4.2.2.1]
 - * 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 8.2.6.2]
 - The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261 8.2.6.2]
 - * Via
 - The Via header field values in the response MUST equal the Via header field values in the request.[RFC3261 8.2.6.2]
 - The Via header field values in the response MUST maintain the same ordering.[RFC3261 8.2.6.2]
 - 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 18.2.1]
 - The "sent-by" parameter MUST contain the source address from which the packet was received.[RFC3261 18.2.1]



- 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 18.2.2]

3.15 generic_CANCEL

Generic judgement items for CANCEL request.

See generic_sip_message

- The empty line MUST be present even if the message-body is not. [RFC3261 7]
- 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]
- The destination address, port, and transport for the CANCEL MUST be identical to those used to send the original request.[RFC3261 9.1]
- Request-Line:
 - The Request-URI MUST NOT contain unescaped space control characters. [RFC3261 7.1]
 - The Request-URI MUST NOT be enclosed in "<>". [RFC3261 7.1]
- Header fields:
 - A valid SIP request formulated by a UAC 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 8.2.2.3] [RFC3261 9.1]
- * Content-length
 - The Content-Length header field value MUST be set to zero. [RFC3261 20.14]
- * CSeq
 - The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261 8.1.1.5] [RFC3261 20.16]
 - The sequence number value in the CSeq header field MUST be less than 2^{31} . [RFC3261 8.1.1.5]
 - The method part of the CSeq header field MUST have a value of CANCEL. [RFC3261 9.1]
- * Max-Forwards



- A UAC MUST insert a Max-Forwards header field into each request it originates.[RFC3261 8.1.1.6]
- The Max-Forwards header field value SHOULD be 70.[RFC3261 8.1.1.6]
- * P-Called-Party-ID
 - A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455 4.2.2.1]
- * 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]
- * Via
 - A UAC MUST insert a Via into that request. [RFC3261 8.1.1.7]
 - The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261 8.1.1.7]
 - The Via header field value MUST contain a branch parameter. [RFC3261 8.1.1.7]
 - The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261 8.1.1.7]
 - 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]

3.16 generic_200-CANCEL

Generic judgement items for 200-CANCEL response.

See generic_sip_message

- The empty line MUST be present even if the message-body is not. [RFC3261 7]
- TUs SHOULD respond immediately to non-INVITE requests.[RFC3261 17.1]
- Header fields:
 - * Call-ID
 - The Call-ID header field of the response MUST equal the Call-ID header field of the request.[RFC3261 8.2.6.2]
 - * Content-length
 - The Content-Length header field value MUST be set to zero. [RFC3261 20.14]
 - * CSeq



- The CSeq header field of the response MUST equal the CSeq field of the request.[RFC3261 8.2.6.2]
- * From
 - The From field of the response MUST equal the From header field of the request.[RFC3261 8.2.6.2]
- * P-Called-Party-ID
 - A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455 4.2.2.1]
- * 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 8.2.6.2]
 - 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 8.2.6.2]
- * Via
 - The Via header field values in the response MUST equal the Via header field values in the request.[RFC3261 8.2.6.2]
 - The Via header field values in the response MUST maintain the same ordering.[RFC3261 8.2.6.2]
 - 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 18.2.1]
 - The "sent-by" parameter MUST contain the source address from which the packet was received.[RFC3261 18.2.1]
 - 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 18.2.2]

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]
- Header fields:
 - * Call-ID



- The Call-ID header field of the response MUST equal the Call-ID header field of the request.[RFC3261 8.2.6.2]
- * Content-length
 - The Content-Length header field value MUST be set to zero.
[RFC3261 20.14]
- * CSeq
 - The CSeq header field of the response MUST equal the CSeq field of the request.[RFC3261 8.2.6.2]
- * From
 - The From field of the response MUST equal the From header field of the request.[RFC3261 8.2.6.2]
- * P-Called-Party-ID
 - A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455 4.2.2.1]
- * 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 8.2.6.2]
 - 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 8.2.6.2]
 - 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 8.2.6.2]
 - The same tag MUST be used for all responses to that request, both final and provisional. [RFC3261 8.2.6.2]
- * Via
 - The Via header field values in the response MUST equal the Via header field values in the request.[RFC3261 8.2.6.2]
 - The Via header field values in the response MUST maintain the same ordering.[RFC3261 8.2.6.2]
 - 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 18.2.1]
 - The "sent-by" parameter MUST contain the source address from which the packet was received.[RFC3261 18.2.1]
 - 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 18.2.2]

3.18 generic_non2XX-ACK

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]
- The ACK MUST be sent to the same address, port, and transport to which the original request was sent.[RFC3261 17.1.1.2]
- 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 17.1.1.3]
- Request-Line:
 - The Request-URI MUST NOT contain unescaped space control characters. [RFC3261 7.1]
 - The Request-URI MUST NOT be enclosed in "<>". [RFC3261 7.1]
- Header fields:
 - A valid SIP request formulated by a UAC 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 8.2.2.3]
- * Content-length
 - The Content-Length header field value MUST be set to zero. [RFC3261 20.14]
- * CSeq
 - The method in the CSeq header field MUST match that of the request. [RFC3261 8.1.1.5]
 - The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261 8.1.1.5]
 - The sequence number value in the CSeq header field MUST be less than $2^{*}31$. [RFC3261 8.1.1.5]
 - The CSeq header field in the ACK MUST contain the same value for the sequence number as was present in the original request. [RFC3261 17.1.1.3]
 - The method parameter MUST be equal to "ACK".[RFC3261 17.1.1.3]



* Max-Forwards

- A UAC MUST insert a Max-Forwards header field into each request it originates. [RFC3261 8.1.1.6]
- The Max-Forwards header field value SHOULD be 70.[RFC3261 8.1.1.6]

* P-Called-Party-ID

- A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455 4.2.2.1]

* Route

- The Route header fields MUST appear in the ACK if the INVITE request whose response is being acknowledged had Route header fields. [RFC3261 17.1.1.3]

* To

- The To header field in the ACK MUST equal the To header field in the response being acknowledged.[RFC3261 17.1.1.3]

* Via

- The protected server port SHALL be included in the Via header entry relating to the UE.[TS24.229 5.1.2A.1]
- A UAC MUST insert a Via into that request. [RFC3261 8.1.1.7]
- The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261 8.1.1.7]
- The Via header field value MUST contain a branch parameter. [RFC3261 8.1.1.7]
- The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261 8.1.1.7]
- The ACK MUST contain a single Via header field.[RFC3261 17.1.1.3]
- The single Via header field MUST be equal to the top Via header field of the original request.[RFC3261 17.1.1.3]

- Bodies fields:

- Placement of bodies in ACK for non-2xx is NOT RECOMMENDED. [RFC3261 17.1.1.3]

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]

- Request-Line:

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

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

-The initial Request-URI of the message SHOULD be set to the value of the URI in the To field.[RFC3261 8.1.1.1]

- Header fields:

-A valid SIP request formulated by a UAC MUST contain To, From, CSeq, Call-ID, Max-Forwards, and Via header fields. [RFC3261 8.1.1]

-These requests MUST also have both a Require and Proxy-Require header fields with the value "sec-agree".[RFC3329 2.3.1]

* 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]

* Allow

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

* Content-length

-The Content-Length header field value MUST be set to zero. [RFC3261 20.14]

* CSeq

-The method in the CSeq header field MUST match that of the request. [RFC3261 8.1.1.5]

-The sequence number value in the CSeq header field MUST be expressible as a 32-bit unsigned integer. [RFC3261 8.1.1.5]
[RFC3261 20.16]

-The sequence number value in the CSeq header field MUST be less than 2^{31} . [RFC3261 8.1.1.5]

* From

-The From field MUST contain a new "tag" parameter, chosen by the UAC. [RFC3261 8.1.1.3]



* Max-Forwards

- A UAC MUST insert a Max-Forwards header field into each request it originates.[RFC3261 8.1.1.6]
- The Max-Forwards header field value SHOULD be 70.[RFC3261 8.1.1.6]

* P-Called-Party-ID

- A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455 4.2.2.1]

* 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. [TS24.229 5.1.2A.1]
- 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.[TS24.229 5.1.2A.1]

* Proxy-Require

- A UAC MUST insert a Proxy-Require header field into the request listing the option tag for that extension. [RFC3261 8.1.1.9]

* Route

- A proper preloaded Route header value SHALL be built in Route header for all new dialogs and standalone transactions.[TS24.229 5.1.2A.1]
- A list of Route header values made out of the P-CSCF URI and the values received in the Service-Route header saved from the 200 (OK) response to the last registration SHALL be built in Route header.[TS24.229 5.1.2A.1]
- If the request contains a Route header field, the request SHOULD be sent to the locations derived from its topmost value.[RFC3261 8.1.2]

* Security-Verify

- 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 2.3.1]
- These requests MUST contain a Security-Verify header field that mirrors the server's list received previously in the Security- Server header field. [RFC3329 2.3.1]

* To

- A request outside of a dialog MUST NOT contain a To tag. [RFC3261 8.1.1.2]



*** Via**

- The protected server port SHALL be included in the Via header entry relating to the UE.[TS24.229 5.1.2A.1]
- A UAC MUST insert a Via into that request. [RFC3261 8.1.1.7]
- The protocol name and protocol version in the Via header field MUST be SIP and 2.0. [RFC3261 8.1.1.7]
- The Via header field value MUST contain a branch parameter. [RFC3261 8.1.1.7]
- The branch ID MUST always begin with the characters "z9hG4bK". [RFC3261 8.1.1.7]
- The client transport MUST insert a value of the "sent-by" field into the Via header field.[RFC3261 18.1.1]
- The usage of an FQDN in sent-by field is RECOMMENDED. [RFC3261 18.1.1]

3.20 generic_200-OPTIONS

Generic judgement items for 200-OPTIONS response.

See generic_sip_message

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

- 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]

*** Allow**

- All UAs MUST support the OPTIONS method.[RFC3261 11]

*** 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 3.3.7]

*** Call-ID**

- The Call-ID header field of the response MUST equal the Call-ID header field of the request.[RFC3261 8.2.6.2]

*** Content-Encoding**

- If the body has not undergone any encoding such as compression,



then Content-Encoding MUST be omitted. [RFC3261 7.4.1]

* 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]

* CSeq

- The CSeq header field of the response MUST equal the CSeq field of the request.[RFC3261 8.2.6.2]

* From

- The From field of the response MUST equal the From header field of the request.[RFC3261 8.2.6.2]

* P-Called-Party-ID

- A UAC MUST NOT insert a P-Called-Party-ID header field in any SIP request or response.[RFC3455 4.2.2.1]

* 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 8.2.6.2]
- 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 8.2.6.2]

* Via

- The Via header field values in the response MUST equal the Via header field values in the request.[RFC3261 8.2.6.2]
- The Via header field values in the response MUST maintain the same ordering.[RFC3261 8.2.6.2]
- 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 18.2.1]
- The "sent-by" parameter MUST contain the source address from which the packet was received.[RFC3261 18.2.1]
- 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 18.2.2]

- Bodies fields:



- The SDP payloads SHALL not be encrypted.[TS24.229 6.1.1]
- Only SDP payload SHALL be contained in SIP messages when the SDP payload must be included in the message.[TS24.229 6.1.1]
- 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]
- The Session Description Protocol MUST be supported by all user agents as a means to describe sessions.[RFC3261 13.2.1]
- Whitespace MUST NOT be used on either side of the "=" sign. [RFC4566 5]
- v,o,s,(c),t,m,(c) lines are REQUIRED in the SDP message.
(c line MUST include session level information or all of media information) [RFC4566 5]
- 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 "()" is OPTIONAL)[RFC4566 5]

* 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]

* s line

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

* 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]
- A session-level "c=" field MUST NOT specify Multiple addresses or "c=" lines.[RFC4566 5.7]
- The slash notation for multiple addresses MUST NOT be used for IP unicast addresses on a media-level.[RFC4566 5.7]

* 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.[TS24.229 6.1.1]





4. Test Profile: User Equipment operation

4.1 Registration

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

[NAME]

UE-RG-B-1 - 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.
- (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 5.1.1.2
TS24.229 5.1.1.3
TS24.229 5.1.1.5.1
TS33203 5.1.3
RFC3680 4.6
RFC3680 7

[REQUIREMENT]

NONE

[PARAMETER(NUT)]



```

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

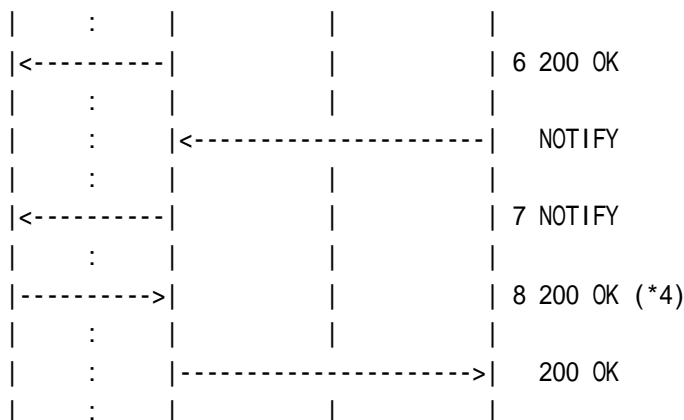
```

[PROCEDURE]

Home Network

(NUT)

UEa1	P-CSCFa1	I-CSCFa1	S-CSCFa1
:			1 REGISTER (*1)
----->			REGISTER
:	----->		REGISTER
:		----->	REGISTER
:		<-----	401 Unauthorized
:	<-----		401 Unauthorized
<-----			2 401 Unauthorized
:			3 REGISTER for authentication (*2)
----->			REGISTER for authentication
:	----->		REGISTER for authentication
:		<-----	200 OK
:	<-----		200 OK
<-----			4 200 OK
:			5 SUBSCRIBE (*3)
----->			SUBSCRIBE
:	----->		SUBSCRIBE
:		<-----	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

=== 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];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; 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];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=98765432; spi-s=87654321;
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",
nonce="I1U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5,
uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; 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=98765432; spi-s=87654321;
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

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=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
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: b89rjhnedlrjflslj40a222@under.test.com
CSeq: 1 SUBSCRIBE
Allow-Events: reg
Event: reg
Expires: 600000
Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
port-c=10002; port-s=10001
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: b89rjhnedlrjflslj40a222@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: b89rjhnedlrflslj40a222@under.test.com
CSeq: 1 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;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: b89rjhnedlrflslj40a222@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 - User-initiated reregistration

[NAME]

UE-RG-B-2 - 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

[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

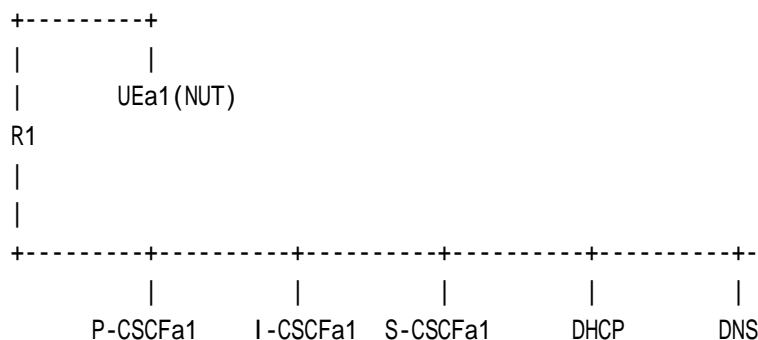
[PARAMETER(TESTER)]

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

[TOPOLOGY]



[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

B. DHCPv6

(NUT)

```
UEa1      DHCP
|         :         |
|----->| 1 DHCPv6 SOLICIT
|         :         |
|<-----| 2 DHCPv6 ADVERTISE
|         :         |
```



```

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

```

[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
	:			
	:	----->		200 OK
	:			
----->				9 REGISTER for reregistration (*1)
	:			
	:	----->		REGISTER for reregistration
	:			
	:		----->	REGISTER for reregistration
	:			
	:		<-----	200 OK
	:			
	:	<-----		200 OK
	:			
<-----				10 200 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 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.

4. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

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

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=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
CSeq: 2 REGISTER
P-Associated-URI: <sip:UEa1_public_1@under.test.com>
Date: Wed, 11 July 2001 08:49:37 GMT

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

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", algorithm=AKAv1-MD5,
uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"
Security-Client: ipsec-3gpp; 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=98765432; spi-s=87654321;
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
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=5ef6
Call-ID: apb03a0s09dkjdfglkj49111@under.test.com
Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000
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 - Network-initiated re-authentication

[NAME]

UE-RG-B-3 - 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
TS24.229 5.1.1.5.2
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



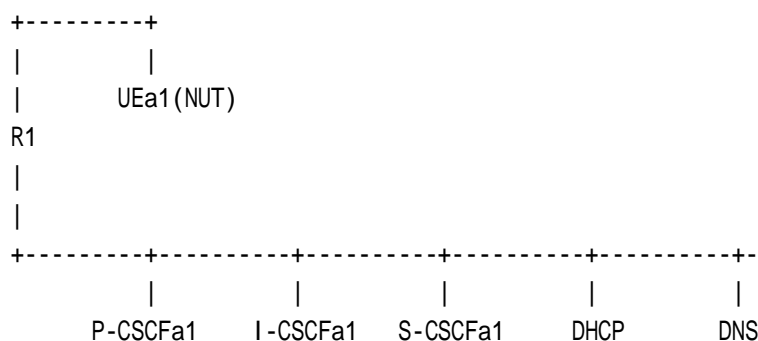
[PARAMETER(TESTER)]

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::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

[TOPOLOGY]



[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

B. DHCPv6

(NUT)

UEa1	:	DHCP
	:	
----->	1	DHCPv6 SOLICIT
	:	
<-----	2	DHCPv6 ADVERTISE
	:	
----->	3	DHCPv6 REQUEST
	:	



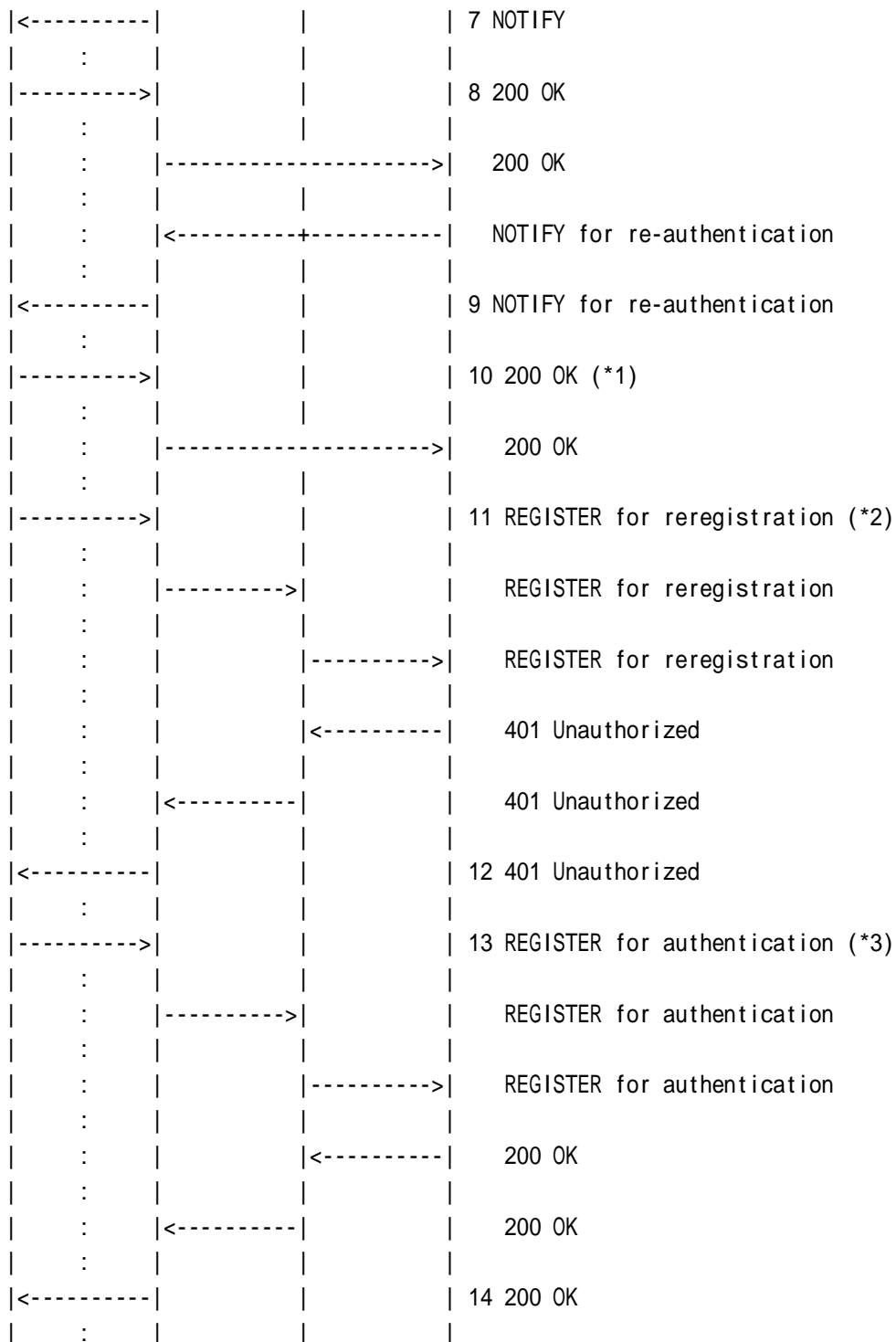
```
|<-----| 4 DHCPv6 REPLY
|      :      |
```

[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
	:		
	:	<-----	200 OK
	:		
<-----			4 200 OK
	:		
----->			5 SUBSCRIBE
	:		
	:	----->	SUBSCRIBE
	:		
	:	<-----	200 OK
	:		
<-----			6 200 OK
	:		
	:	<-----	NOTIFY
	:		



- 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.

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;received=3ffe:501:ffff:100::10,

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: b89rjhnedlrjflslj40a222@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">

<contact id="76" state="active" event="shortend" expires="60">

<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: b89rjhnedlrflslj40a222@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

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com",
nonce="I1U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5,
uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; 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=98765432; spi-s=87654321;
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

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

WWW-Authenticate: Digest realm="under.test.com",
nonce="I1U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD



Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=108765432; spi-s=97654321;
port-c=20002; port-s=10001
CSeq: 3 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=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",
nonce="T1U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5,
uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"
Security-Client: ipsec-3gpp; 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=108765432; spi-s=97654321;
port-c=20002; port-s=10001
Require: sec-agree
Proxy-Require: sec-agree
CSeq: 4 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=z9hG4bKnashds10
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=5ef7
Call-ID: apb03a0s09dkjdfglkj49111@under.test.com
Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000
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: 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.[TS24.229 5.1.1.5.2]

*3: 13 REGISTER for authentication

See generic_Auth_REGISTER

4.1.4 UE-RG-B-4 - User-initiated reregistration

[NAME]

UE-RG-B-4 - 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



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

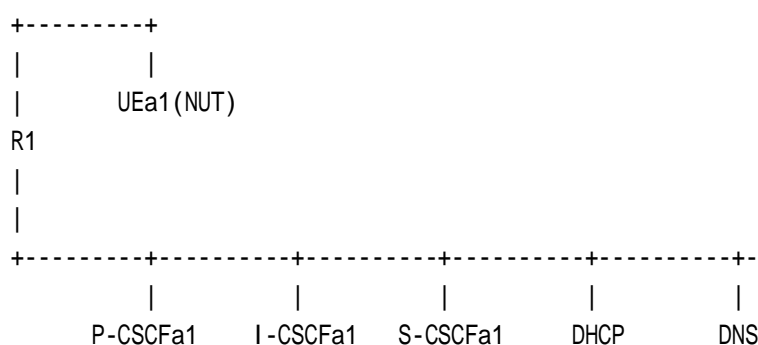
[PARAMETER(TESTER)]

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::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

[TOPOLOGY]



[INITIALIZATION]

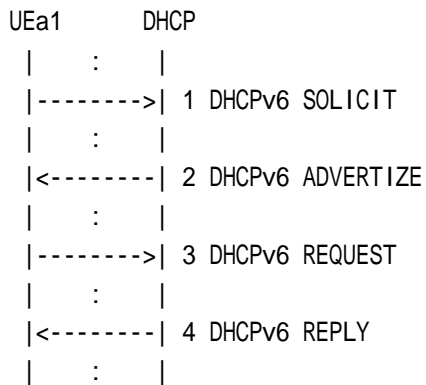
Set up IP Address using A or B.



A. Router Advertisement

B. DHCPv6

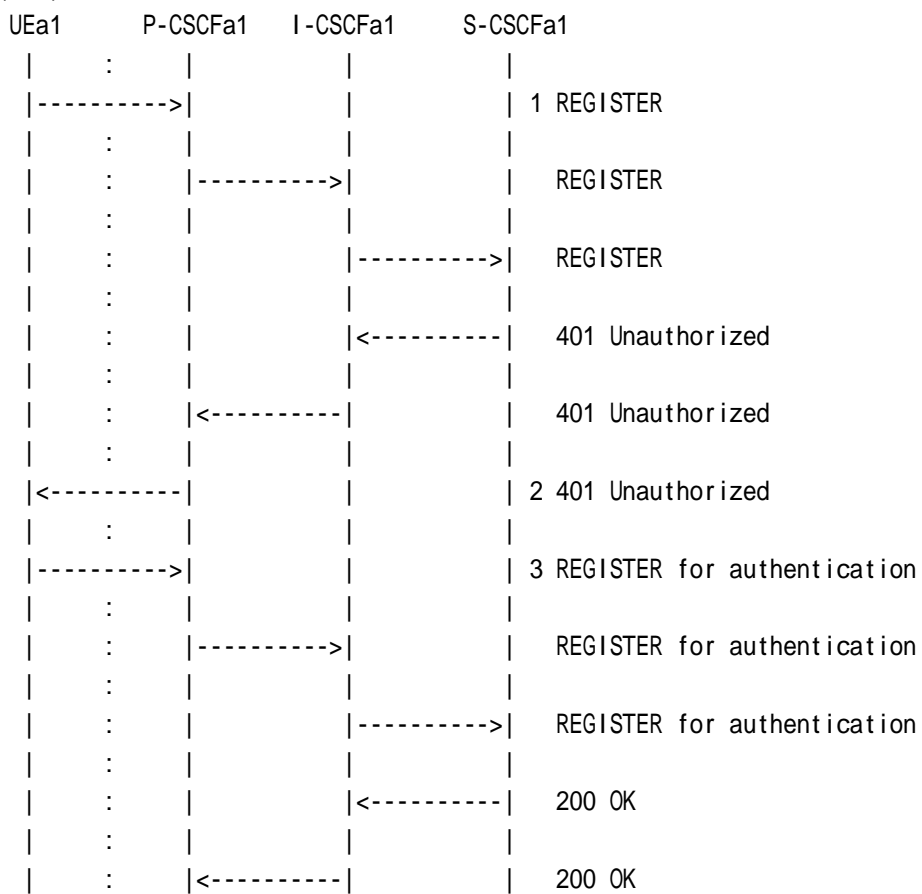
(NUT)



[PROCEDURE]

Home Network

(NUT)





:				4 200 OK
<-----				
:				5 SUBSCRIBE
----->				
:				
:	----->			SUBSCRIBE
:				
:	<-----			200 OK
:				
<-----				6 200 OK
:				
:	<-----			NOTIFY
:				
<-----				7 NOTIFY
:				
----->				8 200 OK
:				
:	----->			200 OK
:				
----->				9 REGISTER for deregistration (*1)
:				
:	----->			REGISTER for deregistration
:				
:	----->			REGISTER for deregistration
:				
:	<-----			200 OK
:				
:	<-----			200 OK
:				
<-----				10 200 OK
:				
:	<-----			NOTIFY
:				
<-----				11 NOTIFY with SAs
:				
:				12 < No response or ICMP error > (*2)
:				
:	<-----			NOTIFY
:				
<-----				13 NOTIFY with no SAs
:				
:				14 <No response or any responses 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.

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="11U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5,
uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; 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=98765432; spi-s=87654321;
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

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

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

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;received=3ffe:501:ffff:100::10,

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: b89rjhnedlrjflslj40a222@under.test.com

CSeq: 2 NOTIFY

Subscription-State: terminated; reason=noresource

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="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;received=3ffe:501:ffff:100::10,
 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: b89rjhnedlrflslj40a222@under.test.com
 CSeq: 2 NOTIFY
 Subscription-State: terminated; reason=noresource
 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="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_REGISETER

*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.

[TS24.229 5.1.1.6]

The security associations SHALL be deleted by UE if there are no more public user identities registered.[TS24.229 5.1.1.6]



*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.

[TS24.229 5.1.1.6]

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

[NAME]

UE-RG-B-5 - 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-CSCF after 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



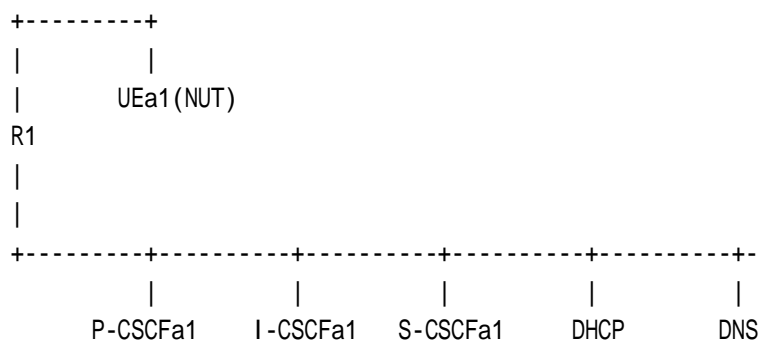
[PARAMETER(TESTER)]

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::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

[TOPOLOGY]



[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

B. DHCPv6

(NUT)

```
UEa1      DHCP
| : |
|----->| 1 DHCPv6 SOLICIT
| : |
|<-----| 2 DHCPv6 ADVERTISE
| : |
|----->| 3 DHCPv6 REQUEST
| : |
|<-----| 4 DHCPv6 REPLY
```

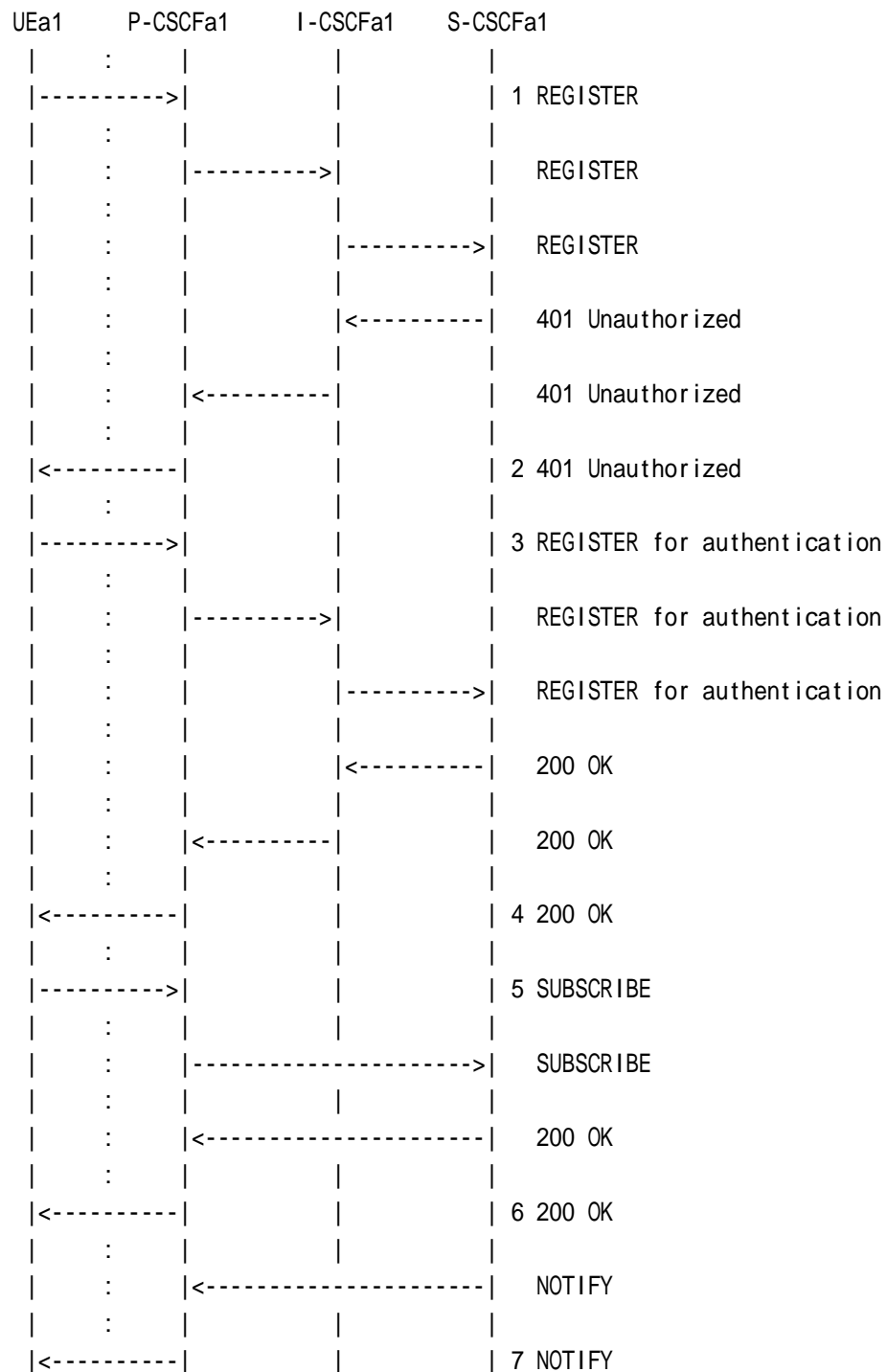


| : |

[PROCEDURE]

Home Network

(NUT)





	:				
	----->				8 200 OK
	:				
	:		----->		200 OK
	:				
	:		<-----+		NOTIFY for deregistration
	:				
	<-----				9 NOTIFY for deregistration
	:				
	----->				10 200 OK (*1)
	:				
	:		----->		200 OK
	:				
	:		<-----+		NOTIFY
	:				
	<-----				11 NOTIFY with SAs
	:				
	:				12 <No response or ICMP error> (*2)
	:				

- 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.

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;received=3ffe:501:ffff:100::10,
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: b89rjhnedlrflslj40a222@under.test.com
 CSeq: 2 NOTIFY
 Subscription-State: terminated; reason=rejected
 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="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: b89rjhnedlrflslj40a222@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;received=3ffe:501:ffff:100::10,
 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: b89rjhnedlrflslj40a222@under.test.com
 CSeq: 3 NOTIFY



Subscription-State: terminated; reason=rejected

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="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 released when the event attribute is set to "rejected". [TS24.229 5.1.1.7]

- 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". [TS24.229 5.1.1.7]

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". [TS24.229 5.1.1.7]

The security associations towards the P-CSCF SHALL be deleted after the server transaction pertaining to the received NOTIFY request terminates. [TS24.229 5.1.1.7]



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

[NAME]

UE-RG-B-6 - 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

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
----------	---	-------------------------

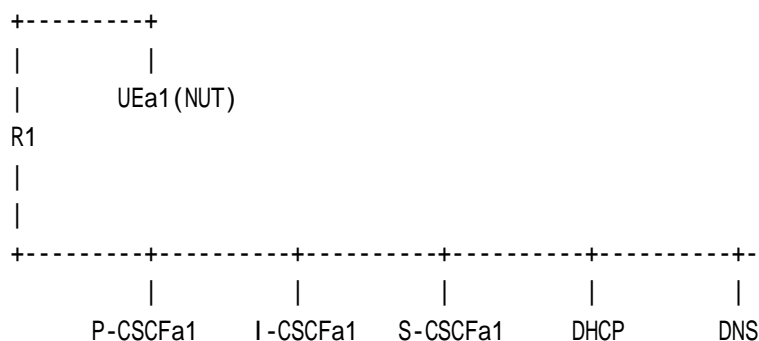


S-CSCFa1 : sip:s.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000
Router(R1) : 3ffe:501:ffff:1000::1
P-CSCFa1 : 3ffe:501:ffff:100::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

[TOPOLOGY]



[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

B. DHCPv6

(NUT)

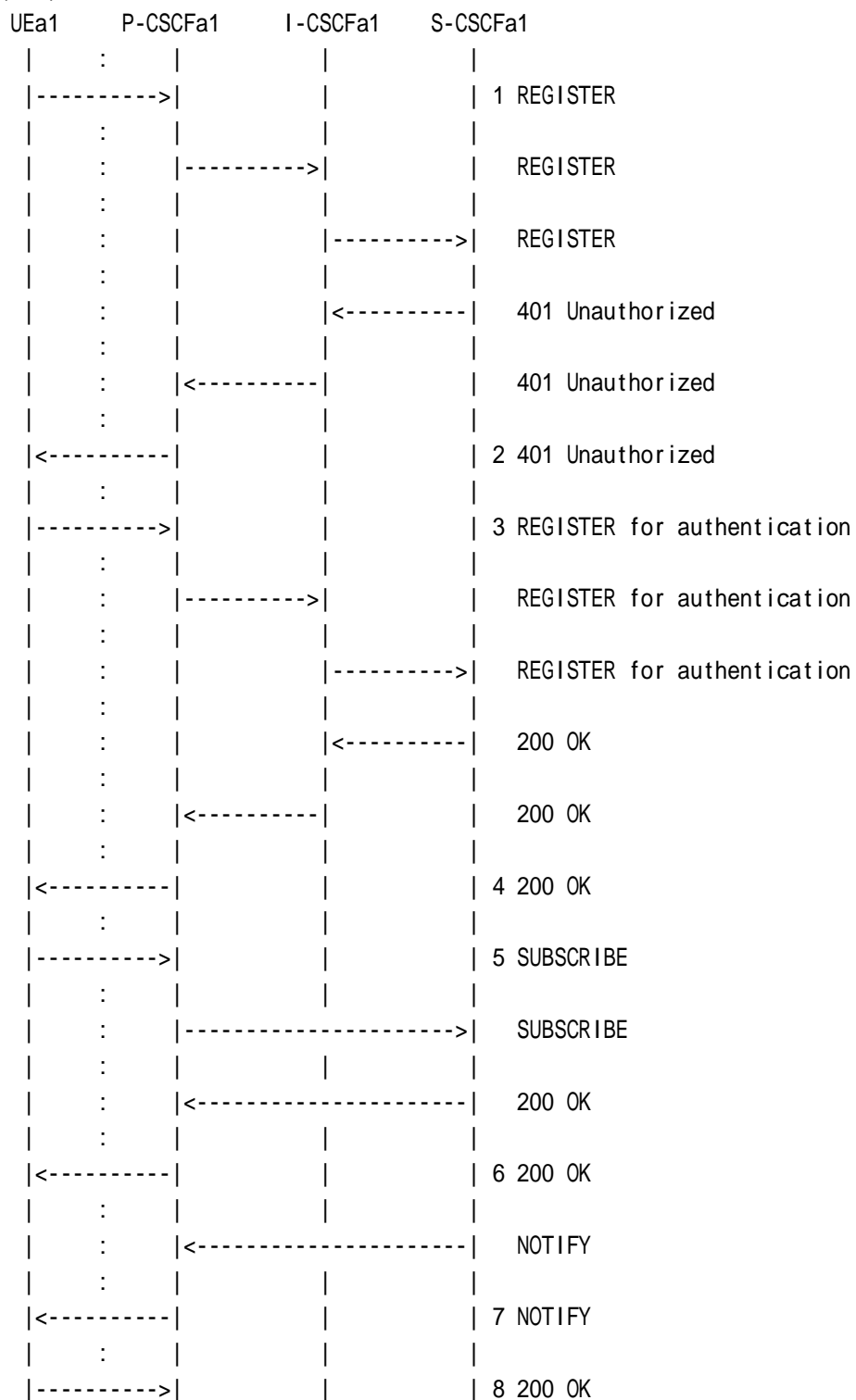
```
UEa1      DHCP
|         :   |
|----->| 1 DHCPv6 SOLICIT
|         :   |
|<-----| 2 DHCPv6 ADVERTISE
|         :   |
|----->| 3 DHCPv6 REQUEST
|         :   |
|<-----| 4 DHCPv6 REPLY
|         :   |
```



[PROCEDURE]

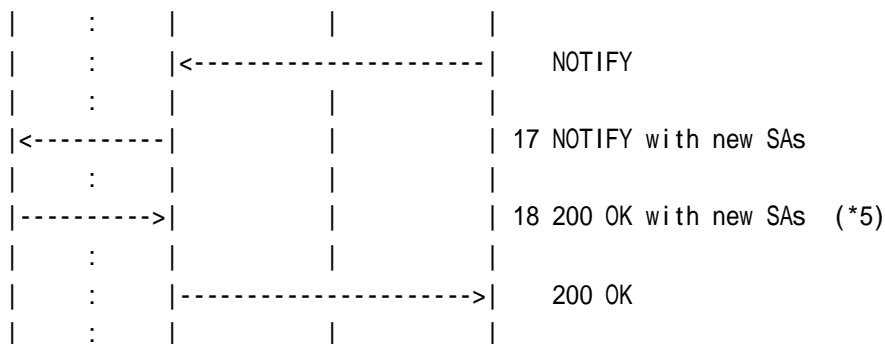
Home Network

(NUT)





:				
:				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
:				
				15 SUBSCRIBE with new SAs (*4)
:				
:				SUBSCRIBE
:				
:				200 OK
:				
				16 200 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 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.

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;received=3ffe:501:ffff:100::10,

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: b89rjhnedlrjflslj40a222@under.test.com



CSeq: 2 NOTIFY
Subscription-State: terminated; reason=noresource
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="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: b89rjhnedlrjflslj40a222@under.test.com
CSeq: 3 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];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; alg= hmac-sha-1-96; spi-c=23456780; spi-s=12345679;
port-c=2469; port-s=1358

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];branch=z9hG4bKnashdt7

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

WWW-Authenticate: Digest realm="under.test.com",
nonce="T1U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765433; spi-s=87654322;
port-c=10012; port-s=10011

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]:1358;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:1358>;expires=600000

Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com",
nonce="T1U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5,
uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=23456780; spi-s=12345679;
port-c=2469; port-s=1358

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765433; spi-s=87654322;
port-c=10012; port-s=10011

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]:1358;branch=z9hG4bKnashdt8

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=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:1358>;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

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]:1358;branch=z9hG4bKnashdsb1

Max-Forwards: 70

Route: <sip:p.a1.under.test.com:10011;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: c89rjhnedlrflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE

Allow-Events: reg

Event: reg

Expires: 600000

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765433; spi-s=87654322;
port-c=10012; port-s=10011

Contact: <sip:UEa1_public_1@node.under.test.com:1358>

Content-Length: 0

16. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1358;branch=z9hG4bKnashdsb1

Record-Route: <sip:p.a1.under.test.com:10011;lr>

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

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

Call-ID: c89rjhnedlrflslj40a222@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:1358 SIP/2.0
Via: SIP/2.0/UDP p.a1.under.test.com:10011;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: c89rjhnedlrflslj40a222@under.test.com
CSeq: 1 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>
```

18. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK
Via: SIP/2.0/UDP
p.a1.under.test.com:10011;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: c89rjhnedlrflslj40a222@under.test.com
CSeq: 1 NOTIFY
Content-Length: 0



[OBSERVABLE RESULTS]

*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".
[TS24.229 5.1.1.7]

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". [TS24.229 5.1.1.7]

The subscriber SHOULD retry immediately with a new subscription when the reason code indicates "deactivated". [RFC3265 3.2.4]

*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

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

See generic_200-NOTIFY

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

[NAME]

UE-RG-B-7 - 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

[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)]

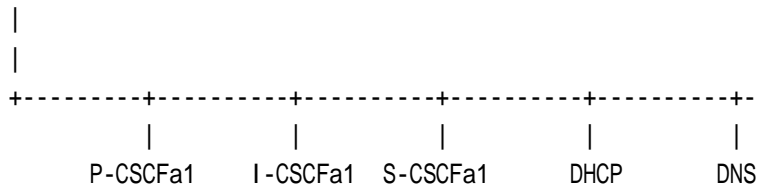
P-CSCFa1	:	sip:p.a1.under.test.com
S-CSCFa1	:	sip:s.a1.under.test.com

[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

[TOPOLOGY]

```
+-----+
|         |
|         | UEa1 (NUT)
|         |
R1
```

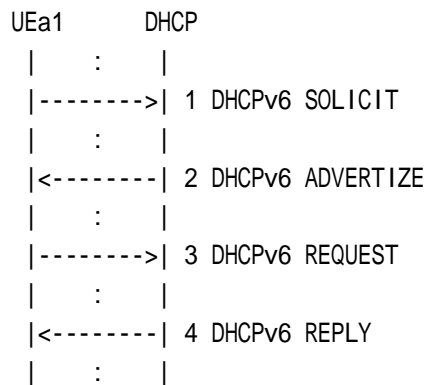
[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

B. DHCPv6

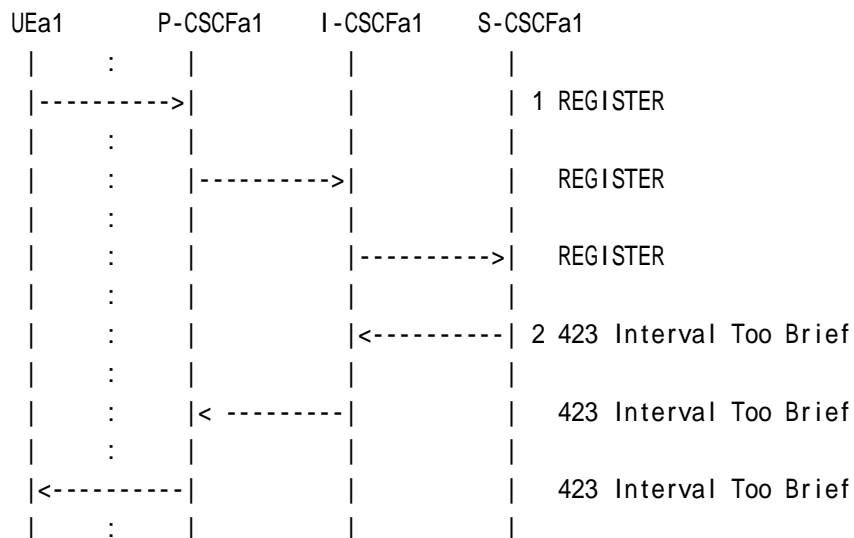
(NUT)



[PROCEDURE]

Home Network

(NUT)





	----->			3 REGISTER (*1)
	:			
	:		----->	REGISTER
	:			
	:		----->	REGISTER
	:			
	:		<-----	401 Unauthorized
	:			
	:		<-----	401 Unauthorized
	:			
	<-----			4 401 Unauthorized
	:			
	----->			5 REGISTER for authentication (*2)
	:			
	:		----->	REGISTER for authentication
	:			
	:		----->	REGISTER for authentication
	:			
	:		<-----	200 OK
	:			
	:		<-----	200 OK
	:			
	<-----			6 200 OK
	:			

- 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 ===

1. REGISTER NUT -> P-CSCF
REGISTER sip:under.test.com SIP/2.0
Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000];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=5000
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; 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. 423 Unauthorized P-CSCF -> NUT

SIP/2.0 401 Unauthorized

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000];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
Min-Expires: 600000
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];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; 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];branch=z9hG4bKnashds8
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
WWW-Authenticate: Digest realm="under.test.com",
nonce="I1U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD
Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
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",
nonce="I1U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5,
uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"
Security-Client: ipsec-3gpp; 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=98765432; spi-s=87654321;
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
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=5ef6
Call-ID: apb03a0s09dkjdfglkj49111@under.test.com
Contact: <sip:UEa1_public_1@node.under.test.com:1357>;expires=600000



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 SHALL be sent with an expiration timer of at least the value received in the Min-Expires header field of the 423 (Interval Too Brief) response.[TS24.229 5.1.1.2]

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

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

See generic_Auth_REGISTER

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

[NAME]

UE-RG-B-8 - 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

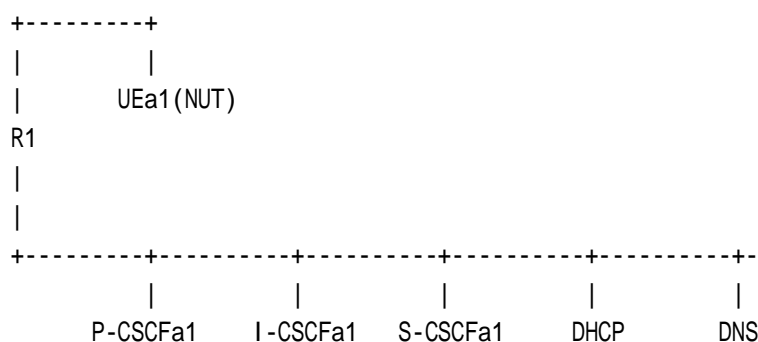
[PARAMETER(TESTER)]

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::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

[TOPOLOGY]



[INITIALIZATION]

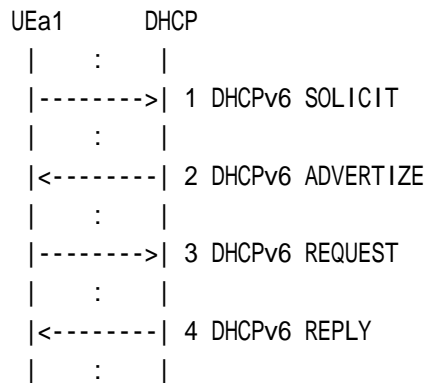
Set up IP Address using A or B.

A. Router Advertisement



B. DHCPv6

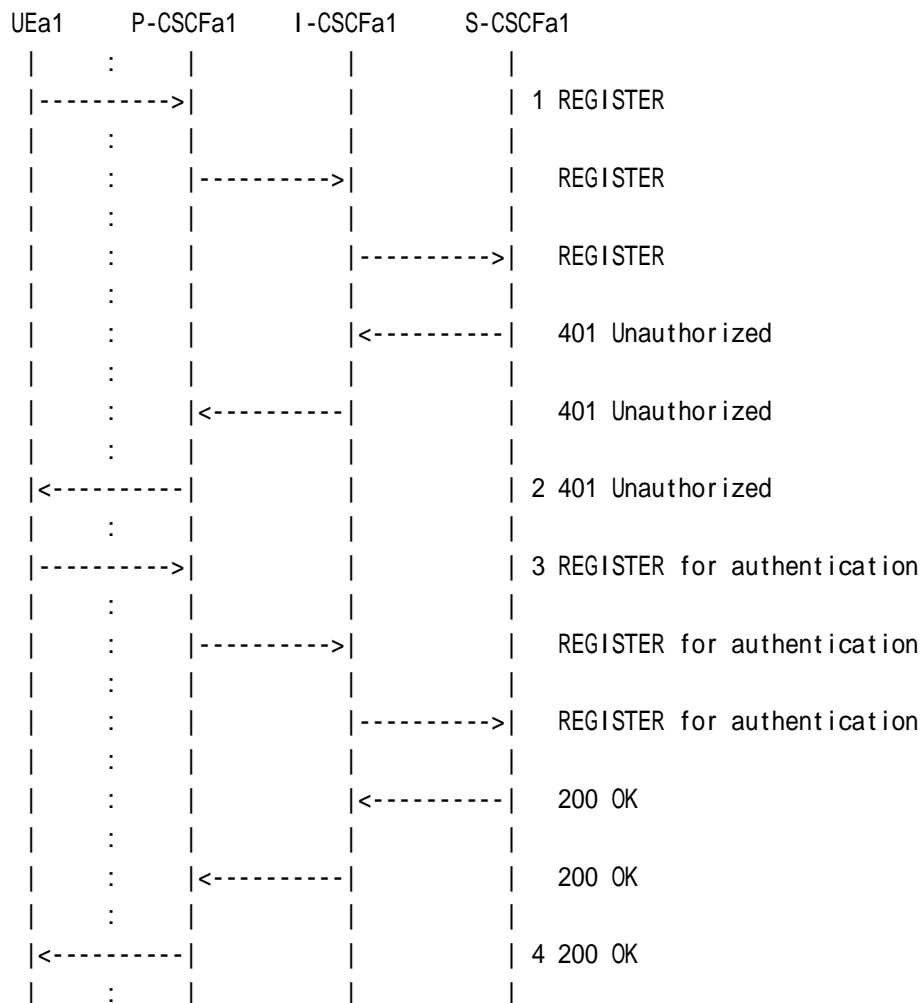
(NUT)



[PROCEDURE]

Home Network

(NUT)





----->			5 SUBSCRIBE
:			
: ----->			SUBSCRIBE
:			
: -----<			200 OK with Expires=60
:			
-----<			6 200 OK with Expires=60
:			
: -----<			NOTIFY
:			
-----<			7 NOTIFY
:			
----->			8 200 OK
:			
: ----->			200 OK
:			
----->			9 SUBSCRIBE for re-subscription (*1)
:			
: ----->			SUBSCRIBE for re-subscription
:			
: -----<			200 OK
:			
-----<			10 200 OK
:			
: -----<			NOTIFY
:			
-----<			11 NOTIFY
:			
----->			12 200 OK (*2)
:			
: ----->			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.

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: b89rjhnedlrjflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE

Allow-Events: reg

Expires: 60

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

Content-Length: 0

As regards the message 7-8, please refer to the message 7-8 in UE-RG-B-1.

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>

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: b89rjhnedlrjflslj40a222@under.test.com

CSeq: 2 SUBSCRIBE

Allow-Events: reg

Event: reg

Expires: 600000

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;

port-c=10002; port-s=10001

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

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

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

Call-ID: b89rjhnedlrflslj40a222@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: b89rjhnedlrflslj40a222@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">
```

```
      <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/U
DP 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: b89rjhnedlrflslj40a222@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.[TS24.229 5.1.1.3]

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

See generic_200-NOTIFY

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

[NAME]

UE-RG-B-9 - 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

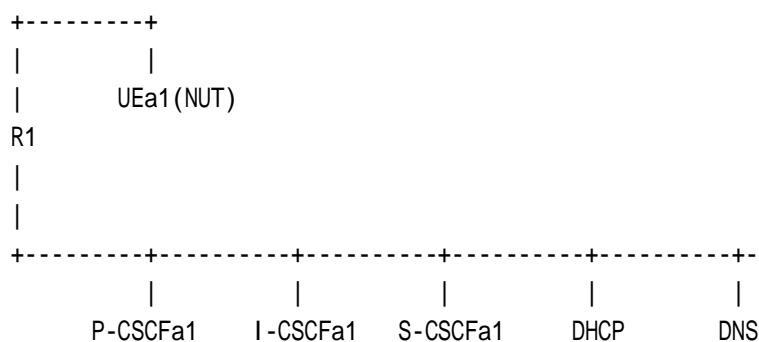
[PARAMETER(TESTER)]

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::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

[TOPOLOGY]



[INITIALIZATION]

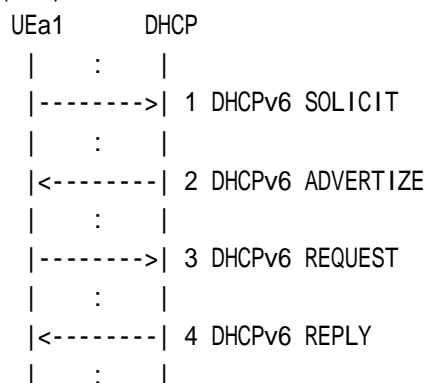
Set up IP Address using A or B.

A. Router Advertisement



B. DHCPv6

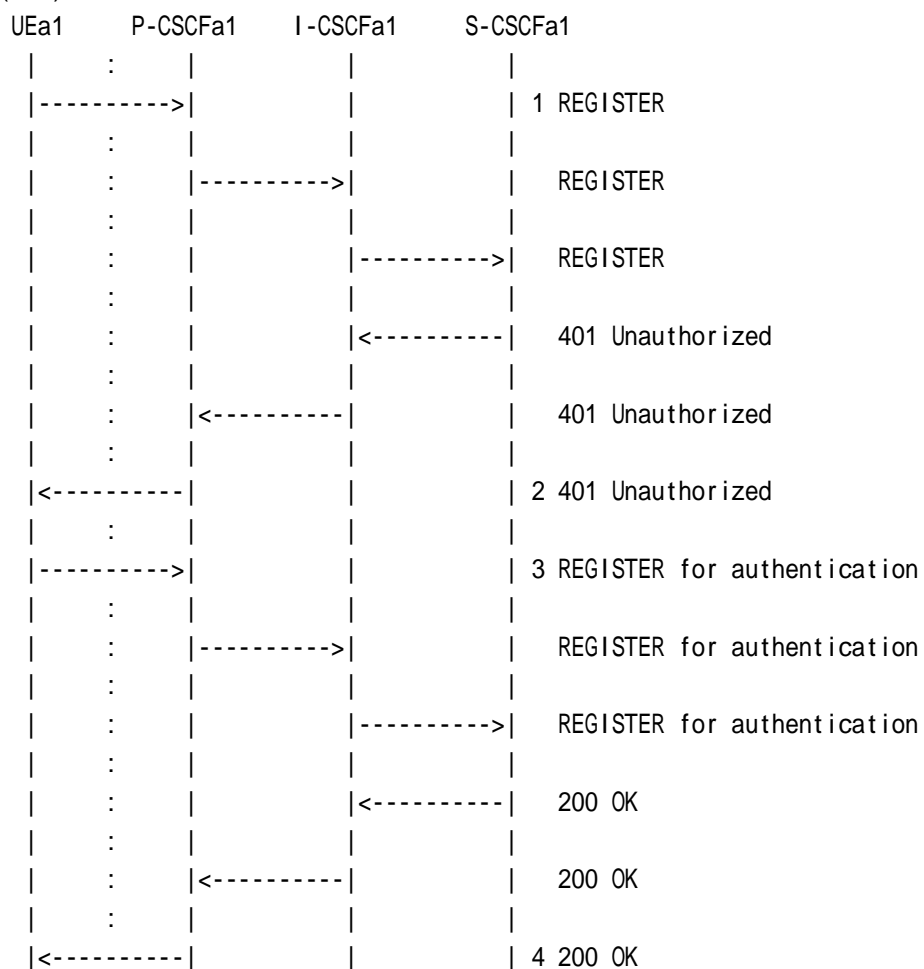
(NUT)



[PROCEDURE]

Home Network

(NUT)





:			5 SUBSCRIBE
----->			
:			
:	----->		SUBSCRIBE
:			
:	<-----		200 OK with Expire=60
:			
<-----			6 200 OK with Expire=60
:			
:	<-----		NOTIFY
:			
<-----			7 NOTIFY
:			
----->			8 200 OK
:			
:	----->		200 OK
:			
----->			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
:			
:	<-----		NOTIFY
:			
<-----			13 NOTIFY
:			
----->			14 200 OK (*2)
:			
:	----->		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.

10. 481 Call Does Not Exist P-CSCF -> NUT
SIP/2.0 481 Call 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: 3 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
Expires: 600000
Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;



port-c=10002; port-s=10001
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: c89rjhnedlrflslj40a222@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: c89rjhnedlrflslj40a222@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="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: c89rjhnedlrflslj40a222@under.test.com

CSeq: 2 NOTIFY

Content-Length: 0

[OBSERVABLE RESULTS]

*1: 11 SUBSCRIBE from NUT to P-CSCF

See generic_SUBSCRIBE

The UAC SHOULD terminate the dialog.[RFC3261 12.2.1.2]

*2: 14 NOTIFY 200 OK from NUT to P-CSCF

See generic_200-NOTIFY

4.1.10 UE-RG-B-10 - Reception of a new service-route to reregistration

[NAME]

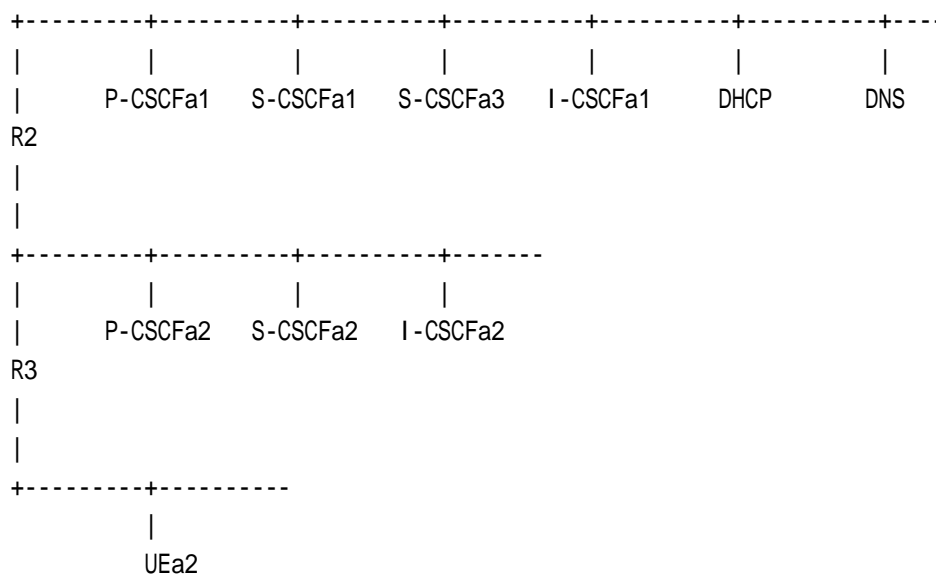
UE-RG-B-10 - Reception of a new service-route to reregistration

[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.



Set up IP Address using A or B.

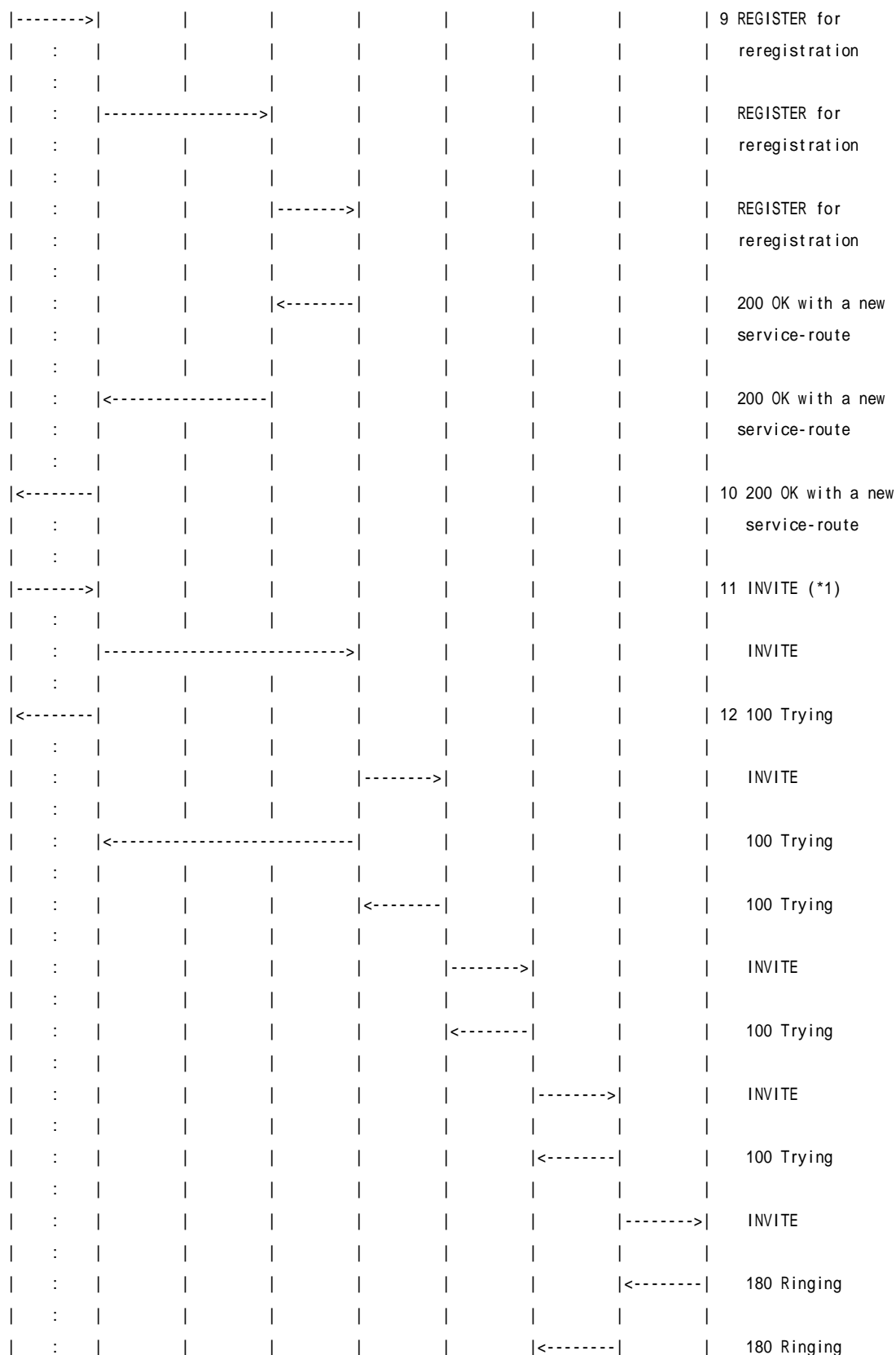
B. DHCPv6

```

UEa1      DHCP
|      :      |
|----->| 1 DHCPv6 SOLICIT
|      :      |
|<-----| 2 DHCPv6 ADVERTISE
|      :      |
|----->| 3 DHCPv6 REQUEST
|      :      |
|<-----| 4 DHCPv6 REPLY
|      :      |

```

Home Network								
(NUT)								
UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	S-CSCFa3	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
	:							
----->								1 REGISTER
	:							





	:	----->							200 OK
	:								
	:				----->				200 OK
	:								
	:					----->			200 OK
	:								
	:						----->		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 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.

10. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

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

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

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

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

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

Require: sec-agree

Proxy-Require: sec-agree

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;

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 - Reception of 423 response to reregistration

[NAME]



UE-RG-B-11 - Reception of 423 response to reregistration

[TARGET]

IMS User Equipment (NUT)

[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

[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

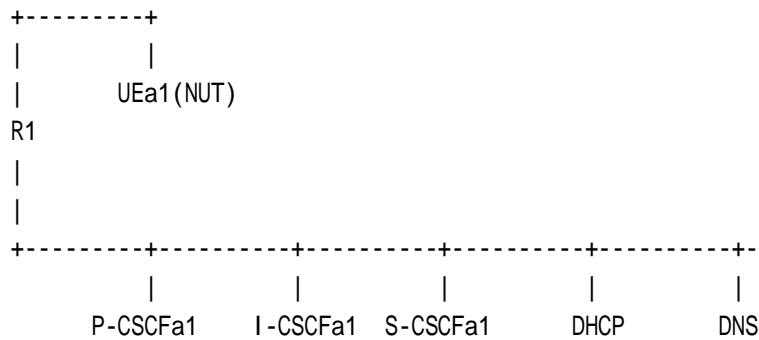
[PARAMETER(TESTER)]

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

[TOPOLOGY]



[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

B. DHCPv6

(NUT)

```

UEa1      DHCP
|      :      |
|----->| 1 DHCPv6 SOLICIT
|      :      |
|<-----| 2 DHCPv6 ADVERTISE
|      :      |
|----->| 3 DHCPv6 REQUEST
|      :      |
|<-----| 4 DHCPv6 REPLY
|      :      |

```

[PROCEDURE]

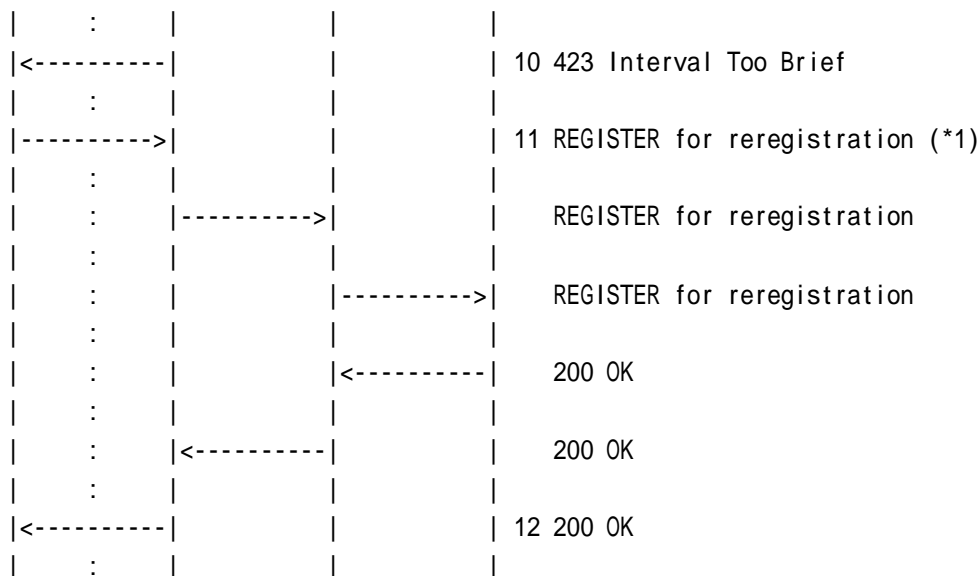
Home Network

(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
	:				
	:		----->		200 OK
	:				
	----->				9 REGISTER for reregistration
	:				
	:		----->		REGISTER for reregistration
	:				
	:		----->		REGISTER for reregistration
	:				
	:		<-----		423 Interval Too Brief
	:				
	:		<-----		423 Interval Too Brief



- 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.

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
 Min-Expires: 600000
 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=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="11U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5,
uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; 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=98765432; spi-s=87654321;
port-c=10002; port-s=10001

Require: sec-agree

Proxy-Require: sec-agree

CSeq: 4 REGISTER

Supported: path

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

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=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

CSeq: 4 REGISTER

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]

- Header field:

* Contact expires parameter/Expires

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. [TS24.229 5.1.1.4]

4.1.12 UE-RG-B-12 - Reception of 408 response to reregistration

[NAME]

UE-RG-B-12 - 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

TS24.229 5.1.1.3

TS24.229 5.1.1.4

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



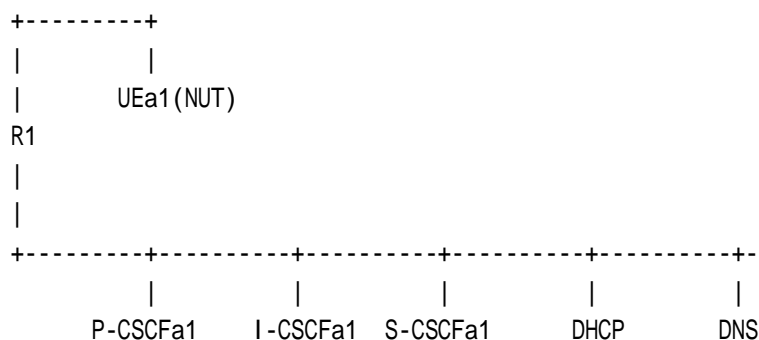
[PARAMETER(TESTER)]

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::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

[TOPOLOGY]



[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

B. DHCPv6

(NUT)

UEa1	:	DHCP
	:	
----->	1	DHCPv6 SOLICIT
	:	
<-----	2	DHCPv6 ADVERTISE
	:	
----->	3	DHCPv6 REQUEST
	:	
<-----	4	DHCPv6 REPLY

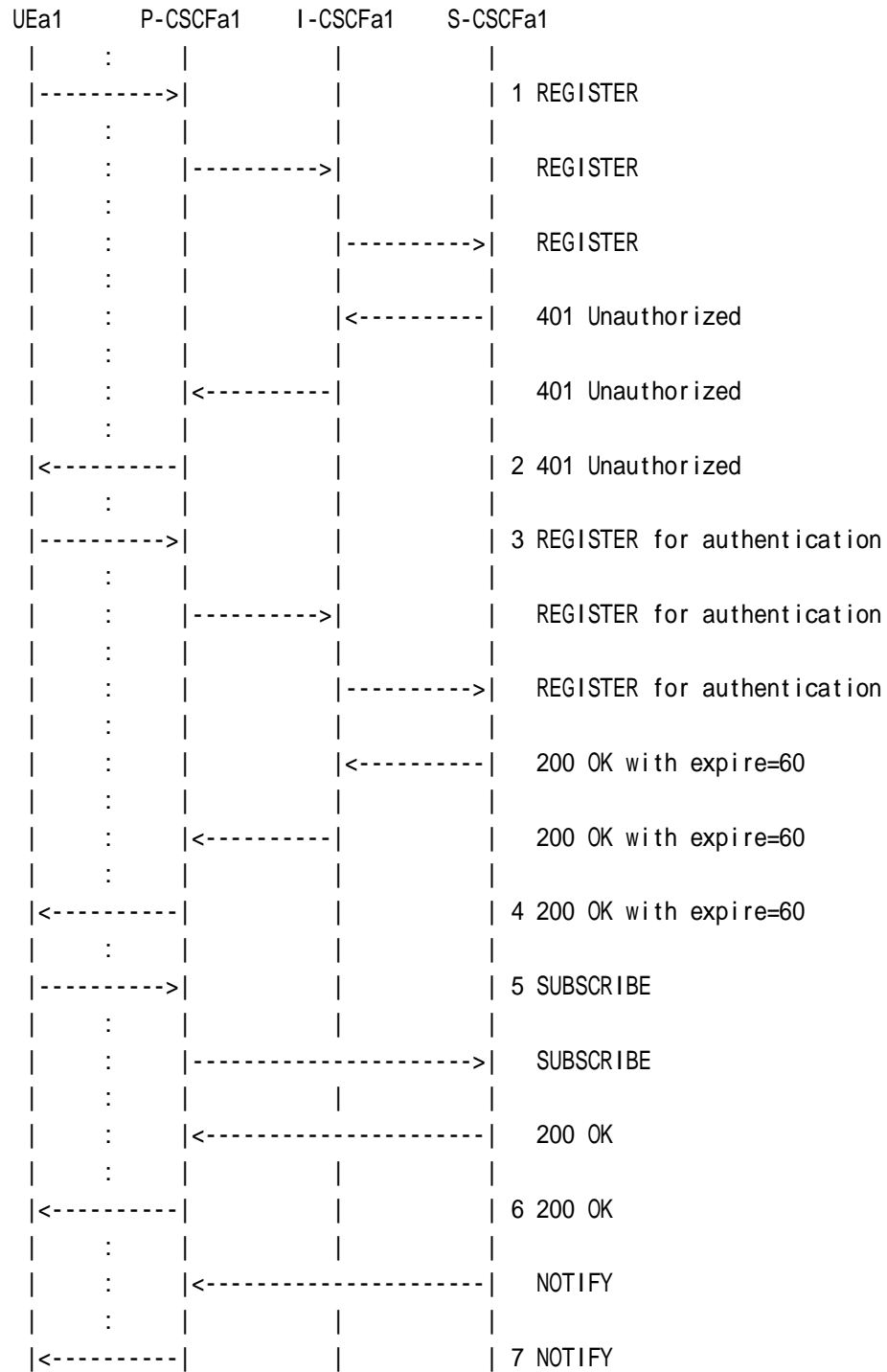


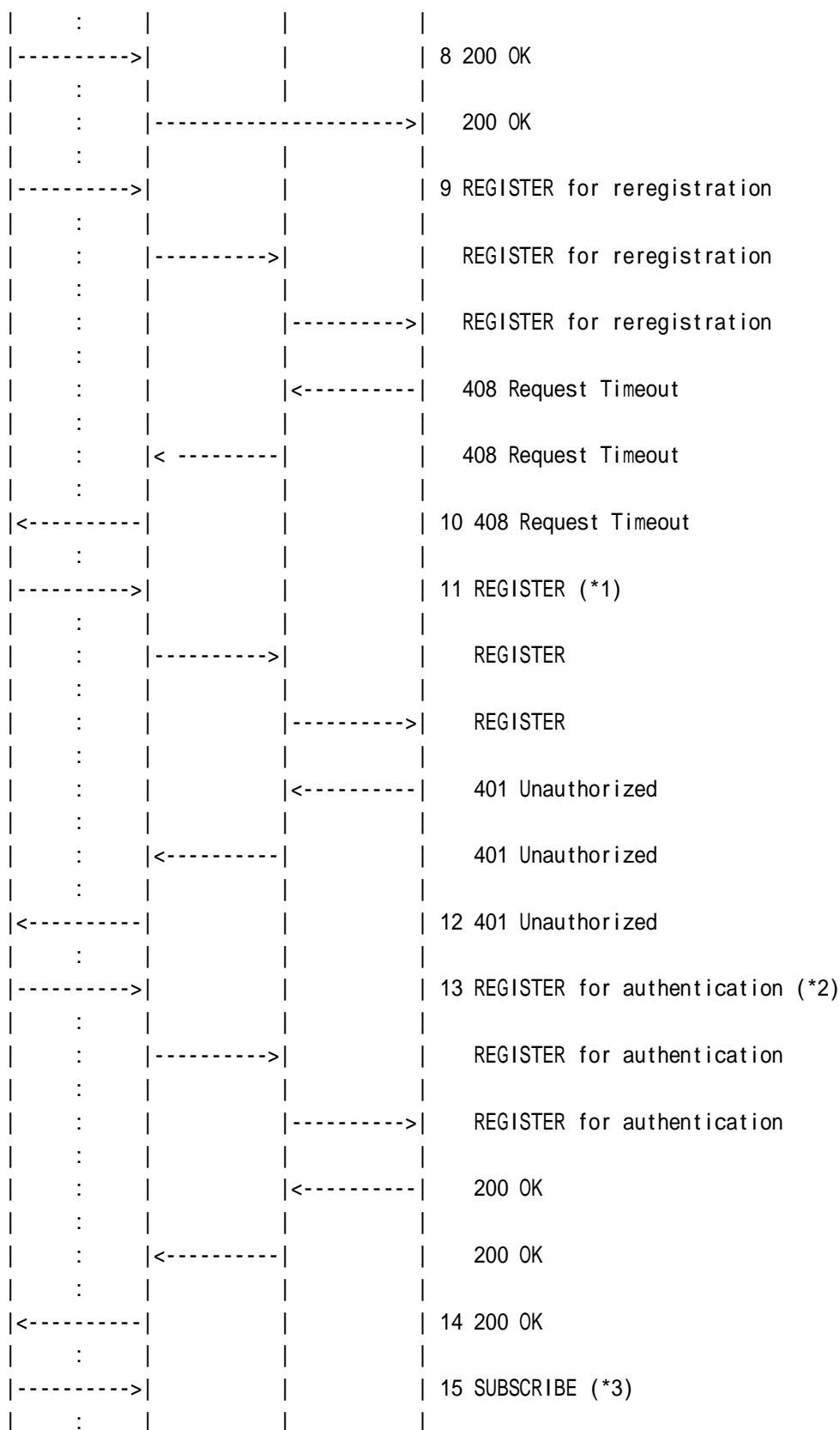
| : |

[PROCEDURE]

Home Network

(NUT)







	:	----->		SUBSCRIBE
	:			
	:	<-----		200 OK
	:			
	:	<-----		16 200 OK
	:			
	:	<-----		NOTIFY
	:			
	:	<-----		17 NOTIFY
	:			
	:	----->		18 200 OK (*4)
	:			
	:	----->		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.

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; alg= hmac-sha-1-96; spi-c=23456780; spi-s=12345679; port-c=2469; port-s=1358

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

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

WWW-Authenticate: Digest realm="under.test.com", nonce="I1U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD

Security-Server: ipsec-3gpp; alg= hmac-sha-1-96; spi-c=98765433; spi-s=87654322; port-c=10012; port-s=10011

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]:1358;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:1358>;expires=600000
Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com
Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com",
nonce="I1U8vpY3qJhiuZnrke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5,
uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"
Security-Client: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=23456780; spi-s=12345679;
port-c=2469; port-s=1358
Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765433; spi-s=87654322;
port-c=10012; port-s=10011
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]:1358;branch=z9hG4bKnashdt8

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=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:1358>;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

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]:1358;branch=z9hG4bKnashdsb1

Max-Forwards: 70

Route: <sip:p.a1.under.test.com:10011;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: c89rjhnedlrflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE



Allow-Events: reg
Event: reg
Expires: 600000
Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765433; spi-s=87654322;
port-c=10012; port-s=10011
Contact: <sip:UEa1_public_1@node.under.test.com:1358>
Content-Length: 0

16. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK
Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1358;branch=z9hG4bKnashdsb1
Record-Route: <sip:p.a1.under.test.com:10011;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:1358 SIP/2.0
Via: SIP/2.0/UDP p.a1.under.test.com:10011;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
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>
```

18. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via:

SIP/2.0/UDP

p.a1.under.test.com:10011;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 - Reception of 500 response to reregistration

[NAME]

UE-RG-B-13 - 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
TS24.229 5.1.1.3
TS24.229 5.1.1.4
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)]

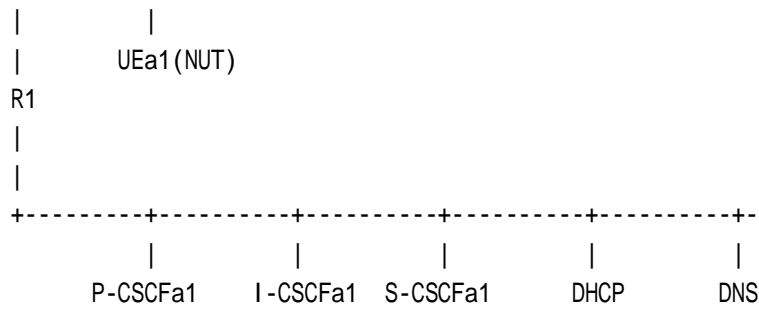
P-CSCFa1	:	sip:p.a1.under.test.com
S-CSCFa1	:	sip:s.a1.under.test.com

[ADDRESS]

UEa1(NUT)	:	3ffe:501:ffff:1000::1000
Router(R1)	:	3ffe:501:ffff:1000::1
P-CSCFa1	:	3ffe:501:ffff:100::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

[TOPOLOGY]

+-----+



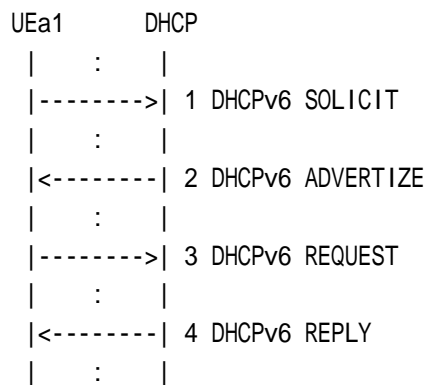
[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

B. DHCPv6

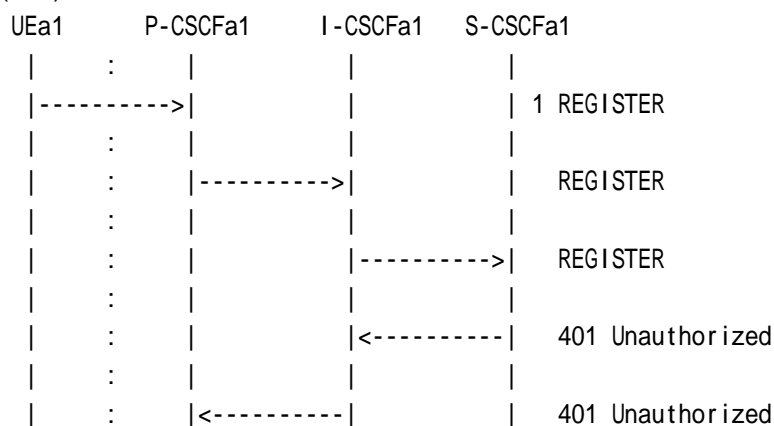
(NUT)

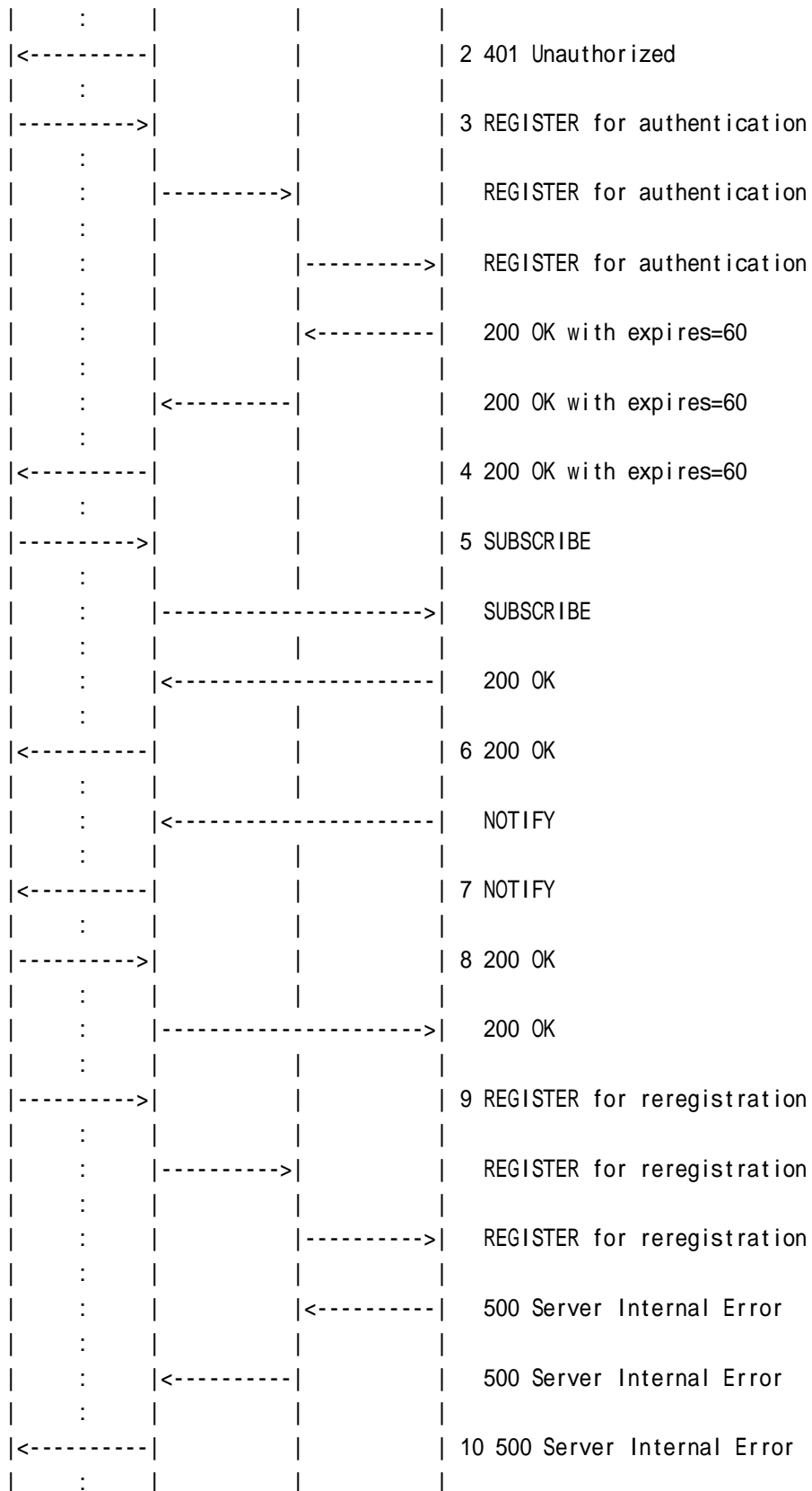


[PROCEDURE]

Home Network

(NUT)







- 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.

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; alg= hmac-sha-1-96; spi-c=23456780; spi-s=12345679;
port-c=2469; port-s=1358

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

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

WWW-Authenticate: Digest realm="under.test.com",
nonce="T1U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765433; spi-s=87654322;
port-c=10012; port-s=10011

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]:1358;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:1358>;expires=600000

Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com",
nonce="T1U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5,
uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=23456780; spi-s=12345679;
port-c=2469; port-s=1358

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765433; spi-s=87654322;
port-c=10012; port-s=10011

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]:1358;branch=z9hG4bKnashdt8

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=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:1358>;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

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]:1358;branch=z9hG4bKnashdsb1

Max-Forwards: 70

Route: <sip:p.a1.under.test.com:10011;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: c89rjhnedlrflslj40a222@under.test.com

CSeq: 1 SUBSCRIBE

Allow-Events: reg

Event: reg

Expires: 600000

Security-Verify: ipsec-3gpp; alg= hmac-sha-1-96; spi-c=98765433; spi-s=87654322;
port-c=10012; port-s=10011

Contact: <sip:UEa1_public_1@node.under.test.com:1358>

Content-Length: 0

16. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1358;branch=z9hG4bKnashdsb1

Record-Route: <sip:p.a1.under.test.com:10011;lr>

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

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

Call-ID: c89rjhnedlrflslj40a222@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:1358 SIP/2.0
Via: SIP/2.0/UDP p.a1.under.test.com:10011;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: c89rjhnedlrflslj40a222@under.test.com
CSeq: 1 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>
```

18. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK
Via: SIP/2.0/UDP
p.a1.under.test.com:10011;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: c89rjhnedlrflslj40a222@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 - Reception of 504 response to reregistration

[NAME]

UE-RG-B-14 - 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

TS24.229 5.1.1.3

TS24.229 5.1.1.4

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

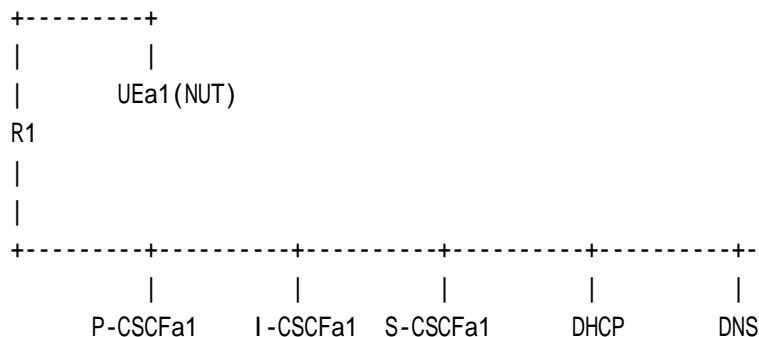
[PARAMETER(TESTER)]

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::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

[TOPOLOGY]



[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

B. DHCPv6

(NUT)

UEa1 DHCP
 | : |



```

|----->| 1 DHCPv6 SOLICIT
|   :   |
|<-----| 2 DHCPv6 ADVERTISE
|   :   |
|----->| 3 DHCPv6 REQUEST
|   :   |
|<-----| 4 DHCPv6 REPLY
|   :   |

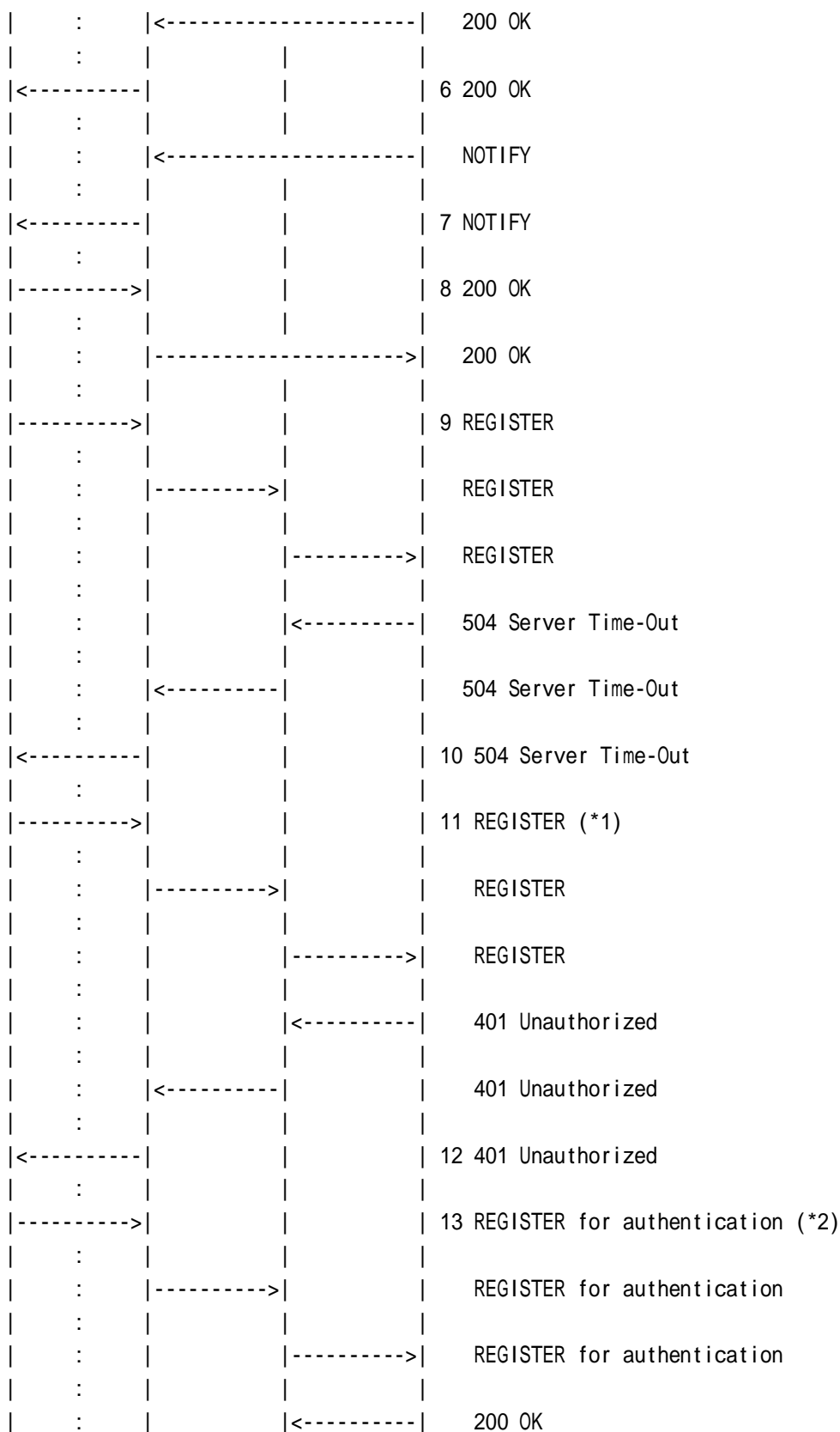
```

[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
	:			
<-----				14 200 OK
	:			
----->				15 SUBSCRIBE (*3)
	:			
	:	----->		SUBSCRIBE
	:			
	:	<-----		200 OK
	:			
<-----				16 200 OK
	:			
	:	<-----		NOTIFY
	:			
<-----				17 NOTIFY
	:			
----->				18 200 OK (*4)
	:			
	:	----->		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.

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; alg= hmac-sha-1-96; spi-c=23456780; spi-s=12345679;
port-c=2469; port-s=1358

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

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

WWW-Authenticate: Digest realm="under.test.com",
nonce="I1U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD

Security-Server: ipsec-3gpp; alg= hmac-sha-1-96; spi-c=98765433; spi-s=87654322;
port-c=10012; port-s=10011

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]:1358;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:1358>;expires=600000

Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com", nonce="11U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5, uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=23456780; spi-s=12345679; port-c=2469; port-s=1358

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765433; spi-s=87654322; port-c=10012; port-s=10011

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]:1358;branch=z9hG4bKnashdt8

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=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:1358>;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

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]:1358;branch=z9hG4bKnashdsb1

Max-Forwards: 70



Route: <sip:p.a1.under.test.com:10011;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: c89rjhnedlrflslj40a222@under.test.com
CSeq: 1 SUBSCRIBE
Allow-Events: reg
Event: reg
Expires: 600000
Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765433; spi-s=87654322;
port-c=10012; port-s=10011
Contact: <sip:UEa1_public_1@node.under.test.com:1358>
Content-Length: 0

16. 200 OKP-CSCF -> NUT

SIP/2.0 200 OK
Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1358;branch=z9hG4bKnashdsb1
Record-Route: <sip:p.a1.under.test.com:10011;lr>
From: <sip:UEa1_public_1@under.test.com>;tag=41415
To: <sip:UEa1_public_1@under.test.com>;tag=251170
Call-ID: c89rjhnedlrflslj40a222@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:1358 SIP/2.0
Via: SIP/2.0/UDP p.a1.under.test.com:10011;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: c89rjhnedlrflslj40a222@under.test.com
CSeq: 1 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>
```

18. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via: SIP/2.0/UDP
 p.a1.under.test.com:10011;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: c89rjhnedlrfjlsj40a222@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 - Timer F expiration (Registration)

[NAME]

UE-RG-B-15 - Timer F expiration (Registration)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly stops processing of all ongoing dialogs and transactions and silently discards them locally when the timer F expires at the UE.

[REFERENCE]

TS24.229 5.1.1.4

[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)]

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
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



```

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

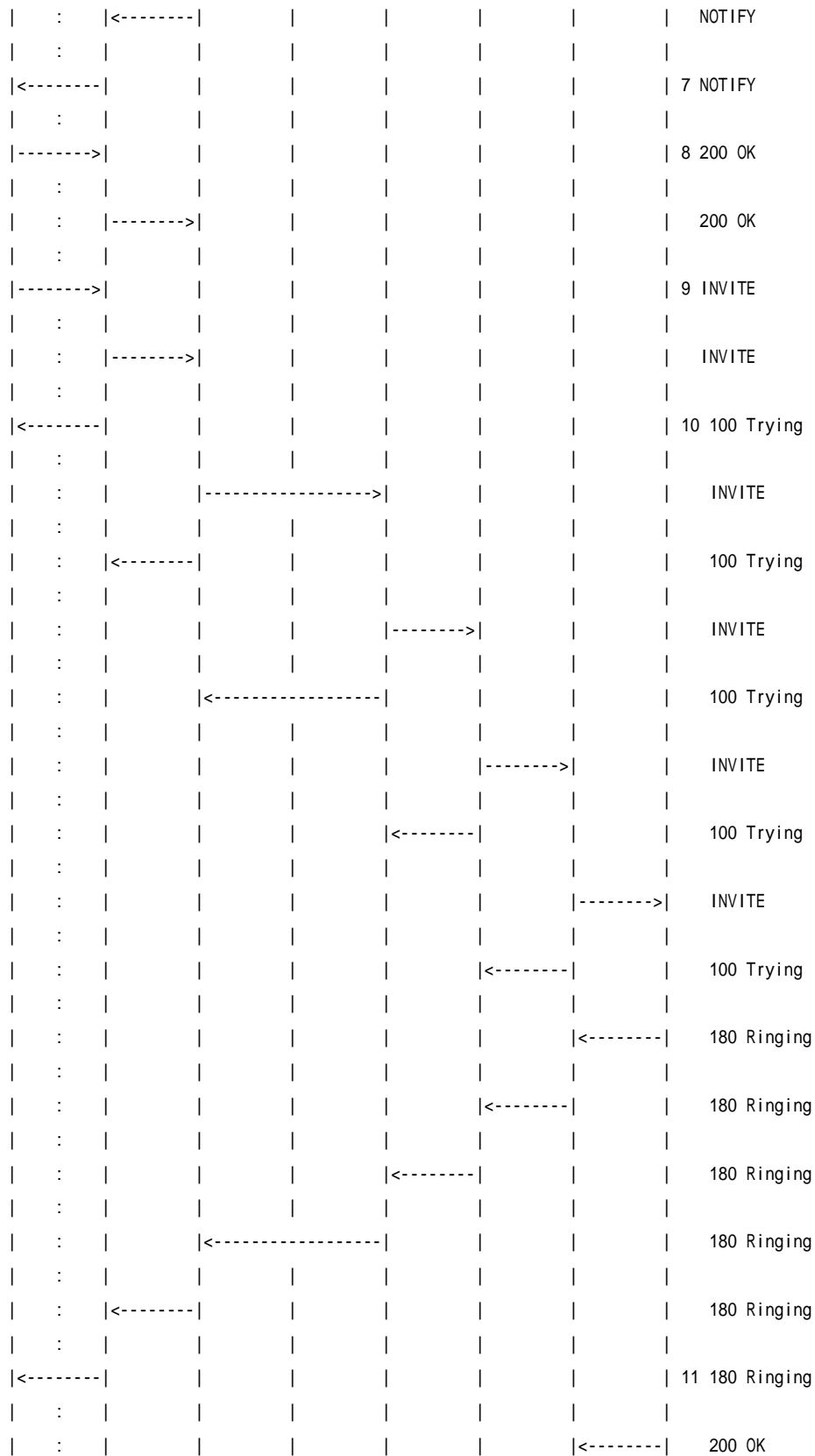
```

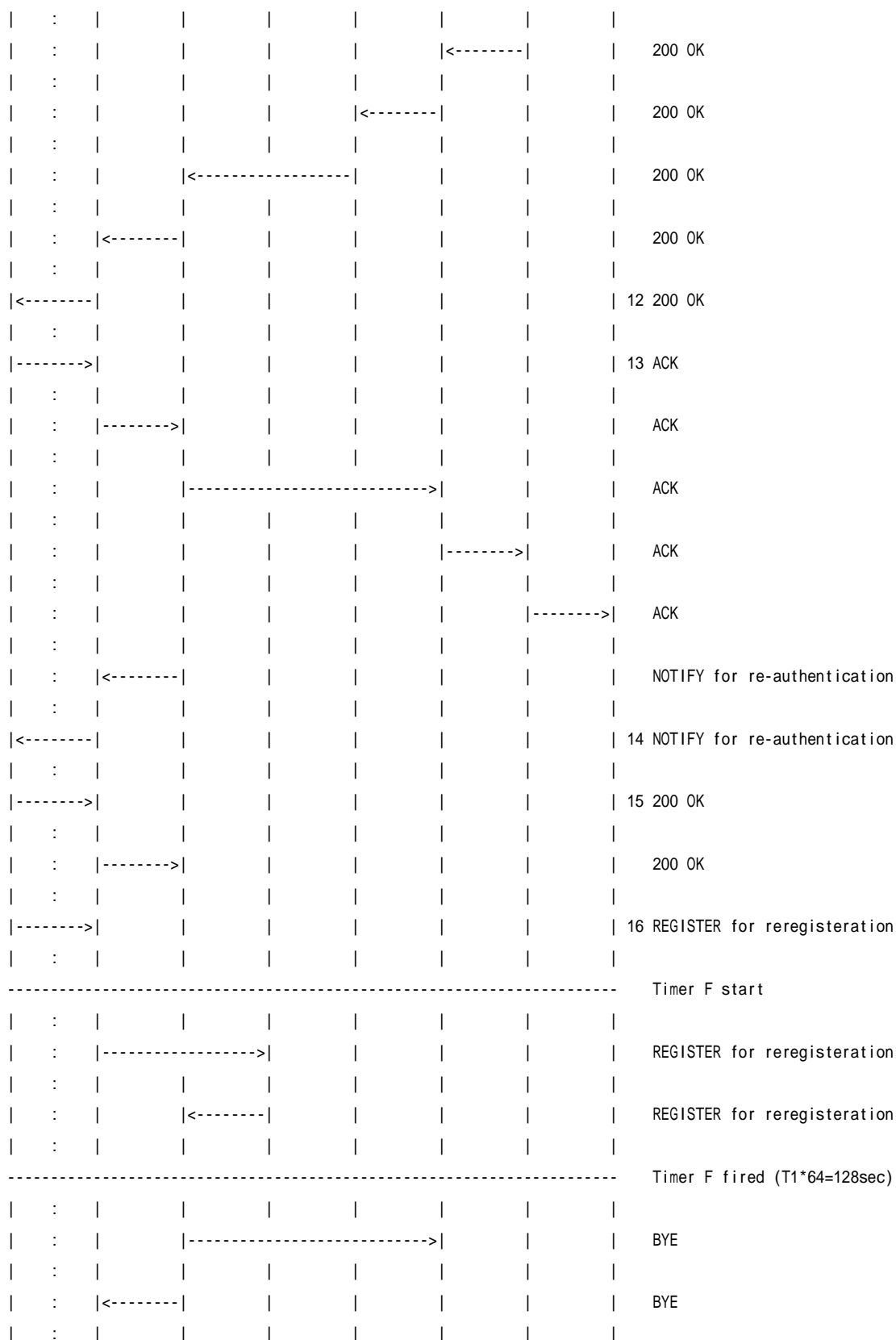
[PROCEDURE]

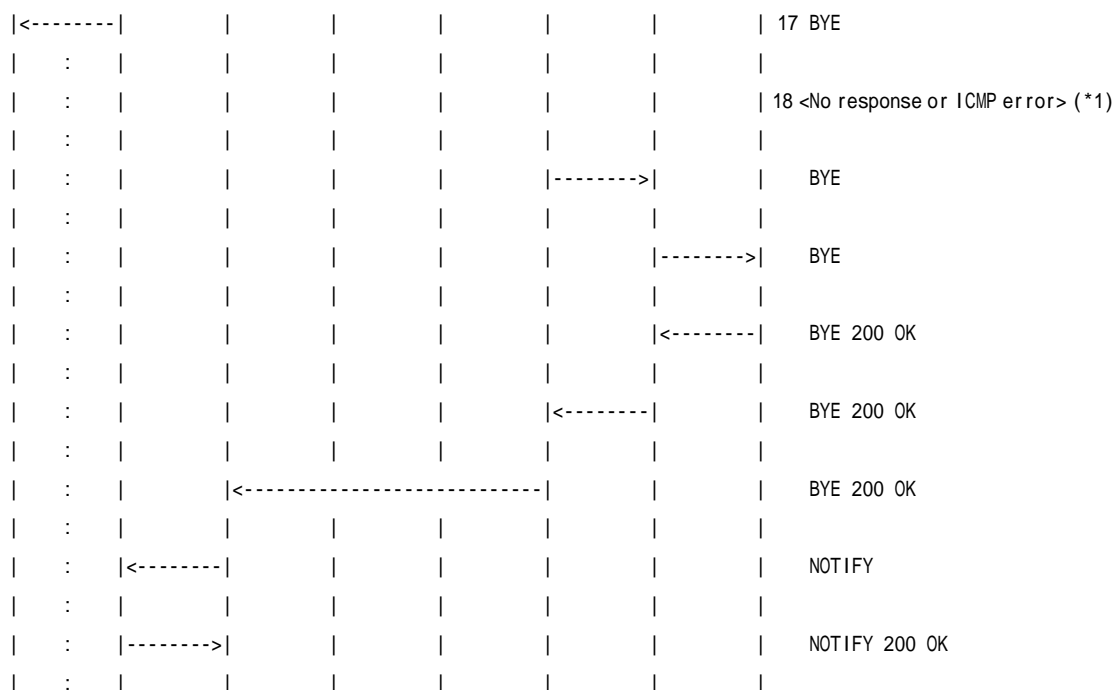
Home Network

(NUT)

UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
:							
----->							1 REGISTER
:							
:	----->						REGISTER
:							
:		<-----					REGISTER
:							
:		----->					401 Unauthorized
:							
:	<----->						401 Unauthorized
:							
<-----							2 401 Unauthorized
:							
----->							3 REGISTER for authentication
:							
:	----->						REGISTER for authentication
:							
:		<-----					REGISTER for authentication
:							
:		----->					200 OK
:							
:	<----->						200 OK
:							
<-----							4 200 OK
:							
----->							5 SUBSCRIBE
:							
:	----->						SUBSCRIBE
:							
:	<-----						200 OK
:							
<-----							6 200 OK
:							







- === Message example ===

As regards the message 9-13, please refer to the message 1-5 in UE-SE-B-1.



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;received=3ffe:501:ffff:100::10,
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: b89rjhnedlrflslj40a222@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">
```

```
    <contact id="76" state="active" event="shortend" 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: b89rjhnedlrflslj40a222@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", algorithm=AKAv1-MD5,
 uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"
 Security-Client: ipsec-3gpp; 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=98765432; spi-s=87654321;
 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=z9hG4bKnaghs30;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.[TS24.229 5.1.1.4]

The UAC SHOULD NOT immediately re-attempt a registration to the same



registrar.[RFC3261 10.2.7]

4.1.16 UE-RG-B-16 - Reception of 401 response with no Security-Server header to initial registration

[NAME]

UE-RG-B-16 - 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

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



- 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];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; 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];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-MD
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];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; alg=hmac-sha-1-96; spi-c=23456780; spi-s=12345679;
port-c=2469; port-s=1358
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];branch=z9hG4bKnashdt7

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

WWW-Authenticate: Digest realm="under.test.com",
nonce="11U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765433; spi-s=87654322;
port-c=10012; port-s=10011

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]:1358;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:1358>;expires=600000

Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com",
nonce="11U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5,
uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=23456780; spi-s=12345679;
port-c=2469; port-s=1358

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765433; spi-s=87654322;
port-c=10012; port-s=10011



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]:1358;branch=z9hG4bKnashdt8

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=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:1358>;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

[OBSERVABLE RESULTS]

*1: 3 REGISTER from NUT to P-CSCF

See generic_REGISTER

- Header field:

* Call-ID

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.[TS24.229 5.1.1.5.1]

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

See generic_Auth_REGISTER

4.1.17 UE-RG-B-17 - Charge from the old SAs to the new SAs

[NAME]

UE-RG-B-17 - 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
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



```

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

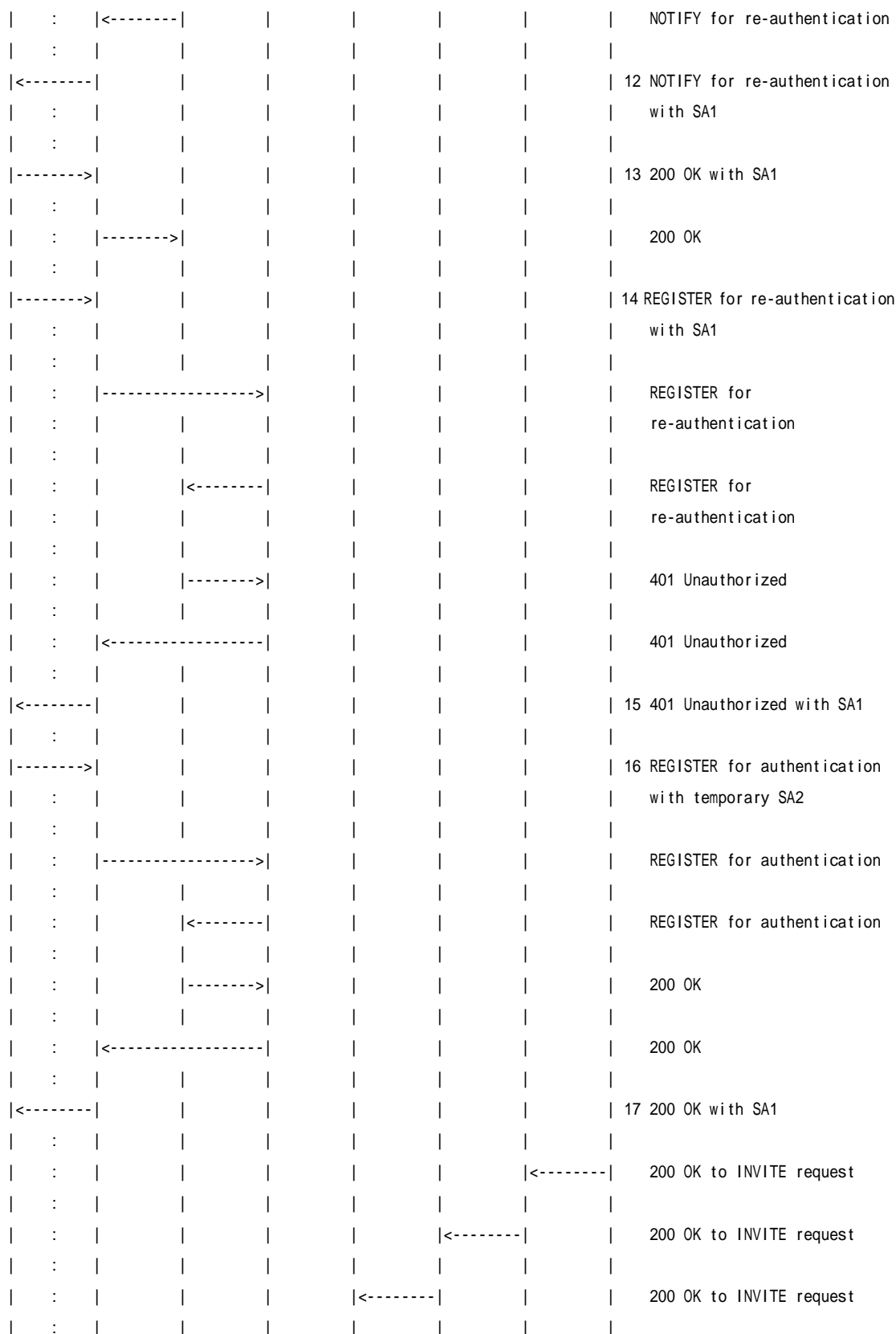
```

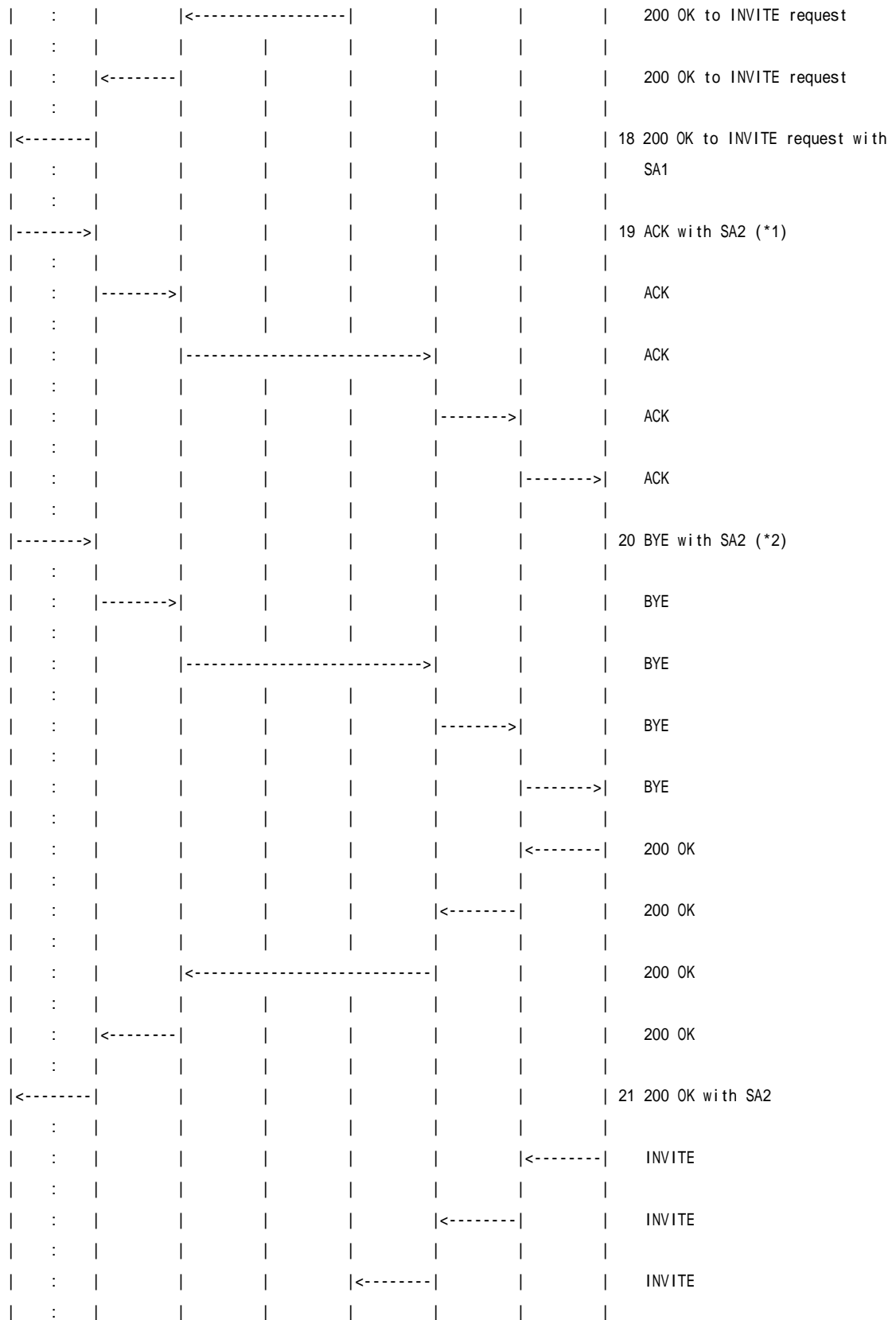
[PROCEDURE]

Home Network

(NUT)

UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
:							
----->							1 REGISTER
:							
:	----->						REGISTER
:							
:		<-----					REGISTER
:							
:		----->					401 Unauthorized
:							
:	<----->						401 Unauthorized
:							
<-----							2 401 Unauthorized
:							
----->							3 REGISTER for authentication
:							with temporary SA1
:							
:	----->						REGISTER for authentication
:							
:		<-----					REGISTER for authentication
:							
:		----->					200 OK
:							
:	<----->						200 OK
:							
<-----							4 200 OK with SA1
:							
----->							5 SUBSCRIBE with SA1
:							
:	----->						SUBSCRIBE
:							
:	<-----						200 OK
:							
<-----							6 200 OK with SA1







	:		<-----					INVITE
	:							
	:		<-----					INVITE
	:							
	:		<-----					22 INVITE with SA1
	:							
	:							23 < No response or ICMP error >
	:							(*3)
	:							

- 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.
 As regards the message 9-11, please refer to the message 1-3 in UE-SE-B-1.
 As regards the message 12-17, please refer to the message 9-14 in UE-RG-B-3.

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
P-Asserted-Identity: <sip:UEa1_public_1@under.test.com>
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;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=108765432; spi-s=97654321;
port-c=20002; 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 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/UD
P

s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UD
P

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;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>

Content-Type: application/sdp

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg



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

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.[TS24.229 5.1.1.5.1]

The previous security associations SHALL be replaced the new security associations.[TS33.203 7.4]

The sever ports of UE and P-CSCF SHALL not be changed, while the protected client portsof UE and P-CSCF SHALL change.[TS33.203 7.4]

*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.[TS24.229 5.1.1.5.1]

*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.[TS24.229 5.1.1.5.1]

The old set of security associations SHALL be deleted after all SIP transactions that use the old set of security associations are completed.[TS24.229 5.1.1.5.1]

4.1.18 UE-RG-B-18 - Reception of 403 response to initial registration

[NAME]

UE-RG-B-18 - Reception of 403 response to initial registration

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

- (1) 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.
- (2) To verify that the UEa1 properly resends a new REGISTER with the old set of security associations.
- (3) 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
TS24.229 5.1.1.3
TS24.229 5.1.1.5.1

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

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



```

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

```

[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 with temporary SA1
	:		
	:	----->	REGISTER for authentication
	:		
	:	----->	REGISTER for authentication
	:		
	:	<-----	200 OK with expires=60
	:		
	:	<-----	200 OK with expires=60
	:		
<-----			4 200 OK with expires=60 and SA1
	:		
----->			5 SUBSCRIBE with SA1
	:		
	:	----->	SUBSCRIBE
	:		
	:	<-----	200 OK
	:		



<-----		6 200 OK with SA1
:		
: <-----		NOTIFY
:		
<-----		7 NOTIFY with SA1
:		
----->		8 200 OK
:		
: ----->		200 OK with SA1
:		
----->		9 REGISTER for reregistration with SA1
:		
: ----->		REGISTER for reregistration
:		
: ----->		REGISTER for reregistration
:		
: <-----		500 Server Internal Error
:		
: <-----		500 Server Internal Error
:		
<-----		10 500 Server Internal Error with SA1
:		
----->		11 REGISTER with SA1
:		
: ----->		REGISTER
:		
: ----->		REGISTER
:		
: <-----		401 Unauthorized
:		
: <-----		401 Unauthorized
:		
<-----		12 401 Unauthorized with SA1
:		
----->		13 REGISTER for authentication with temporary SA2
:		
: ----->		REGISTER for authentication
:		
: ----->		REGISTER for authentication
:		
: <-----		403 Forbidden
:		
: <-----		403 Forbidden



	:			
<-----				14 403 Forbidden with temporary SA2
	:			
----->				15 REGISTER with SA1(*1)
	:			
	:	----->		REGISTER
	:			
	:		----->	REGISTER
	:			
	:		<-----	ICMP Error
	:			
	:	<-----		ICMP Error
	:			
<-----				16 ICMP Error
	:			
----->				17 REGISTER with no SAs (*2)
	:			
	:	----->		REGISTER
	:			
	:		----->	REGISTER
	:			
	:		<-----	401 Unauthorized
	:			
	:	<-----		401 Unauthorized
	:			
<-----				18 401 Unauthorized
	:			
----->				19 REGISTER for authentication with temporary SA3 (*3)
	:			
	:	----->		REGISTER for authentication
	:			
	:		----->	REGISTER for authentication
	:			
	:		<-----	200 OK
	:			
	:	<-----		200 OK
	:			
<-----				20 200 OK with SA2
	:			
----->				21 SUBSCRIBE with SA2 (*4)
	:			
	:	----->		SUBSCRIBE
	:			



```

|   :   |<-----|   200 OK
|   :   |       |       |
|<-----|       |       | 22 200 OK with SA2
|   :   |       |       |
|   :   |<-----|   NOTIFY with SA2
|   :   |       |       |
|<-----|       |       | 23 NOTIFY
|   :   |       |       |
|----->|       |       | 24 200 OK with SA2 (*5)
|   :   |       |       |
|   :   |----->|   200 OK
|   :   |       |       |

```

- 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 sends REGISTER with SA1
- 10 NUT receives 500 Server Internal Error with SA1
- 11 NUT sends REGISTER with SA1
- 12 NUT receives 401 Unauthorized with SA1
- 13 NUT sends REGISTER for authentication with temporary SA2
- 14 NUT receives 403 Forbidden with temporary SA2
- 15 NUT sends REGISTER with SA1
- 16 NUT receives ICMP Error
- 17 NUT sends REGISTER with no SA
- 18 NUT receives 401 Unauthorized with no SA
- 19 NUT sends REGISTER for authentication with temporary SA3
- 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 1-13, please refer to the message 1-13 in UE-RG-B-13.

13. REGISTER NUT -> P-CSCF



REGISTER sip:under.test.com SIP/2.0
Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1358;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:1358>;expires=600000
Call-ID: bpb03a0s09dkjdfglkj49111@under.test.com
Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com",
nonce="T1U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5,
uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"
Security-Client: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=23456780; spi-s=12345679;
port-c=2469; port-s=1358
Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765433; spi-s=87654322;
port-c=10012; port-s=10011
Require: sec-agree
Proxy-Require: sec-agree
CSeq: 2 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]:1358;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
CSeq: 2 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=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",
nonce="", algorithm=AKAv1-MD5, uri="sip:under.test.com", response=""
Security-Client: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=23456781; spi-s=12345680;
port-c=2470; port-s=1359



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

16 ICMP Error P-CSCF -> NUT

17 15. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000];branch=z9hG4bKnashdv8

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=7fa3

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

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

Call-ID: dpb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com",
nonce="", algorithm=AKAv1-MD5, uri="sip:under.test.com", response=""

Security-Client: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=23456782; spi-s=12345681;
port-c=2471; port-s=1360

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];branch=z9hG4bKnashdv8

From: <sip:UEa1_public_1@under.test.com>;tag=7fa3

To: <sip:UEa1_public_1@under.test.com>;tag=7ef4

Call-ID: dpb03a0s09dkjdfglkj49111@under.test.com

WWW-Authenticate: Digest realm="under.test.com",
nonce="11U8vpY3qJhiuZnrke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765434; spi-s=87654323;
port-c=10022; port-s=10021

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]:1360;branch=z9hG4bKnashdv9

Max-Forwards: 70

From: <sip:UEa1_public_1@under.test.com>;tag=7fa3

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

Contact: <sip:UEa1_public_1@node.under.test.com:1360>;expires=600000

Call-ID: dpb03a0s09dkjdfglkj49111@under.test.com

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com",
nonce="I1U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5,
uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=23456782; spi-s=12345681;
port-c=2471; port-s=1360

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765434; spi-s=87654323;
port-c=10022; port-s=10021

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]:1360;branch=z9hG4bKnashdv9

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=7fa3

To: <sip:UEa1_public_1@under.test.com>;tag=7ef5

Call-ID: dpb03a0s09dkjdfglkj49111@under.test.com

Contact: <sip:UEa1_public_1@node.under.test.com:1360>;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

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]:1360;branch=z9hG4bKnashdsb1

Max-Forwards: 70

Route: <sip:p.a1.under.test.com:10021;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: c89rjhnedlrflslj40a222@under.test.com
CSeq: 1 SUBSCRIBE
Allow-Events: reg
Event: reg
Expires: 600000
Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765434; spi-s=87654323;
port-c=10022; port-s=10021
Contact: <sip:UEa1_public_1@node.under.test.com:1360>
Content-Length: 0

22. 200 OK P-CSCF -> NUT

SIP/2.0 200 OK
Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1360;branch=z9hG4bKnashdsb1
Record-Route: <sip:p.a1.under.test.com:10021;lr>
From: <sip:UEa1_public_1@under.test.com>;tag=41415
To: <sip:UEa1_public_1@under.test.com>;tag=251170
Call-ID: c89rjhnedlrflslj40a222@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:1360 SIP/2.0
Via: SIP/2.0/UDP p.a1.under.test.com:10021;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: c89rjhnedlrflslj40a222@under.test.com
CSeq: 1 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>
```

24. 200 OK NUT -> P-CSCF

SIP/2.0 200 OK

Via:

SIP/2.0/UDP

p.a1.under.test.com:10021;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: c89rjhnedlrfjlsj40a222@under.test.com

CSeq: 1 NOTIFY

Content-Length: 0

[OBSERVABLE RESULTS]

*1: 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.[TS24.229 5.1.1.5.1]

The temporary set of security associations SHALL be deleted and the old set of security associations SHALL be used.[TS24.229 5.1.1.5.1]

*2: 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.[TS33.203 7.4.1a]



*3: 19 REGISTER for authentication with temporary SA3 from NUT to P-CSCF

See generic_Auth_REGISTER

*4: 21 SUBSCRIBE with SA2 from NUT to P-CSCF

See generic_SUBSCRIBE

*5: 24 NOTIFY 200 OK with SA2 from NUT to P-CSCF

See generic_200-NOTIFY

4.1.19 UE-RG-B-19 - Invalid authentication parameter

[NAME]

UE-RG-B-19 - Invalid authentication parameter

[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 5.1.1.5.1

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



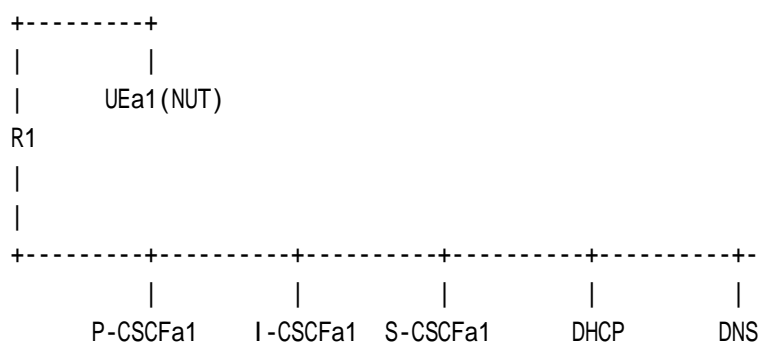
[PARAMETER(TESTER)]

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::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

[TOPOLOGY]



[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

B. DHCPv6

(NUT)

UEa1		DHCP
	:	
----->	1	DHCPv6 SOLICIT
	:	
<-----	2	DHCPv6 ADVERTISE
	:	
----->	3	DHCPv6 REQUEST

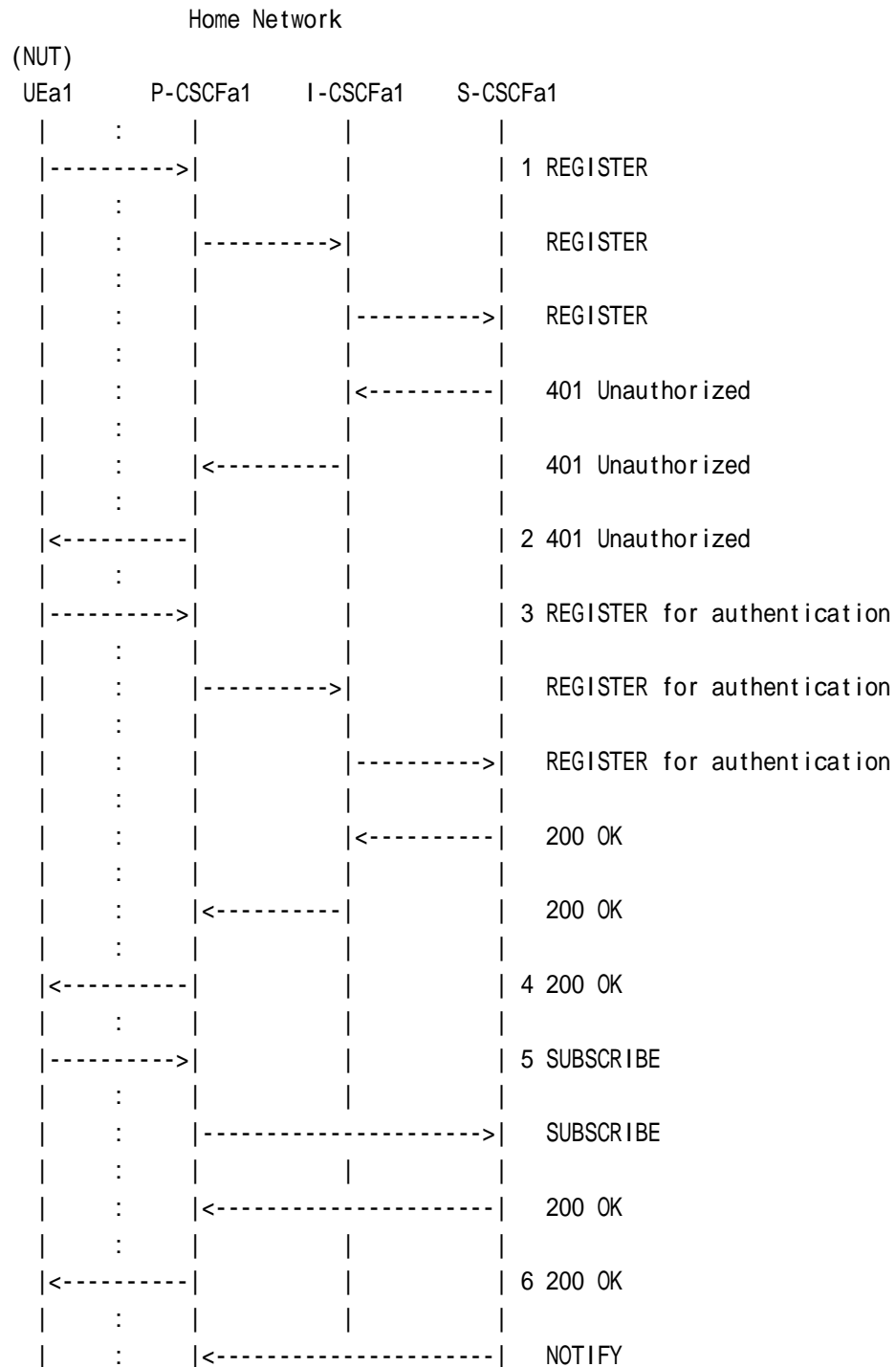


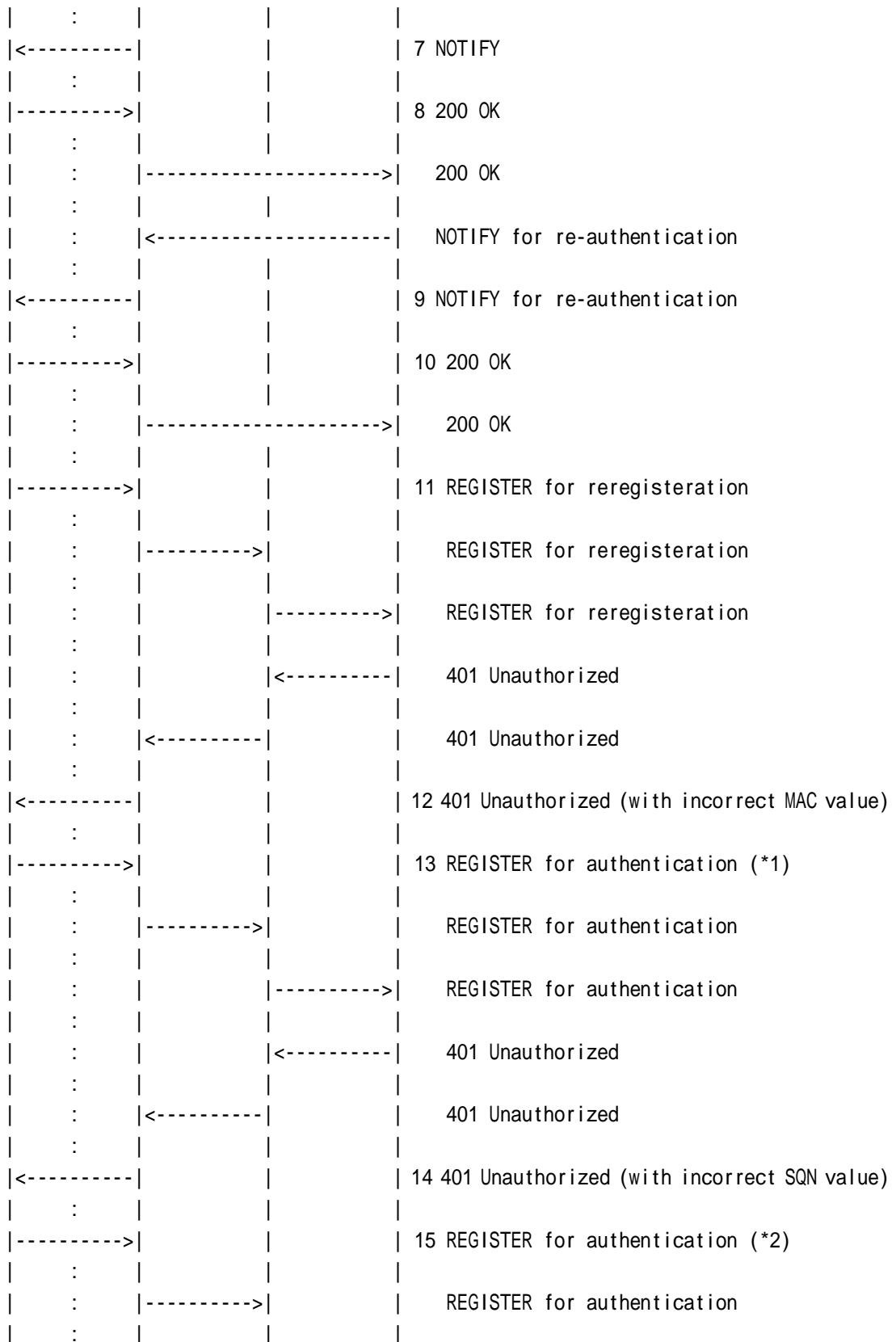
```

|   :   |
|<-----| 4 DHCPv6 REPLY
|   :   |

```

[PROCEDURE]







	:		----->	REGISTER for authentication
	:			
	:		<-----	401 Unauthorized
	:			
	:	<-----		401 Unauthorized
	:			
<-----				16 401 Unauthorized (with incorrect value)
	:			
	:			17 <No more REGISTER requests> (*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 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 401 Unauthorized
- 15 NUT sends REGISTER for authentication
- 16 NUT receives 401 Unauthorized
- 17 <No more REGISTER requests>

=== Message example ===

As regards the message 1-11, please refer to the message 1-11 in UE-RG-B-3.

12. 401 Unauthorized P-CSCF -> NUT
 SIP/2.0 401 Unauthorized
 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
 WWW-Authenticate: Digest realm="under.test.com", nonce=base64(RAND + AUTN including
 a invalid MAC + server specific data), algorithm=AKAv1-MD
 Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=108765432; spi-s=97654321;
 port-c=20002; port-s=10001



CSeq: 3 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=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",
nonce=base64(RAND + AUTN including a invalid MAC + server specific data),
algorithm=AKAv1-MD5, uri="sip:under.test.com", response=""
Security-Client: ipsec-3gpp; 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=108765432; spi-s=97654321;
port-c=20002; 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
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
WWW-Authenticate: Digest realm="under.test.com", nonce=base64(RAND + AUTN including
a invalid SQN + server specific data), algorithm=AKAv1-MD
Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=108765432; spi-s=97654321;
port-c=20002; port-s=10001
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=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",
nonce=base64(RAND + AUTN including a invalid SQN + server specific data),
algorithm=AKAv1-MD5, uri="sip:under.test.com", auts="5PYxMuX2NOT2NeQ=",
response="calculated without password"
Security-Client: ipsec-3gpp; 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=108765432; spi-s=97654321;
port-c=20002; port-s=10001
Require: sec-agree
Proxy-Require: sec-agree
CSeq: 5 REGISTER
Supported: path
Content-Length: 0

16. 401 Unauthorized P-CSCF -> NUT
SIP/2.0 401 Unauthorized
Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds11
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
WWW-Authenticate: Digest realm="under.test.com", nonce=base64(RAND + AUTN including
a invalid SQN + server specific data), algorithm=AKAv1-MD
Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=108765432; spi-s=97654321;
port-c=20002; port-s=10001
CSeq: 5 REGISTER
Content-Length: 0

17. <No more REGISTER request>

[OBSERVABLE RESULTS]

*1: 13 REGISTER for authentication from NUT to P-CSCF

See generic_Auth_REGISTER

The REGISTER request for authentication that includes the cause of failure



SHALL be sent towards the Home Network.[TS33.203 6.1.2.2]

- Security behavior:

The REGISTER request SHALL be sent using an existing set of security associations.[TS24.229 5.1.1.5.3]

A temporary set of security associations SHALL not be created.
[TS24.229 5.1.1.5.3]

The REGISTER request which may pass through an already established SA and indicate a network authentication failure SHALL be sent to the P-CSCF.
[TS33.203 7.3.1.2]

- Header field:

* Authorization

No AUTS directive and an empty response directive SHALL be contained in the subsequent REGISTER request.[TS24.229 5.1.1.5.3]

* 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.[TS24.229 5.1.1.5.3]

*2: 15 REGISTER for authentication from NUT to P-CSCF

See generic_Auth_REGISTER

The REGISTER request for authentication that includes the cause of failure SHALL be sent towards the Home Network.[TS33.203 6.1.2.2]

- Security behavior:

The REGISTER request SHALL be sent using an existing set of security associations.[TS24.229 5.1.1.5.3]

A temporary set of security associations SHALL not be created.
[TS24.229 5.1.1.5.3]

The REGISTER request which may pass through an already established SA and indicate a network authentication failure SHALL be sent to the P-CSCF.
[TS33.203 7.3.1.2]

- Header field:



*** Authorization**

The AUTS directive SHALL be contained in the subsequent REGISTER request.[TS24.229 5.1.1.5.3]

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.[TS24.229 5.1.1.5.3]

*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.[TS24.229 5.1.1.5.3]

4.1.20 UE-RG-B-20 - User-initiated deregistration and dialog release

[NAME]

UE-RG-B-20 - 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

[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

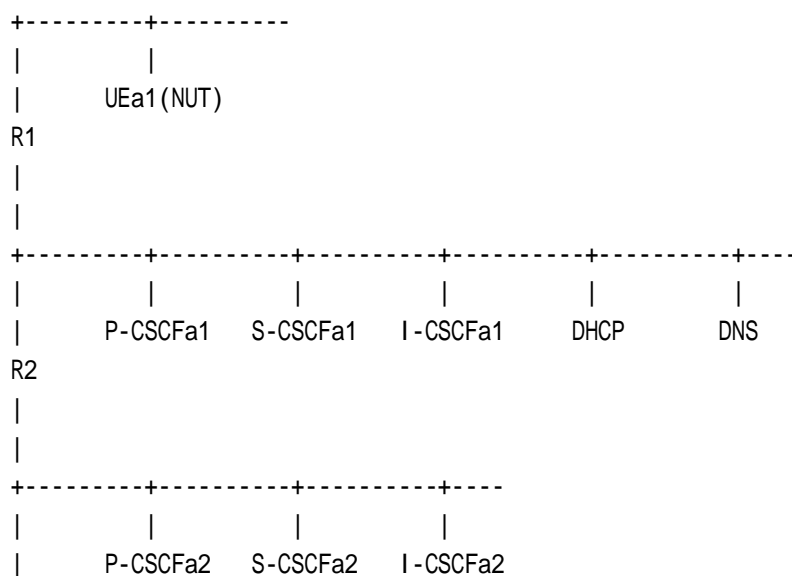
[PARAMETER(TESTER)]

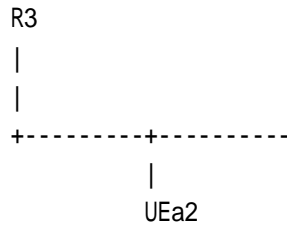
public-URI(UEa2) : sip:UEa2_public_1@under.test.com
 P-CSCFa1 : sip:p.a1.under.test.com
 S-CSCFa1 : sip:s.a1.under.test.com

[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
 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]





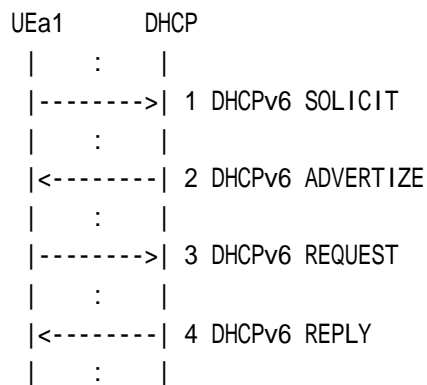
[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

B. DHCPv6

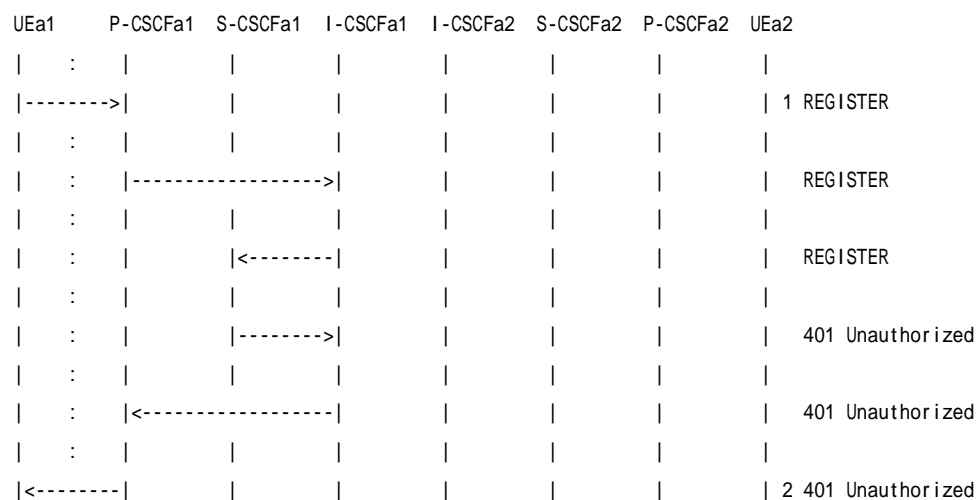
(NUT)

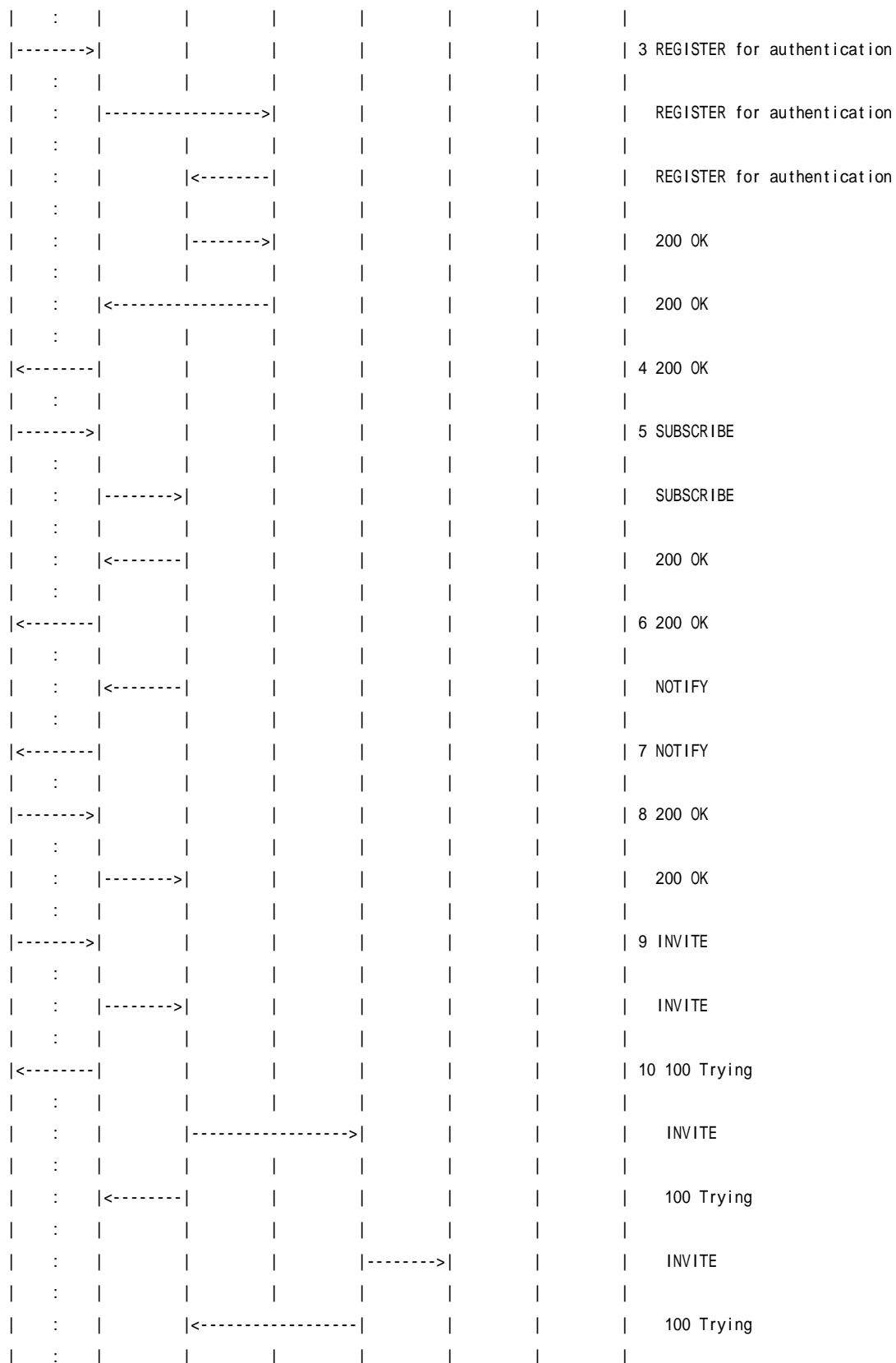


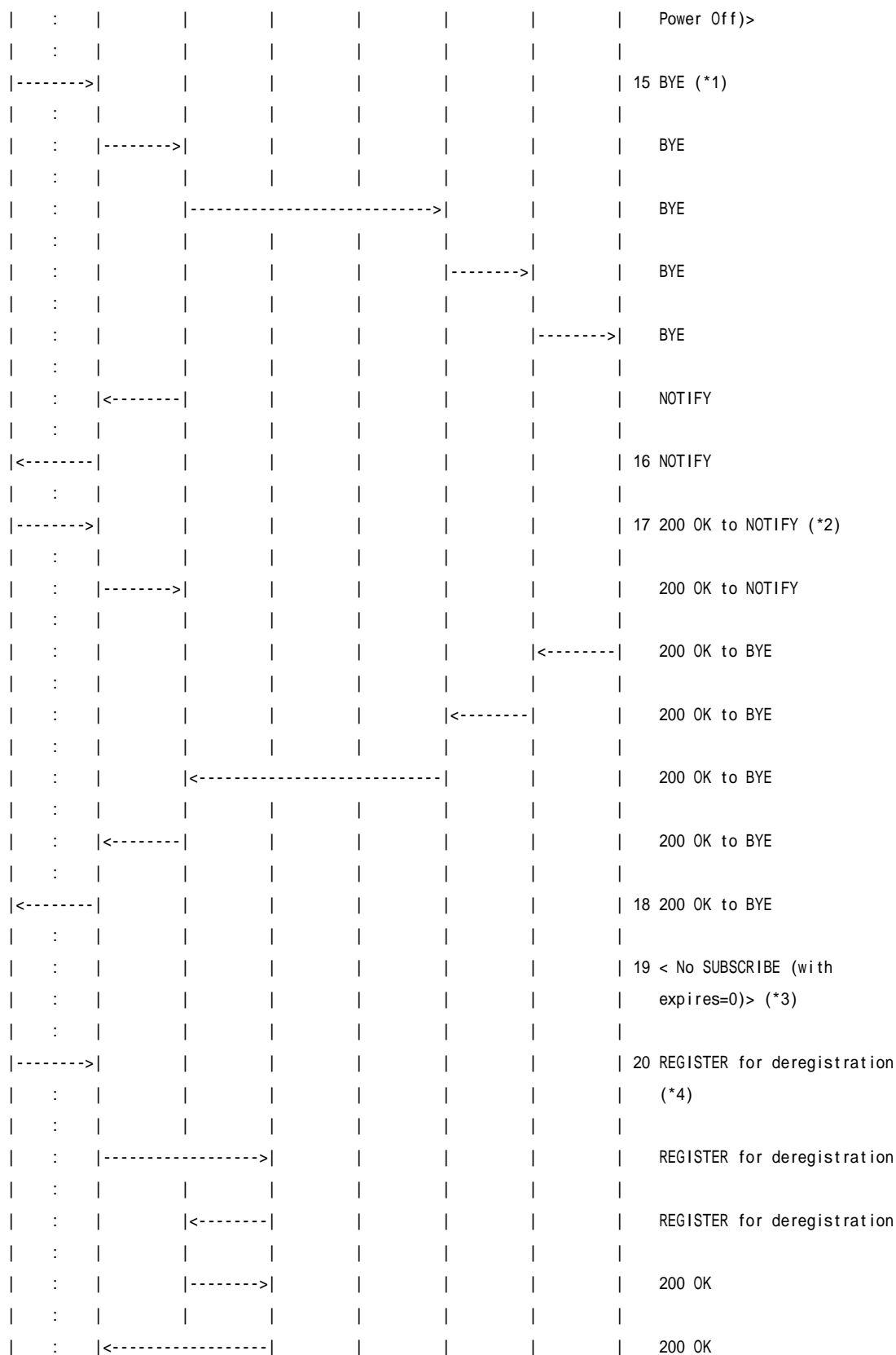
[PROCEDURE]

Home Network

(NUT)









- === Message example ===

As regards the message 9-13, please refer to the message 1-5 in UE-SE-B-1.

14. <Try to deragistration (ex. Power Off)>

- 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=98765432; spi-s=87654321;
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: b89rjhnedlrflslj40a222@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">
```

```
      <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/U
DP 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: b89rjhnedlrflslj40a222@under.test.com



CSeq: 2 NOTIFY
Content-Length: 0

18. 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

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", algorithm=AKAv1-MD5,
uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"
Security-Client: ipsec-3gpp; 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=98765432; spi-s=87654321;
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
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: 15 BYE from NUT to P-CSCF

See generic_BYE

All dialogs related to the public user identity that is going to be deregistered or to one of the implicitly registered public user identities SHALL be released prior to sending a REGISTER request for deregistration. [TS24.229 5.1.1.6]

*2: 17 NOTIFY 200 OK from NUT to P-CSCF

See generic_200-NOTIFY

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.
[TS24.229 5.1.1.6]

*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.
[TS24.229 5.1.1.6]

*4: 20 REGISTER for deregistration from NUT to P-CSCF

See generic_de_REGISTER

4.1.21 UE-RG-B-21 - Reception of 401 response to user-initiated deregistration

[NAME]

UE-RG-B-21 - 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

TS24.229 5.1.1.6

[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)]

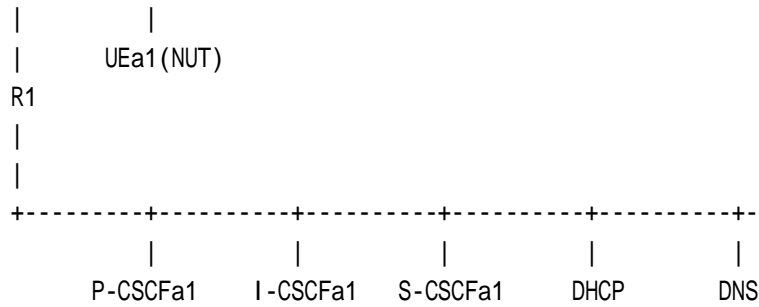
P-CSCFa1	:	sip:p.a1.under.test.com
S-CSCFa1	:	sip:s.a1.under.test.com

[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

[TOPOLOGY]

+-----+



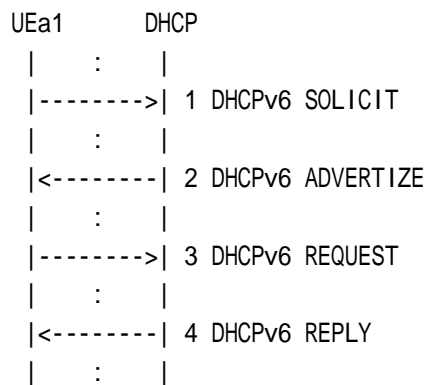
[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

B. DHCPv6

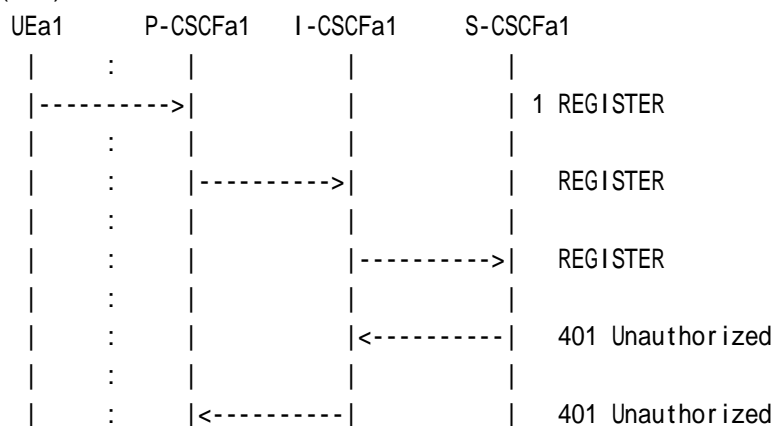
(NUT)

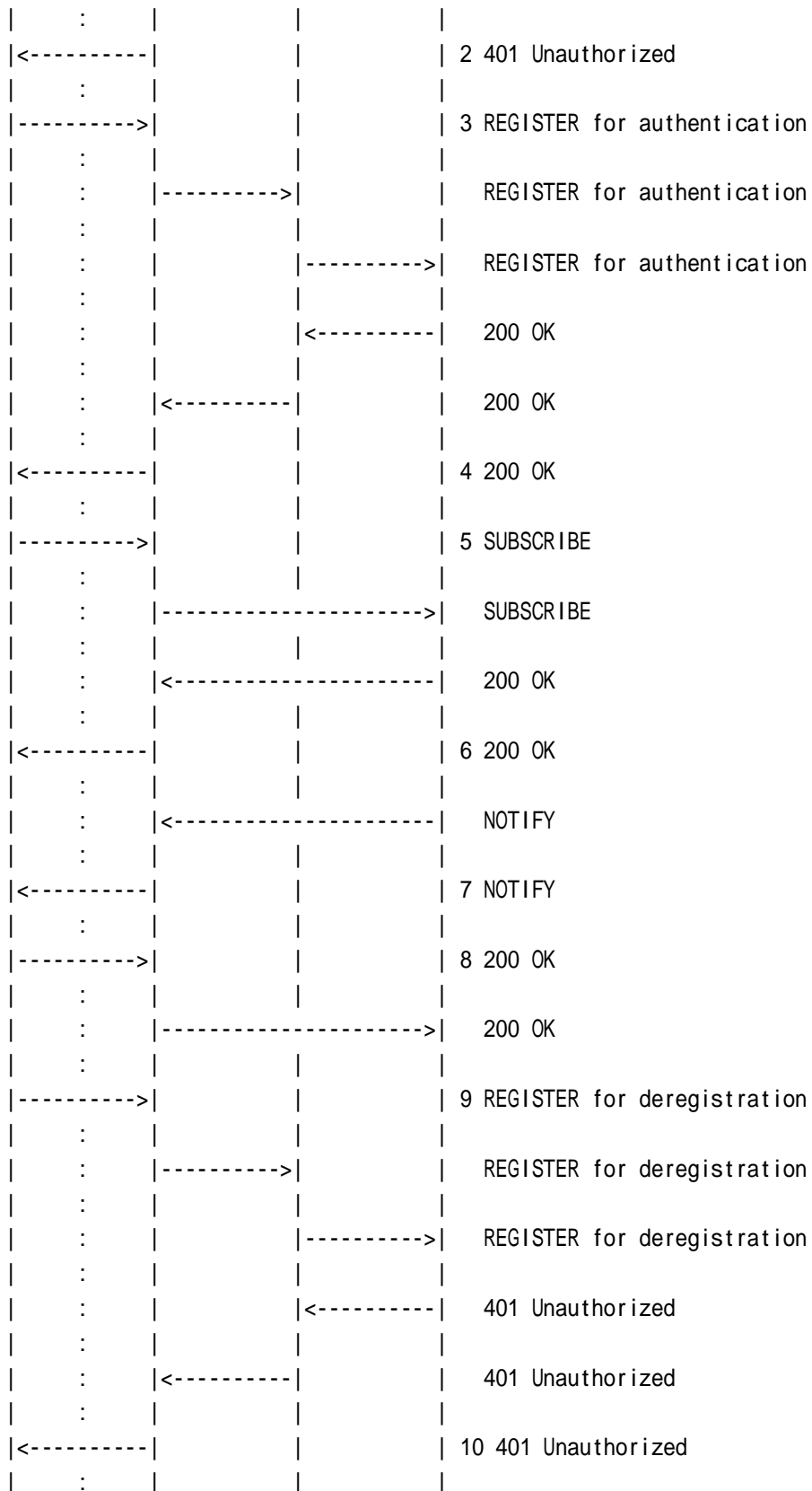


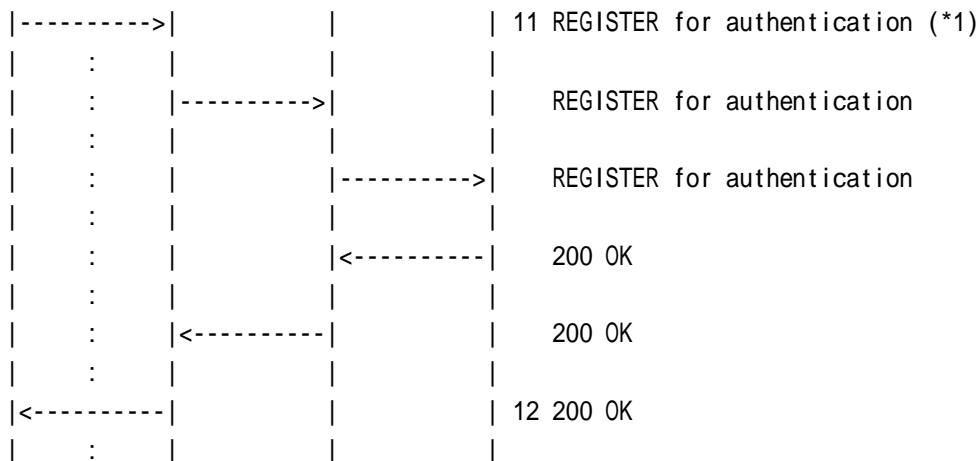
[PROCEDURE]

Home Network

(NUT)







- === Message example ===

```
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", algorithm=AKAv1-MD5,
uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"
Security-Client: ipsec-3gpp; 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=98765432; spi-s=87654321;
port-c=10002; port-s=10001
Supported: path
Require: sec-agree
Proxy-Require: sec-agree
CSeq: 3 REGISTER
Content-Length: 0

10. 401 Unauthorized P-CSCF -> NUT

SIP/2.0 401 Unauthorized

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

WWW-Authenticate: Digest realm="under.test.com",
nonce="11U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=108765432; spi-s=97654321;
port-c=20002; port-s=10001

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=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

Authorization: Digest username="UEa1_private@under.test.com", realm="under.test.com",
nonce="11U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5,
uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; 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=108765432; spi-s=97654321;
port-c=20002; 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

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=5ef7

Call-ID: apb03a0s09dkjdfglkj49111@under.test.com

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

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

4.1.22 UE-RG-B-22 - Reception of 503 response to subscription for the registration state event package

[NAME]

UE-RG-B-22 - 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

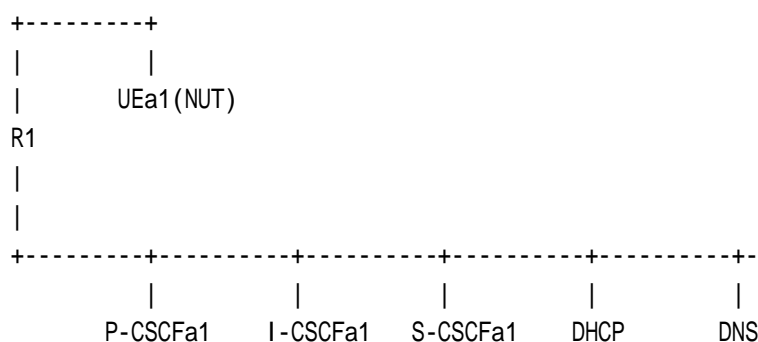
[PARAMETER(TESTER)]

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::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

[TOPOLOGY]



[INITIALIZATION]

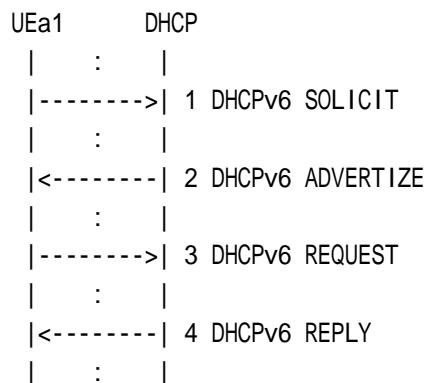
Set up IP Address using A or B.

A. Router Advertisement



B. DHCPv6

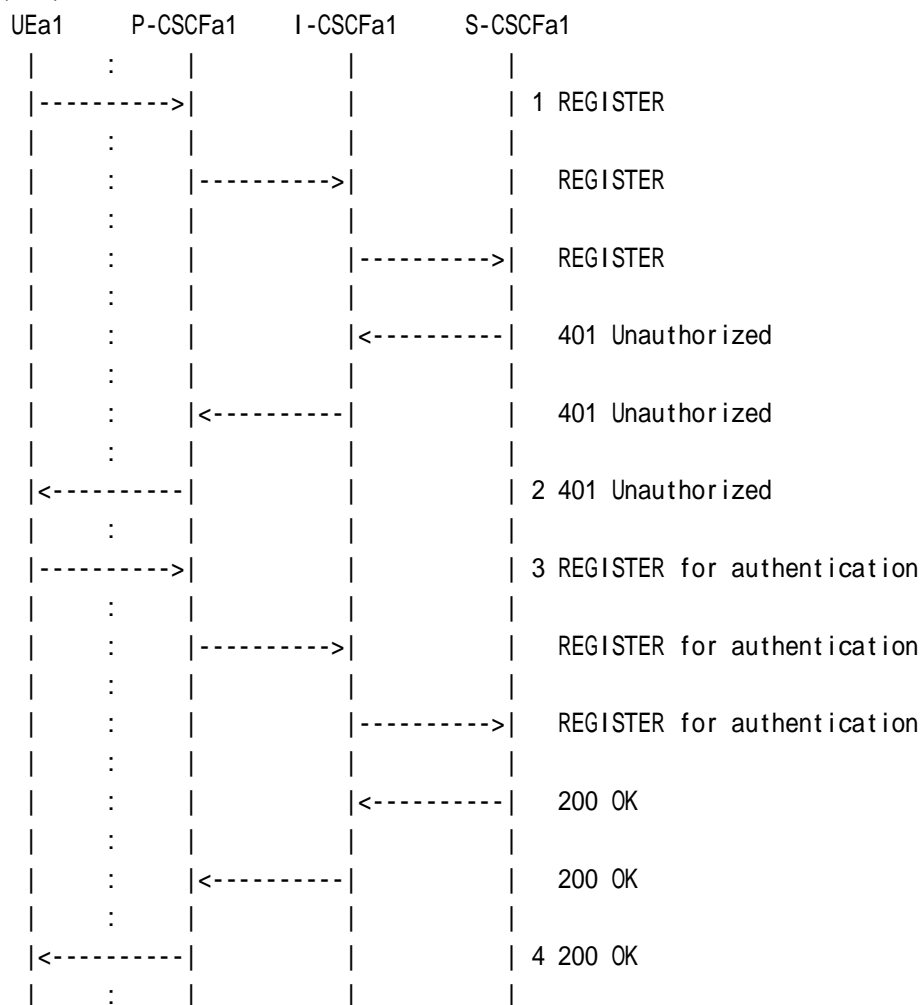
(NUT)



[PROCEDURE]

Home Network

(NUT)





The request SHALL not be automatically sent until after the period indicated by the Retry-After header field.[TS24.229 5.1.2.2]

The client SHOULD NOT attempt re-subscription until after the number of seconds specified by the "retry-after" parameter.[RFC3265 3.2.4]

4.2 Session Establishment

4.2.1 UE-SE-B-1 - Session initiation and termination (Sends INVITE and receives BYE)

[NAME]

UE-SE-B-1 - 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 6.1.1],[TS24.229 6.1.1],[TS24.229 6.1.1]

[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)]

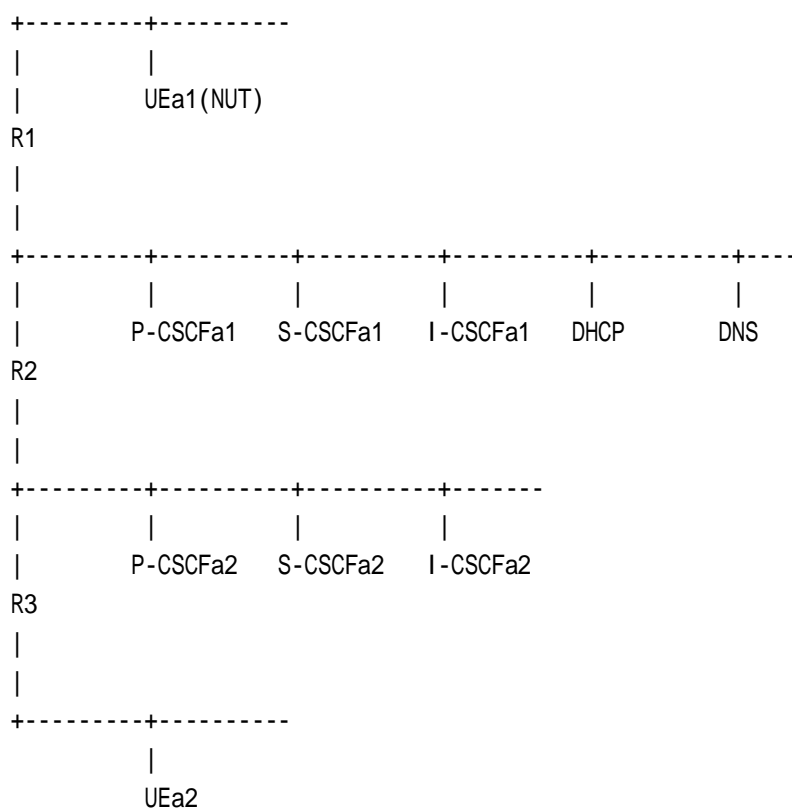
public-user-id(UEa2) : sip:UEa2_public_1@under.test.com
P-CSCFa1 : sip:p.a1.under.test.com

[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

[TOPOLOGY]

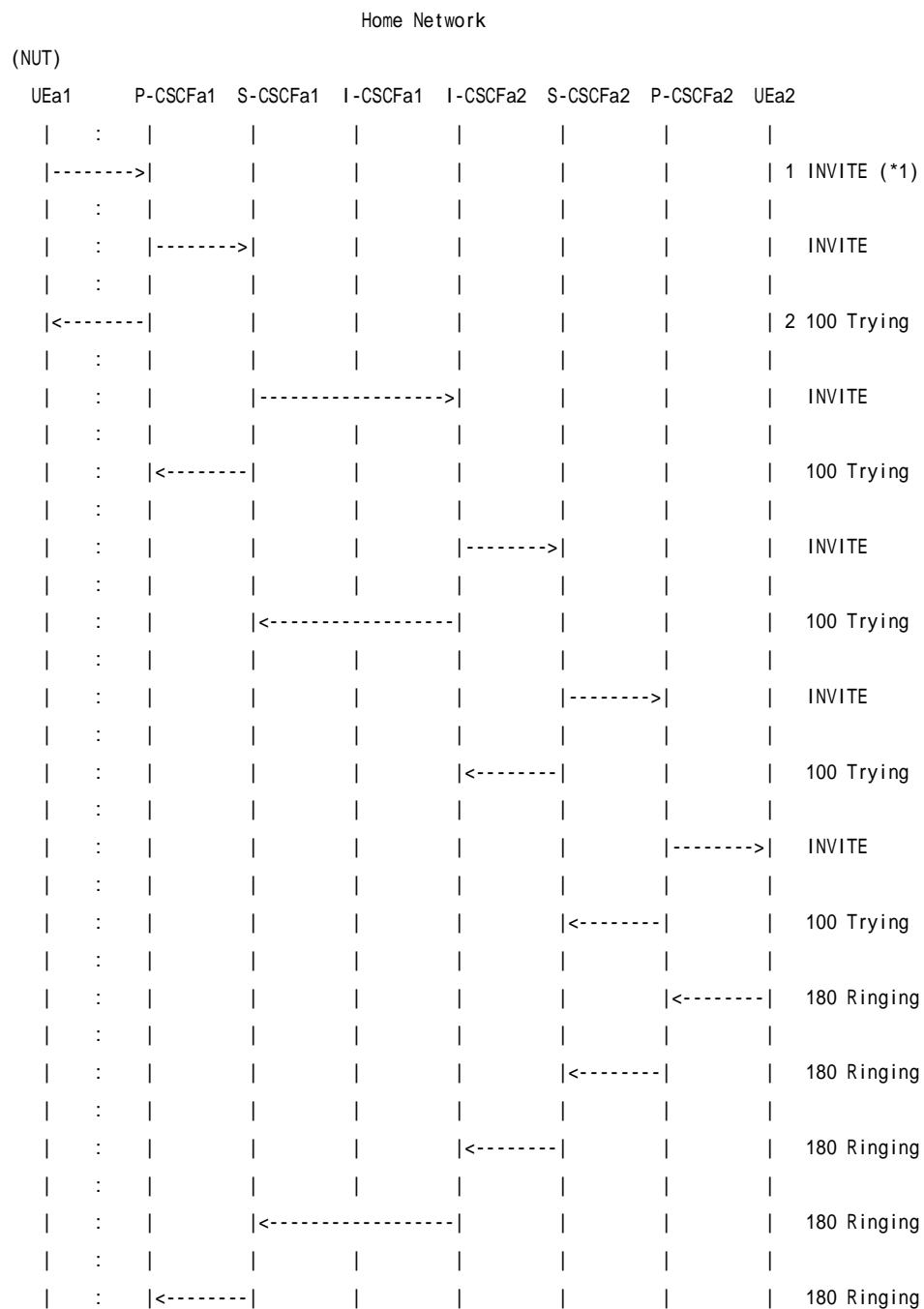


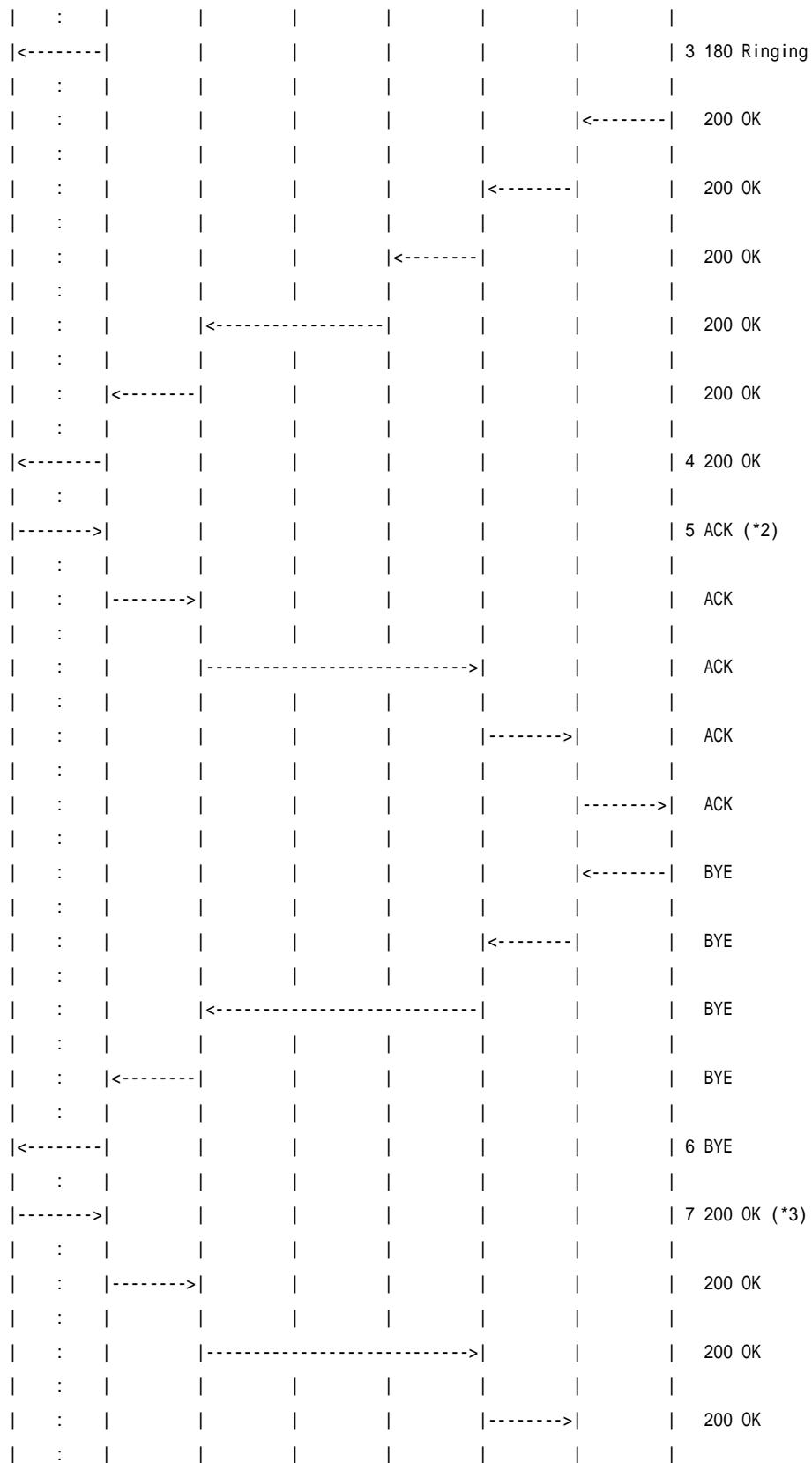


[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]







- 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
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
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

4.2.2 UE-SE-B-2 - Session initiation and termination (Sends INVITE and sends BYE)

[NAME]

UE-SE-B-2 - Session initiation and termination (Sends INVITE and sends BYE)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

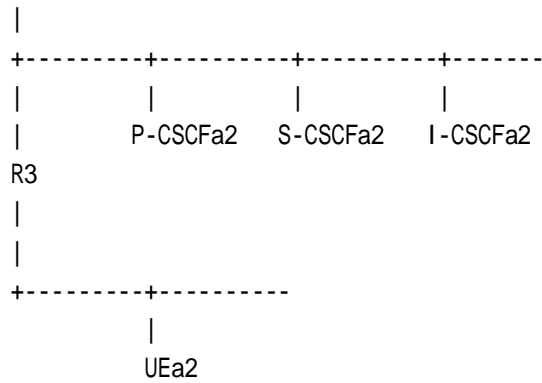
(1) To verify that the UEa1 properly creates INVITE request and receives the responses relating to INVITE request.

(2) To verify that the UEa1 properly creates BYE request and receives the responses to BYE request.

[REFERENCE]

[TS24.229 6.1.1],[TS24.229 6.1.1],[TS24.229 6.1.1]

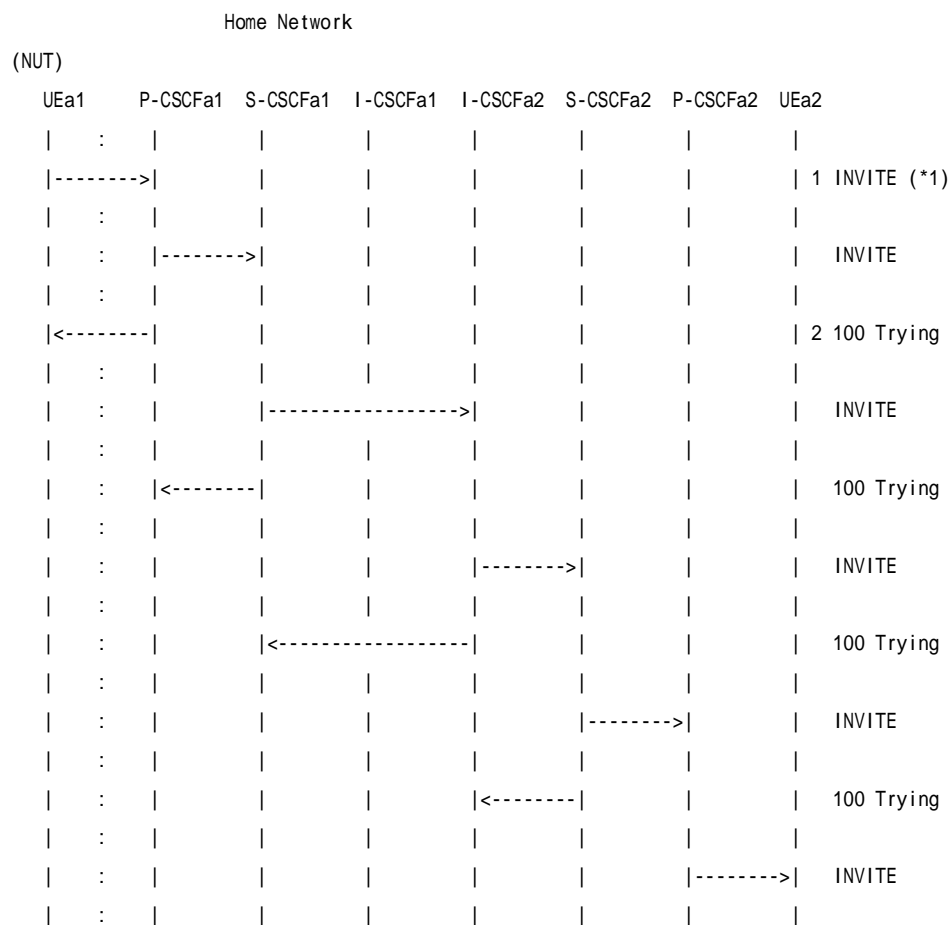
[REQUIREMENT]

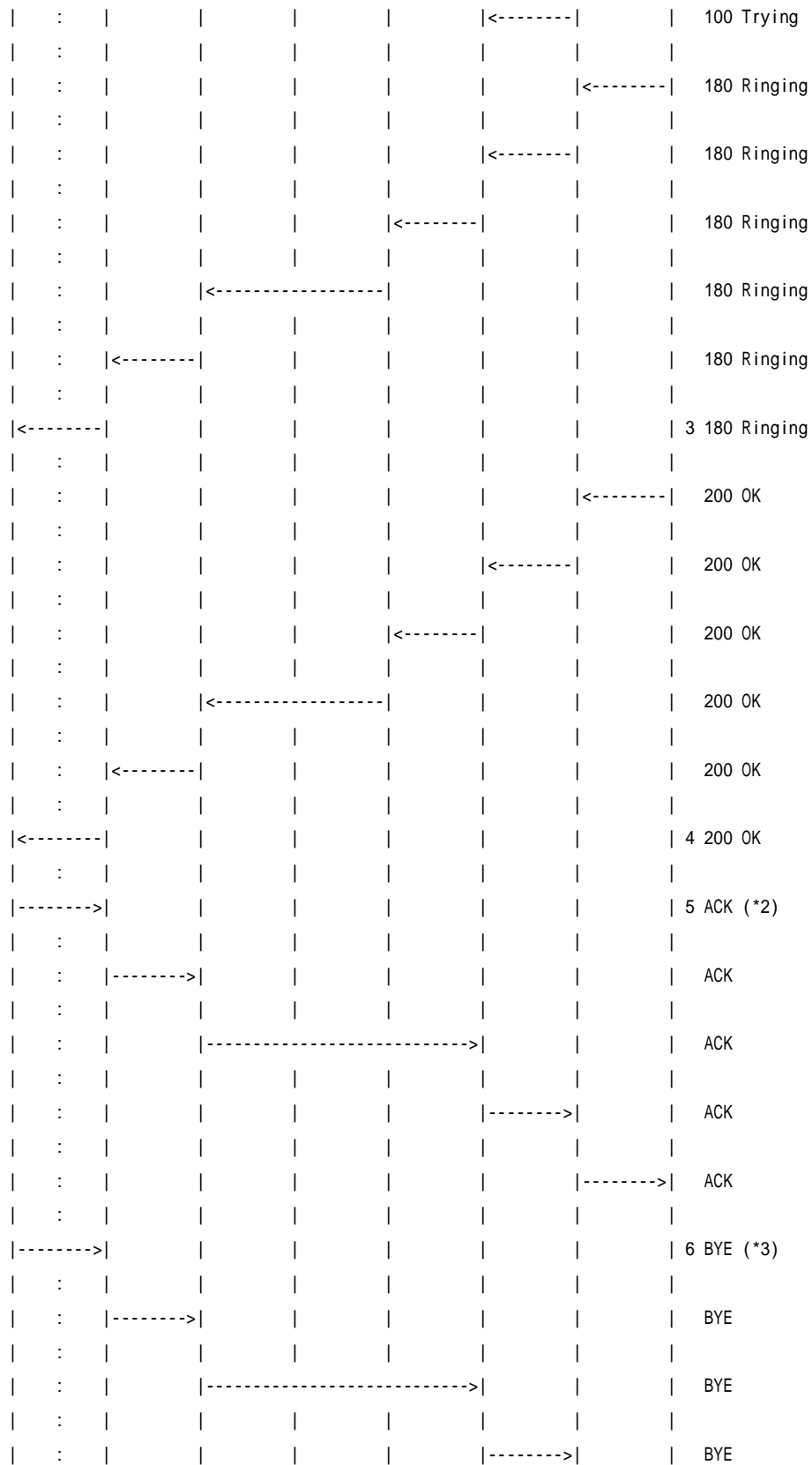


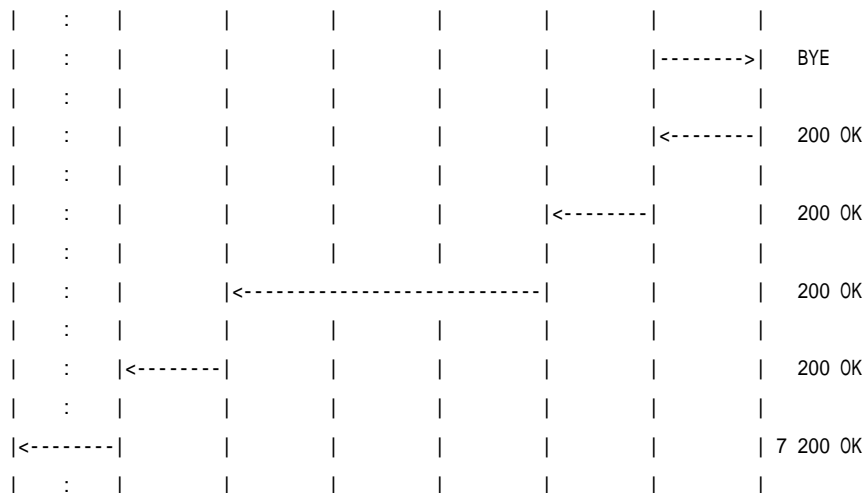
[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]







- 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
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
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 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=98765432; spi-s=87654321;
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 - Session initiation and termination (Receives INVITE and receives BYE)

[NAME]

UE-SE-B-3 - 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
RFC3261
RFC3264
RFC4566

[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

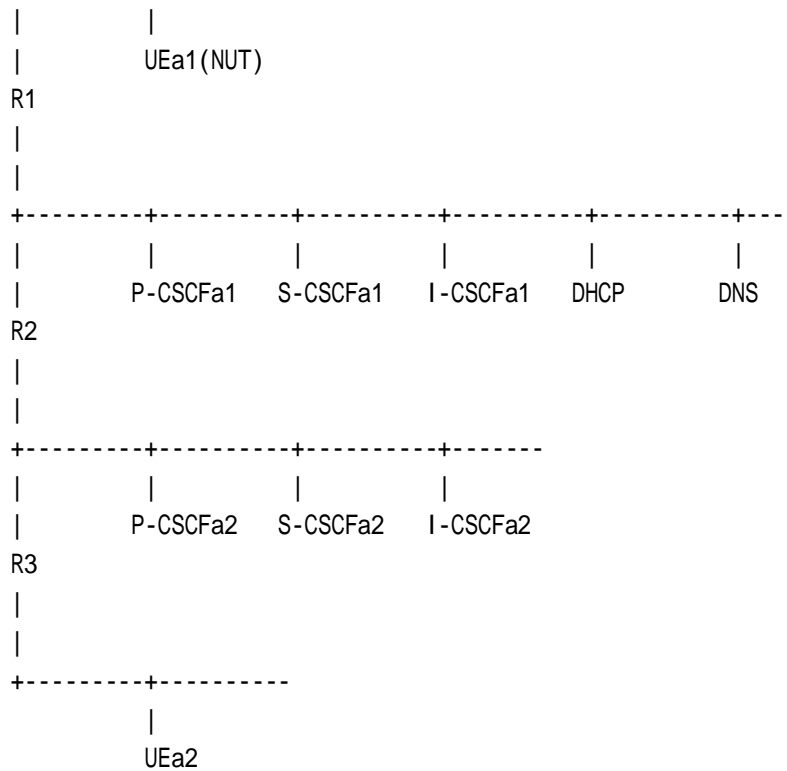
[ADDRESS]

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

[TOPOLOGY]

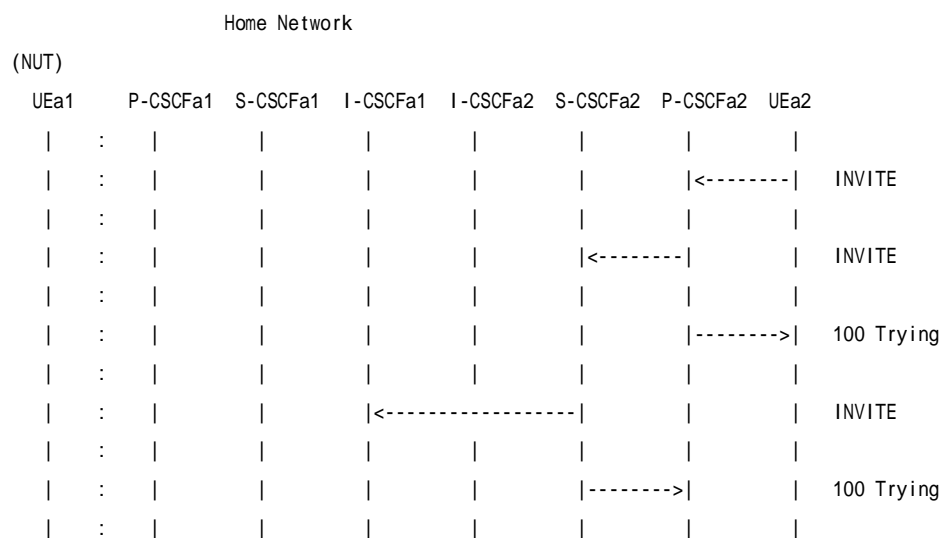
+-----+-----

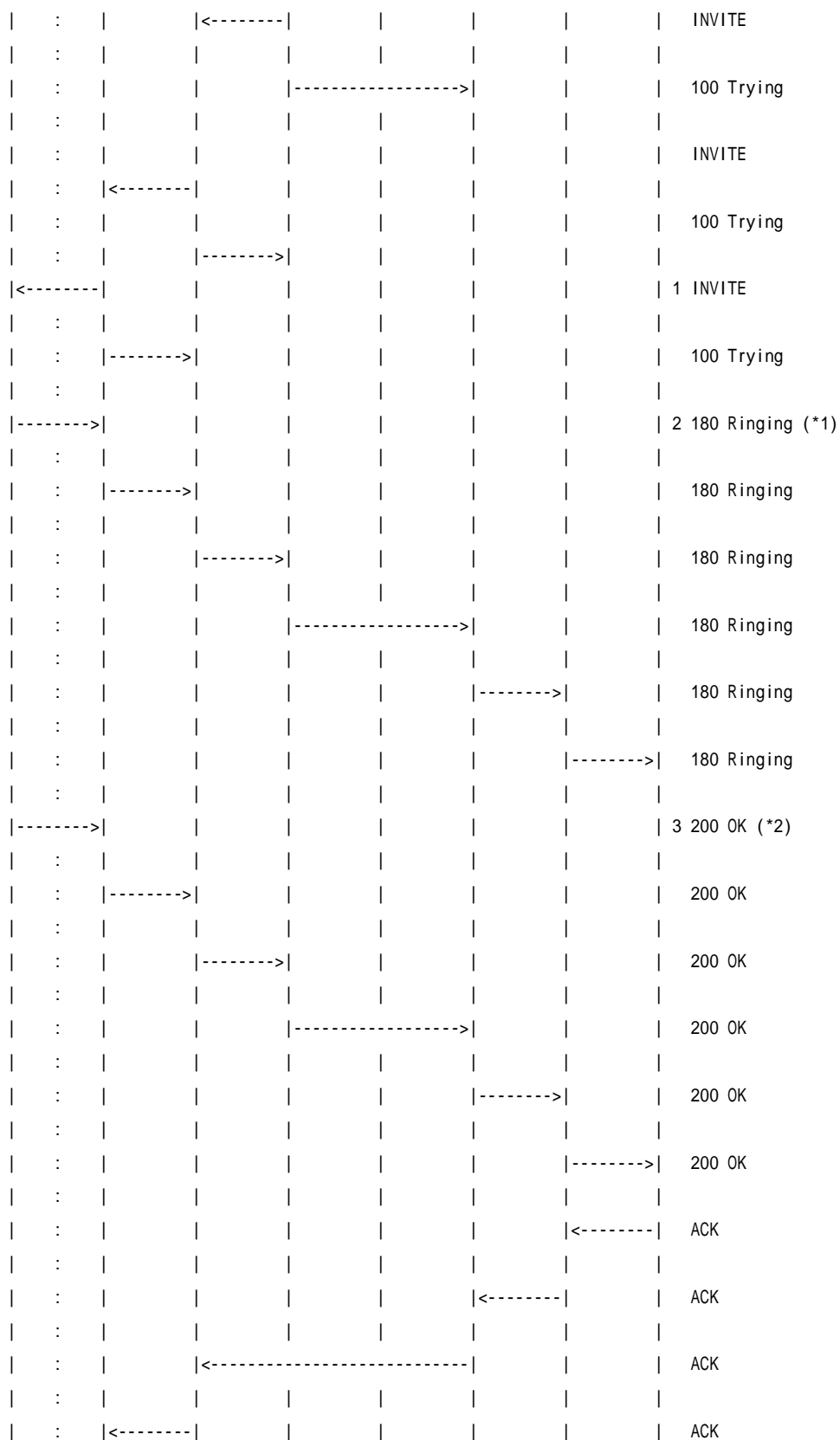


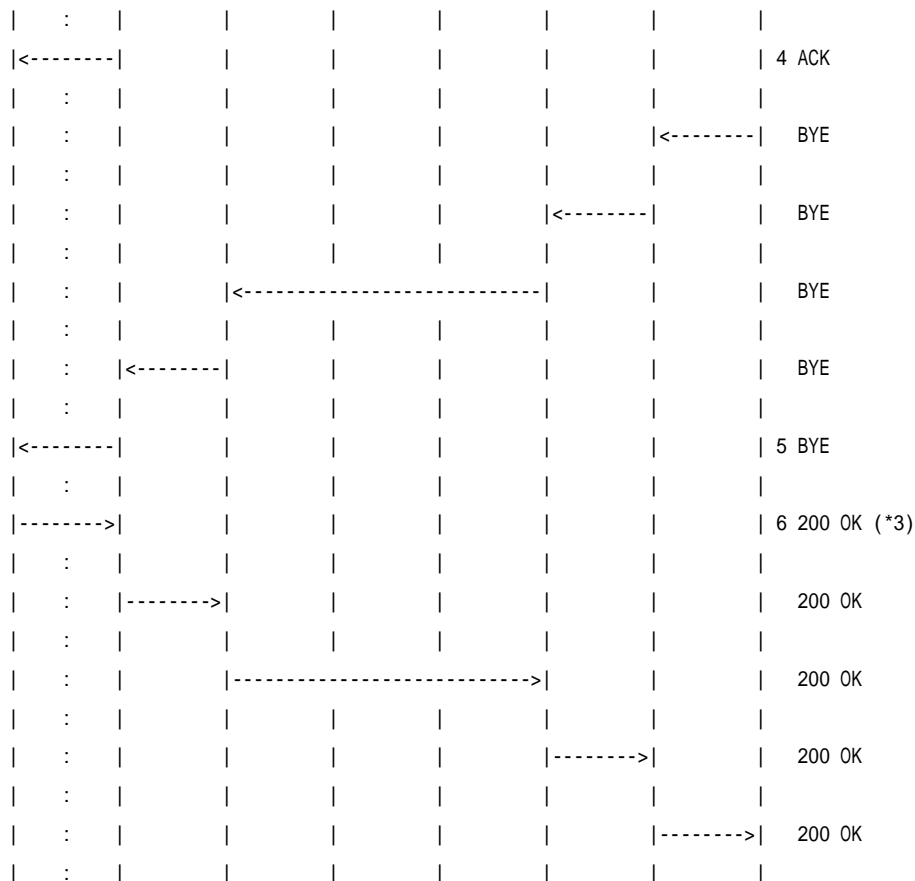
[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]







- 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 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

P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP

P
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>
 Content-Type: application/sdp
 Supported:
 Allow: INVITE, ACK, CANCEL, OPTIONS, BYE
 Allow-Events: reg
 P-Caller-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

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/UD
 P
 s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UD
 P
 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



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: 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

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
p.a2.under.test.com;branch=z9hG4bKnaghc45ca10;received=3ffe:501:ffff:200::10,SIP/2.0/UDP
P [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
p.a2.under.test.com;branch=z9hG4bKnaghc45ca10;received=3ffe:501:ffff:200::10,SIP/2.0/UDP
P [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 - Session initiation and termination (Receives INVITE and sends BYE)

[NAME]

UE-SE-B-4 - 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

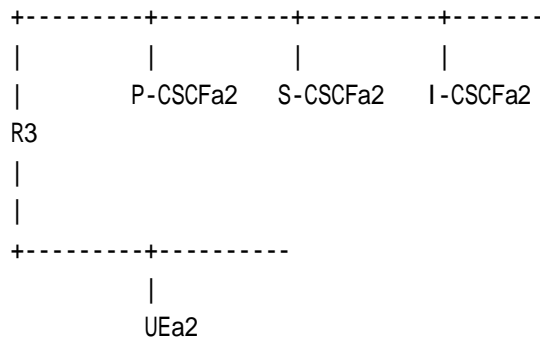
RFC3261

RFC3264

RFC4566

[REQUIREMENT]

NONE



[INITIALIZATION]

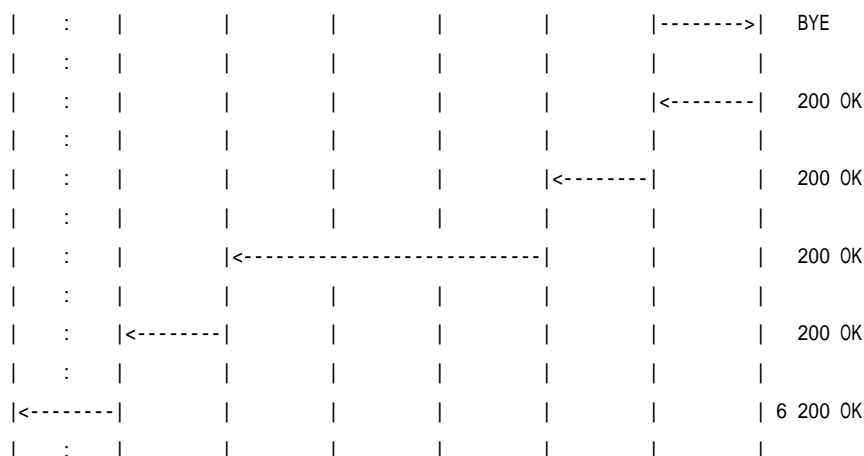
UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]

Home Network

(NUT)

UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
	:						
	:					<-----	INVITE
	:						
	:				<-----		INVITE
	:						
	:					----->	100 Trying
	:						
	:		<-----				INVITE
	:						
	:				----->		100 Trying
	:						
	:	<-----					INVITE
	:						
	:						100 Trying
	:		----->				
<-----							1 INVITE
	:						
	:	----->					100 Trying



- === Message example ===

Supported:



Allow: INVITE, ACK, CANCEL, OPTIONS, BYE
Allow-Events: reg
P-Caller-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

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
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP
P
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
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP



P

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;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=10fxcde76sl

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/UD

P

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: 70

From: <sip:UEa2_public_1@under.test.com>;tag=10fxcde76sl

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=98765432; spi-s=87654321;
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 - Call Cancellation (Sends INVITE and sends CANCEL)

[NAME]

UE-SE-B-5 - Call Cancellation (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

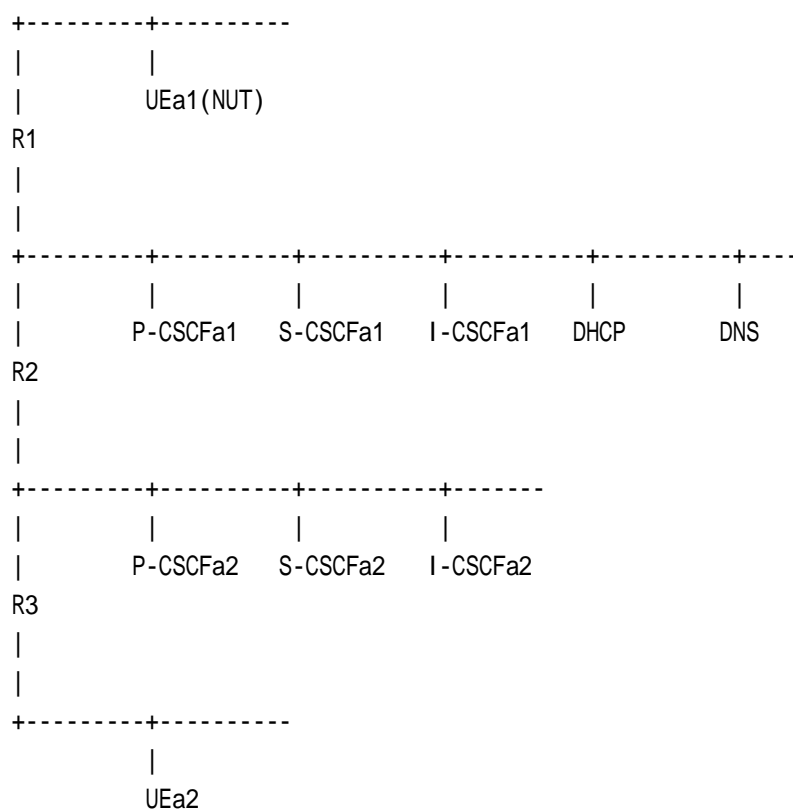
[ADDRESS]

UEa1(NUT)	:	3ffe:501:ffff:1000::1000
Router(R1)	:	3ffe:501:ffff:1000::1
P-CSCFa1	:	3ffe:501:ffff:100::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

[TOPOLOGY]



[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]



Home Network

(NUT)

UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
:							
----->							1 INVITE
:							
: ----->							INVITE
:							
<-----							2 100 Trying
:							
: ----->							INVITE
:							
: <-----							100 Trying
:							
: ----->							INVITE
:							
: <-----							100 Trying
:							
: ----->							INVITE
:							
: <-----							100 Trying
:							
: ----->							INVITE
:							
: <-----							100 Trying
:							
: ----->							INVITE
:							
: <-----							180 Ringing
:							
: ----->							180 Ringing
:							
: <-----							180 Ringing
:							
: ----->							180 Ringing
:							
: <-----							180 Ringing
:							
: ----->							3 180 Ringing
:							
: ----->							4 CANCEL (*1)
:							
: ----->							CANCEL
:							



- 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 ===

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
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
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. 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

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 - Call Cancellaretion (Receives INVITE and receives CANCEL)

[NAME]

UE-SE-B-6 - 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)]

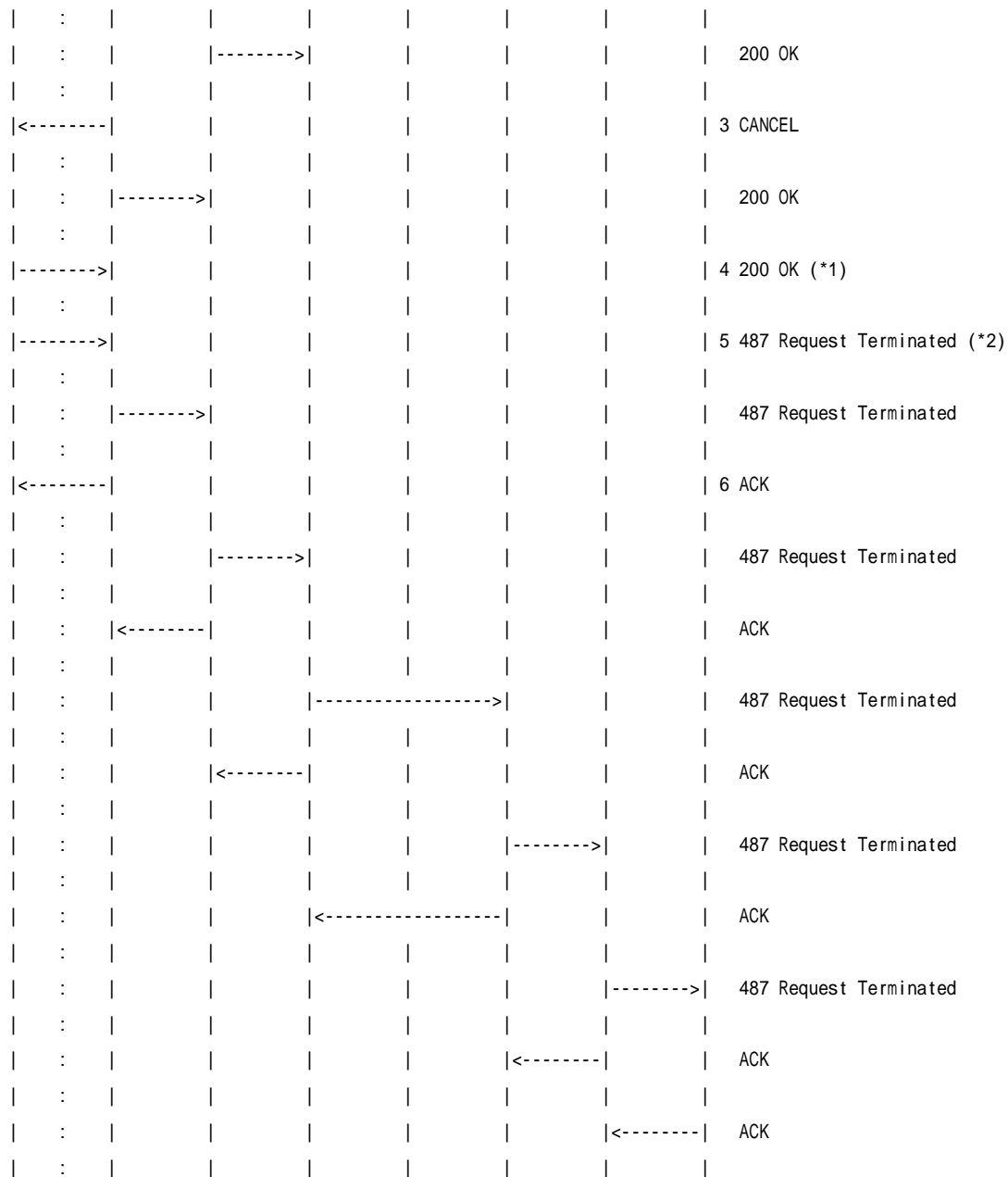
public-user-id	:	sip:UEa1_public_1@under.test.com
private-user-id	:	UEa1_private@under.test.com
contact_URI	:	sip:UEa1_public_1@node.under.test.com
HOMENETWORK Domain	:	sip:under.test.com

[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::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



- 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 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

P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP

P
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>

Content-Type: application/sdp

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

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

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



P

s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UD

P

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 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/UD

P

s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UD



P

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 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

- Status-Line:

The Status-Code in the Status-Line SHOULD be a 487 (Request Terminated).
[RFC3261 9.2]

4.2.7 UE-SE-B-7 - SIP response received from the P-CSCF outside of the registration

[NAME]

UE-SE-B-7 - 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

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

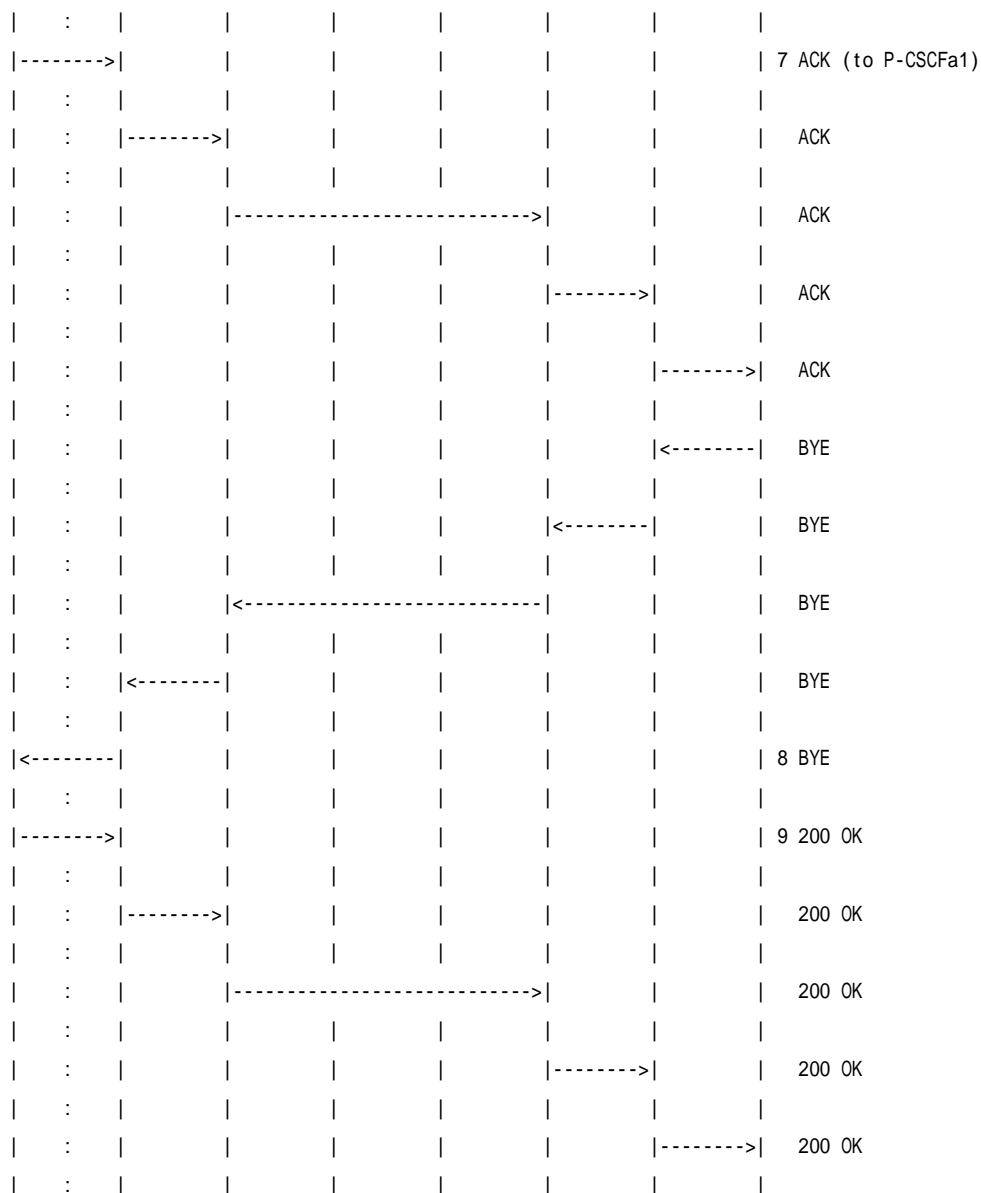
public-user-id	:	sip:UEa1_public_1@under.test.com
private-user-id	:	UEa1_private@under.test.com
contact_URI	:	sip:UEa1_public_1@node.under.test.com
HOMENETWORK Domain	:	sip:under.test.com

[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]

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



- 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 ===

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
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; alg= hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
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-CSCFa2 -> NUT

SIP/2.0 200 OK

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

Record-Route: <sip:s.a2.under.test.com;lr>, <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

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=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@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.[TS24.229 5.1.2A.1]

4.2.8 UE-SE-B-8 - SIP Request received from the P-CSCF outside of the registration

[NAME]

UE-SE-B-8 - 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

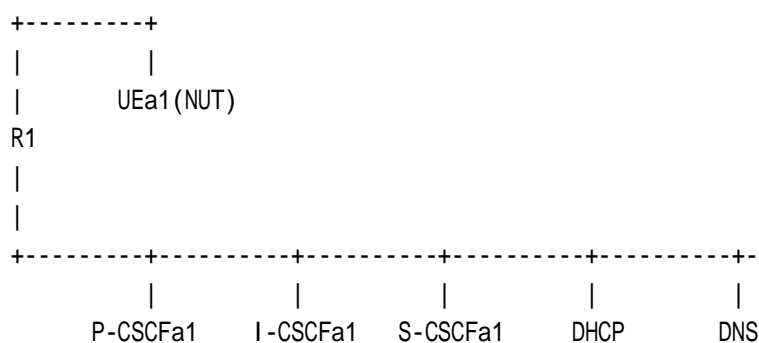
[PARAMETER(TESTER)]

P-CSCFa1 : sip:p.a1.under.test.com
P-CSCFa2 : sip:p.a2.under.test.com
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
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

[TOPOLOGY]





[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-RG-B-1".
For details, refer to the profile of UE-RG-B-1.

[PROCEDURE]

Home Network

(NUT)

UEa1	P-CSCFa1	I-CSCFa1	S-CSCFa1	P-CSCFa2
	:			
	:			
	:			
	:			
	:			
	:			
	:			
	:			
	:			

|<-----| 1 INVITE (from non-registered server)

2 No Response (*1)

1 NUT receives INVITE

=== Message example ===

1. INVITE P-CSCFa2 -> NUT

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

Via: 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.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@node.under.test.com:22222>

Content-Type: application/sdp

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

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

[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.[TS24.229 5.1.2A.2]

4.2.9 UE-SE-B-9 - Receiving 503 response to INVITE

[NAME]

UE-SE-B-9 - 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]

[TS24.229 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



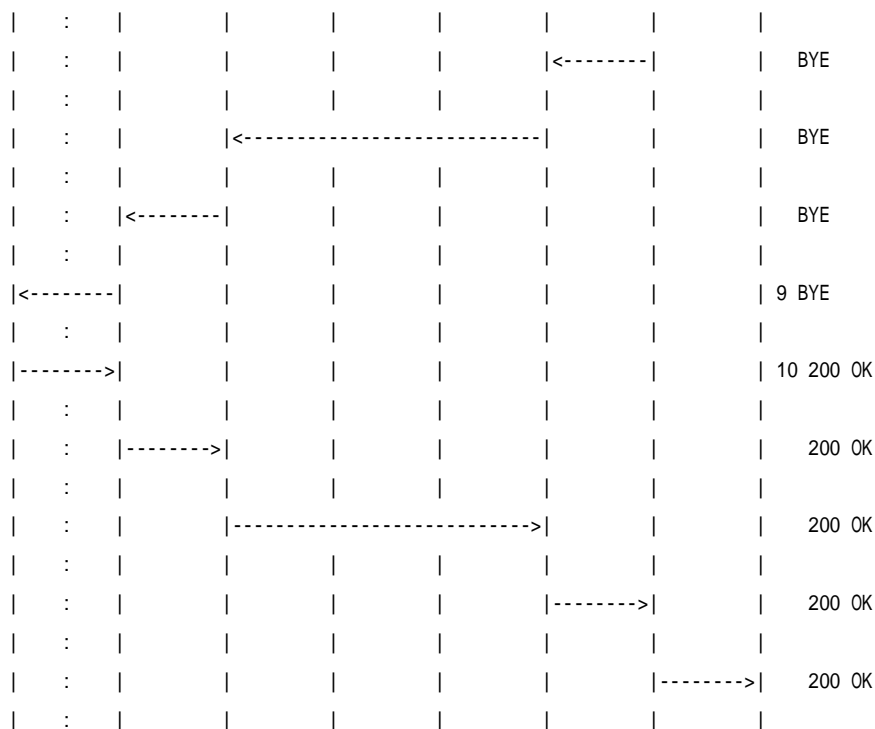
|
UEa2

[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-RG-B-1".
For details, refer to the profile of UE-RG-B-1.

[PROCEDURE]

Home Network								
(NUT)	UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
		:						
		:						
	----->							1 INVITE
		:						
		:	----->					INVITE
		:						
	<-----							2 100 Trying
		:						
		:	<-----					503 Service Unavailable
		:						
	<-----							3 503 Service Unavailable
		:						(Retry-After: 30)
		:						
		:						<wait 30 sec>
		:						
	----->							4 INVITE (*1)
		:						
		:	----->					INVITE
		:						
	<-----							5 100 Trying
		:						
		:	<-----					100 Trying
		:						
		:		----->				INVITE
		:						
		:			----->			INVITE
		:						
		:	<-----					100 Trying
		:						



- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 503
- 4 NUT sends INVITE
- 5 NUT receives 100 Trying
- 6 NUT receives 180 Ringing
- 7 NUT receives 200 OK
- 8 NUT sends ACK
- 9 NUT receives BYE
- 10 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
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
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
p.a1.under.test.com:10001;branch=z9hG4bK431e418c233;received=3ffe:501:ffff:100::10,SIP/2.0/UDP
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. 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
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
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

5. 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

6. 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

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>,
<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

8. 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

9. 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

10. 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: 4 INVITE from NUT to P-CSCF.

See generic_INVITE

UE SHALL not automatically reattempt the request until after the period indicated



by the Retry-After header contents.[TS24.229 5.1.3.1]

4.2.10 UE-SE-B-10 - Receiving forked 180 and response

[NAME]

UE-SE-B-10 - Receiving forked 180 and 200 response

[TARGET]

IMS User Equipment (NUT)

[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]

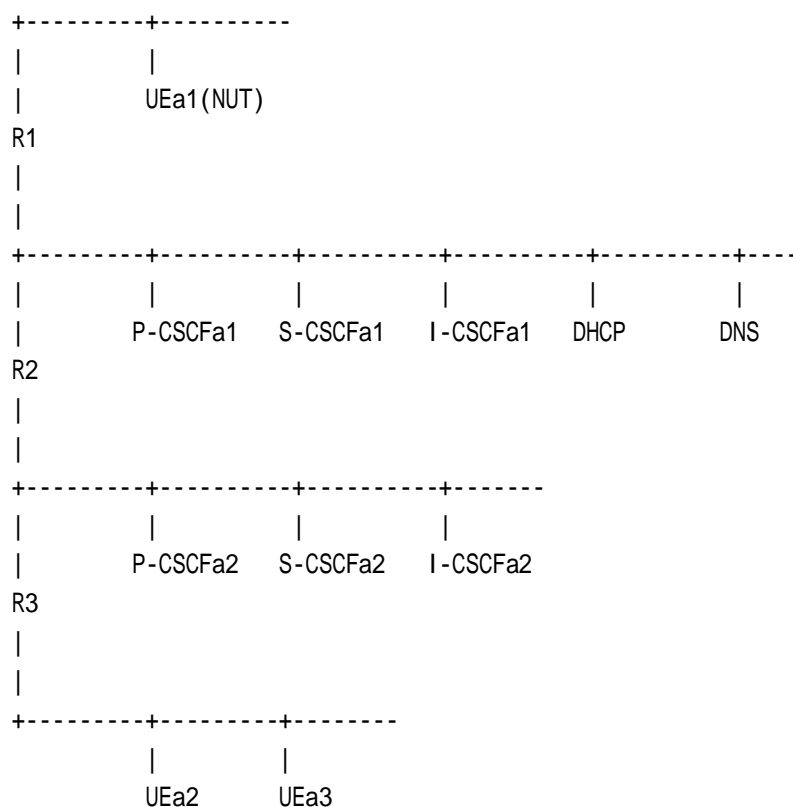
UEa1(NUT)	:	3ffe:501:ffff:1000::1000
Router(R1)	:	3ffe:501:ffff:1000::1
P-CSCFa1	:	3ffe:501:ffff:100::10



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

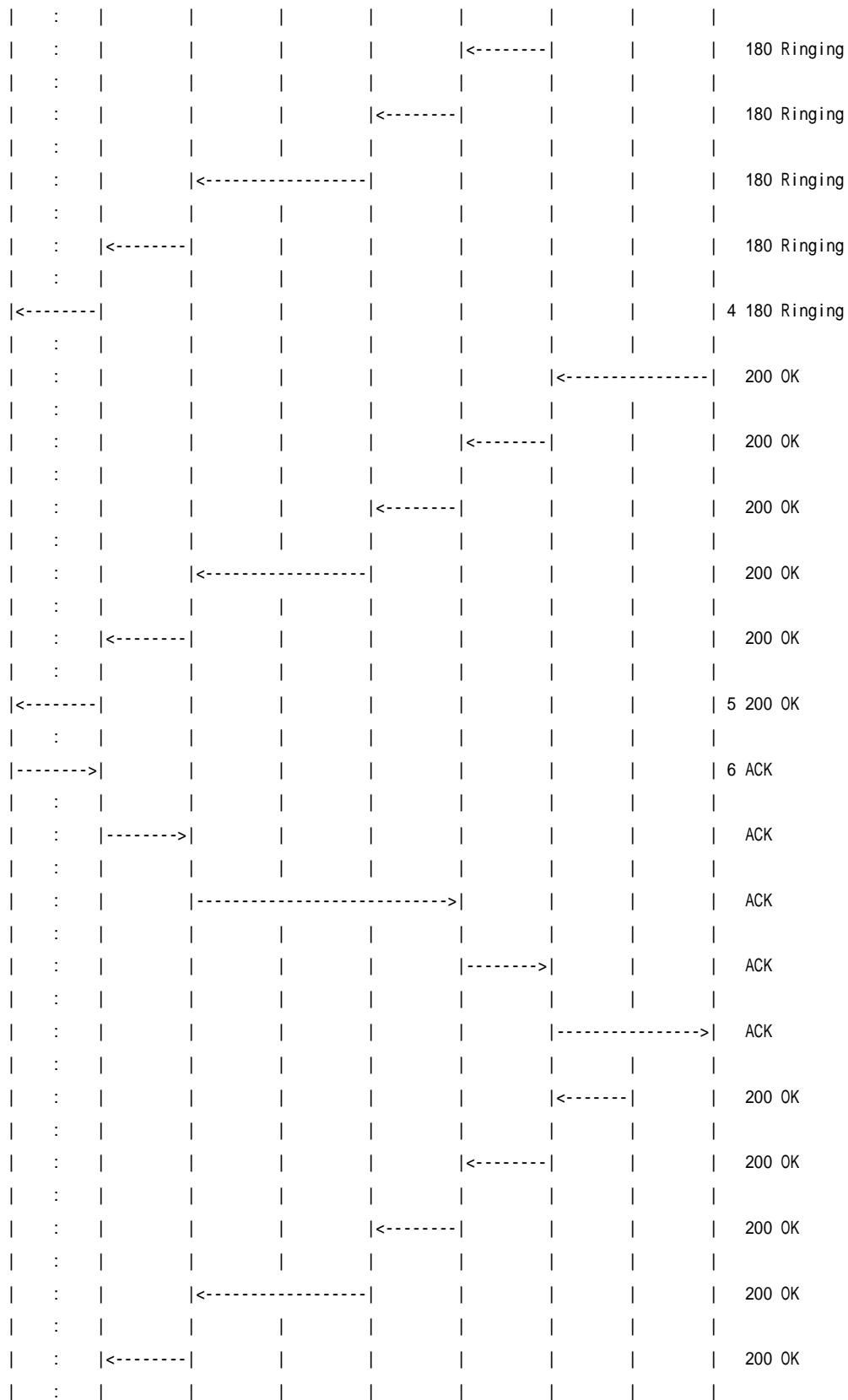
UEa2	:	3ffe:501:ffff:2000::1000
P-CSCFa2	:	3ffe:501:ffff:200::10
I-CSCFa2	:	3ffe:501:ffff:200::20
S-CSCFa2	:	3ffe:501:ffff:200::30
UEa3	:	3ffe:501:ffff:2000::1001

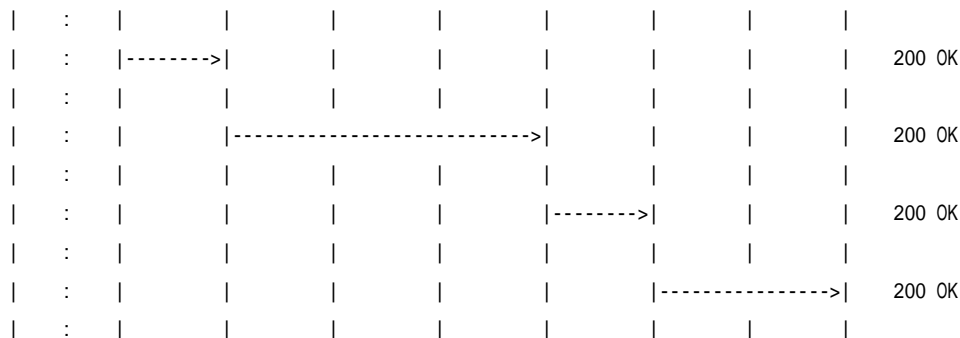
[TOPOLOGY]



[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-RG-B-1".
For details, refer to the profile of UE-INI-B-1.





- === Message example ===

IPv6 FORUM TECHNICAL DOCUMENT



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:UEa3_public_1@under.test.com>;tag=314259
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>,
<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:UEa3_public_1@under.test.com>;tag=314259
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=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

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:UEa3_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com
CSeq: 1 ACK
Content-Length: 0

9. 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:UEa1_public_1@under.test.com>;tag=9fxced76sl
To: <sip:UEa3_public_1@under.test.com>;tag=314259
Call-ID: 3848276298220188511@under.test.com
CSeq: 2 BYE
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=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:UEa3_public_1@under.test.com>;tag=314259

Call-ID: 3848276298220188511@under.test.com

CSeq: 2 BYE

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: 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: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: 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. [TS24.229 5.1.3.1]

The UAC core MUST generate an ACK request for each 2xx received from the transaction layer. [RFC3261 13.2.4]

The sequence number of the CSeq header field MUST be the same as the INVITE being acknowledged. [RFC3261 13.2.4]

The CSeq method MUST be ACK. [RFC3261 13.2.4]

*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. [TS24.229 5.1.3.1]

4.3 SDP

4.3.1 UE-SD-B-1 - 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 - 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

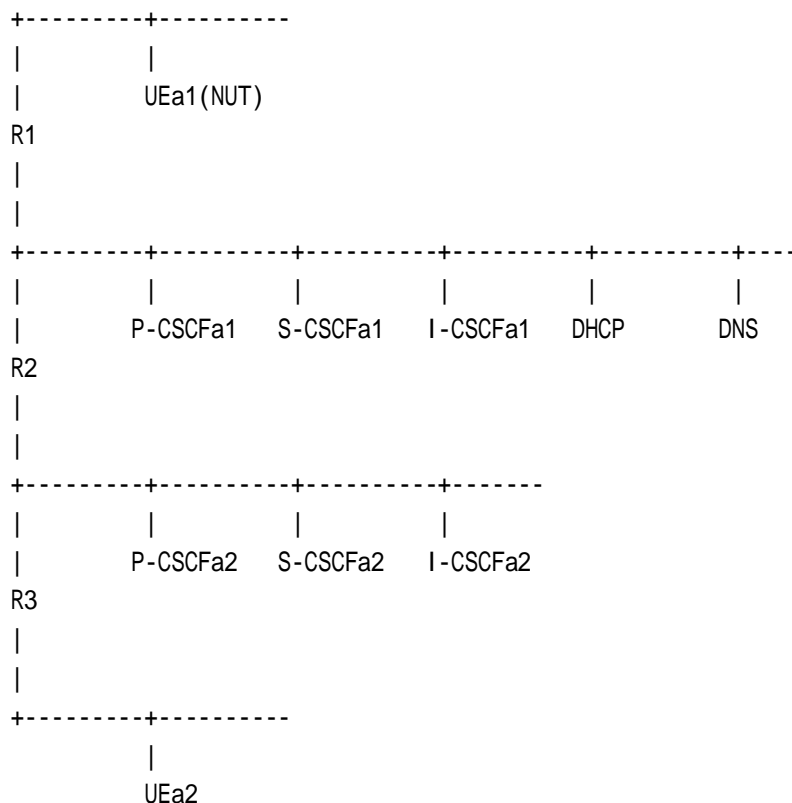
[ADDRESS]

UEa1(NUT)	:	3ffe:501:ffff:1000::1000
Router(R1)	:	3ffe:501:ffff:1000::1
P-CSCFa1	:	3ffe:501:ffff:100::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

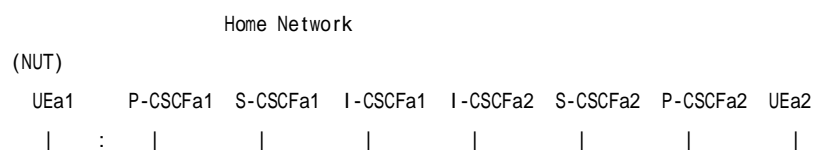
[TOPOLOGY]

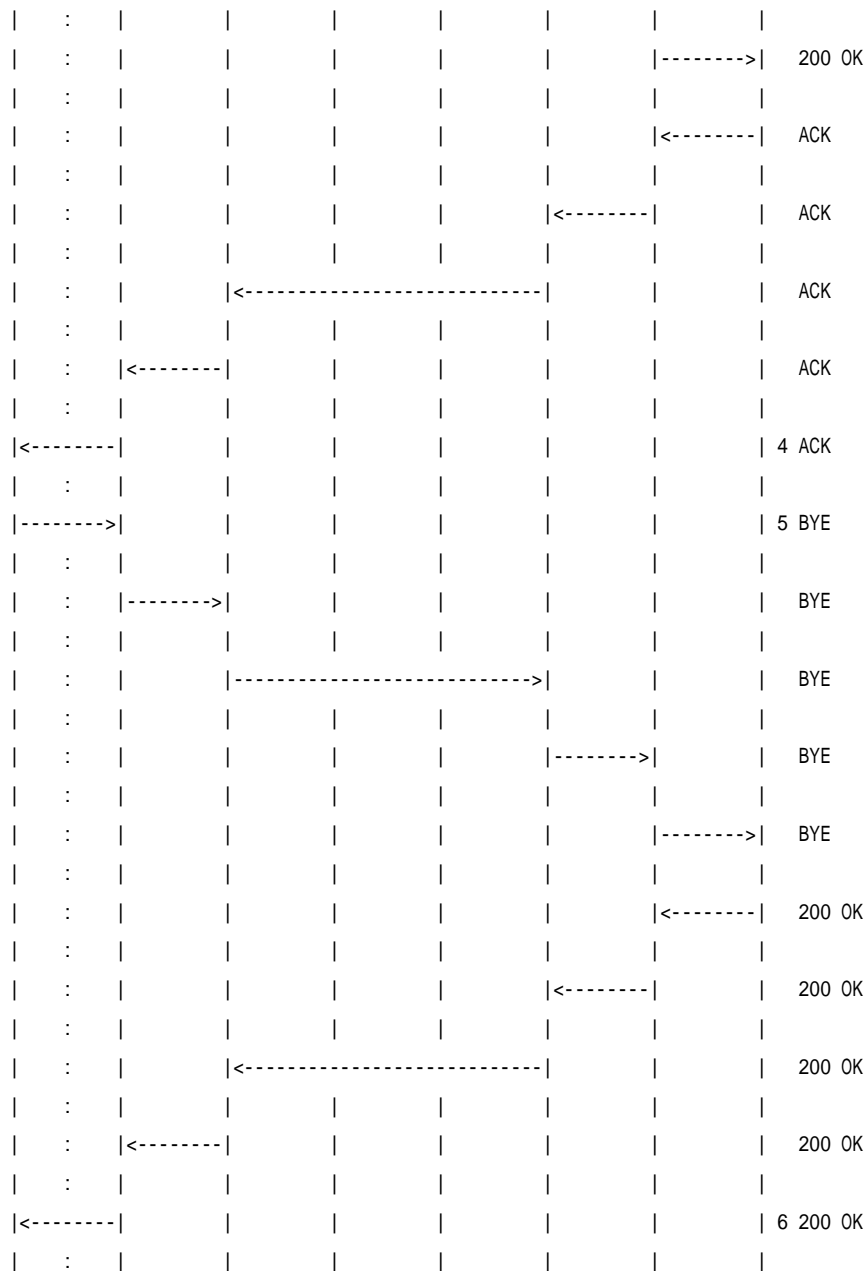


[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
 For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





- 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 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>
Content-Type: application/sdp
Supported:
Allow: INVITE, ACK, CANCEL, OPTIONS, BYE
Allow-Events: reg
P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>
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
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP
P
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
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP
P
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/UD
P
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.

[OBSERVABLE RESULTS]

*1: 3 INVITE 200 OK from NUT to P-CSCF.

See generic_200-INVITE

- Message Body:

Upon sending a SDP answer to an SDP offer the terminating UE SHALL select exactly one codec per payload and indicate only the selected codec for the related media stream. [TS24.229 6.1.3]

4.3.2 UE-SD-B-2 - SDP offer which included an IP address type that is not supported (Receives INVITE and sends BYE)

[NAME]

UE-SD-B-2 - 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

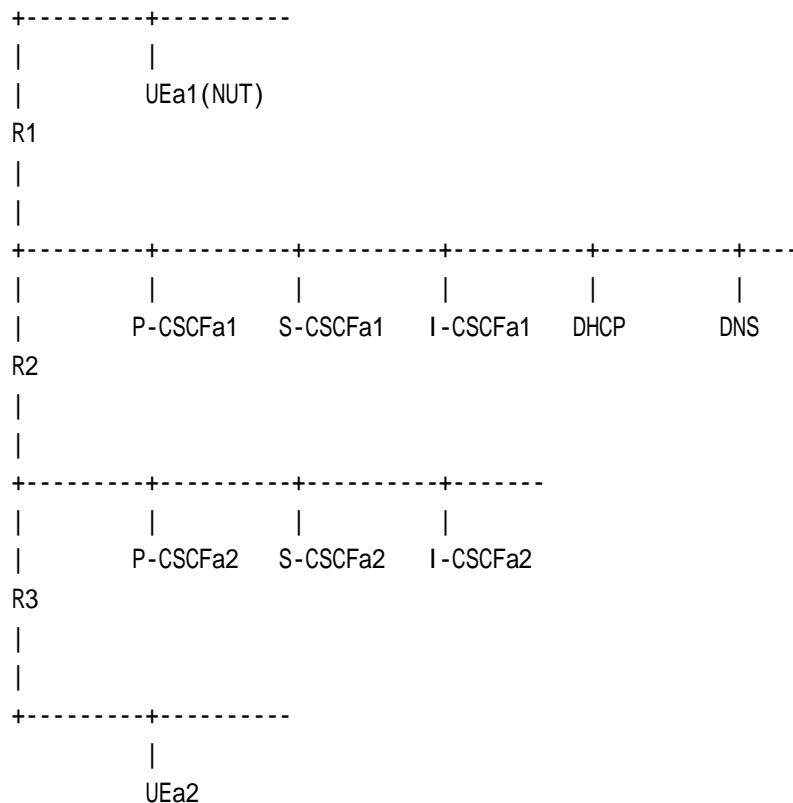
[ADDRESS]

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::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]

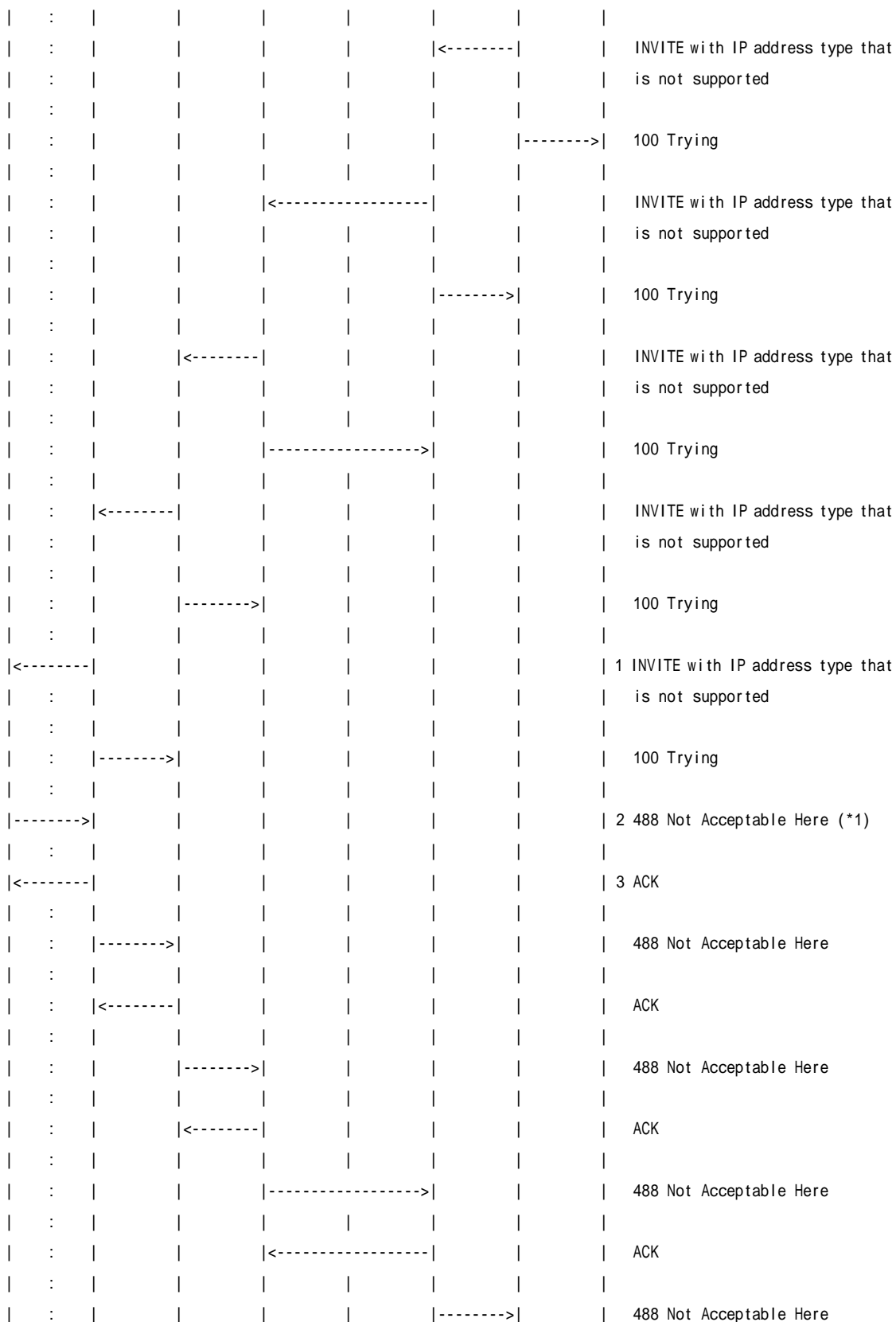


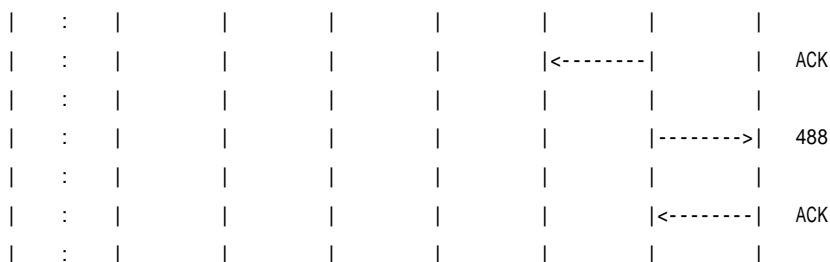
[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
 For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]

Home Network								
(NUT)								
UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2	
	:							
	:					<-----		INVITE with IP address type that
	:							is not supported





- === Message example ===

INVITE sip:UEa1_public_1@node.under.test.com 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
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP
P
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>
Content-Type: application/sdp
Supported:
Allow: INVITE, ACK, CANCEL, OPTIONS, BYE
Allow-Events: reg
P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>
Content-Length: 154

```
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
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP
P
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 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.



sSee generic_3XX-6XX

- 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".[TS24.229 6.1.3]

488 response SHOULD include a Warning header field value explaining why the offer was rejected.[RFC3261 13.3.1.3]

4.4 OPTIONS

4.4.1 UE-OP-B-1 - OPTIONS request (Sends OPTIONS)

[NAME]

UE-OP-B-1 - 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)]

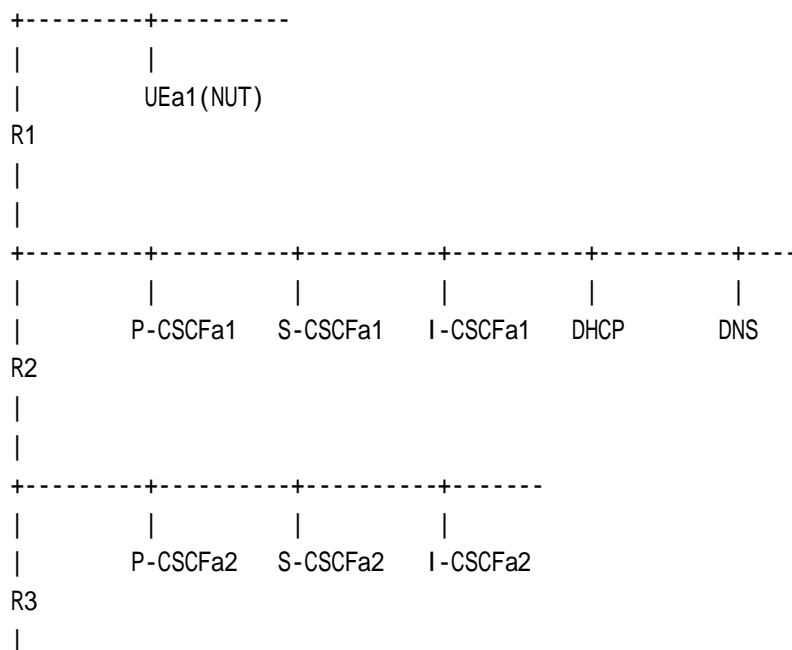
public-user-id(UEa2) : sip:UEa2_public_1@under.test.com
P-CSCFa1 : sip:p.a1.under.test.com

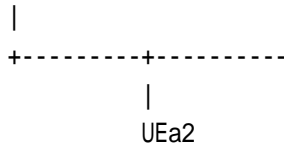
[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000
Router(R1) : 3ffe:501:ffff:1000::1
P-CSCFa1 : 3ffe:501:ffff:100::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

[TOPOLOGY]

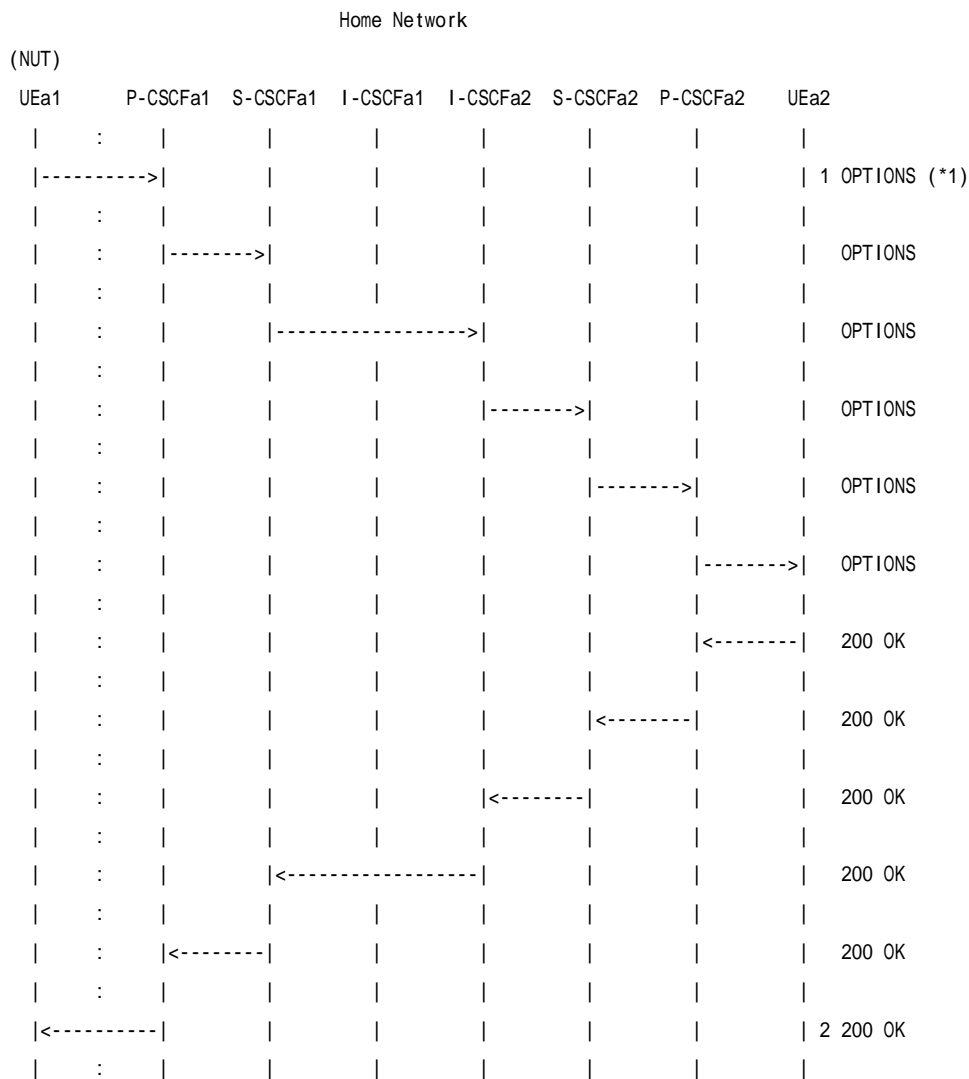




[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]



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=98765432; spi-s=87654321;

port-c=10002; port-s=10001

Accept: application/sdp

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

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Accept: application/sdp

Accept-Encoding: identity

Accept-Language: en

Allow-Events: reg

Supported:

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 - OPTIONS request (Receives OPTIONS)

[NAME]

UE-OP-B-2 - 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

[RFC3261-11.1-2], [RFC3261 11.2], [RFC3261-11.1-4], [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)]

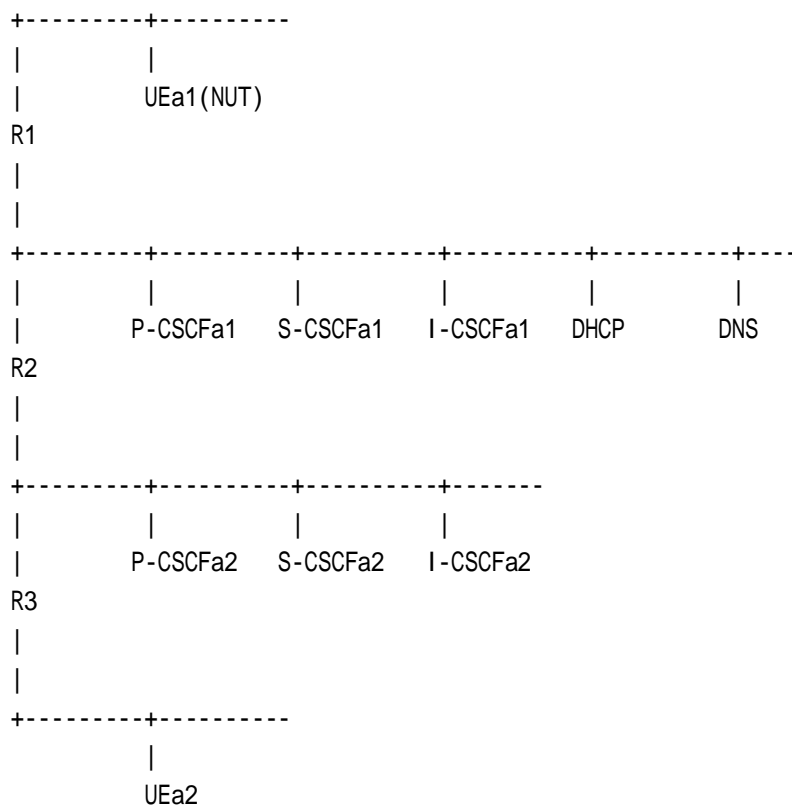


public-user-id(UEa2) : sip:UEa2_public_1@under.test.com
P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT)	:	3ffe:501:ffff:1000::1000
Router(R1)	:	3ffe:501:ffff:1000::1
P-CSCFa1	:	3ffe:501:ffff:100::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

[TOPOLOGY]



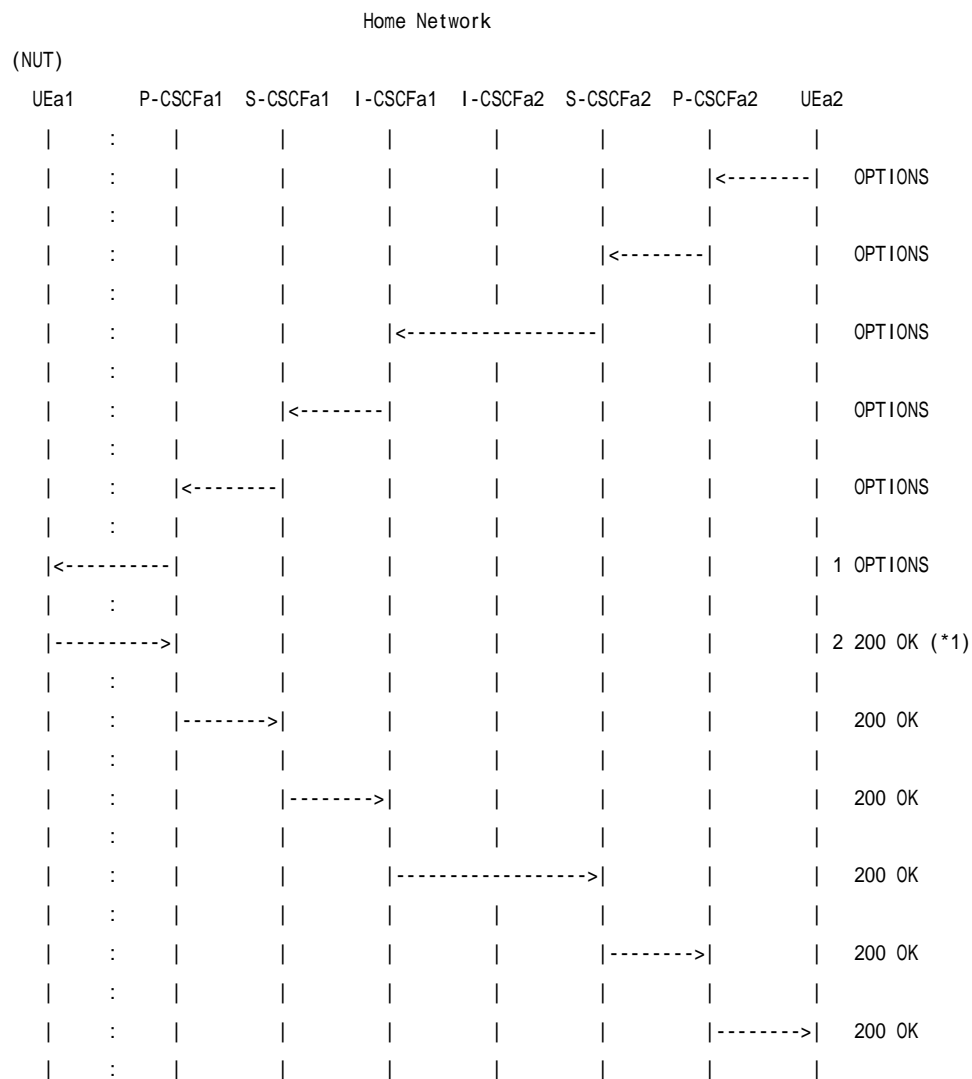


[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".

For details, refer to the profile of UE-INI-B-1.

[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 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

P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>

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

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;received=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

Accept-Encoding: gzip

Accept-Language: en

Allow-Events: reg

Supported:

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 response from NUT to P-CSCF.

See generic_200-OPTIONS

4.5 SIP timer

4.5.1 UE-TM-B-1 - Timer B expiration to INVITE

[NAME]

UE-TM-B-1 - Timer B expiration to INVITE

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 stops retransmitting INVITE after time B expired.

[REFERENCE]

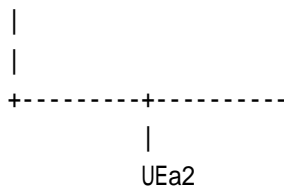
TS24.229 7.7
RFC3261 17.1.1.2

[REQUIREMENT]

NONE

[PARAMETER(NUT)]

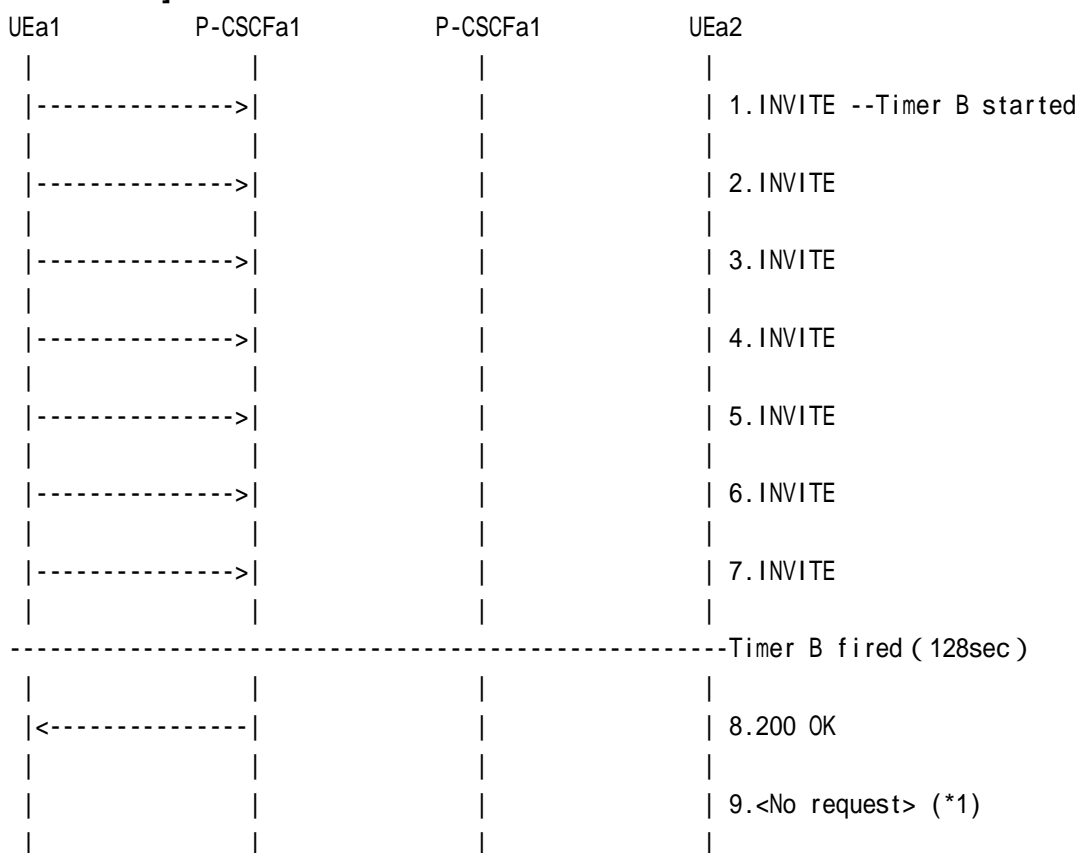
public-user-id : sip:UEa1_public_1@under.test.com



[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-RG-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]



- 1-7. NUT sends INVITE
- 8. NUT receives 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

Require: sec-agree

Proxy-Require: sec-agree

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;

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 17.1.1.2]

4.5.2 UE-TM-B-2 - Timer D expiration

[NAME]

UE-TM-B-2 - Timer D expiration

[TARGET]

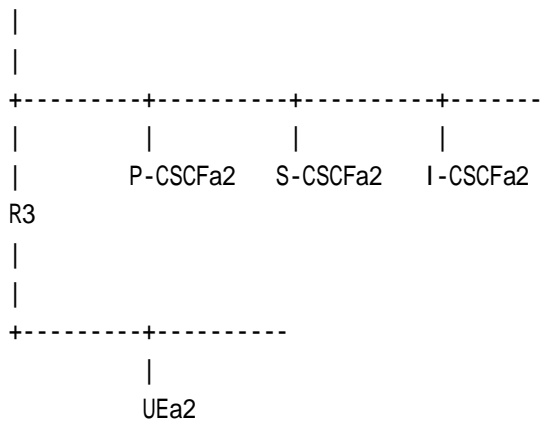
IMS User Equipment (NUT)

[PURPOSE]

To verify that UEa1 properly sends ACK to 486 (Busy Here) before timer D expired.

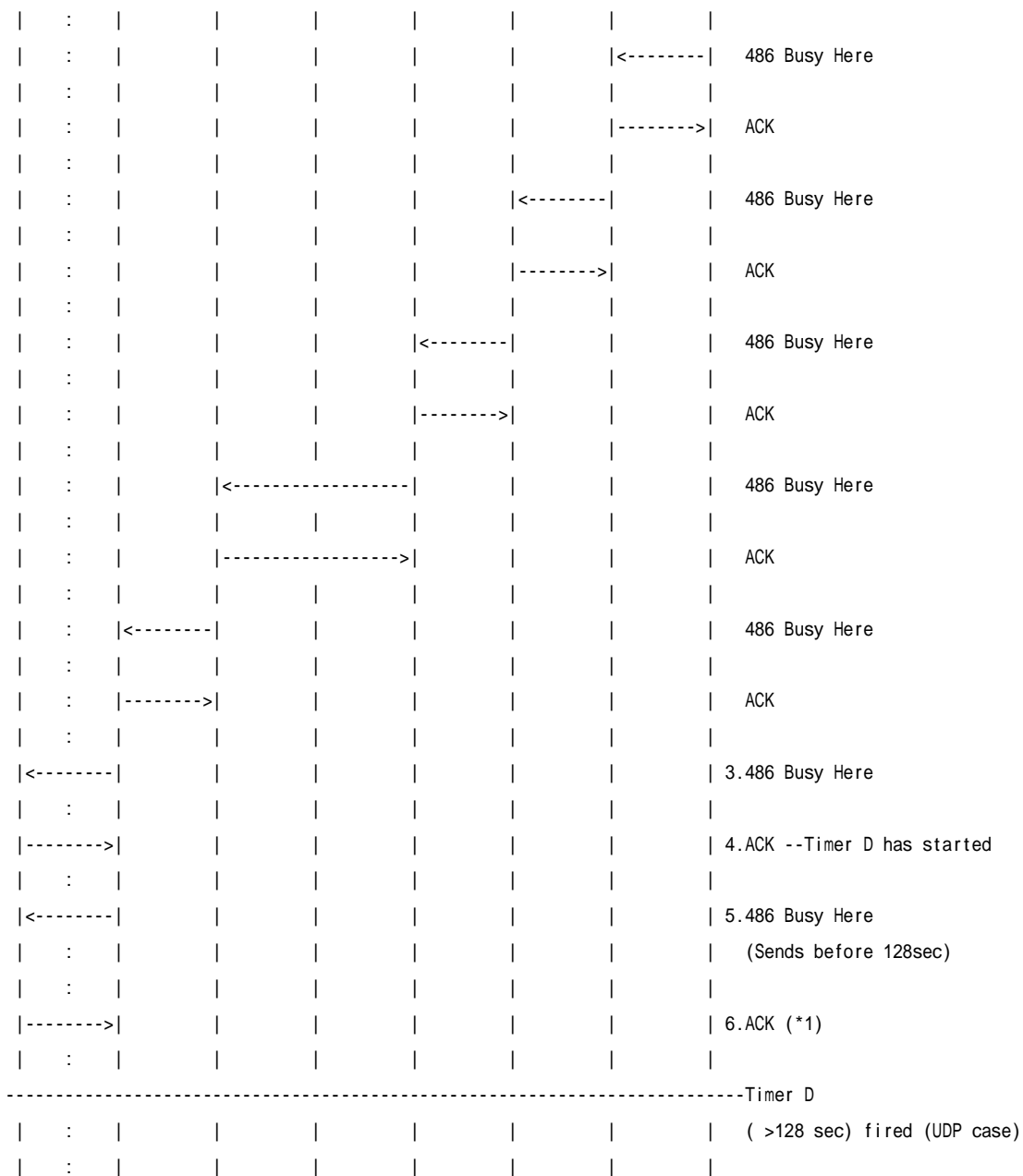
[REFERENCE]

TS24.229 7.7
RFC3261 17.1.1.2



UEa1(NUT) must be registered to the tester by scenario "UE-RG-B-1".
For details, refer to the profile of UE-RG-B-1.

Home Network								
UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2	
	:							
----->								1. INVITE
	:							
	:	----->						INVITE
	:							
<-----								2. 100 Trying
	:							
	:		----->					INVITE
	:							
	:	<-----						100 Trying
	:							
	:			----->				INVITE
	:							
	:				----->			INVITE
	:							
	:			<-----				100 Trying
	:							
	:					----->		INVITE
	:							
	:				<-----			100 Trying



- === 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

Require: sec-agree

Proxy-Require: sec-agree

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;

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
Allow: INVITE
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 17.1.1.2]

4.5.3 UE-TM-B-3 - Timer H expiration

[NAME]

UE-TM-B-3 - 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

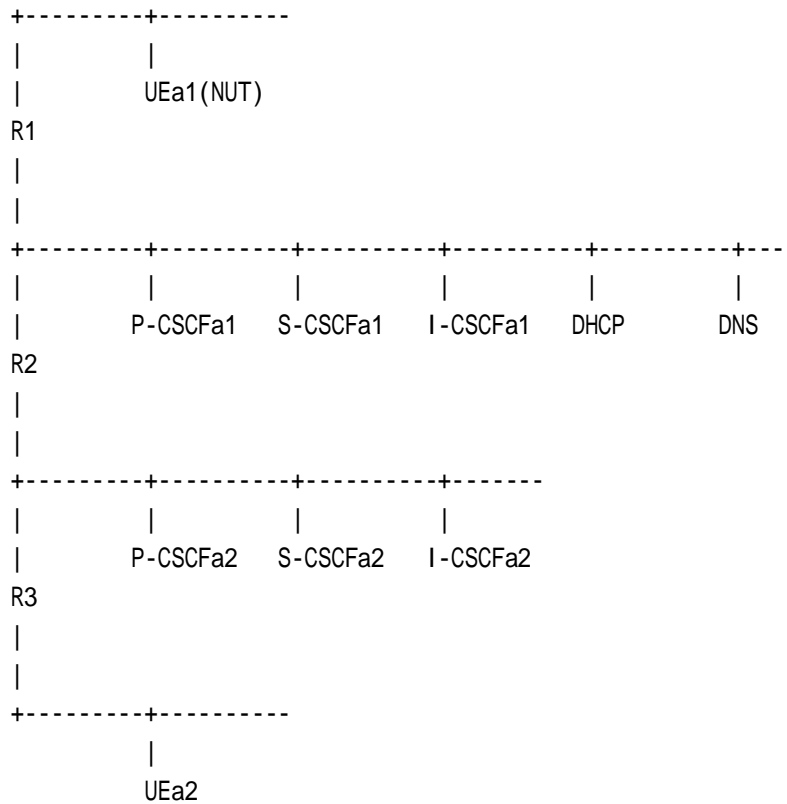
[PARAMETER(TESTER)]

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::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

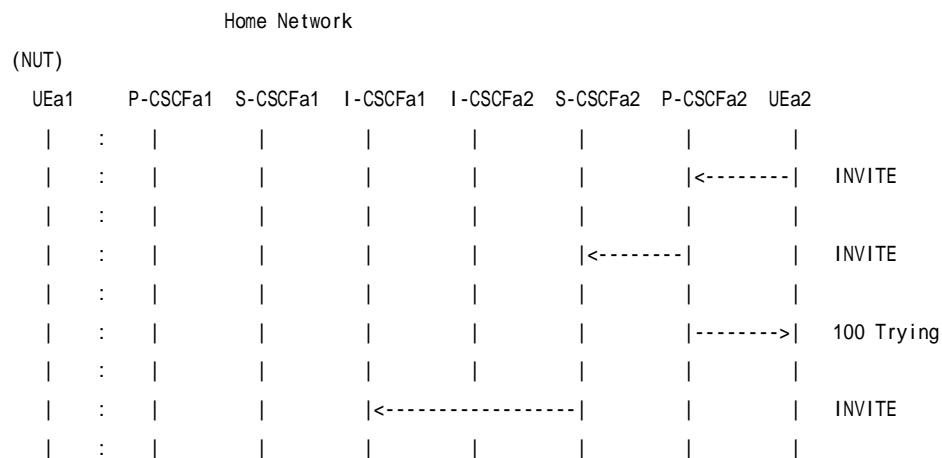
[TOPOLOGY]

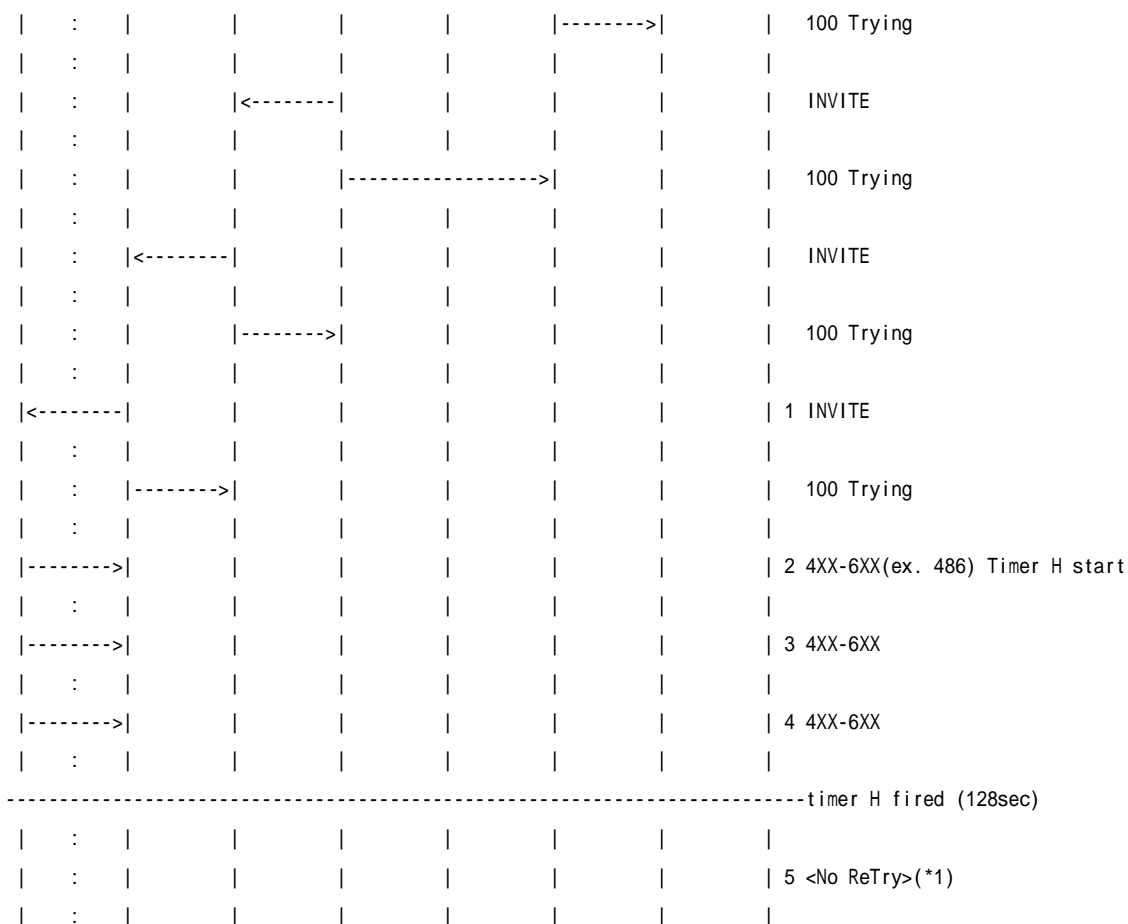


[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





- === Message example ===

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/UD
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UD
P
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;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_3@under.test.com>
Call-ID: 3848276298220188511@under.test.com
CSeq: 1 INVITE
Contact: <sip:UEa2_public_1@nodea2.under.test.com:22222>
Content-Type: application/sdp
Supported:
Allow: INVITE, ACK, CANCEL, OPTIONS, BYE
Allow-Events: reg
P-Caller-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 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/UD
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UD
P
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 - Timer J expiration

[NAME]

UE-TM-B-4 - Timer J expiration

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly sends 481(Dialog 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
----------------------	---	----------------------------------

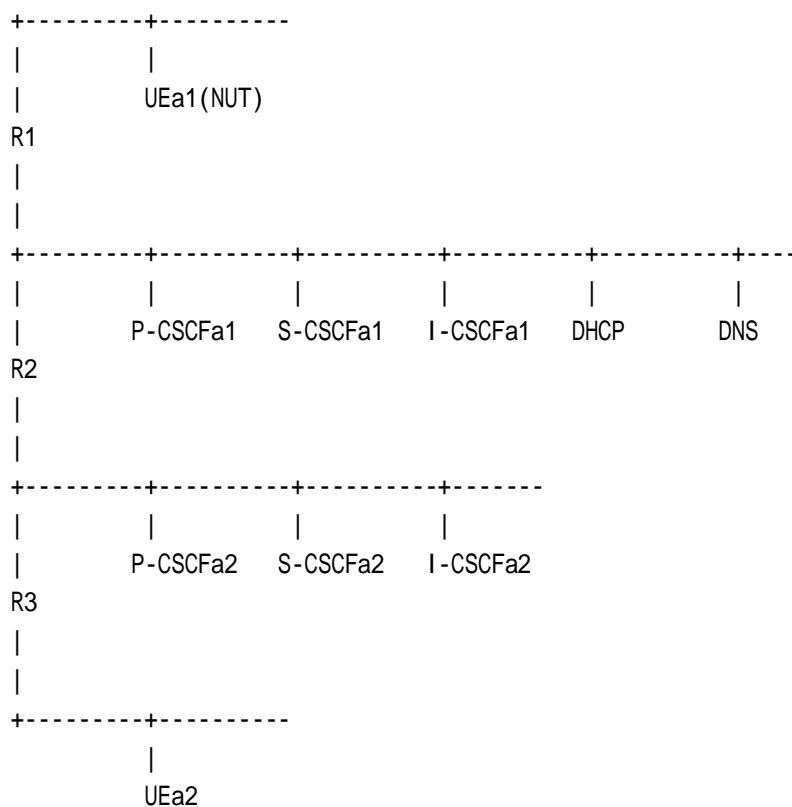


P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT)	:	3ffe:501:ffff:1000::1000
Router(R1)	:	3ffe:501:ffff:1000::1
P-CSCFa1	:	3ffe:501:ffff:100::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

[TOPOLOGY]

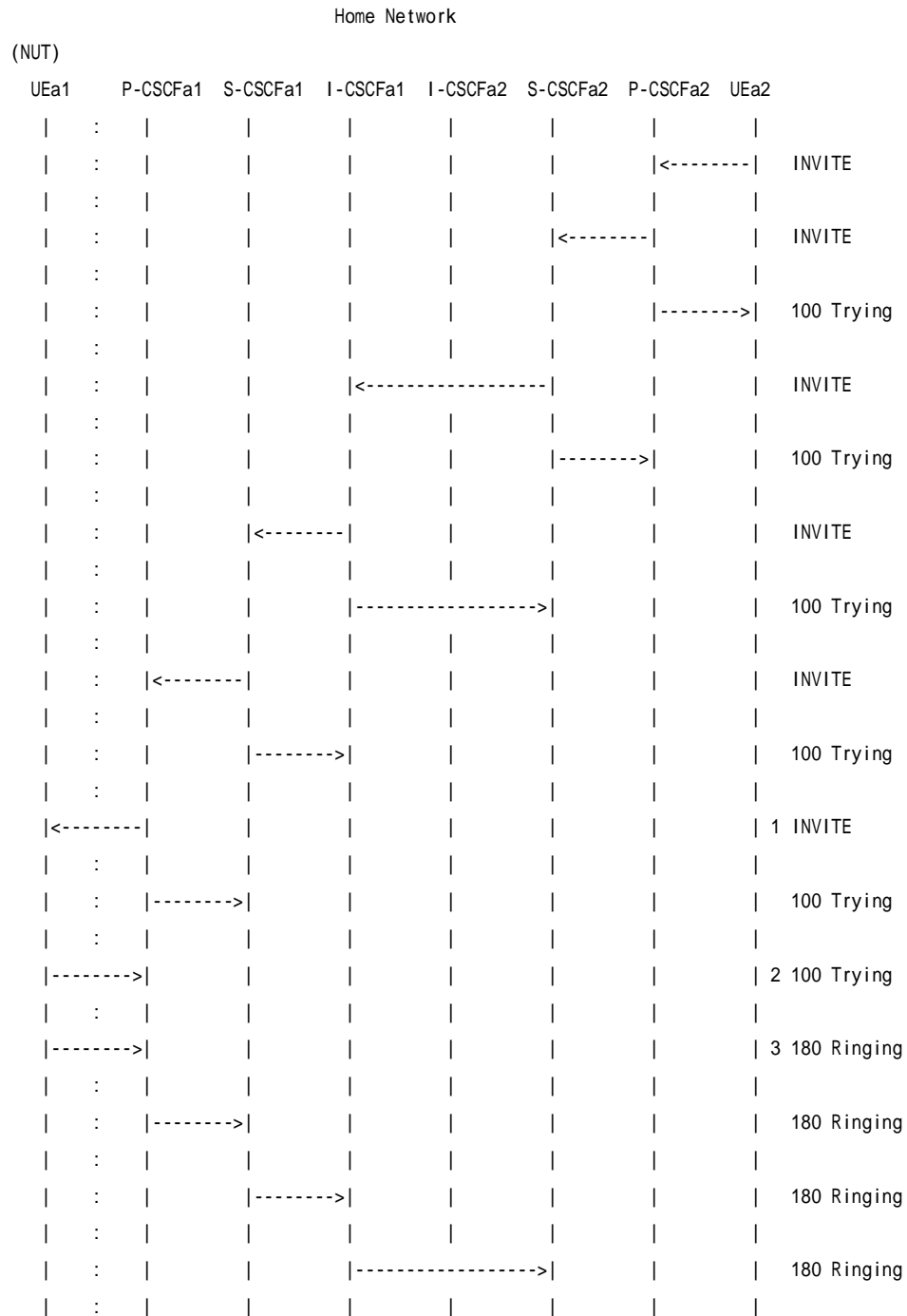




[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





| : | | | | |

- 1 NUT receives INVITE
- 2 NUT sends 100 Trying
- 3 NUT sends 180 Ringing
- 4 NUT receives CANCEL
- 5 NUT sends 200 OK
- 6 NUT receives CANCEL
- 7 NUT sends 481 Dialog Does Not Exist

=== Message example ===

1. INVITE P-CSCF -> NUT

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

P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP

P
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;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>

Content-Type: application/sdp

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

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

2. 100 Trying P-CSCFa1 -> 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 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

P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP

P
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

4. CANCEL P-CSCF -> NUT

CANCEL sip:UEa1_public_1@under.test.com 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

5. 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

6. CANCEL P-CSCF -> NUT

CANCEL sip:UEa1_public_1@under.test.com 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

7. 481 Dialog Does Not Exist NUT -> P-CSCF

SIP/2.0 481 Dialog Does Not Exist

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



[OBSERVABLE RESULTS]

*1: 7 CANCEL 481 Does Not Exist from NUT to P-CSCF.

See generic_3XX-6XX

The UAS SHOULD respond to the CANCEL with a 481 (Call Leg/Transaction Does Not Exist). [RFC3261 9.2]

UAS MUST respond to the request with a 481 (Call/Transaction Does Not Exist) status code and pass that to the server transaction if the UAS wishes to reject the request because it does not wish to recreate the dialog.[RFC3261 12.2.2]

If the server retransmits the 2xx response for $64 \cdot T1$ seconds without receiving an ACK, the dialog is confirmed, but the session SHOULD be terminated.[RFC3261 13.3.1.4]

4.5.5 UE-TM-B-5 - Timer F expiration (In Session)

[NAME]

UE-TM-B-5 - Timer F expiration (In Session)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

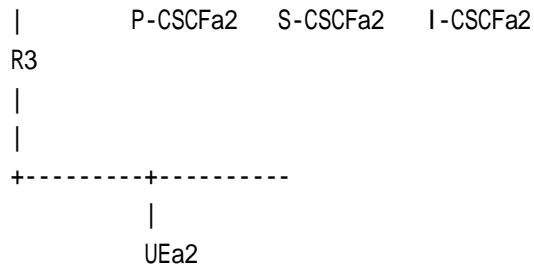
To verify that UEa1 properly stops sending CANCEL after timer F expired.

[REFERENCE]

TS24.229 7.7
RFC3261 17.1.2.2

[REQUIREMENT]

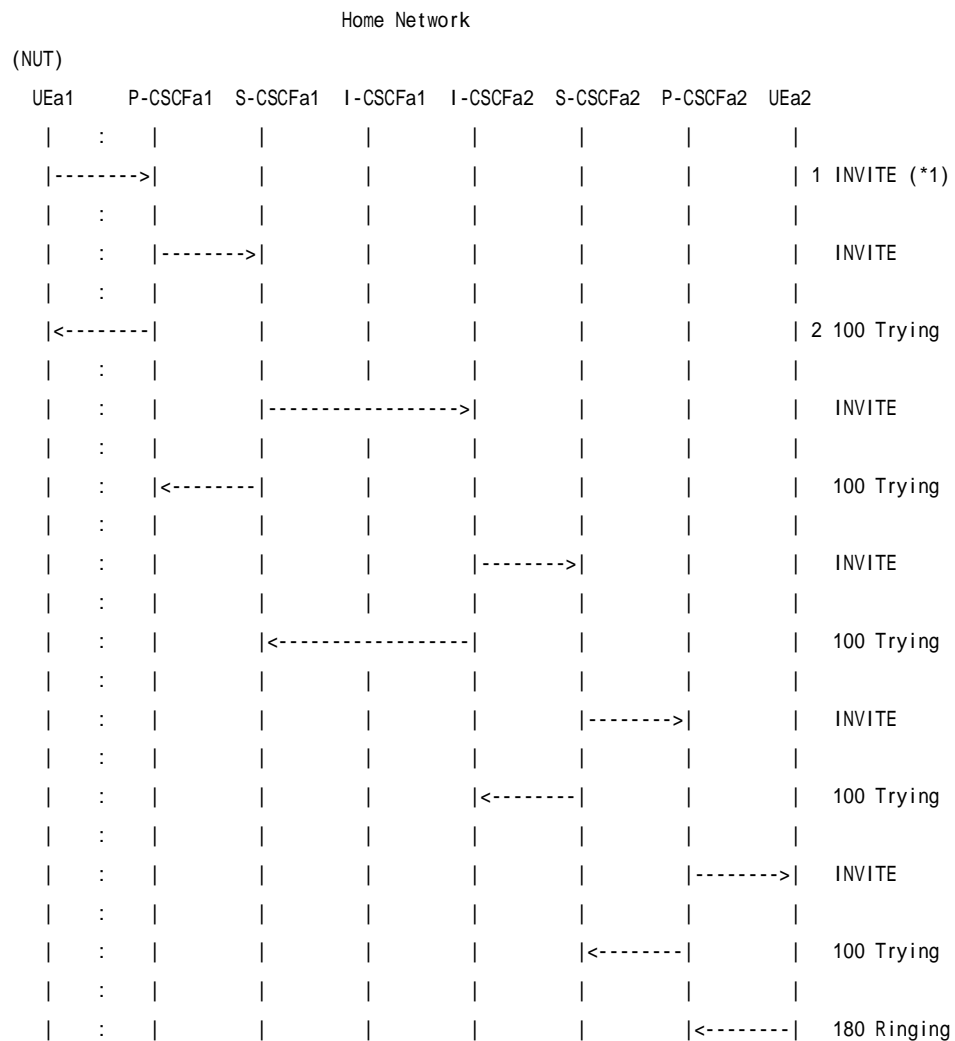
NONE



[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-RG-B-1".
For details, refer to the profile of UE-RG-B-1.

[PROCEDURE]





	:								
	:					<-----			180 Ringing
	:								
	:				<-----				180 Ringing
	:								
	:		<-----						180 Ringing
	:								
	:	<-----							180 Ringing
	:								
<-----									3 180 Ringing
	:								
----->									4 CANCEL
	:								
-----									Timer F started and Timer E is
	:								interbal
	:								
----->									5 CANCEL
	:								
----->									6 CANCEL
	:								
----->									7 CANCEL
	:								
----->									8 CANCEL
	:								
-----									Timer F fired (128sec)
	:								
	:								9 <No retry>(*1)
	:								

- 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
Require: sec-agree
Proxy-Require: sec-agree
Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
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 - Sending 400 response

[NAME]

UE-SR-B-1 - Sending 400 response.

[TARGET]

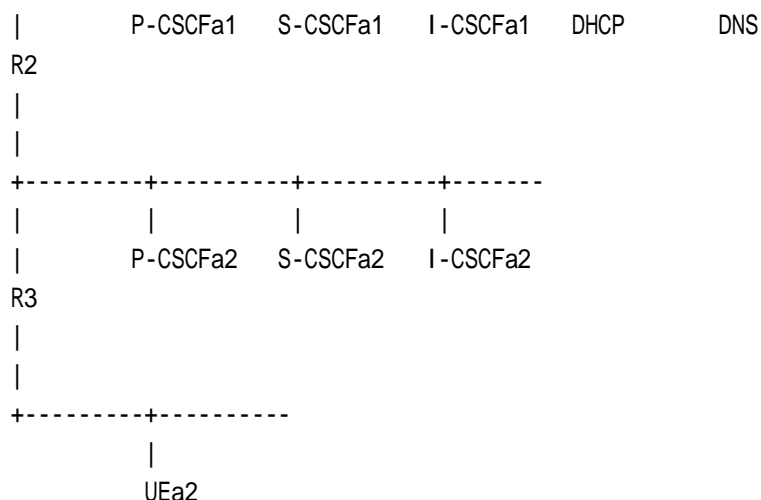
IMS User Equipment (NUT)

[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



[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]

Home Network								
(NUT)	UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
		:						
		<-----						1 INVITE with Content-Length:0
		:						(with no Body)
		:						
		----->						2 400 Bad Request(*1)
		:						
		<-----						3 ACK
		:						

- 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 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/UD
 P
 s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UD
 P
 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=10fxcde76sl
 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>
 Content-Type: application/sdp
 Supported:
 Allow: INVITE, ACK, CANCEL, OPTIONS, BYE
 Allow-Events: reg
 P-Called-Party-ID: <sip:UEa1_public_1@under.test.com>
 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/UD
 P
 s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UD



P

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@under.test.com 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: 2 400 Bad Request from NUT to P-CSCF.

See generic_3XX-6XX

4.6.2 UE-SR-B-2 - Sending 404 response

[NAME]

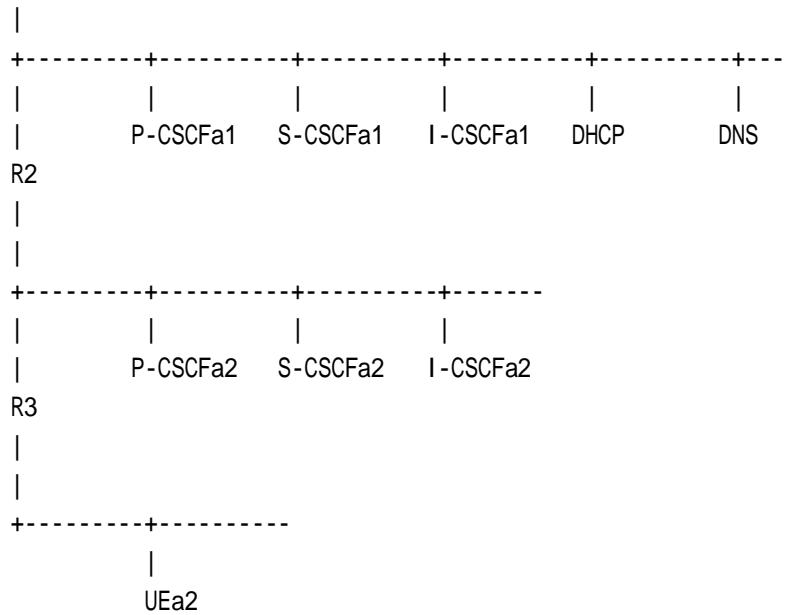
UE-SR-B-2 - Sending 404 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

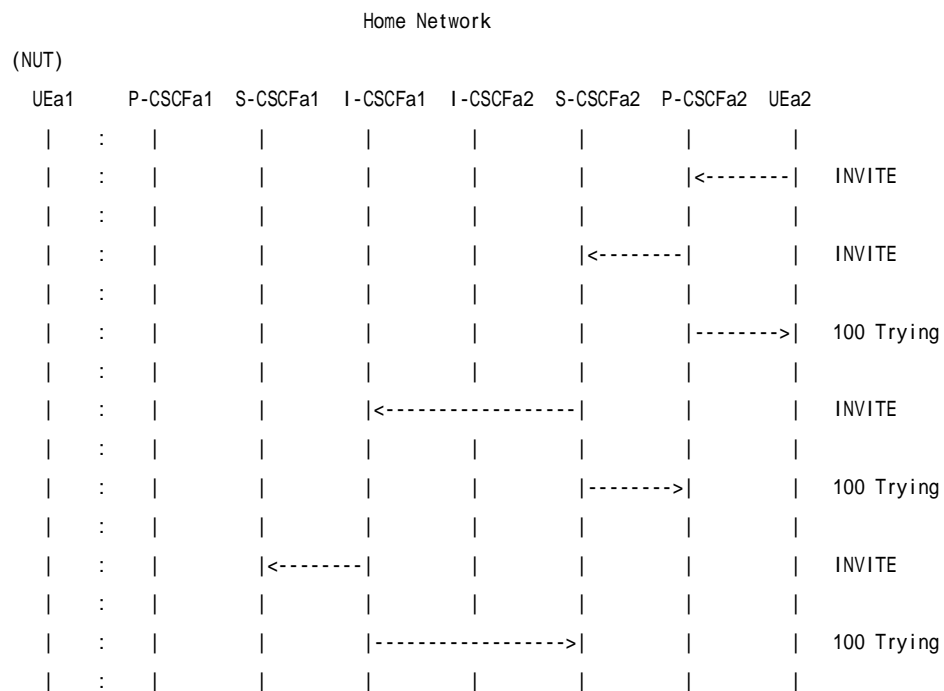
To verify that UEa1 sends 404 (Not Found) response to INVITE that has other destination Request-URL.

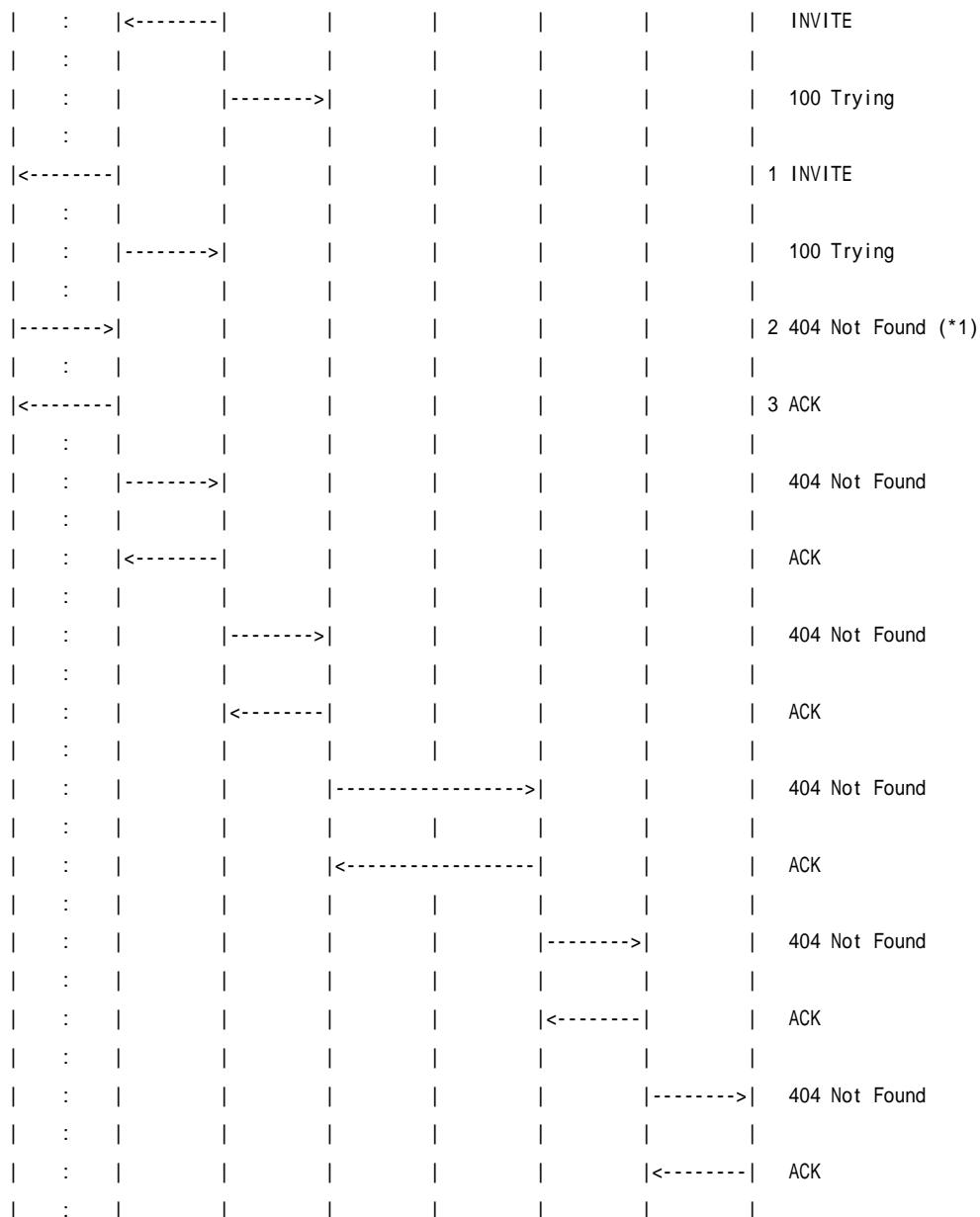


[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





=== Message example ===

IPv6 FORUM TECHNICAL DOCUMENT

344

IPv6 Ready Logo Program
Phase 2 Test Specification
IMS IPv6



INVITE sip:UEa1_public_1@noooooode.under.test.com 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
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP
P
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=10fxcde76sl
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>
Content-Type: application/sdp
Supported:
Allow: INVITE, ACK, CANCEL, OPTIONS, BYE
Allow-Events: reg
P-Caller-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

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
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP



P

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@noooooode.under.test.com 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: 2 404 Not Found from NUT to P-CSCF.

See generic_3XX-6XX

4.6.3 UE-SR-B-3 - Sending 405 response

[NAME]

UE-SR-B-3 - 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)]

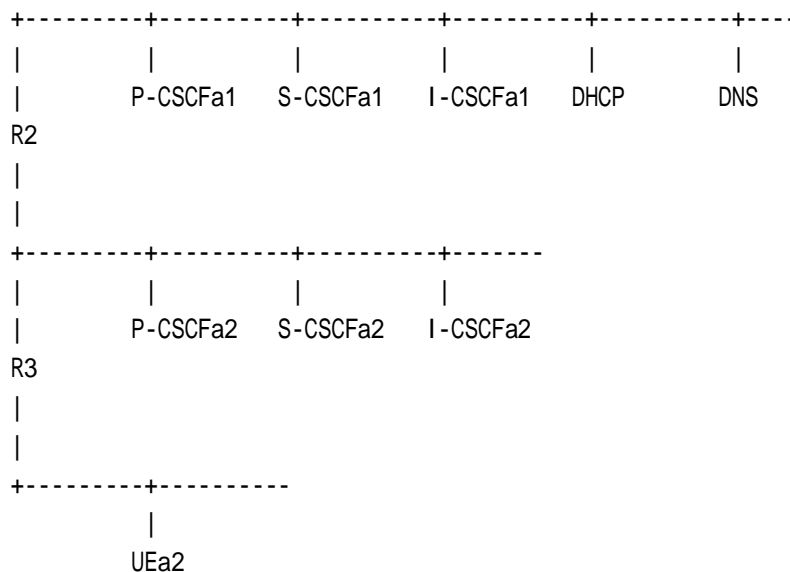
public-user-id(UEa2)	:	sip:UEa2_public_1@under.test.com
P-CSCFa1	:	sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT)	:	3ffe:501:ffff:1000::1000
Router(R1)	:	3ffe:501:ffff:1000::1
P-CSCFa1	:	3ffe:501:ffff:100::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

[TOPOLOGY]

```
+-----+-----+
|         |
|         | UEa1(NUT)
|         |
R1         |
|         |
|         |
```



[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]

Home Network							
(NUT)							
UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
	:						
<-----							1 REGISTER
	:						
----->							2 405 Method Not Allowed (*1)
	:						

- 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:1000::1000];branch=z9hG4bKnashds7
Path: <sip:term@p.a1.under.test.com;lr>
Max-Forwards : 69
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
Authorization: Digest username=" UEa2_private@under.test.com", realm="under.test.com",
nonce="", uri="sip:under.test.com", response="", integrity-protected="no"
Require: path
CSeq: 1 REGISTER
Supported: path
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=10fxced76sl
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

- Header Field:

The response MUST include an Allow header field containing a list of valid
methods for the indicated address.[RFC3261 8.2.1][RFC3261 21.4.6]

4.6.4 UE-SR-B-4 - Sending 406 response

[NAME]

UE-SR-B-4 - 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

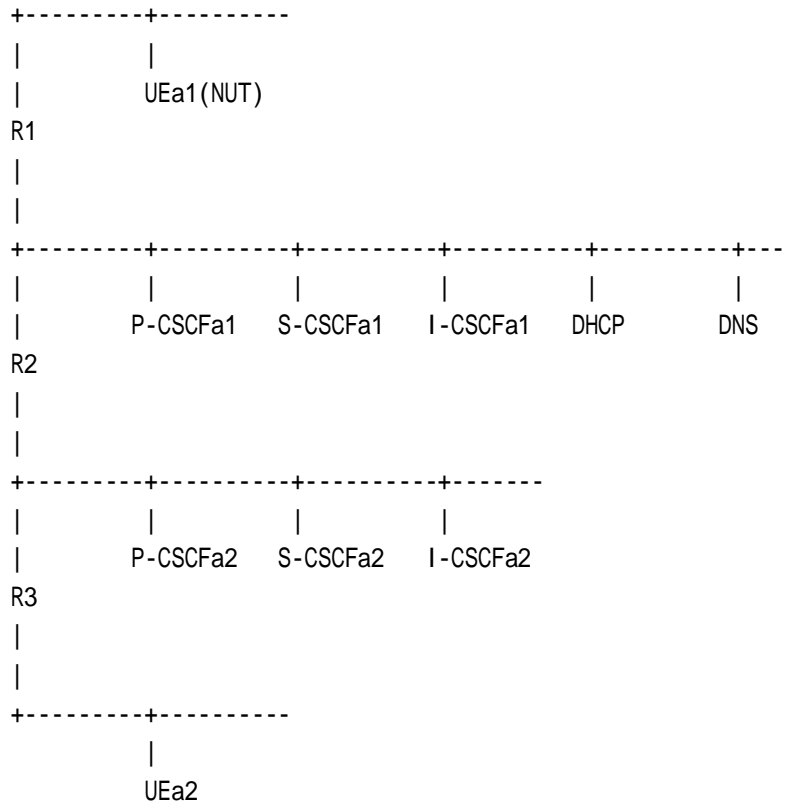
[ADDRESS]

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

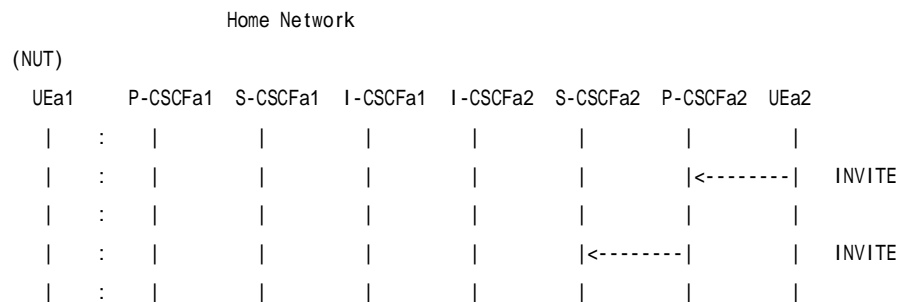
[TOPOLOGY]

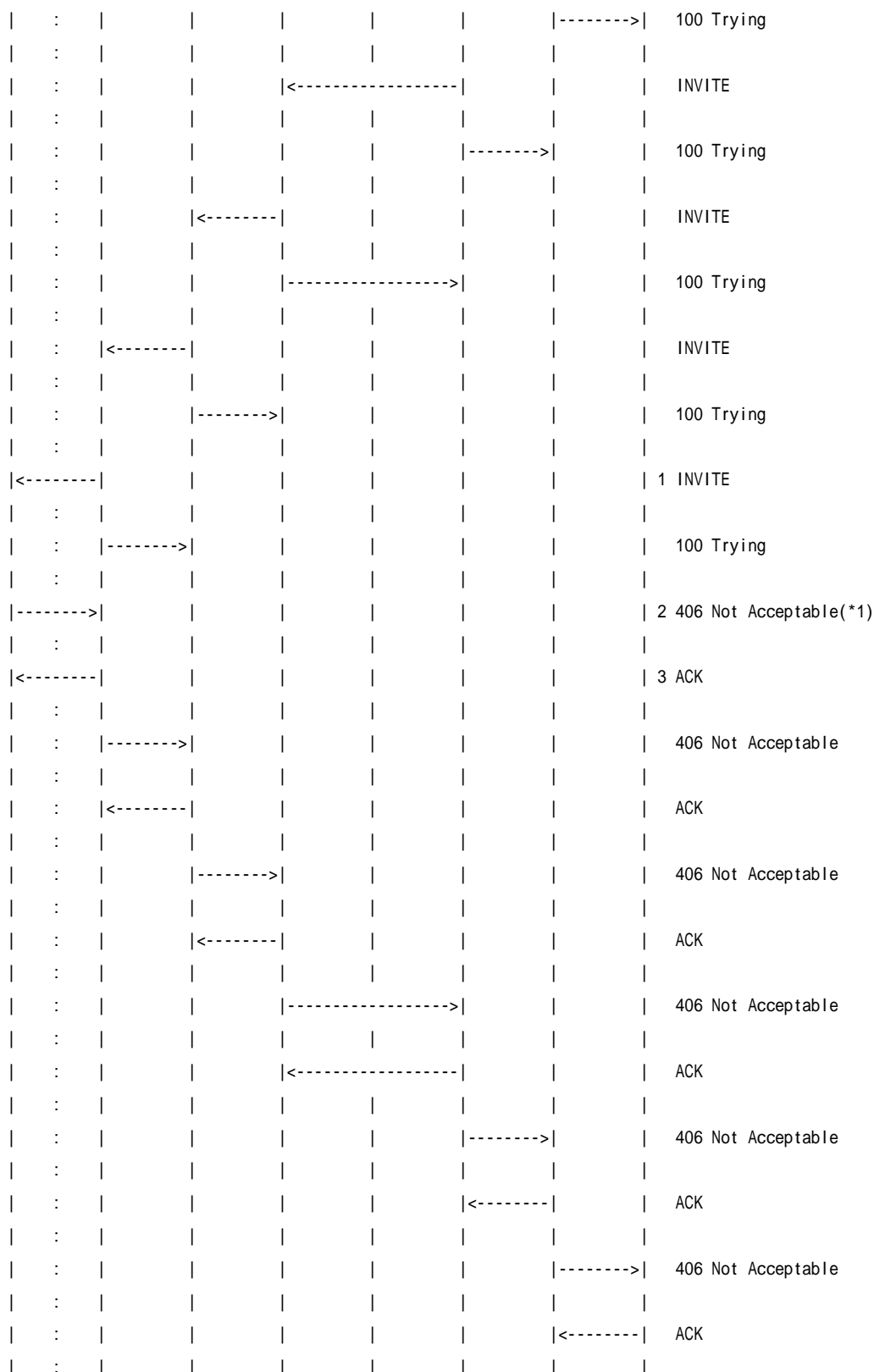


[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]







- 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 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/UD
P

s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UD
P

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>

Content-Type: application/sdp

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-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 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

4.6.5 UE-SR-B-5 - Sending 414 response

[NAME]

UE-SR-B-5 - 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

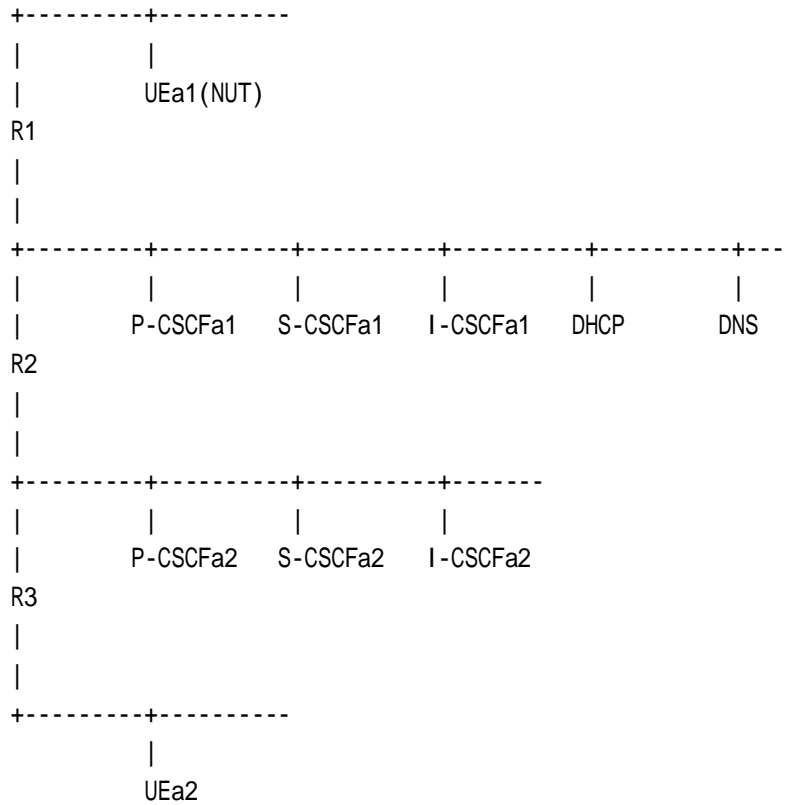
[ADDRESS]

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::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

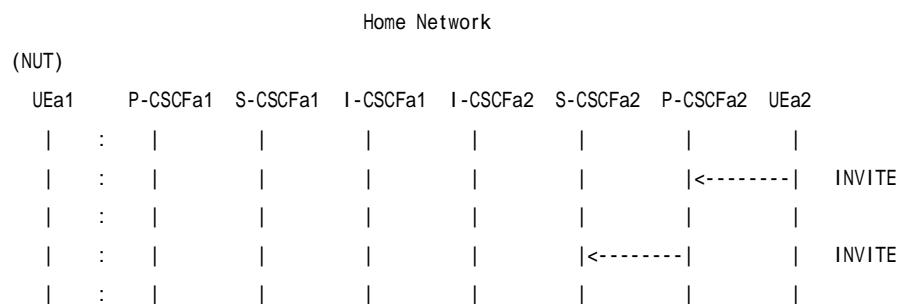
[TOPOLOGY]



[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





- 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;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

P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP

P
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>

Content-Type: application/sdp

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-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

P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP

P
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 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: 2 414 Request-URI Too Large from NUT to P-CSCF.

See generic_3XX-6XX

4.6.6 UE-SR-B-6 - Sending 415 response

[NAME]

UE-SR-B-6 - 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 21.4.13

[RFC3261 8.2.3]

[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

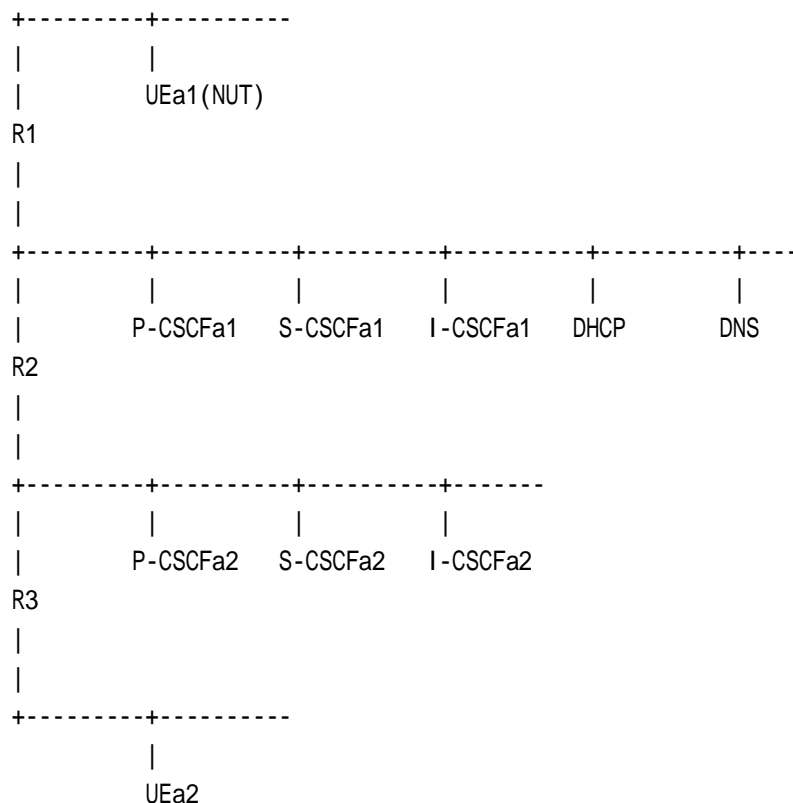
[ADDRESS]

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::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

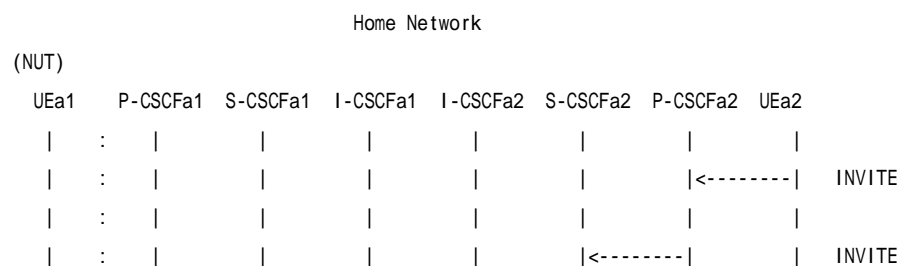
[TOPOLOGY]

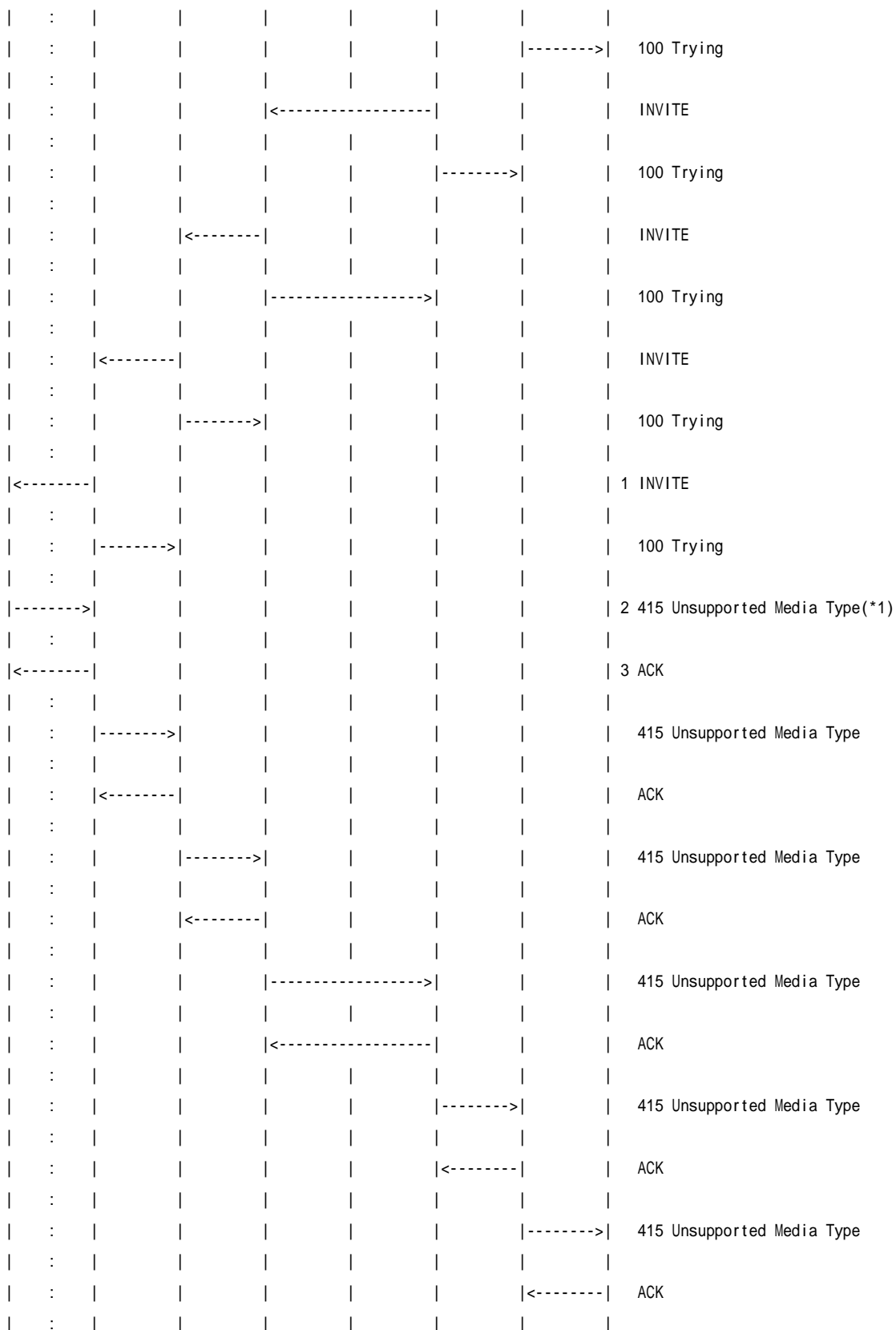


[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
 For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]







- 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 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
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP
P
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>
Content-Type: foo/baa
Supported:
Allow: INVITE, ACK, CANCEL, OPTIONS, BYE
Allow-Events: reg
P-Caller-Party-ID: <sip:UEa1_public_1@under.test.com>
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
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP
P
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 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: 2 415 Unsupported Media Type from NUT to P-CSCF.

See generic_3XX-6XX

- Header Field:

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 8.2.3]

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 8.2.3]

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 8.2.3]



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 21.4.13]

4.6.7 UE-SR-B-7 - Sending 416 response

[NAME]

UE-SR-B-7 - Sending 416 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that UEa1 sends 416 (Unsupported URI Scheme) response to INVITE that has illegal scheme in Request-URI.

[REFERENCE]

TS24.229 A.2.1.4.1
[RFC3261-8.2-12]

[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)]

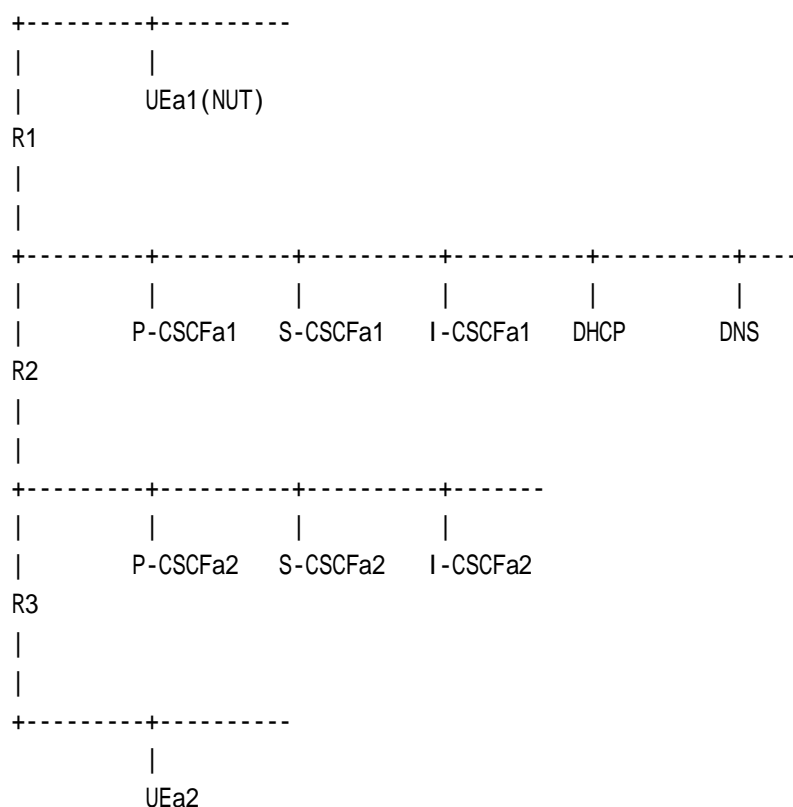
public-user-id(UEa2)	:	sip:UEa2_public_1@under.test.com
P-CSCFa1	:	sip:p.a1.under.test.com

[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::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]

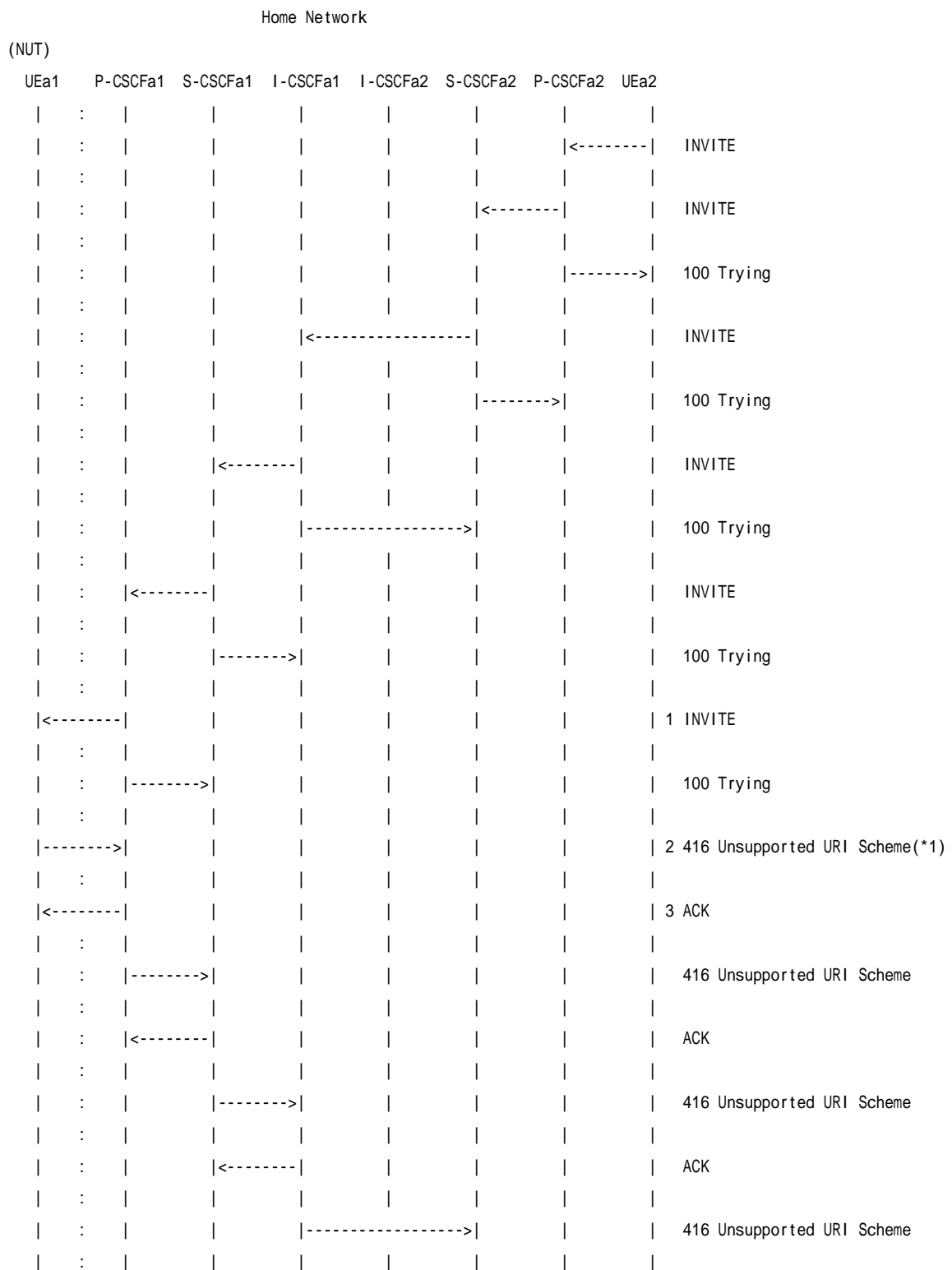


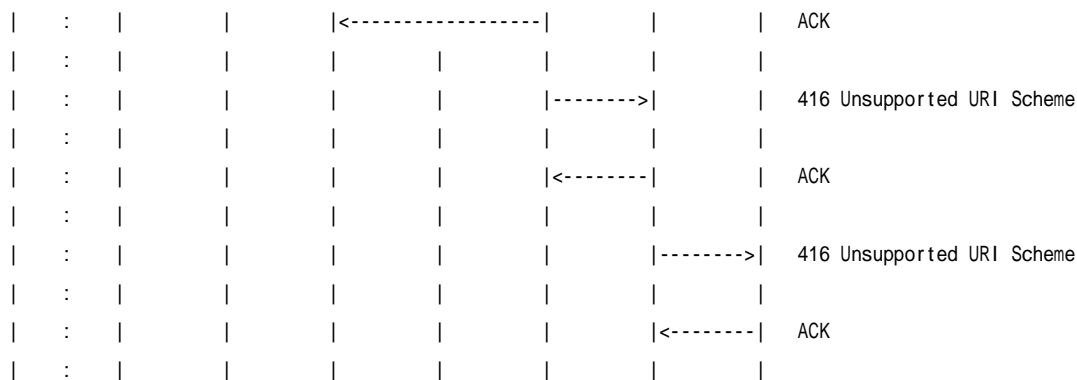
[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.



[PROCEDURE]





- 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 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

P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP

P
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>

Content-Type: application/sdp

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

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

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
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP
P
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 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: 2 416 Unsupported URI Scheme from NUT to P-CSCF.

See generic_3XX-6XX

4.6.8 UE-SR-B-8 - Sending 420 response

[NAME]

UE-SR-B-8 - Sending 420 response.

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that UEa1 sends 420(Bad Extension) response to INVITE request that included Require header with wrong value.

[REFERENCE]

TS24.229 A.2.1.4.1

RFC3261 21.4.15

[RFC3261 8.2.2.3]

[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)]

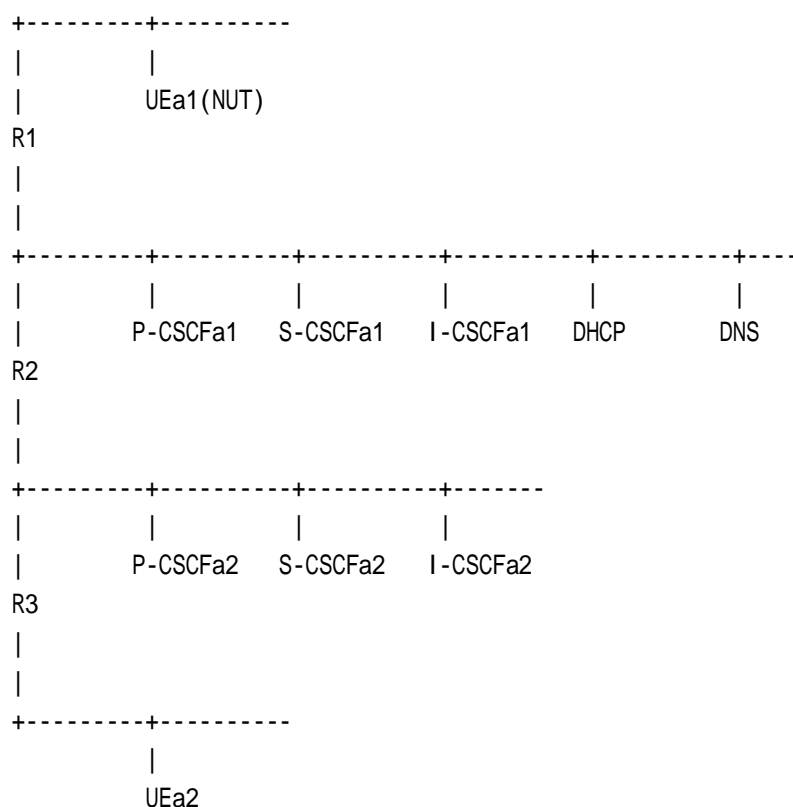
public-user-id(UEa2)	:	sip:UEa2_public_1@under.test.com
P-CSCFa1	:	sip:p.a1.under.test.com

[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::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]

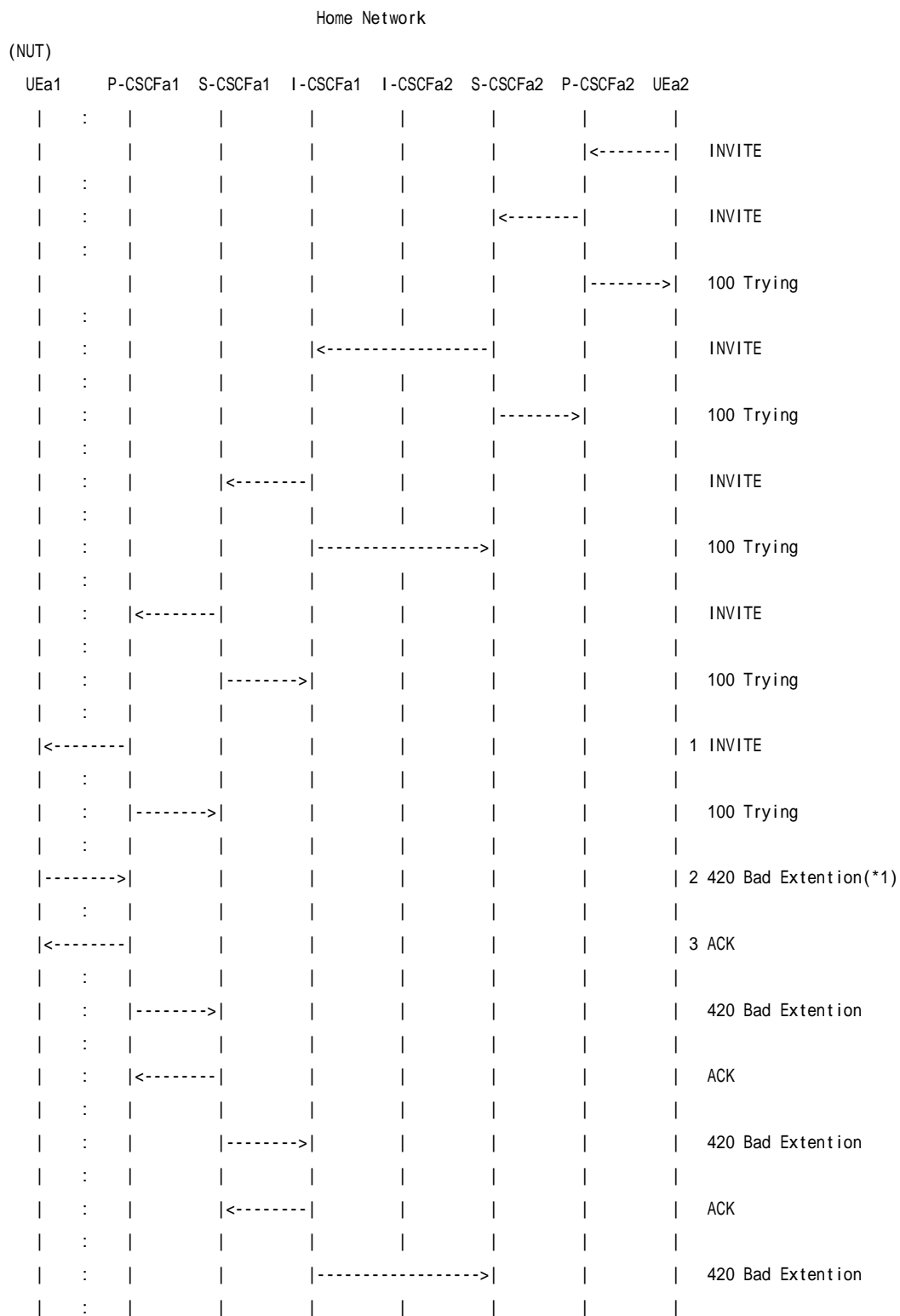


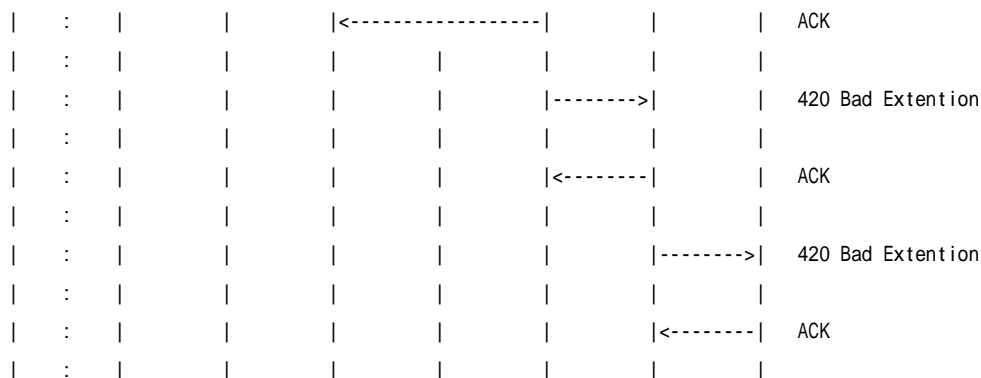
[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.



[PROCEDURE]





- === Message example ===

INVITE sip:UEa1_public_1@node.under.test.com 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
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP
P
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>
Content-Type: application/sdp
Supported:
Allow: INVITE, ACK, CANCEL, OPTIONS, BYE
Allow-Events: reg
Require: Foo
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

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
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP
P
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 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: 2 420 Bad Extension from NUT to P-CSCF.

See generic_3XX-6XX

- Header Field:

* Unsupported

The server MUST include a list of the unsupported extensions in an Unsupported header field in the response. [RFC3261 21.4.15]

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 8.2.2.3]

4.6.9 UE-SR-B-9 - Sending 480/486 response

[NAME]

UE-SR-B-9 - Sending 480/486 response.

[TARGET]

IMS User Equipment (NUT)

[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 21.4.18

RFC3261 21.4.24

[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)]

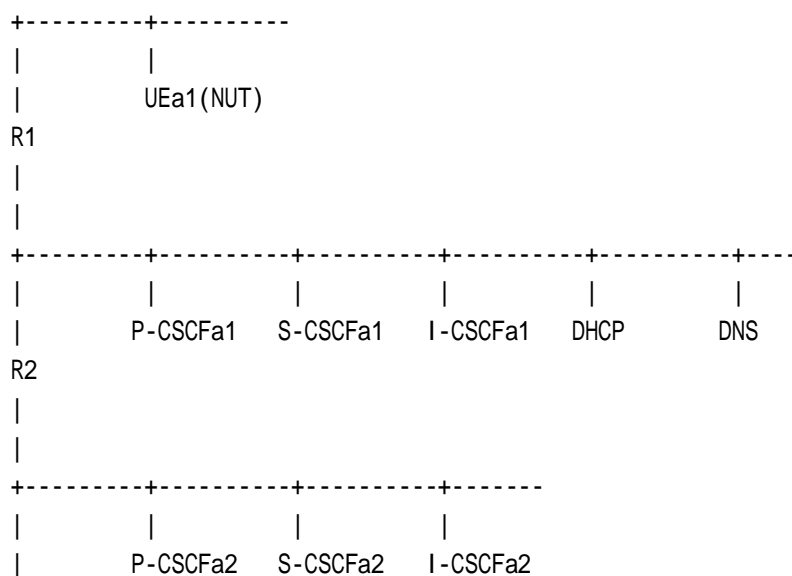
public-user-id(UEa2) : sip:UEa2_public_1@under.test.com
P-CSCFa1 : sip:p.a1.under.test.com

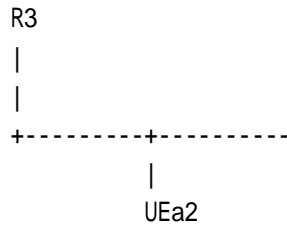
[ADDRESS]

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::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]



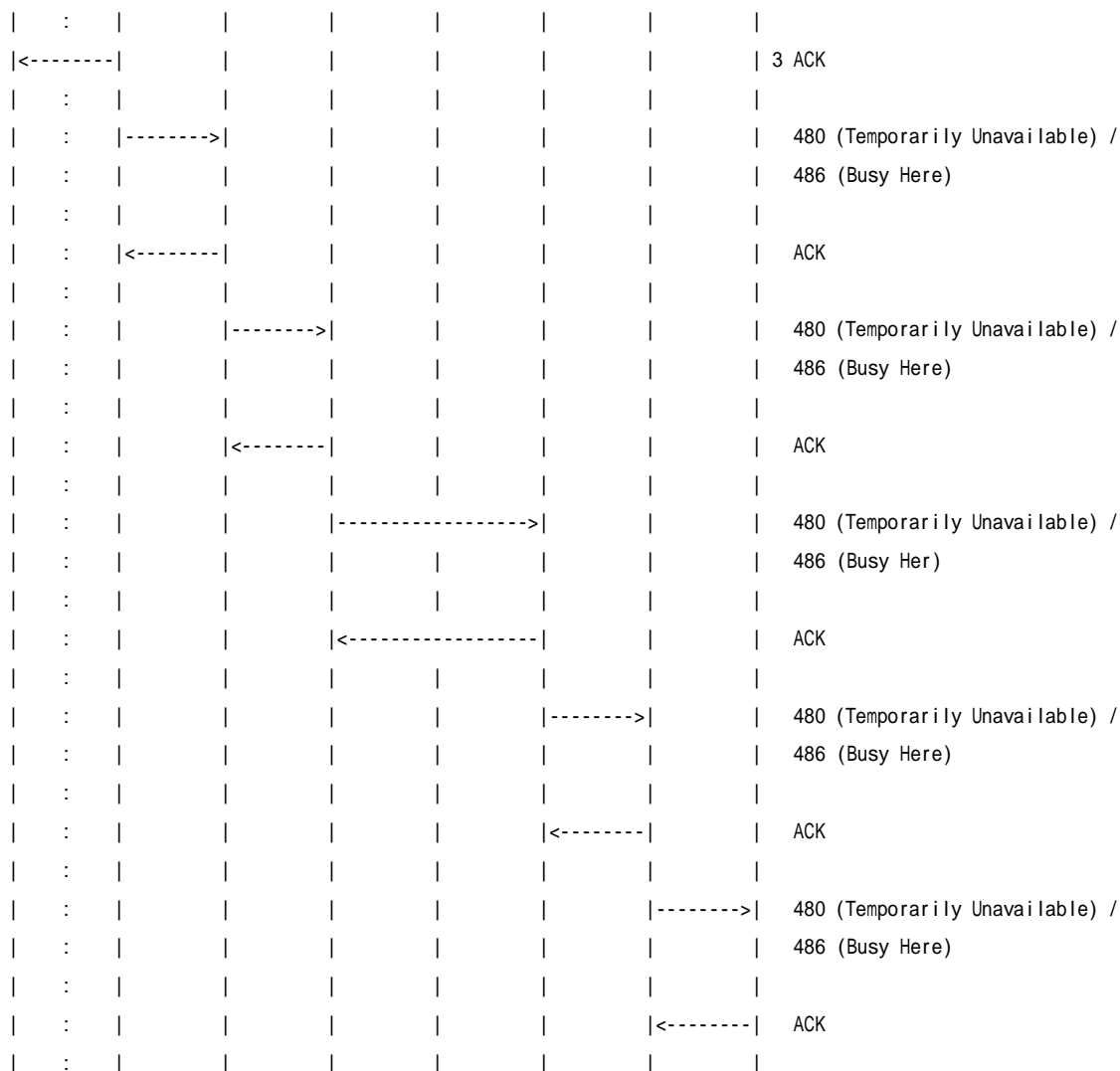


[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]

Home Network							
(NUT)	UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2 UEa2
		:					
		:					<----- INVITE
		:					
		:				<-----	INVITE
		:					
		:					-----> 100 Trying
		:					
		:		<-----			INVITE
		:					
		:				----->	100 Trying
		:					
		:		<-----			INVITE
		:					
		:		----->			100 Trying
		:					
		:	<-----				1 INVITE
		:					
		:	----->				100 Trying
		:					
		:	----->				2 480 (Temporarily Unavailable) /
		:					486 (Busy Her)(*1)



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 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
P



s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP
P
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>
Content-Type: application/sdp
Supported:
Allow: INVITE, ACK, CANCEL, OPTIONS, BYE
Allow-Events: reg
P-Caller-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

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/UD
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UD
P
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 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: 2 480 Temporarily Unavailable/486 Busy Here from NUT to P-CSCF.

See generic_3XX-6XX

4.6.10 UE-SR-B-10 - Sending 482 response

[NAME]

UE-SR-B-10 - Sending 482 response.

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

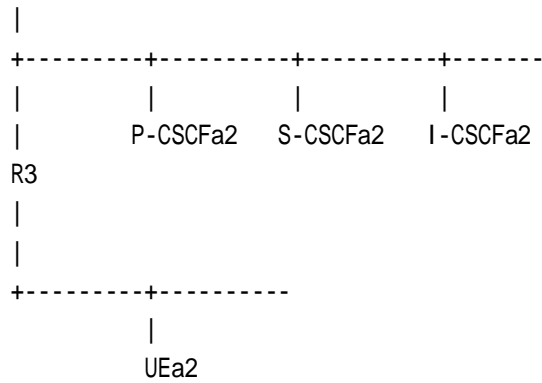
To verify that the UEa1 sends 482(Loop Detected) response when the UEa1 detected loop.

[REFERENCE]

TS24.229 A.2.1.4.1

[RFC3261 8.2.2.2]

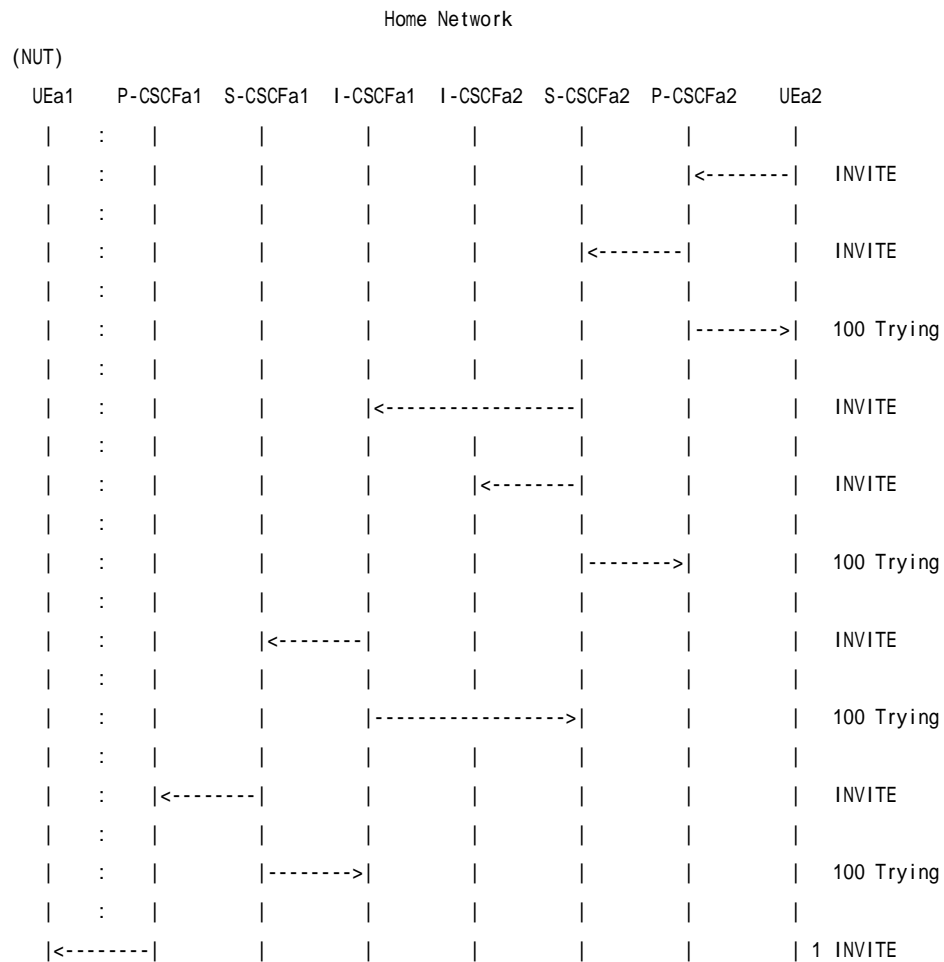
[REQUIREMENT]

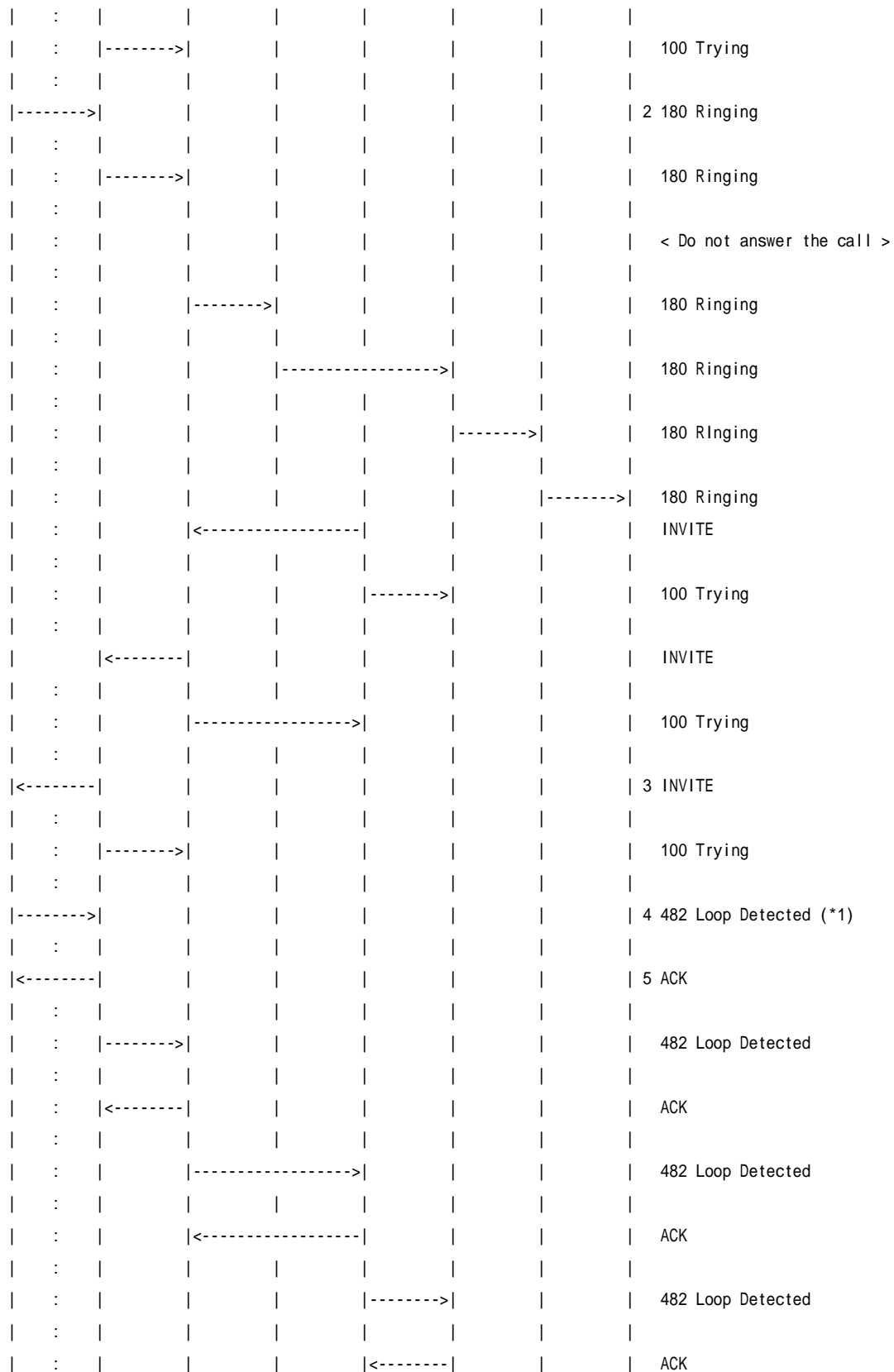


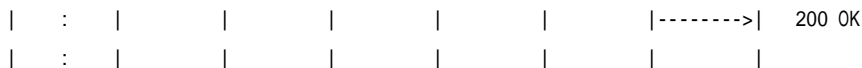
[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]







- === Message example ===

IPv6 FORUM TECHNICAL DOCUMENT

385

IPv6 Ready Logo Program
Phase 2 Test Specification
IMS IPv6



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
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP
P
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 SIP/2.0

Via: SIP/2.0/UDP p.a1.under.test.com;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
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP
P
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.a1under.test.com;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>
Content-Type: application/sdp
Supported:
Allow: INVITE, ACK, CANCEL, OPTIONS, BYE
Allow-Events: reg
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

4. 482 Loop Detected NUT -> P-CSCFa3

SIP/2.0 482 Loop Detected

Via: SIP/2.0/UDP
p.a1.under.test.com;branch=z9hG4bK431e418c234;received=3ffe:501:ffff:100::10,SIP/2.0/UDP
P
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
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP
P
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@under.test.com SIP/2.0
Via: SIP/2.0/UDP p.a1.under.test.com;branch=z9hG4bK431e418c234
Max-Forwards: 70



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

P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP

P
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;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

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/UD
P
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/UD
P
p.a2.under.test.com;branch=z9hG4bKnaghc45ca10;received=3ffe:501:ffff:200::10,SIP/2.0/UD
P [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/UD
P
p.a2.under.test.com;branch=z9hG4bKnaghc45ca10;received=3ffe:501:ffff:200::10,SIP/2.0/UD
P [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

4.6.11 UE-SR-B-11 - Sending 489 response

[NAME]

UE-SR-B-11 - 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 3.2.4

[RFC3265-3.1-12]

[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



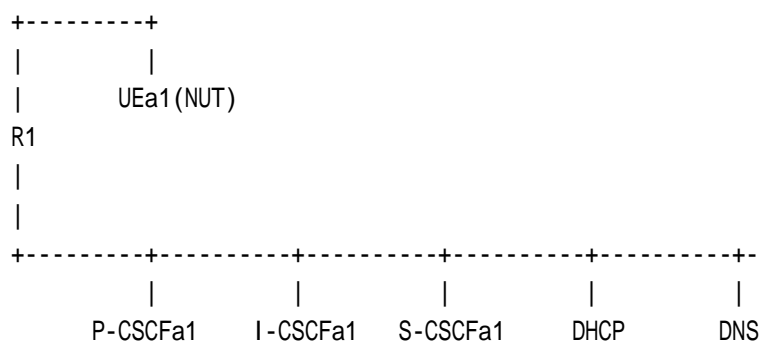
[PARAMETER(TESTER)]

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::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

[TOPOLOGY]



[INITIALIZATION]

Set up IP Address by A or B.

A. Router Advertisement

B. DHCPv6

(NUT)

UEa1	:	DHCP
	:	
----->	1	DHCPv6 SOLICIT
	:	
<-----	2	DHCPv6 ADVERTISE
	:	
----->	3	DHCPv6 REQUEST
	:	

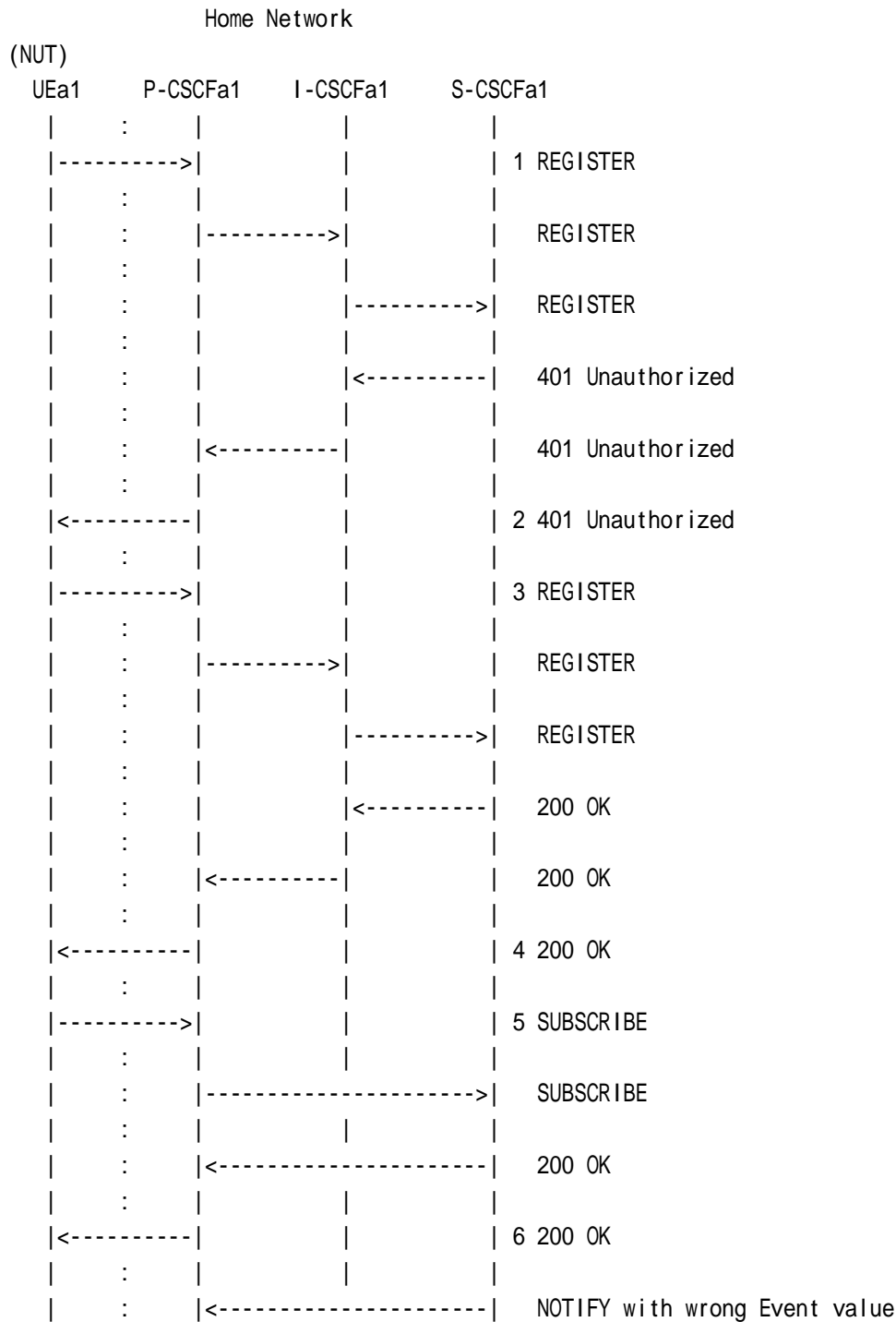


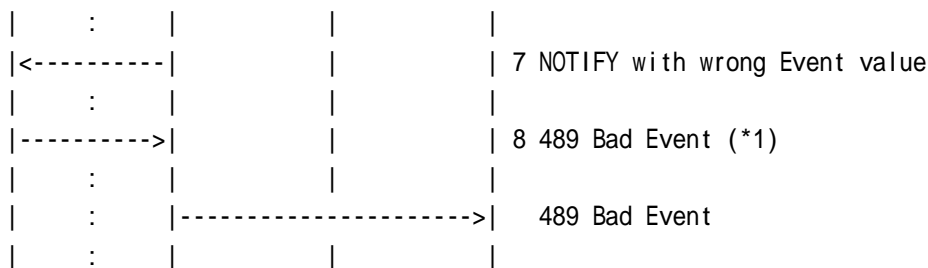
```

|<-----| 4 DHCPv6 REPLY
|      :      |

```

[PROCEDURE]





- 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 ===

1. REGISTER NUT -> P-CSCF

REGISTER sip:under.test.com SIP/2.0

Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000];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; 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];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="T1U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD

Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
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",
nonce="T1U8vpY3qJhiuZNRke/NaponGSCcLm5iR+WCRkWYoM", algorithm=AKAv1-MD5,
uri="sip:under.test.com", response="6629fae49393a05397450978507c4ef1"

Security-Client: ipsec-3gpp; 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=98765432; spi-s=87654321;
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

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=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
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-CSCFa1

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: b89rjhnedlrflslj40a222@under.test.com
CSeq: 1 SUBSCRIBE
Allow-Events: reg
Event: reg
Expires: 600000
Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
port-c=10002; port-s=10001
Contact: <sip:UEa1_public_1@node.under.test.com:1357>
Content-Length: 0

6. 200 OK P-CSCFa1 -> 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: b89rjhnedlrflslj40a222@under.test.com
CSeq: 1 SUBSCRIBE
Allow-Events: reg
Expires: 600000
Contact: <sip:s.a1.under.test.com>
Content-Length: 0

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: b89rjhnedlrjflslj40a222@under.test.com
CSeq: 2 NOTIFY
Subscription-State: active;expires=600000
Event: foo
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. 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/U
DP 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: b89rjhnedlrjflslj40a222@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



- Header Field:

The response MUST include Allow-Events header fields. <RFC3265 3.2.4>

4.6.12 UE-SR-B-12 - Sending 500 response

[NAME]

UE-SR-B-12 - 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

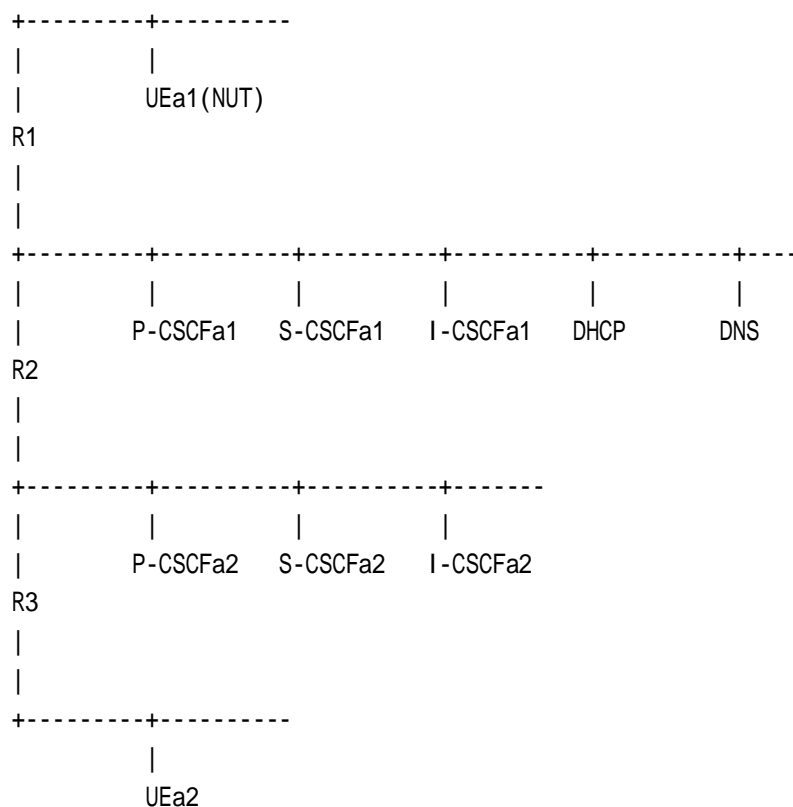
[ADDRESS]

UEa1(NUT)	:	3ffe:501:ffff:1000::1000
Router(R1)	:	3ffe:501:ffff:1000::1



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

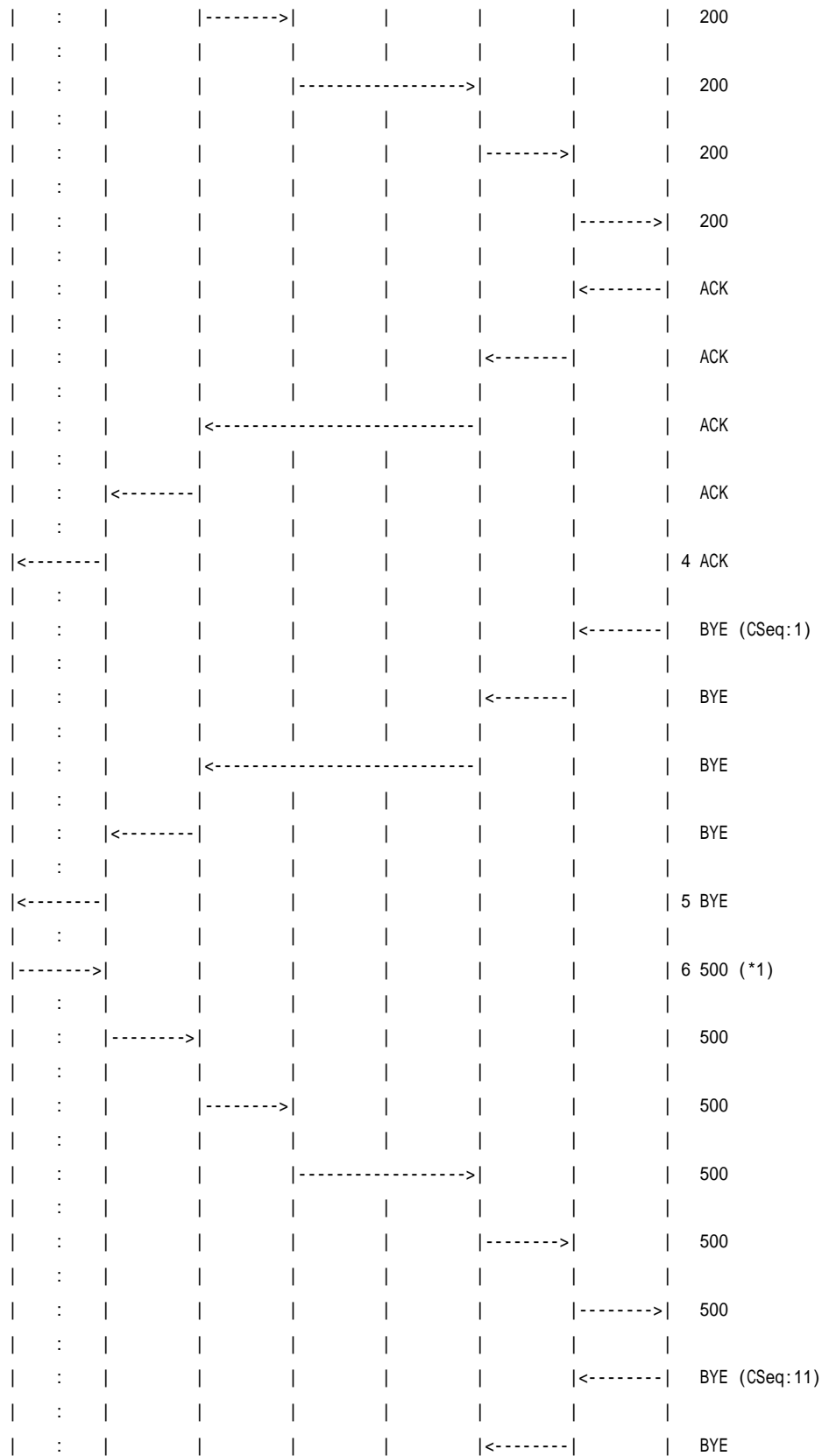
[TOPOLOGY]



[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





:								
:		<-----						BYE
:								
:	<-----							BYE
:								
:	<-----							7 BYE
:								
:	----->							8 200
:								
:	----->							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 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

P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP

P
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>
Content-Type: application/sdp
Supported:
Allow: INVITE, ACK, CANCEL, OPTIONS, BYE
Allow-Events: reg
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

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
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP
P
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
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UDP
P
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
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
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: 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: 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 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: 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
p.a2.under.test.com;branch=z9hG4bKnaghc45ca10;received=3ffe:501:ffff:200::10,SIP/2.0/UDP
P [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

p.a2.under.test.com;branch=z9hG4bKnaghc45ca10;received=3ffe:501:ffff:200::10,SIP/2.0/UDP
P [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

If the remote sequence number is empty, it MUST be set to the value of the sequence number in the CSeq header field value in the request.
[RFC3261 12.2.2]

4.6.13 UE-SR-B-13 - Sending 505 response

[NAME]



UE-SR-B-13 - Sending 505 response.

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that UEa1 sends 505 (Version Not Supported) response to INVITE that has illegal 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

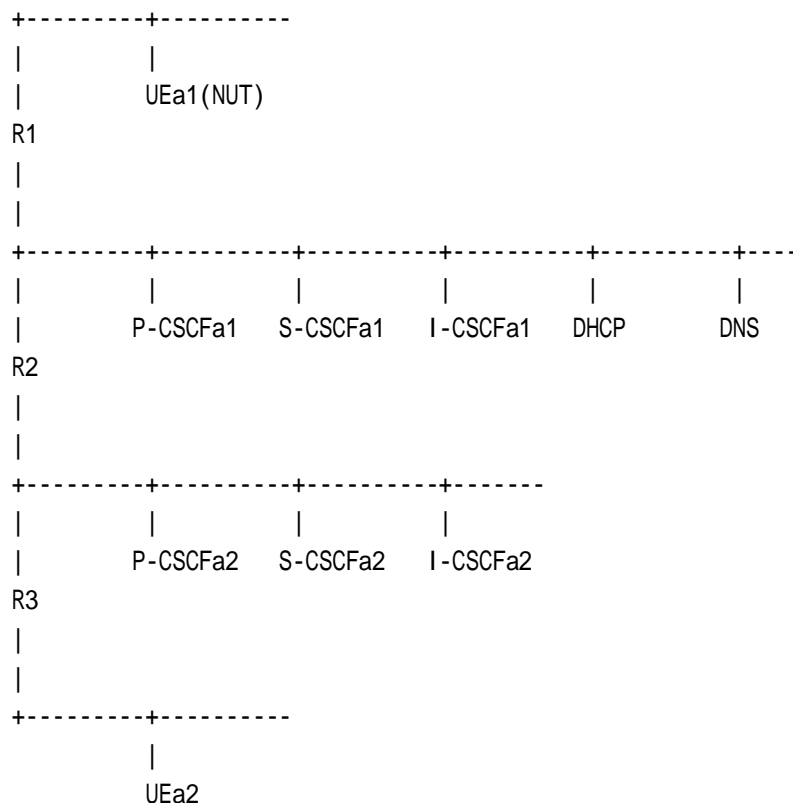
[ADDRESS]

UEa1(NUT)	:	3ffe:501:ffff:1000::1000
Router(R1)	:	3ffe:501:ffff:1000::1
P-CSCFa1	:	3ffe:501:ffff:100::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

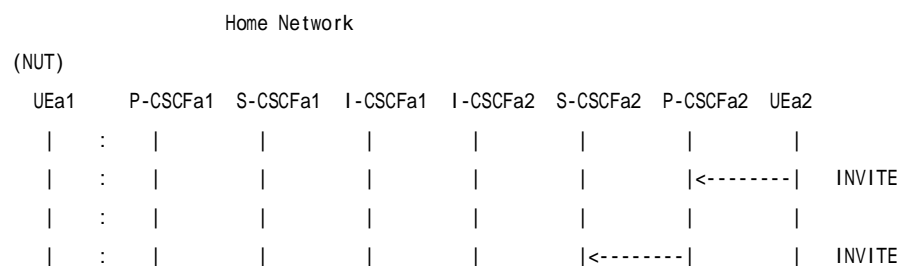
[TOPOLOGY]

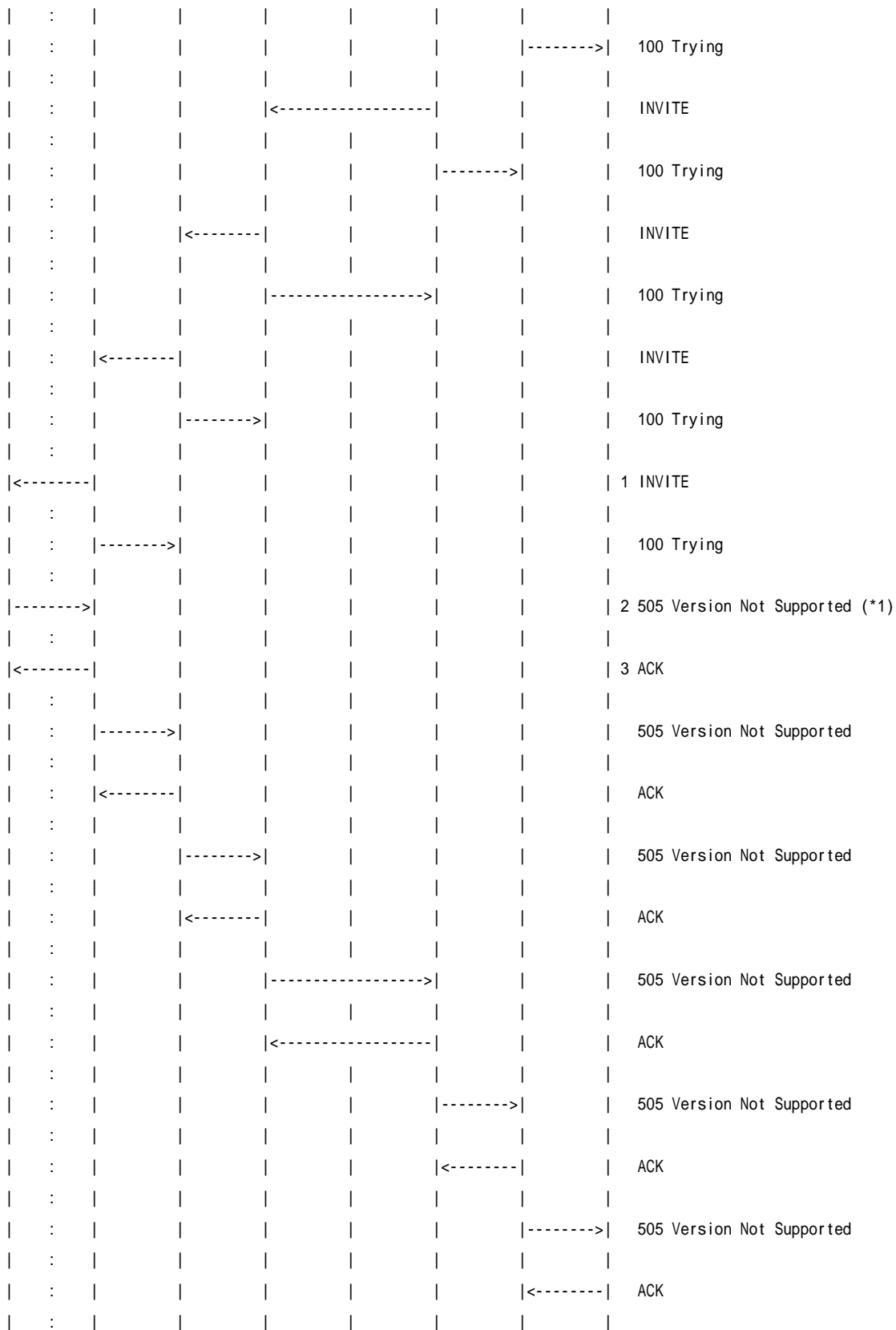


[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
 For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]







- 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 SIP/9.8
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/UD
P
s.a2.under.test.com;branch=z9hG4bK721e418c657u;received=3ffe:501:ffff:200::30,SIP/2.0/UD
P
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=10fxcde76sl
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>
Content-Type: application/sdp
Supported:
Allow: INVITE, ACK, CANCEL, OPTIONS, BYE
Allow-Events: reg
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



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 SIP/9.8

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: 2 505 Version Not Supported from NUT to P-CSCF.

See generic_3XX-6XX

4.7 Receiving Response

4.7.1 UE-RR-B-1 - Receiving 100 response

**[NAME]**

UE-RR-B-1 - 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: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



```

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

```

[PROCEDURE]

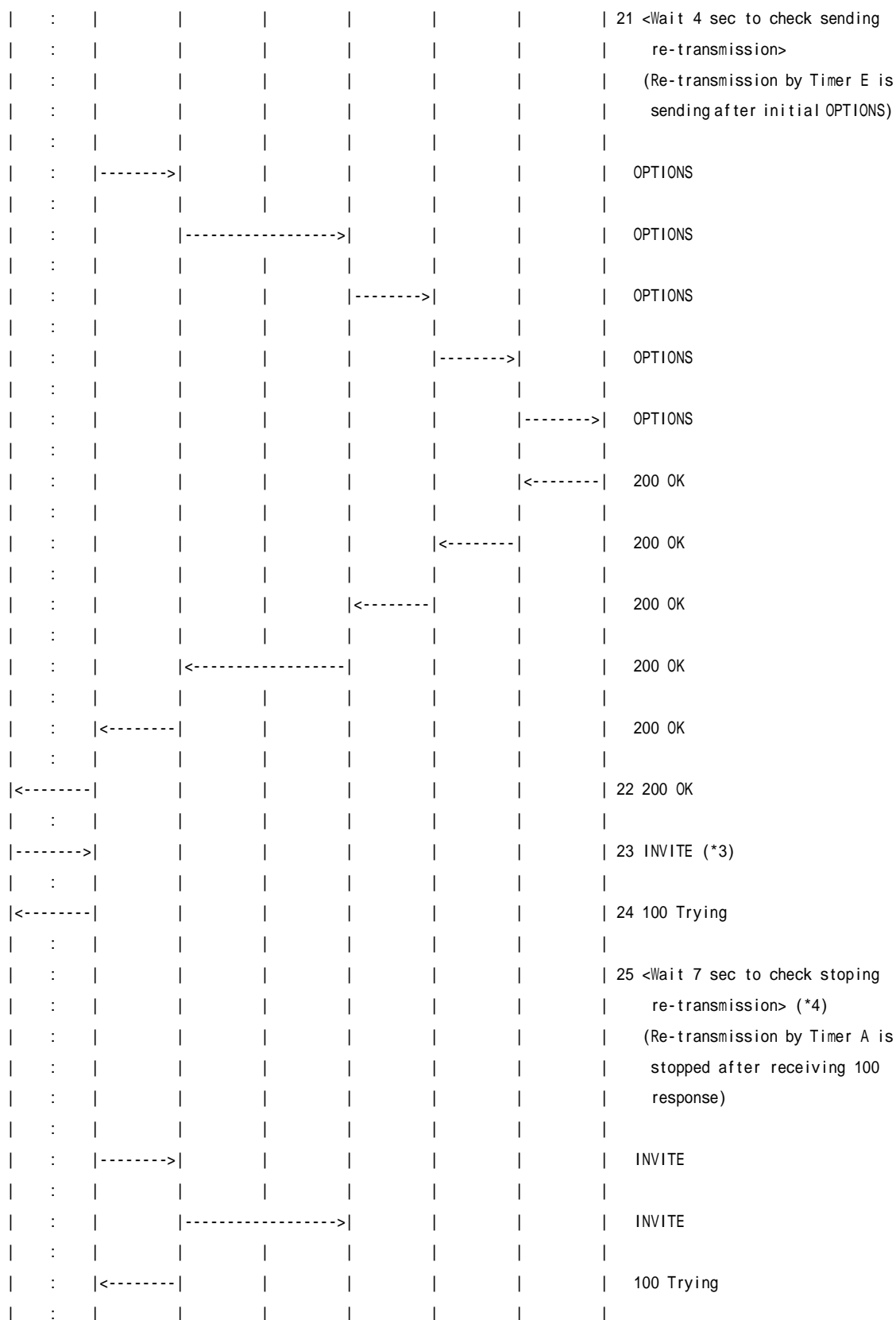
Home Network

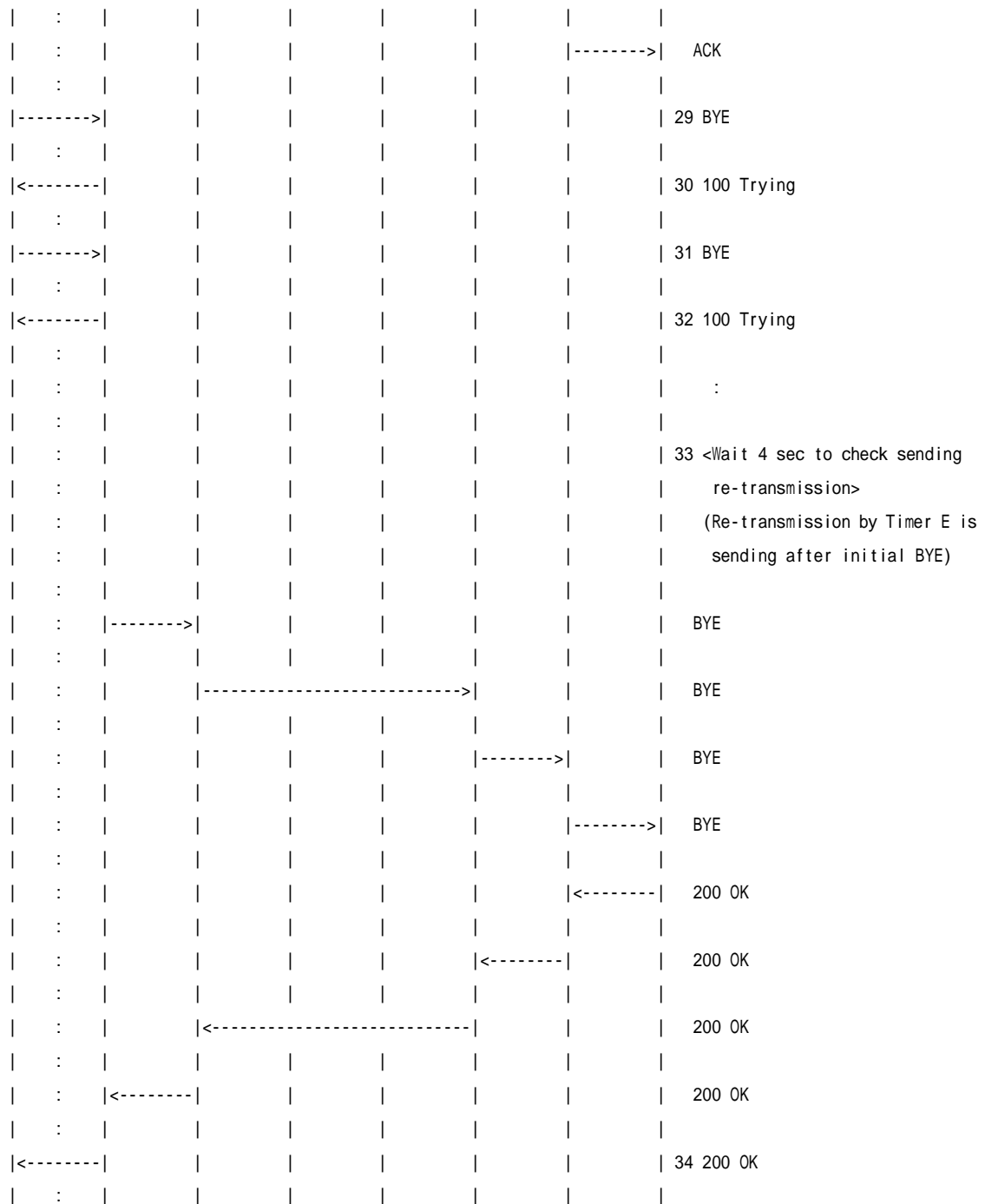
(NUT)

UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
:							
----->			1 REGISTER				
:							
<-----			2 100 Trying				
:							
----->			3 REGISTER				
:							
<-----			4 100 Trying				
:							
:				:			
:							
:			5 <Wait 4 sec to check sending re-transmission>				
:			(Re-transmission by Timer E is sending after initial REGISTER)				
:							
:	----->		REGISTER				
:							
:		<-----	REGISTER				
:							
:		----->	401 Unauthorized				
:							
:	<-----		401 Unauthorized				
:							
<-----			6 401 Unauthorized				
:							
----->			7 REGISTER (*1)				
:							
:	----->		REGISTER				
:							
:		<-----	REGISTER				
:							
:		----->	200 OK				



	:								
	:		<-----						200 OK
	:								
	<-----								8 200 OK
	:								
	----->								9 SUBSCRIBE
	:								
	<-----								10 100 Trying
	:								
	----->								11 SUBSCRIBE
	:								
	<-----								12 100 Trying
	:								
	:								:
	:								
	:								13 <Wait 4 sec to check sending re-transmission>
	:								(Re-transmission by Timer E is sending after initial SUBSCRIBE)
	:								
	:		----->						SUBSCRIBE
	:								
	:		<-----						200 OK
	:								
	<-----								14 200 OK
	:								
	:		<-----						NOTIFY
	:								
	<-----								15 NOTIFY
	:								
	----->								16 200 OK (*2)
	:								
	:		----->						200 OK
	:								
	:								
	----->								17 OPTIONS
	:								
	<-----								18 100 Trying
	:								
	----->								19 OPTIONS
	:								
	<-----								20 100 Trying
	:								
	:								:
	:								





- 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.

2. 100 Trying P-CSCF -> NUT
SIP/2.0 100 Trying
Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds7
From: <sip:UEa1_public_1@under.test.com>;tag=4fa3
To: <sip:UEa2_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.

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.

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:UEa2_public_1@under.test.com>
Call-ID: b89rjhnedlrflslj40a222@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.

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.

As regards the message 17, please refer to the message 1 in UE-OP-B-1.

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.
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.
As regards the message 23, please refer to the message 1 in UE-SE-B-2.

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 stopping re-transmission.>

As regards the message 26-29, please refer to the message 3-6 in UE-SE-B-2.

30. 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: 2 BYE

Content-Length: 0

As regards the message 31, please refer to the message 6 in UE-SE-B-2.
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.

[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 17.1.1.2]

*5: 28 ACK from NUT to P-CSCF.

See generic_ACK

4.7.2 UE-RR-B-2 - Receiving 181 response (Call transfer by S-CSCFa2 to UEa2')

[NAME]

UE-RR-B-2 - 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)]

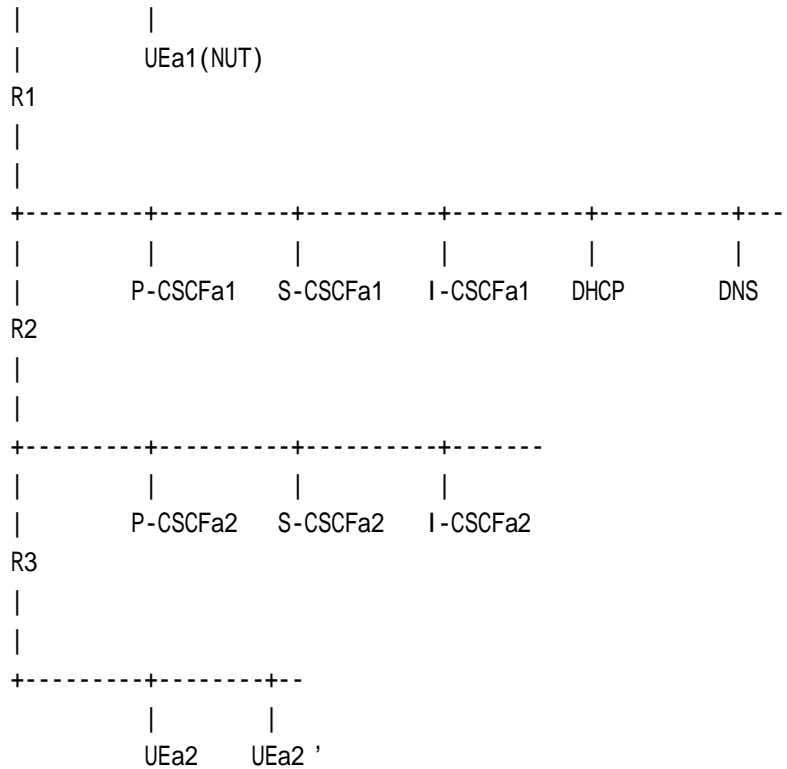
public-user-id	:	sip:UEa2_public_1@under.test.com
P-CSCFa1	:	sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT)	:	3ffe:501:ffff:1000::1000
Router(R1)	:	3ffe:501:ffff:1000::1
P-CSCFa1	:	3ffe:501:ffff:100::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
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

[TOPOLOGY]

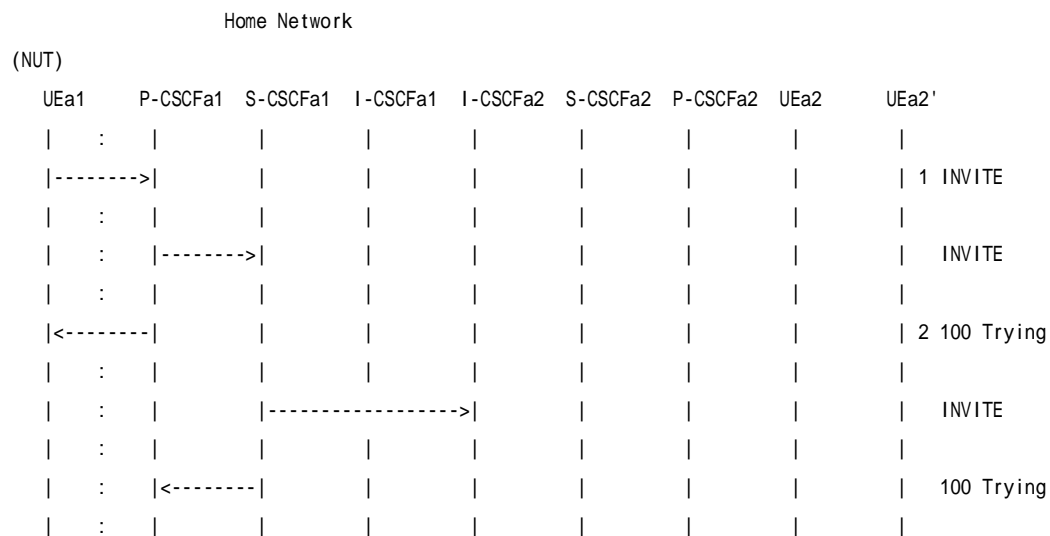
+-----+-----

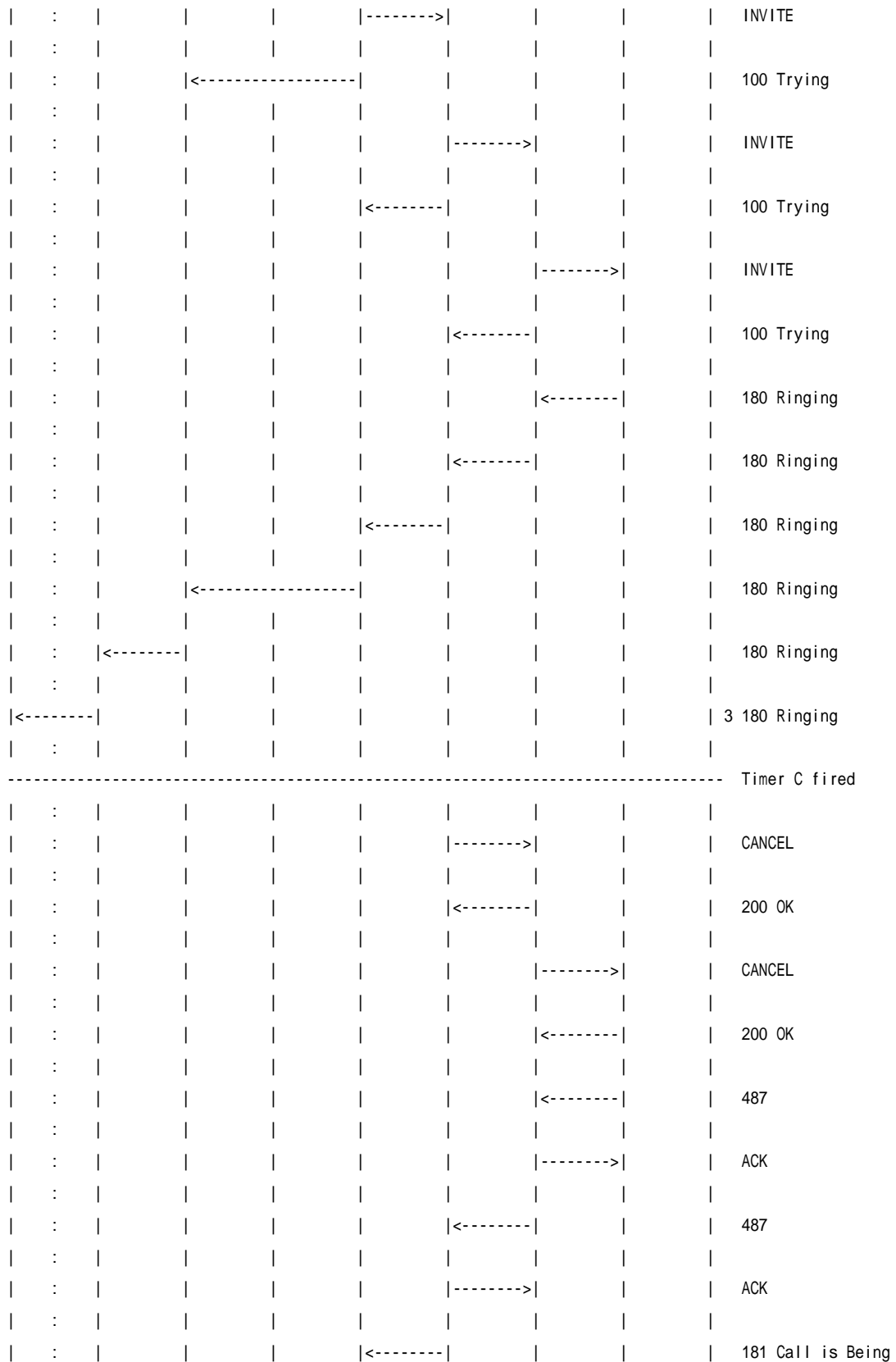


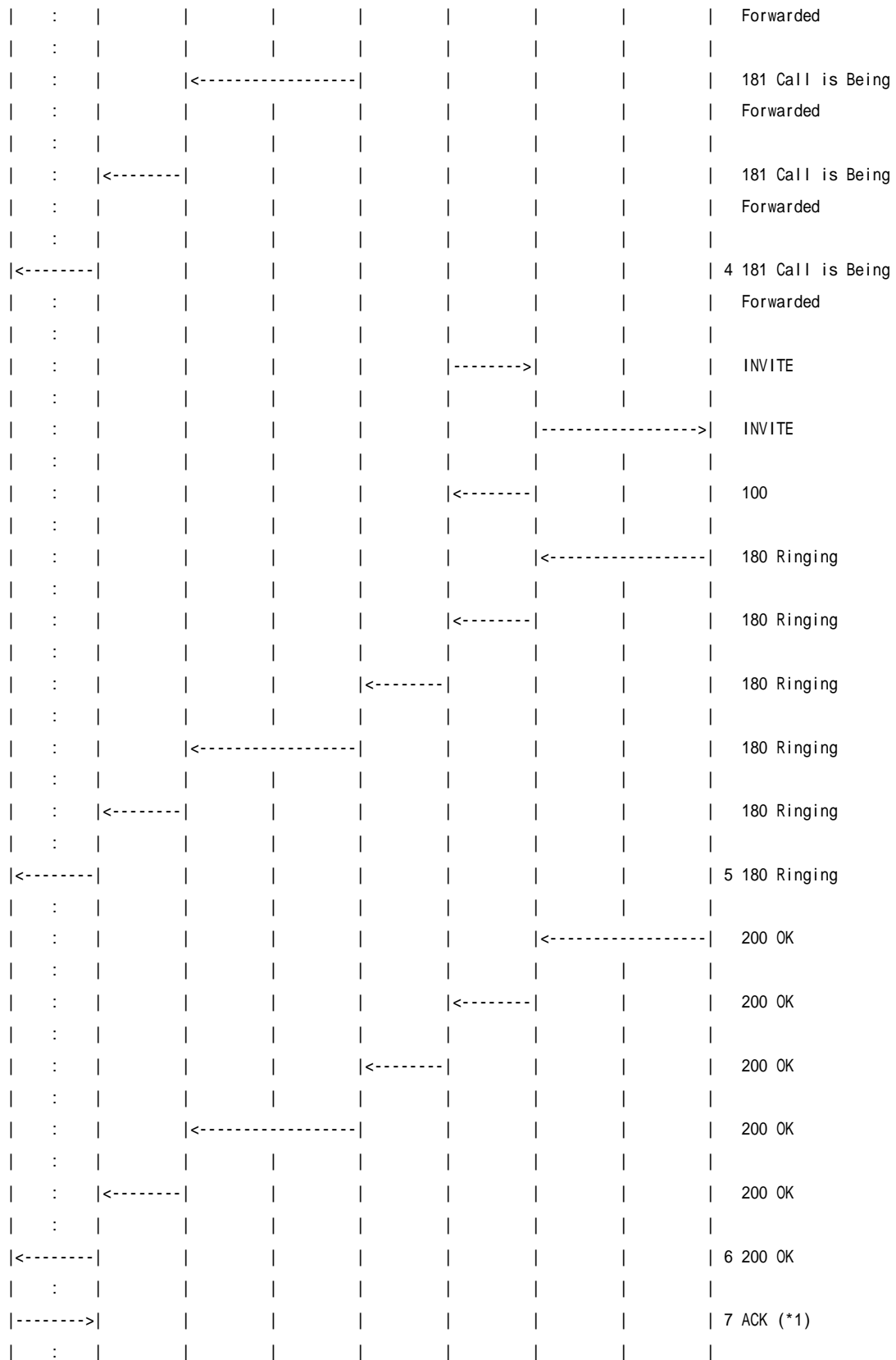
[INITIALIZATION]

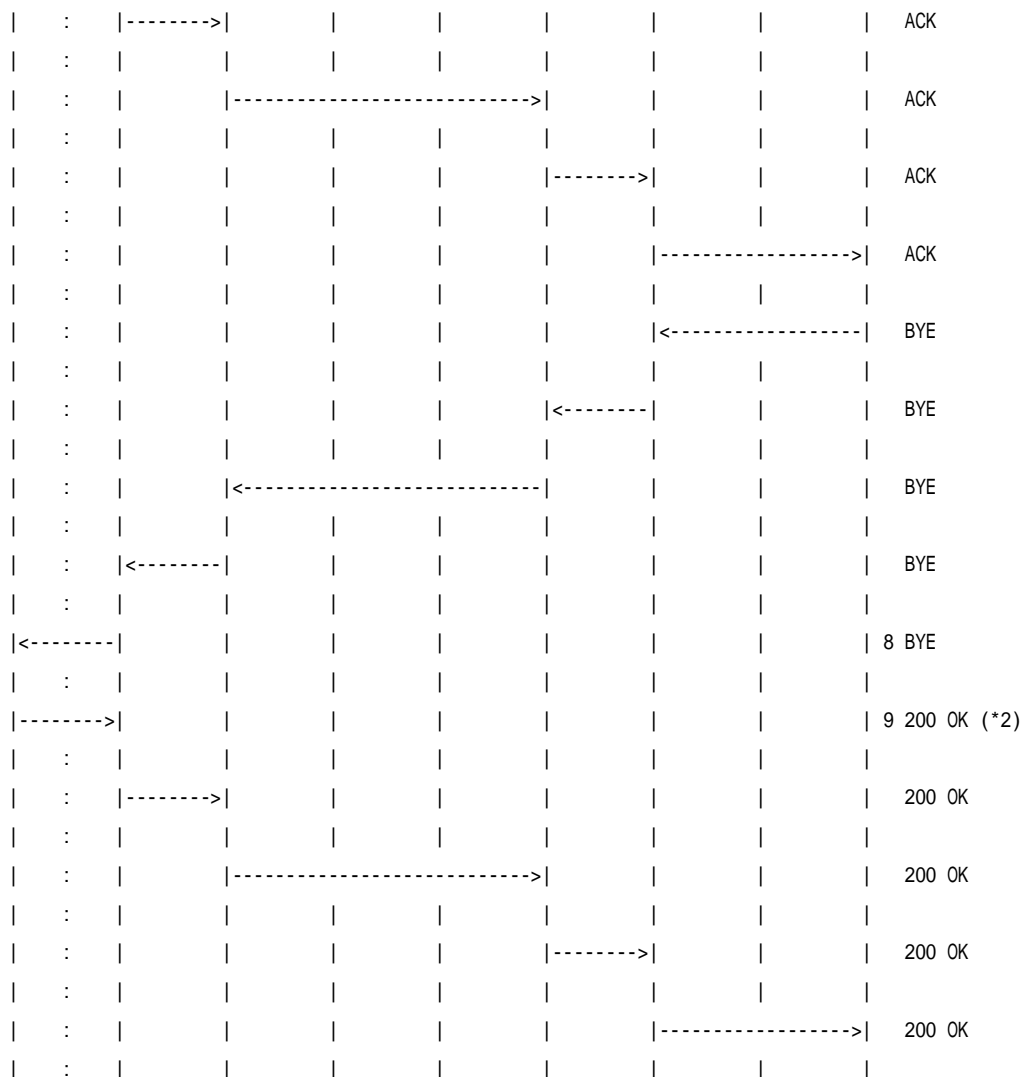
UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]









- 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.

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

s=

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 - Receiving 182 response (Request is queued by P-CSCFa2)

[NAME]

UE-RR-B-3 - 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)]

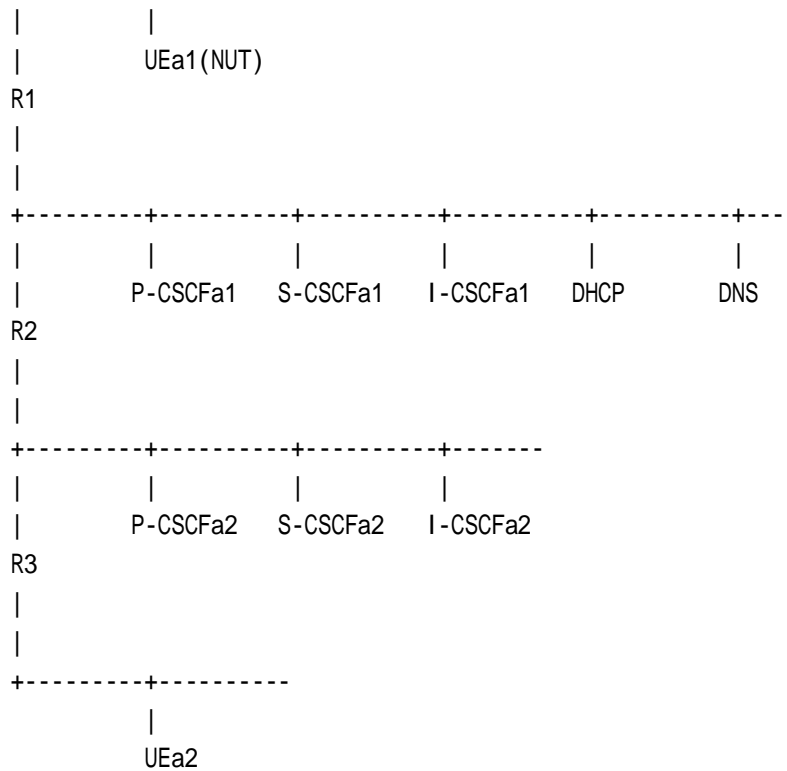
public-user-id(UEa2)	:	sip:UEa2_public_1@under.test.com
P-CSCFa1	:	sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT)	:	3ffe:501:ffff:1000::1000
Router(R1)	:	3ffe:501:ffff:1000::1
P-CSCFa1	:	3ffe:501:ffff:100::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

[TOPOLOGY]

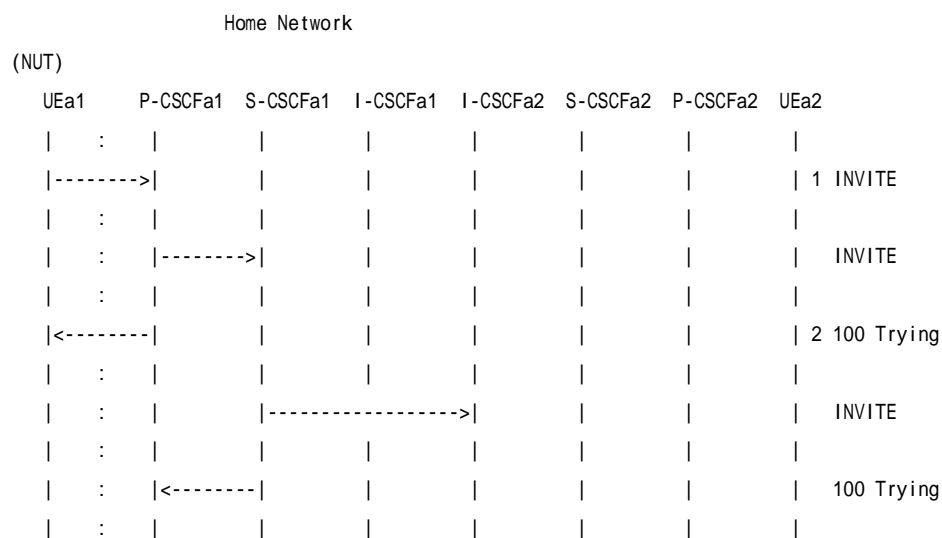
+-----+-----

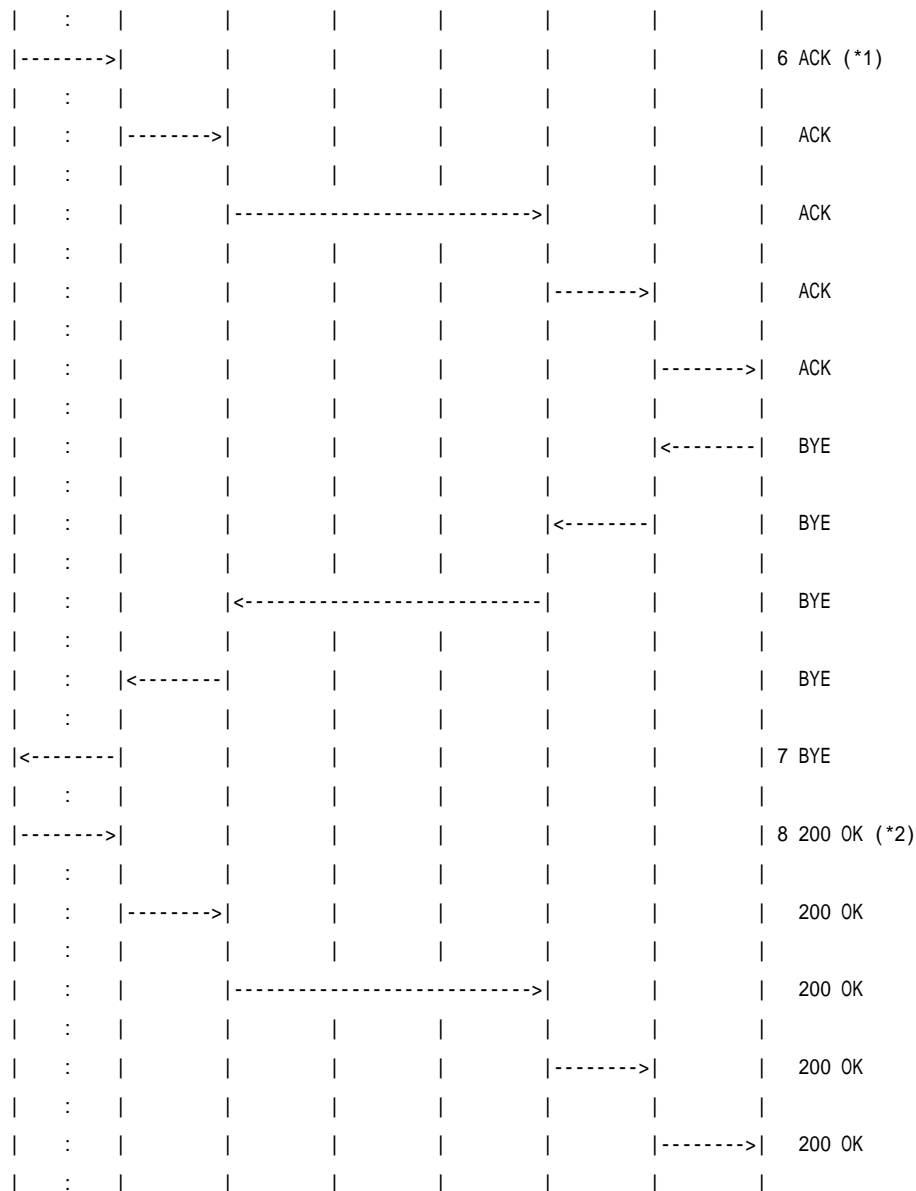


[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





- 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.

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>;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.

[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 - Receiving 183 responsee

[NAME]

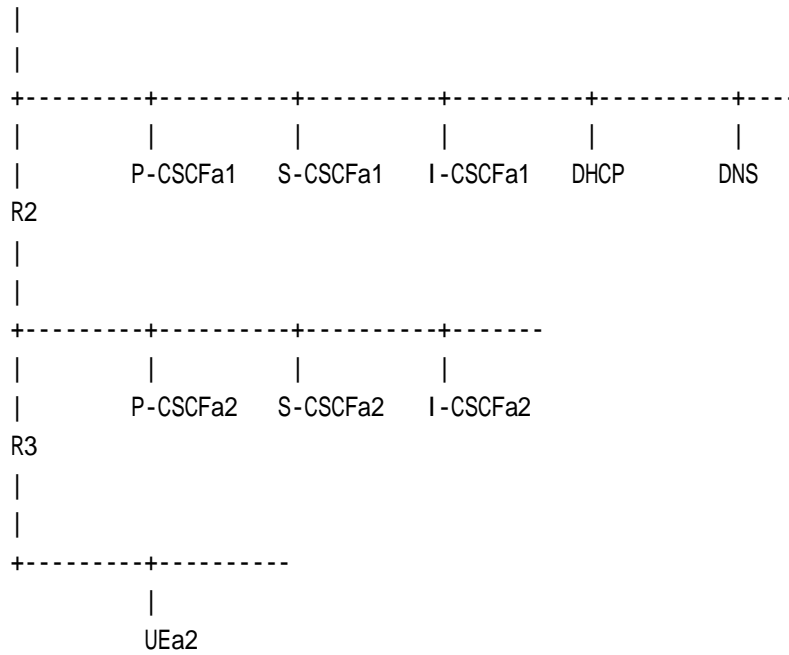
UE-RR-B-4 - Receiving 183 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

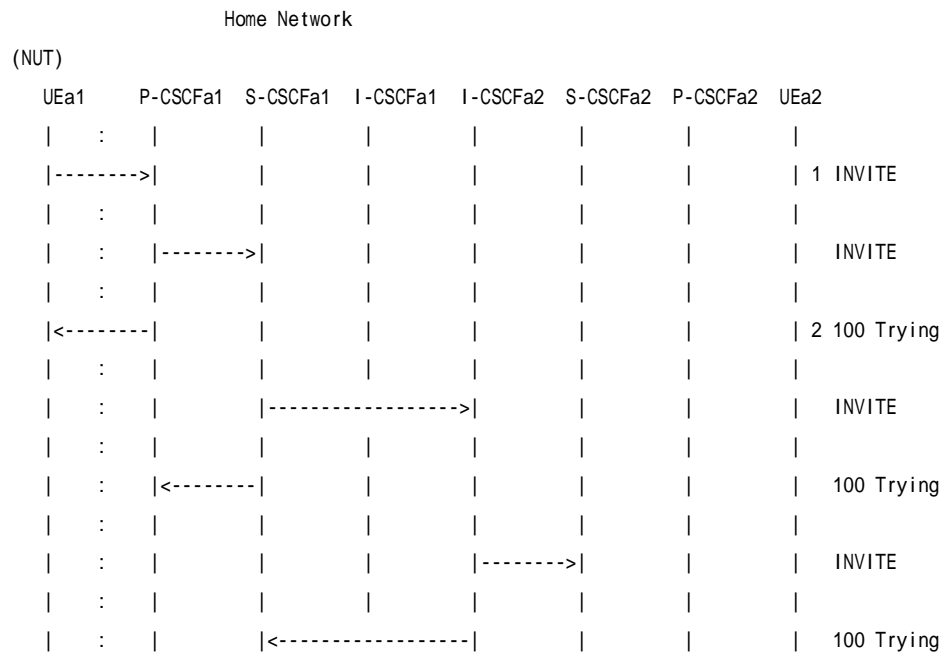
To verify that the UEa1 properly process a 183 (Session Progress) response, and verify that the UEa1 properly process a 200 (OK) response and creates an ACK request and a 200 (OK) response to BYE.

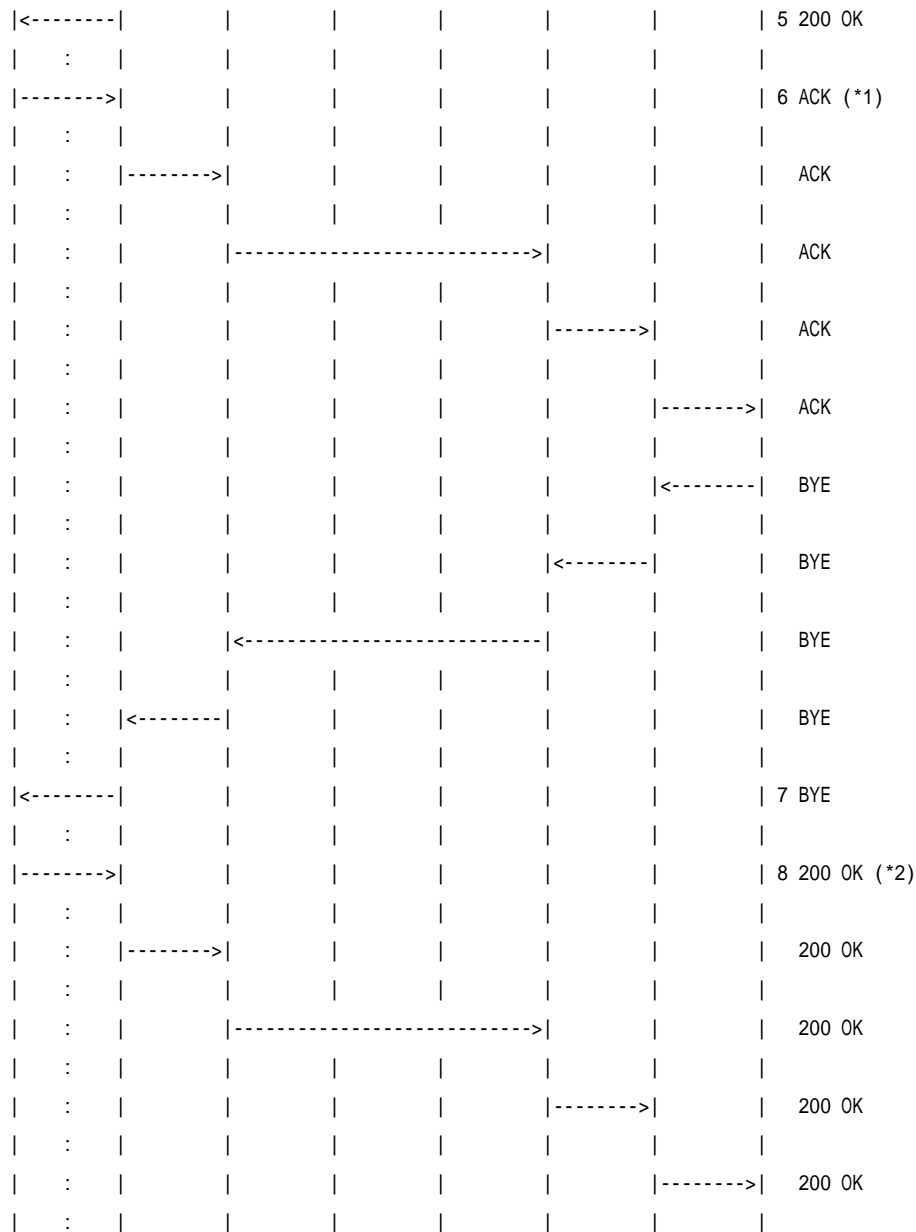


[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





- IPv6 FORUM TECHNICAL DOCUMENT*



=== Message example ===

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

4. 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 5-8, please refer to the message 4-7 in UE-SE-B-1.

[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 - Receiving 202 response

[NAME]

UE-RR-B-5 - 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

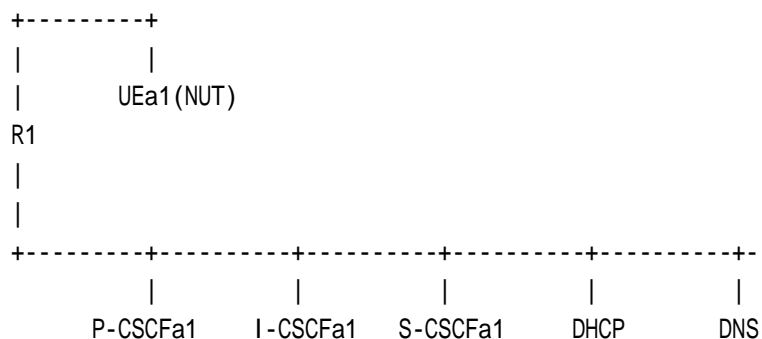
[PARAMETER(TESTER)]

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::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

[TOPOLOGY]





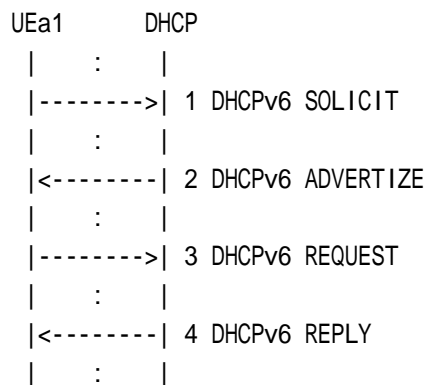
[INITIALIZATION]

Set up IP Address by A or B.

A. Router Advertisement

B. DHCPv6

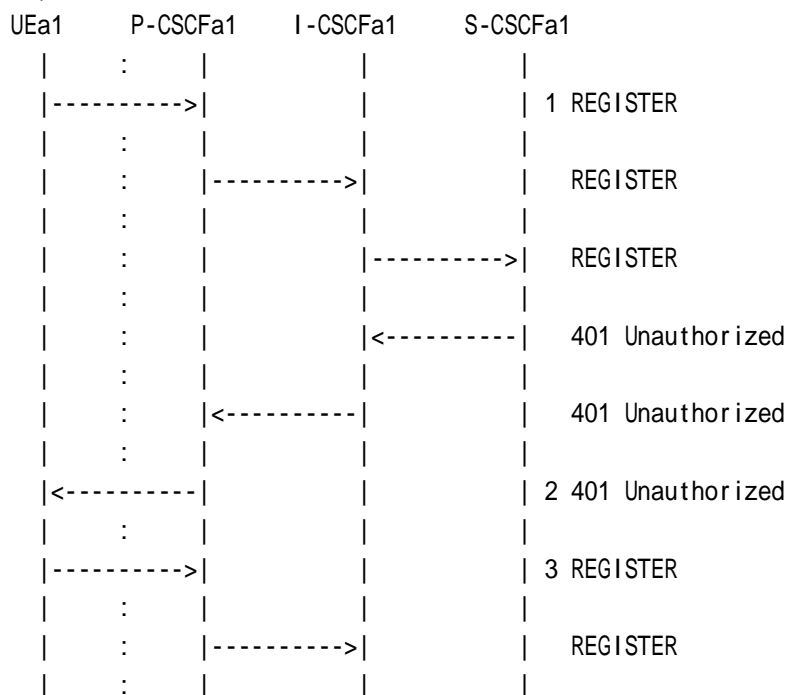
(NUT)

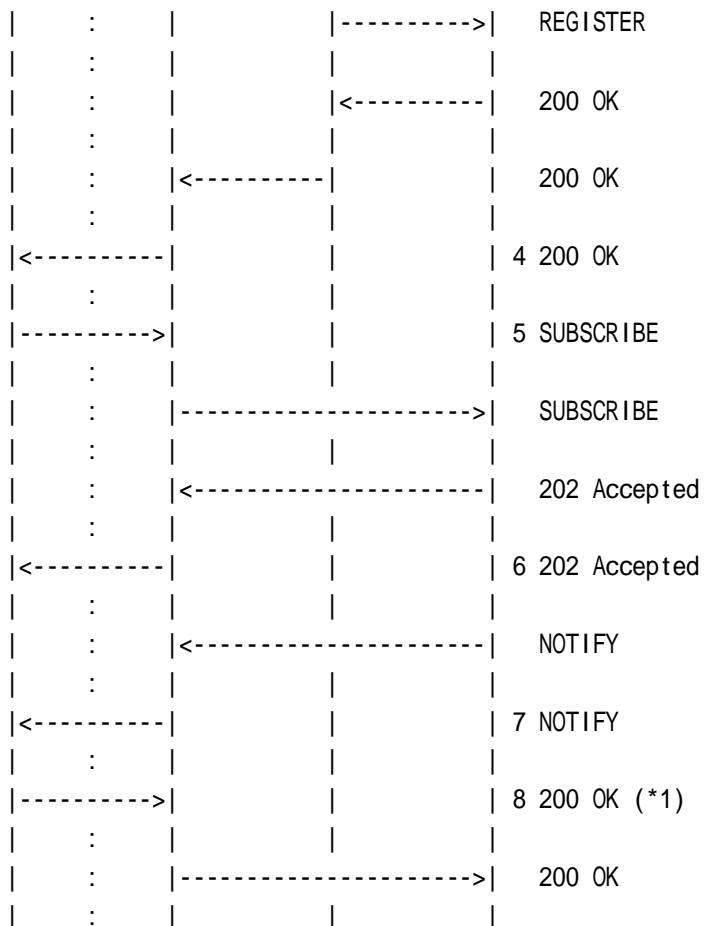


[PROCEDURE]

Home Network

(NUT)





- 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.

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
Allow-Events: reg
Expires: 600000
Contact: <sip:s.a1.under.test.com>
Content-Length: 0

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

[OBSERVABLE RESULTS]

*1: 8 NOTIFY 200 OK from NUT to P-CSCF.

See generic_200-NOTIFY

4.7.6 UE-RR-B-6 - Receiving 400 response

[NAME]

UE-RR-B-6 - Receiving 400 response

[TARGET]

IMS User Equipment (NUT)

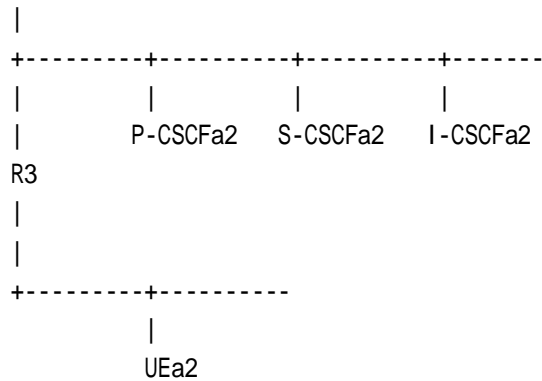
[PURPOSE]

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]



[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]

Home Network								
(NUT)	UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
	:							
	----->							1 INVITE
	:							
	<-----							2 400 Bad Request
	:							
	----->							3 ACK (*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.

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
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

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 - Receiving 404 response

[NAME]

UE-RR-B-7 - Receiving 404 response

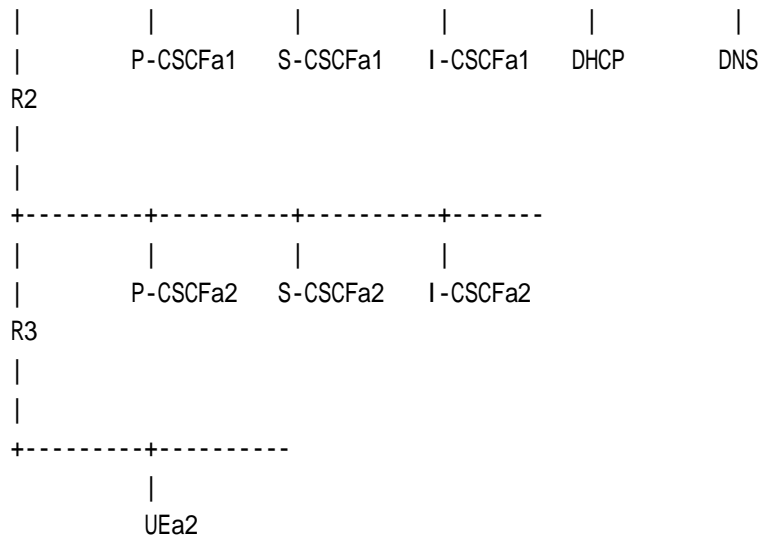
[TARGET]

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.

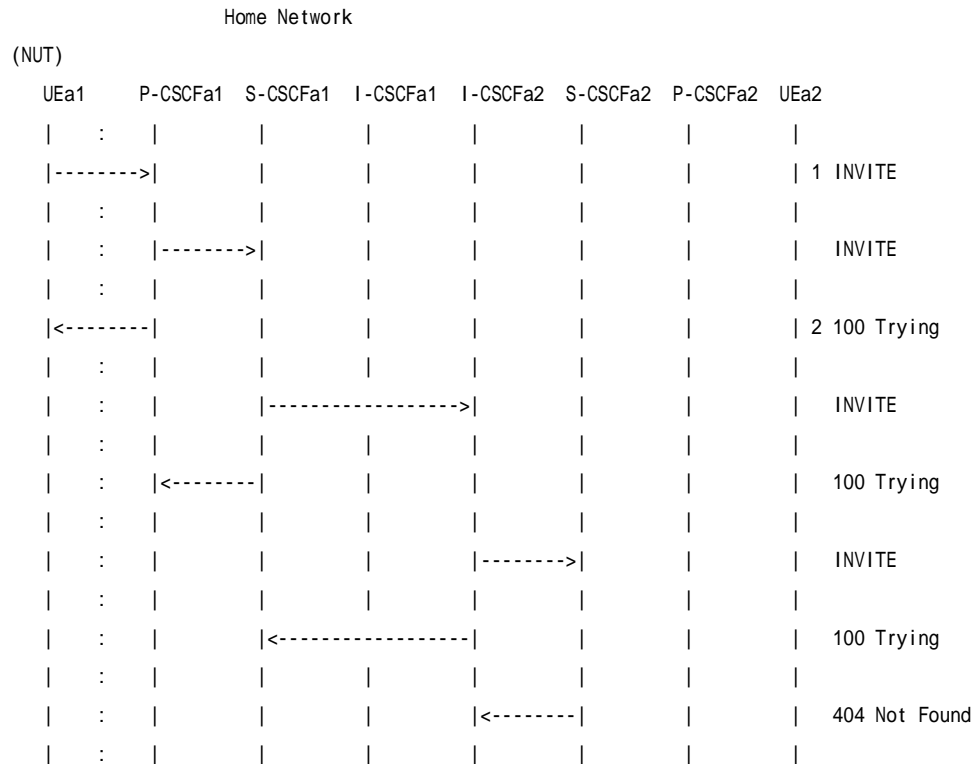
[REFERENCE]

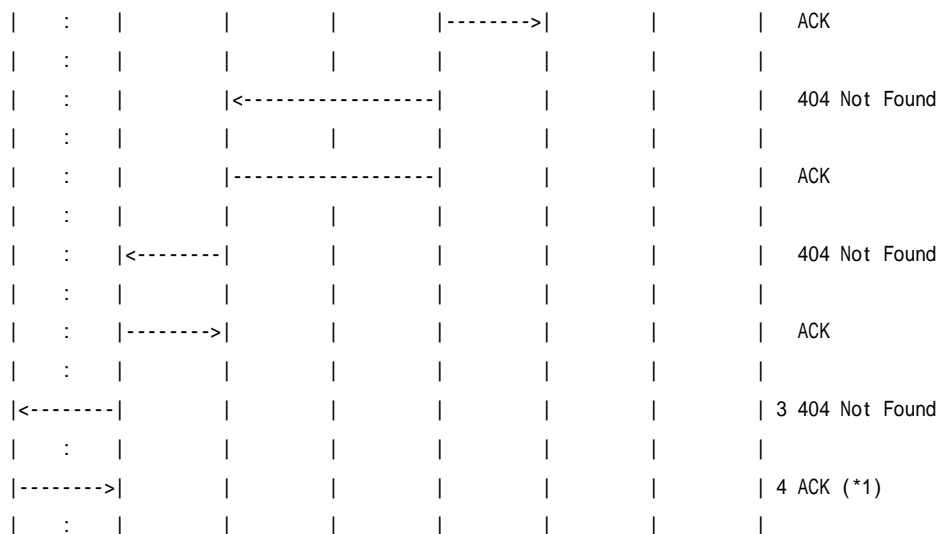


[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





- === Message example ===

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-SR-B-8 - Receiving 405 response

[NAME]

UE-RR-B-8 - 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)]

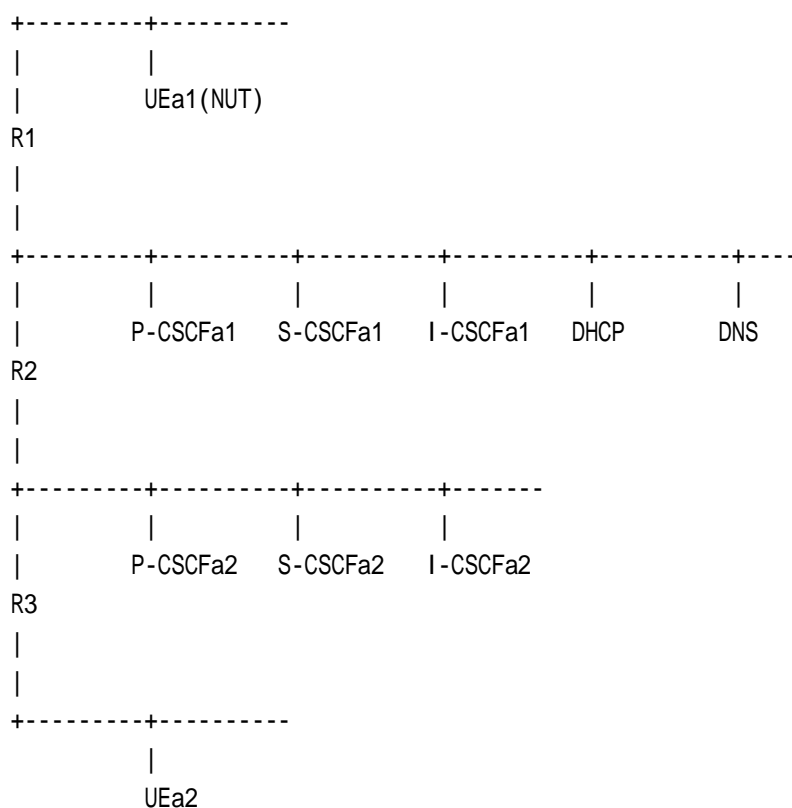
public-user-id(UEa2) : sip:UEa2_public_1@under.test.com
P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000
Router(R1) : 3ffe:501:ffff:1000::1
P-CSCFa1 : 3ffe:501:ffff:100::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

[TOPOLOGY]

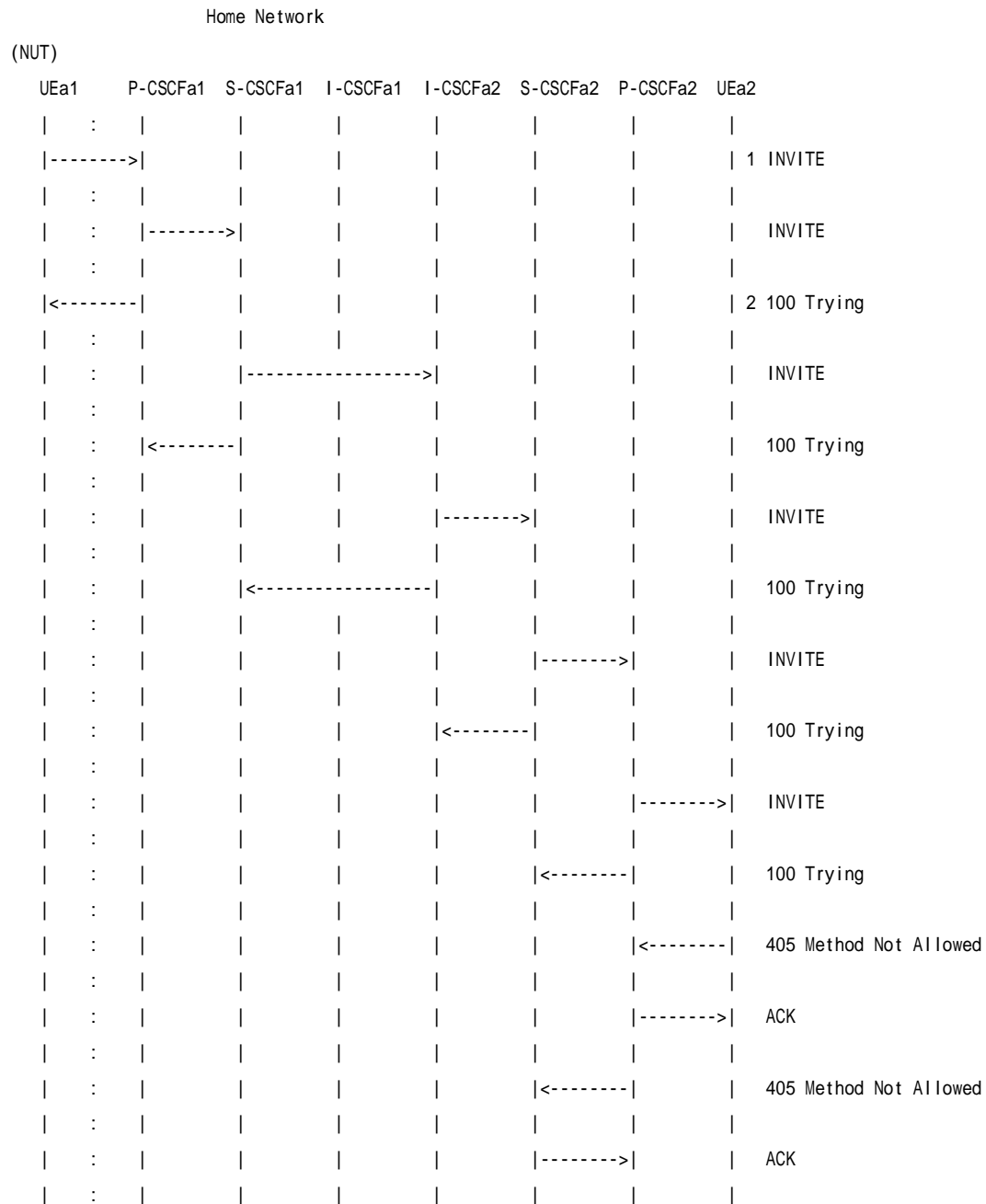




[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





	:				<-----			405 Method Not Allowed
	:							
	:				----->			ACK
	:							
	:		<-----					405 Method Not Allowed
	:							
	:		-----					ACK
	:							
	:	<-----						405 Method Not Allowed
	:							
	:	----->						ACK
	:							
<-----								3 405 Method Not Allowed
	:							
----->								4 ACK (*1)
	:							

- 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.

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

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

Allow: INVITE

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

4.7.9 UE-RR-B-9 - Receiving 406 response

[NAME]

UE-RR-B-9 - 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)]

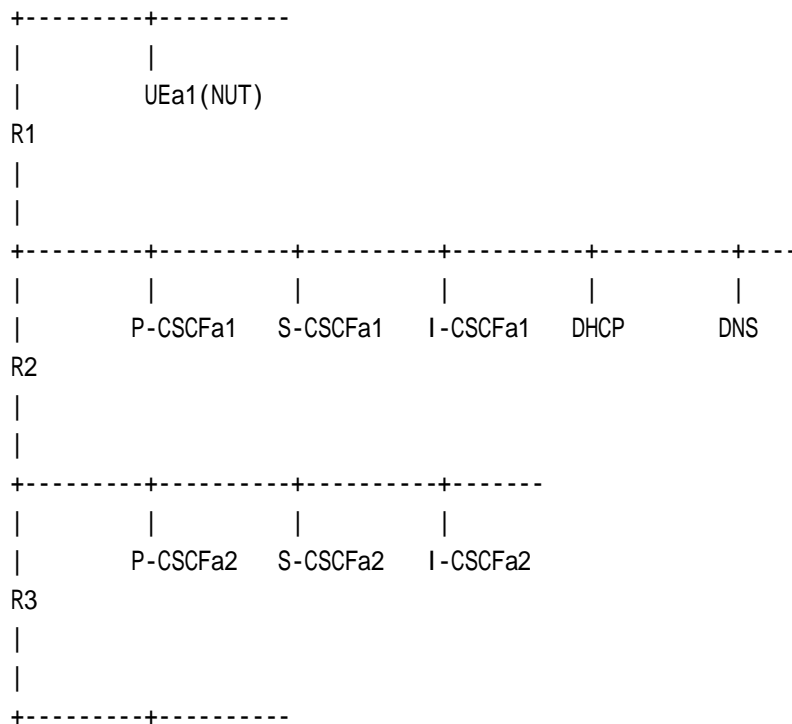
public-user-id(UEa2) : sip:UEa2_public_1@under.test.com
P-CSCFa1 : sip:p.a1.under.test.com

[ADDRESS]

UEa1(NUT) : 3ffe:501:ffff:1000::1000
Router(R1) : 3ffe:501:ffff:1000::1
P-CSCFa1 : 3ffe:501:ffff:100::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

[TOPOLOGY]





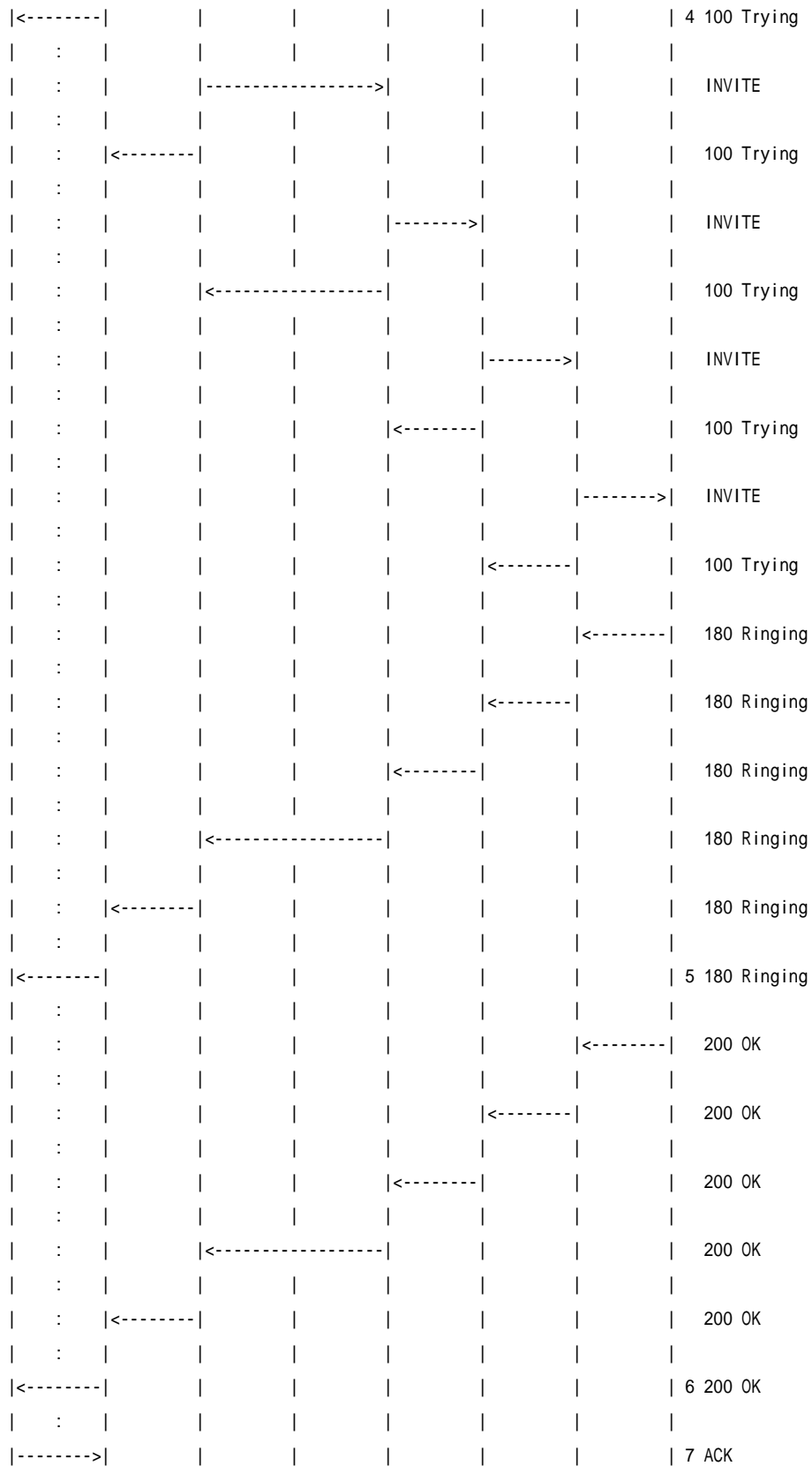
|
UEa2

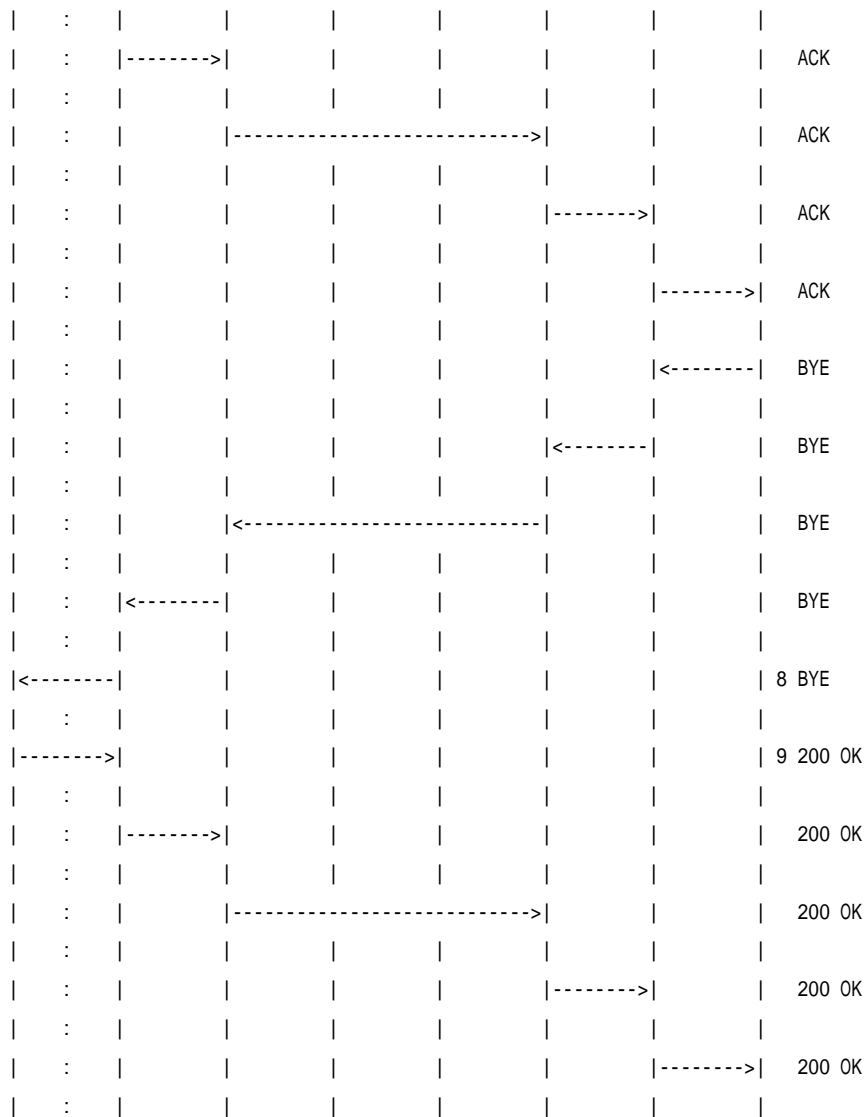
[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]

Home Network								
(NUT)	UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
	:							
	----->							1 OPTIONS
	:							
	:	----->						OPTIONS
	:							
	:		----->					OPTIONS
	:							
	:				----->			OPTIONS
	:							
	:					----->		OPTIONS
	:							
	:						----->	OPTIONS
	:							
	:						<-----	406 Not Acceptable
	:							
	:					<-----		406 Not Acceptable
	:							
	:				<-----			406 Not Acceptable
	:							
	:		<----->					406 Not Acceptable
	:							
	<----->							2 406 Not Acceptable
	:							
	----->							3 INVITE (*1)
	:							
	:	----->						INVITE
	:							





- 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.

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

Call-ID: 3848276298220188522@under.test.com

From: <sip:UEa1_public_1@under.test.com>;tag=9fxced76tm

To: <sip:UEa2_public_1@under.test.com>;tag=314071

CSeq: 1 OPTIONS

Content-Length: 0

As regards the message 3-9, please refer to the message 1-7 in UE-SE-B-1.

[OBSERVABLE RESULTS]

*1: 3 INVITE from NUT to P-CSCF.

See generic_INVITE

4.7.10 UE-RR-B-10 - Receiving 410 response

[NAME]

UE-RR-B-10 - Receiving 410 response

[TARGET]

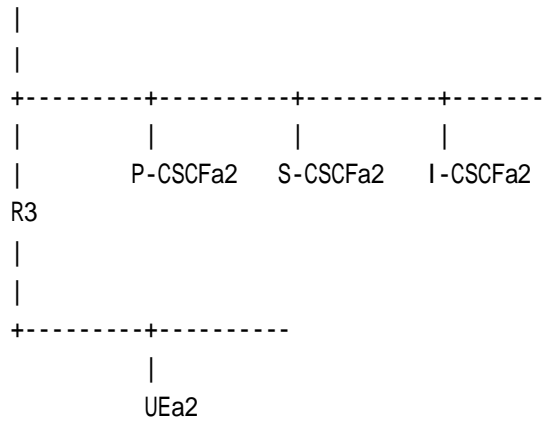
IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 410 (Gone) response,
and verify that the UEa1 properly creates an ACK request.

[REFERENCE]

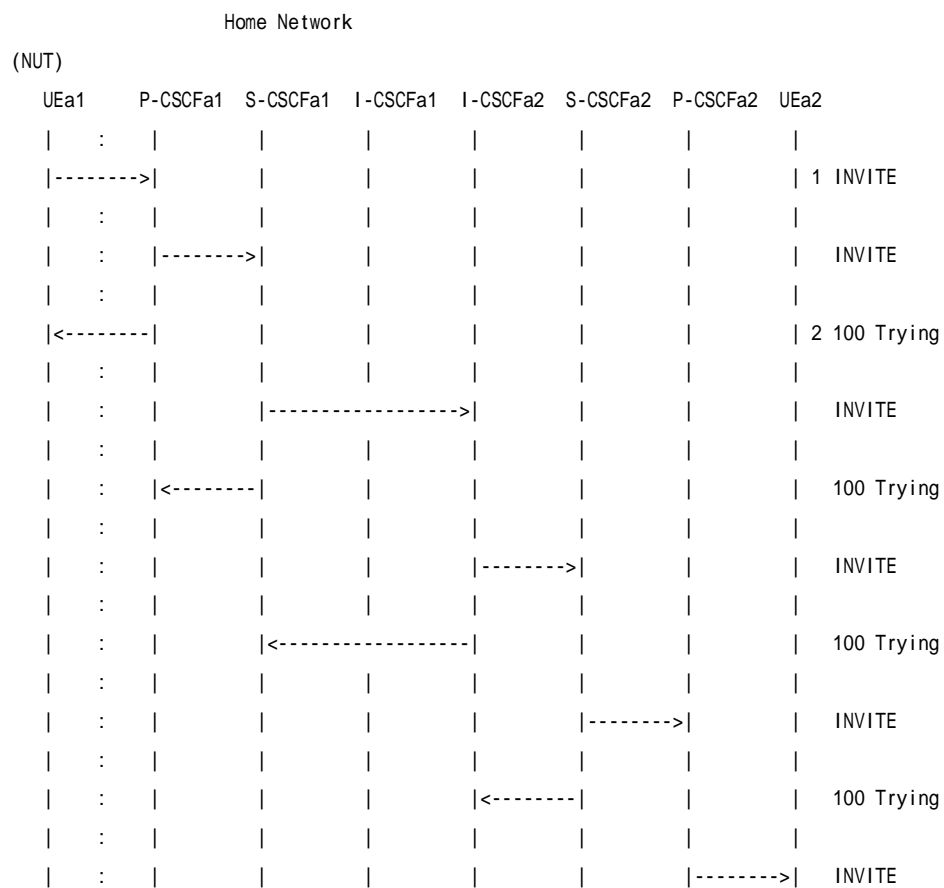
TS24.229 A.2.1.4.1

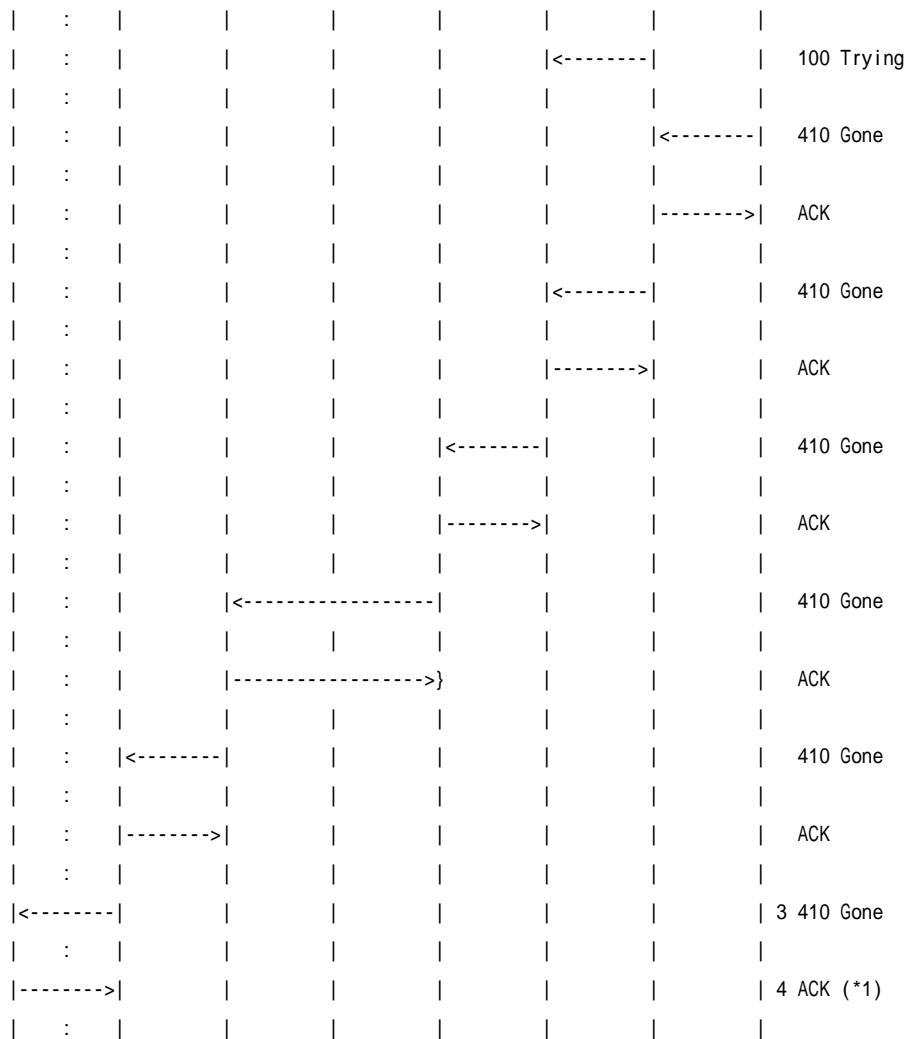


[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





- 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.

3. 410 Gone P-CSCF -> NUT

SIP/2.0 410 Gone

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

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.11 UE-RR-B-11 - Receiving 413 response

[NAME]

UE-RR-B-11 - Receiving 413 response

[TARGET]

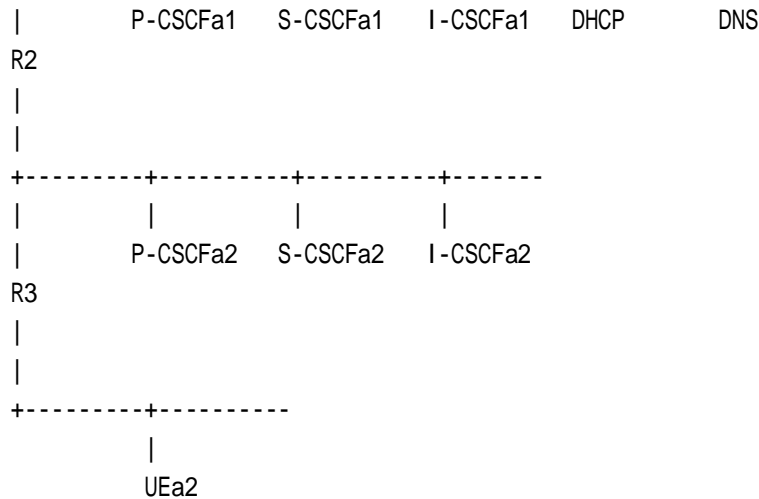
IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process a 413 (Request Entity Too Large) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE]

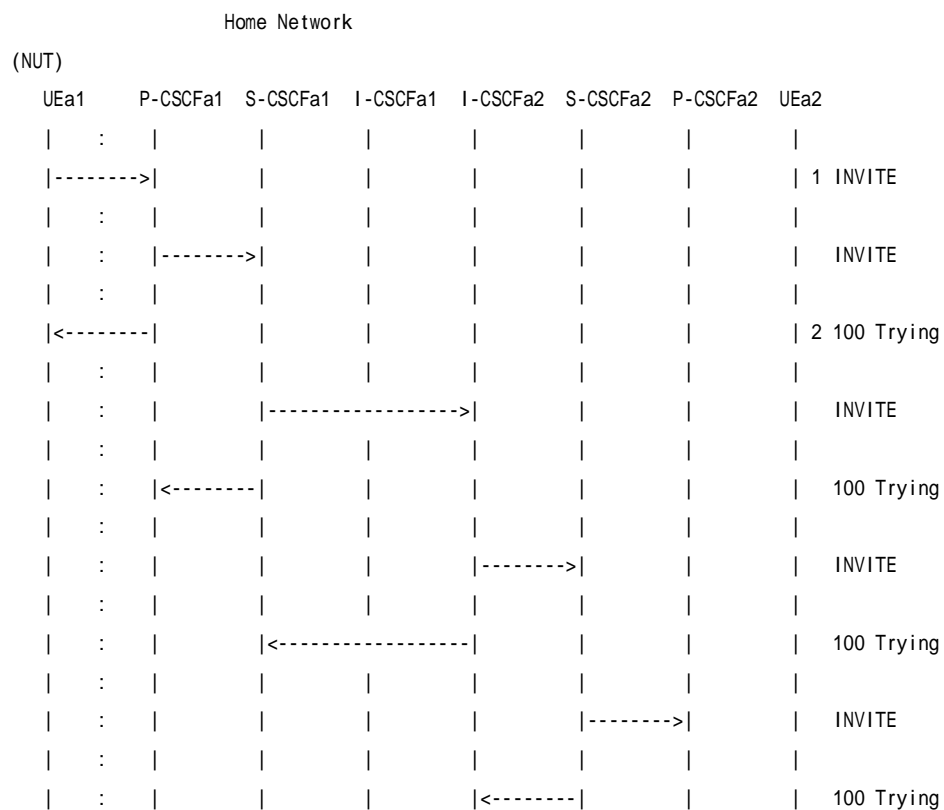
TS24.229 A.2.1.4.1



[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1.

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

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

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 - Receiving 414 response

[NAME]



UE-RR-B-12 - 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

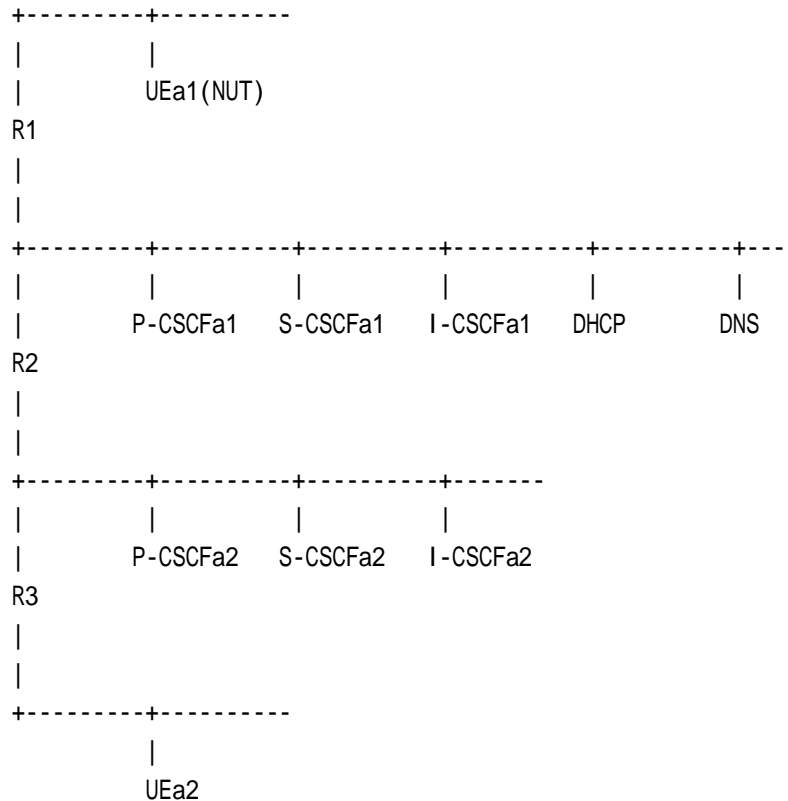
[ADDRESS]

UEa1(NUT)	:	3ffe:501:ffff:1000::1000
Router(R1)	:	3ffe:501:ffff:1000::1
P-CSCFa1	:	3ffe:501:ffff:100::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

[TOPOLOGY]



[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]

Home Network								
(NUT)	UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
	:							
	----->							1 INVITE
	:							
	<-----							2 414 Request-URI Too Large



- === Message example ===

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
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

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

*1: 3 ACK from NUT to P-CSCF.

See generic_ACK-non2XX



4.7.13 UE-RR-B-13 - Receiving 415 response

[NAME]

UE-RR-B-13 - 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

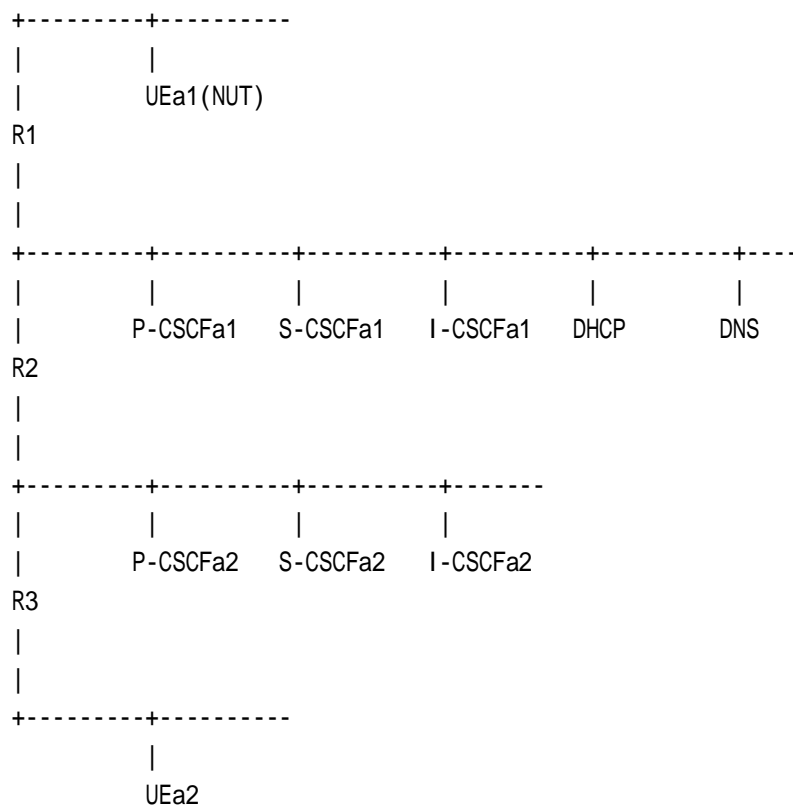
[ADDRESS]

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

[TOPOLOGY]

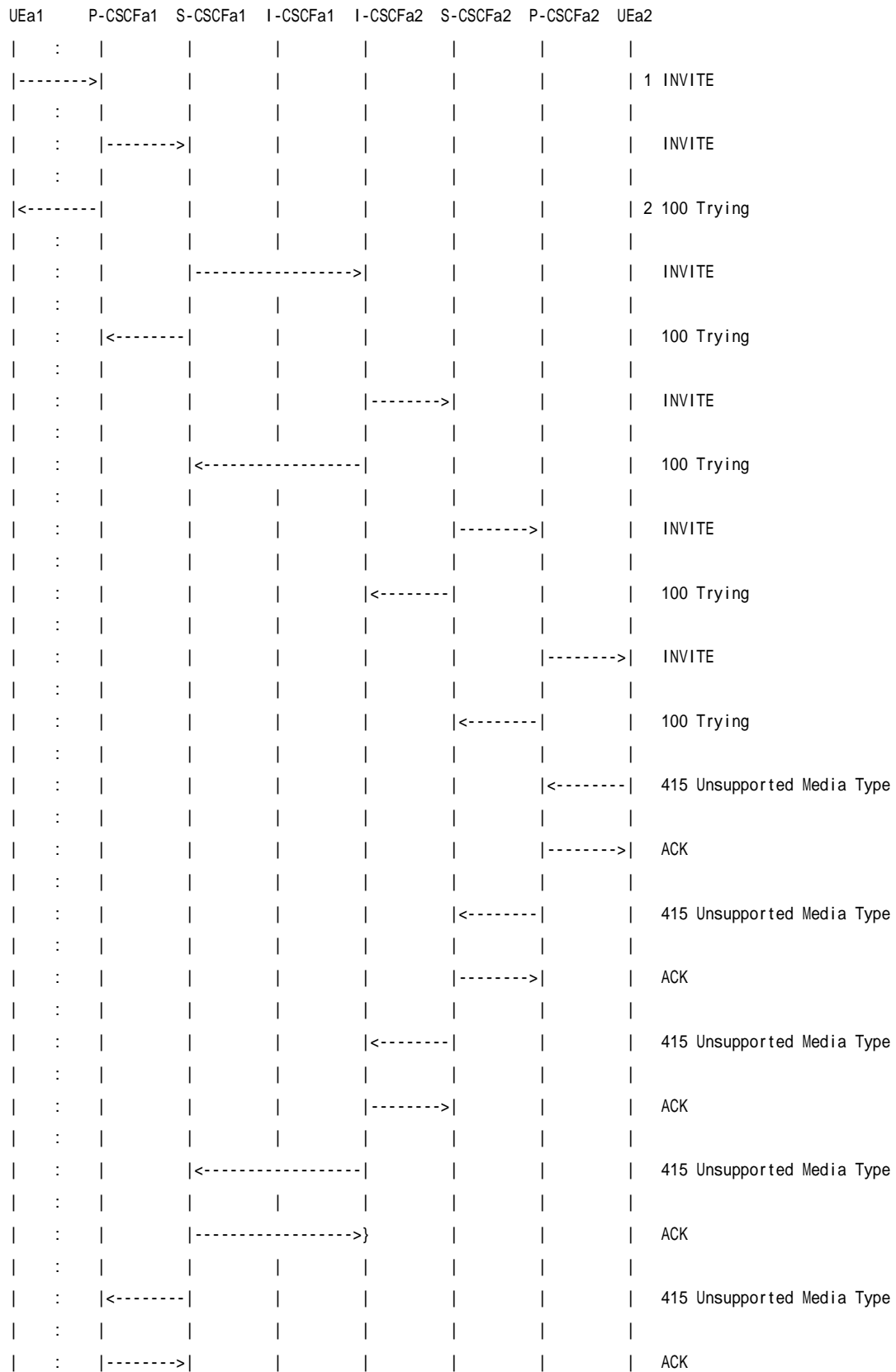


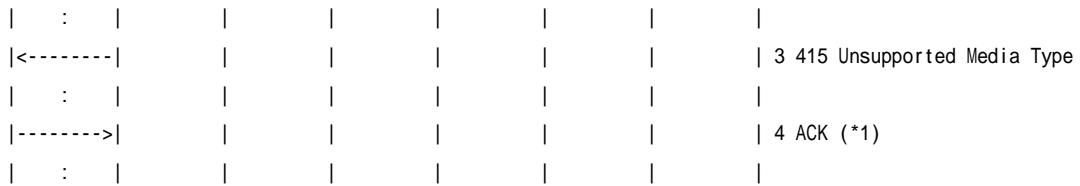
[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]

Home Network
(NUT)





- === Message example ===

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
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
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 - Response 480 response

[NAME]

UE-RR-B-14 - 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

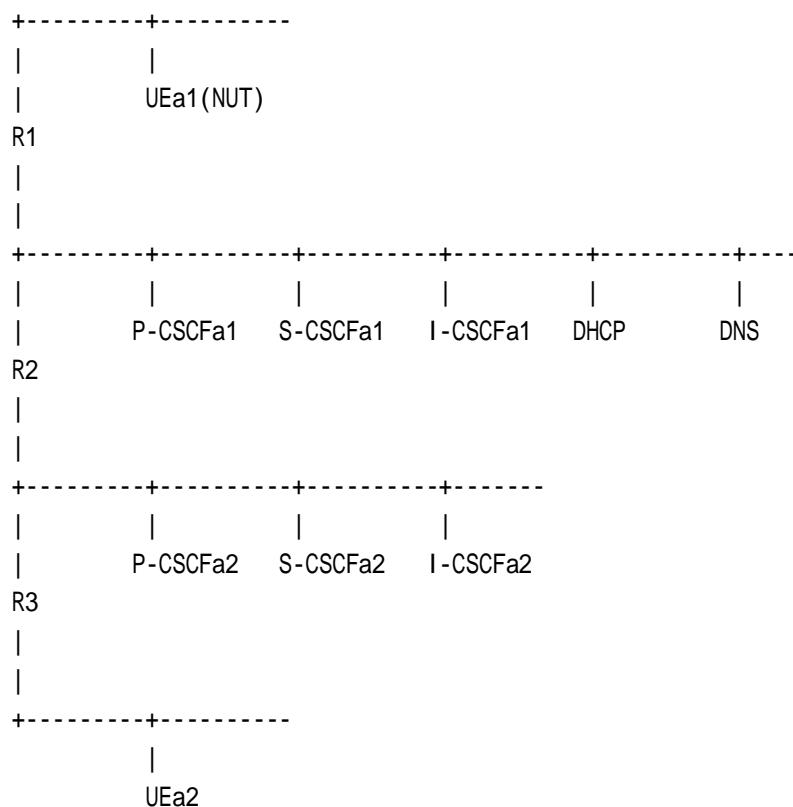
[ADDRESS]

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

[TOPOLOGY]



[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]



Home Network

(NUT)

UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
:							
----->							1 INVITE
:							
<-----							2 480 Temporarily Unavailable
:							
----->							3 ACK (*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.

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

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

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 - Receiving 482 response

[NAME]

UE-RR-B-15 - 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)]

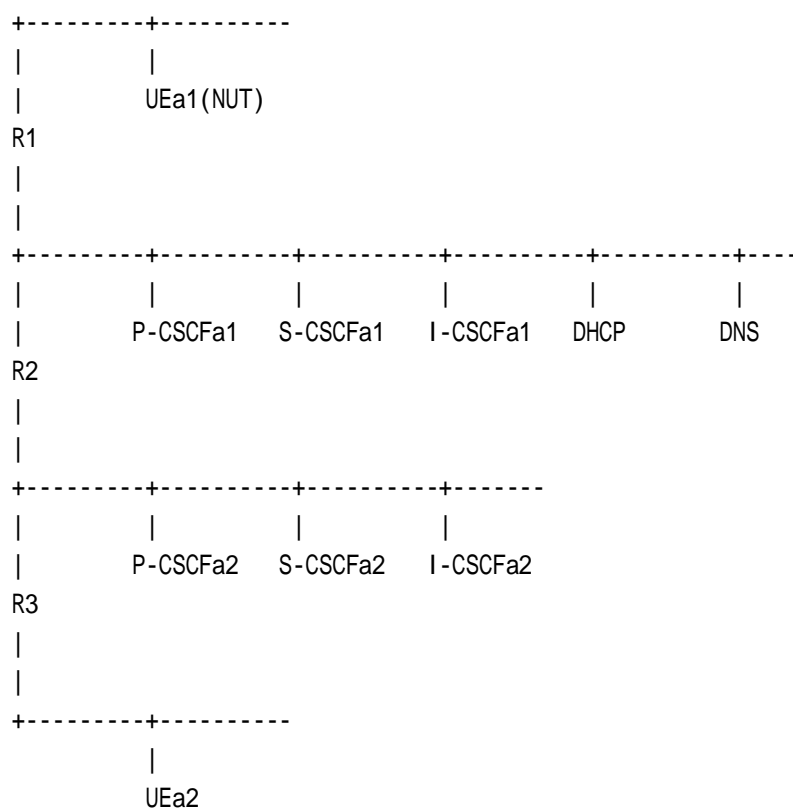
public-user-id(UEa2)	:	sip:UEa2_public_1@under.test.com
P-CSCFa1	:	sip:p.a1.under.test.com



[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

[TOPOLOGY]



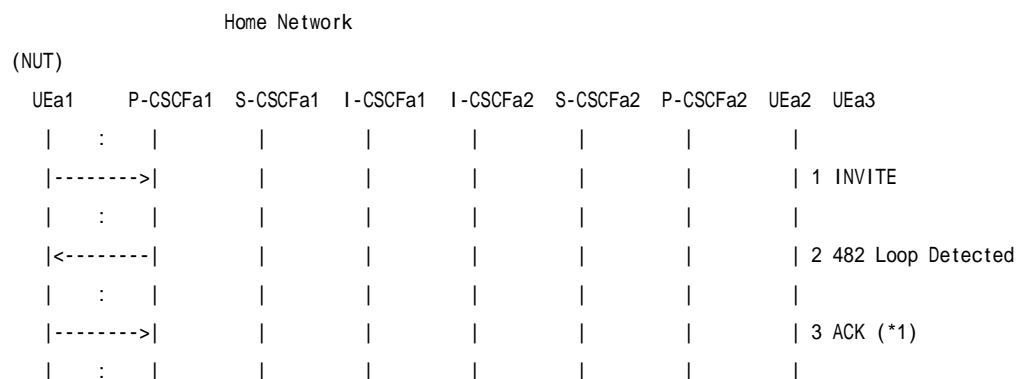
[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".



For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]



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.

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

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

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 - Receiving 483 response

[NAME]

UE-RR-B-16 - 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)]

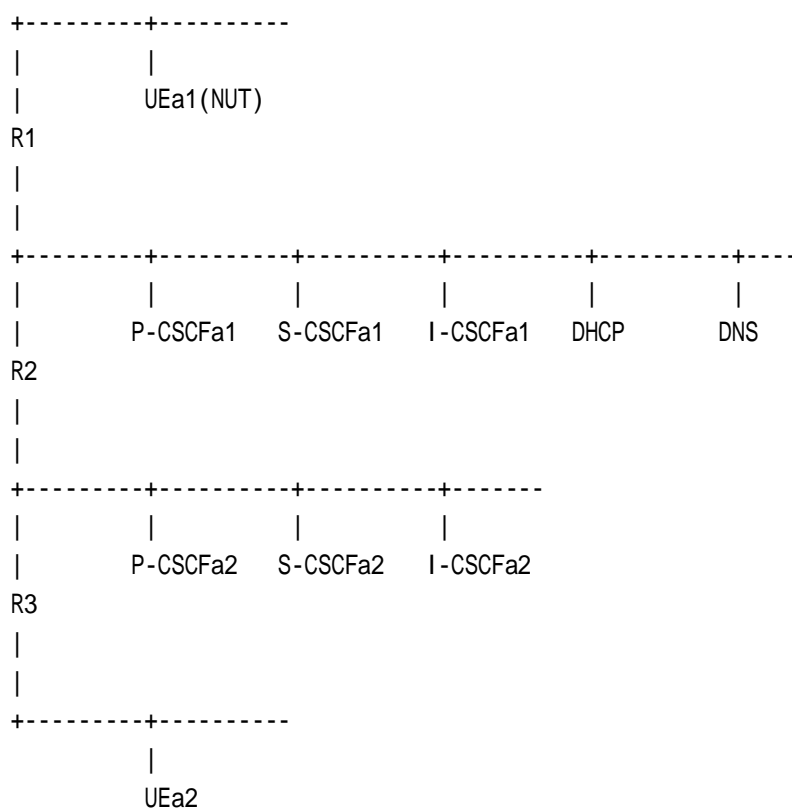
public-user-id(UEa2) : sip:UEa2_public_1@under.test.com
P-CSCFa1 : sip:p.a1.under.test.com

[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

[TOPOLOGY]

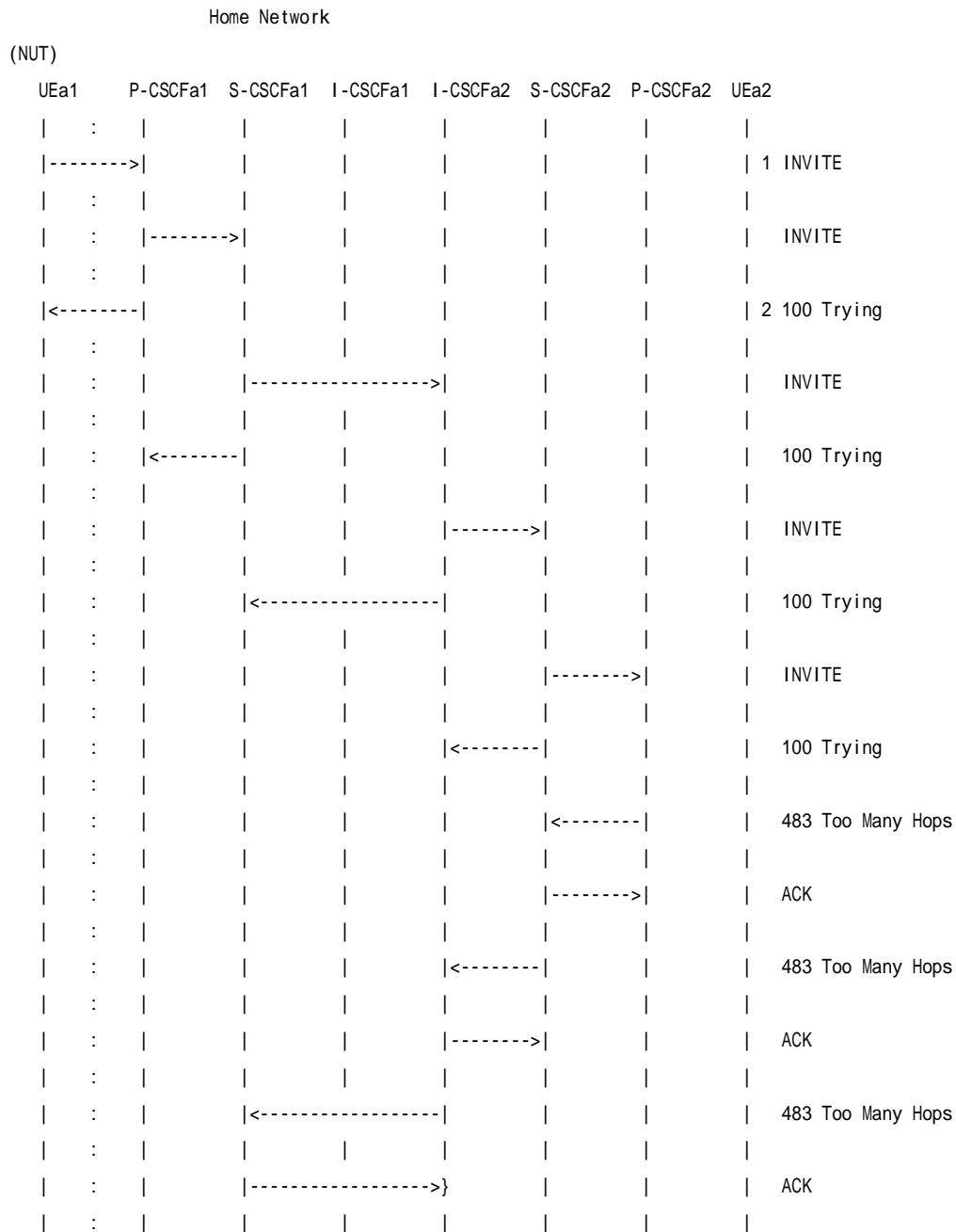




[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





	:	<-----							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.

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

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



[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.17 UE-RR-B-17 - Receiving 484 response

[NAME]

UE-RR-B-17 - 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)]

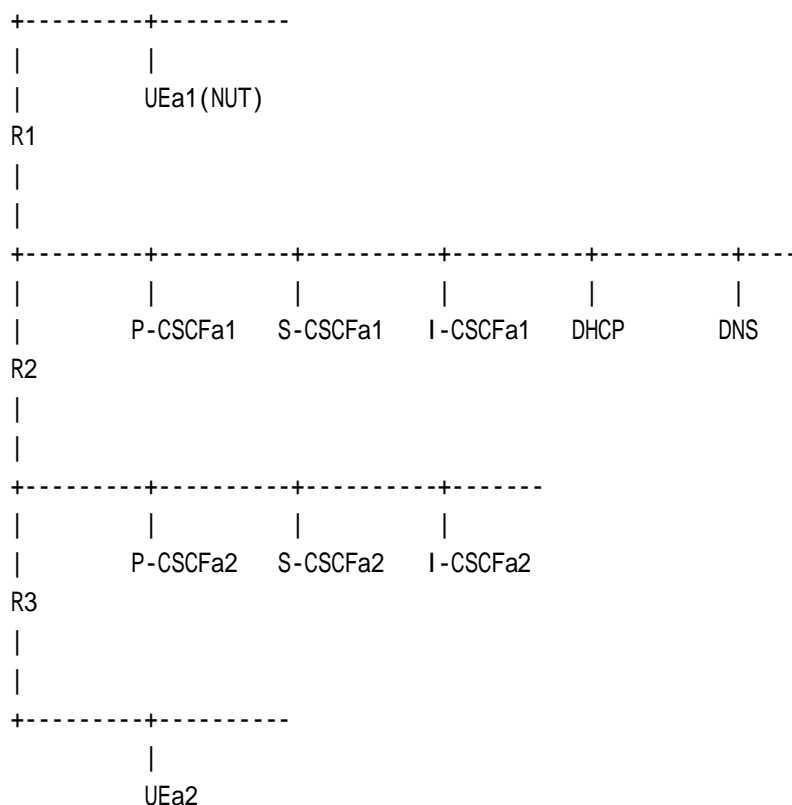
public-user-id(UEa2)	:	sip:UEa2_public_1@under.test.com
P-CSCFa1	:	sip:p.a1.under.test.com

[ADDRESS]



UEa1(NUT)	:	3ffe:501:ffff:1000::1000
Router(R1)	:	3ffe:501:ffff:1000::1
P-CSCFa1	:	3ffe:501:ffff:100::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

[TOPOLOGY]

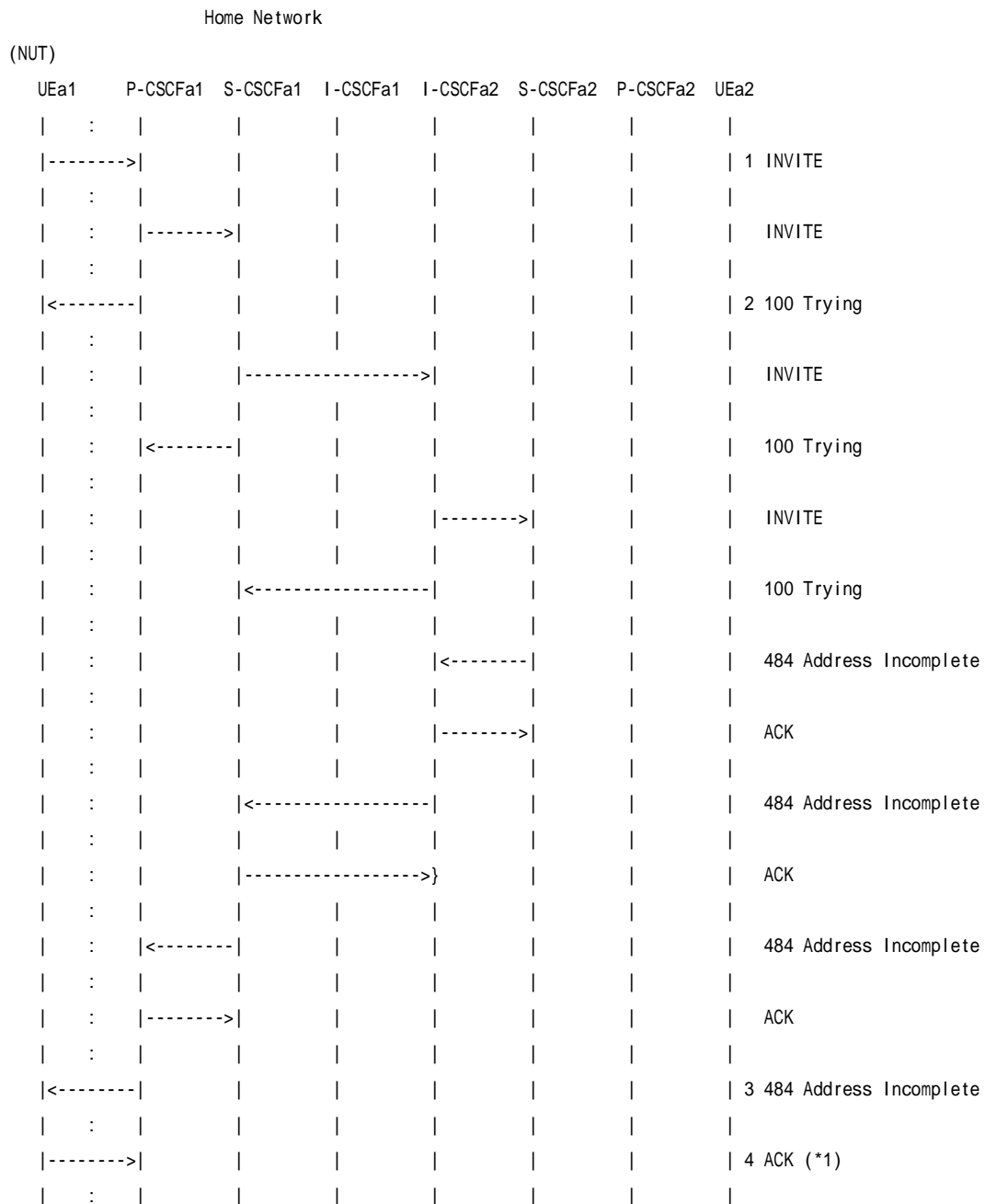


[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.



[PROCEDURE]



- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 484 Address Incomplete
- 4 NUT sends ACK



=== Message example ===

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1.

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

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

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.18 UE-RR-B-18 - Receiving 485 response

[NAME]

UE-RR-B-18 - 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

[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

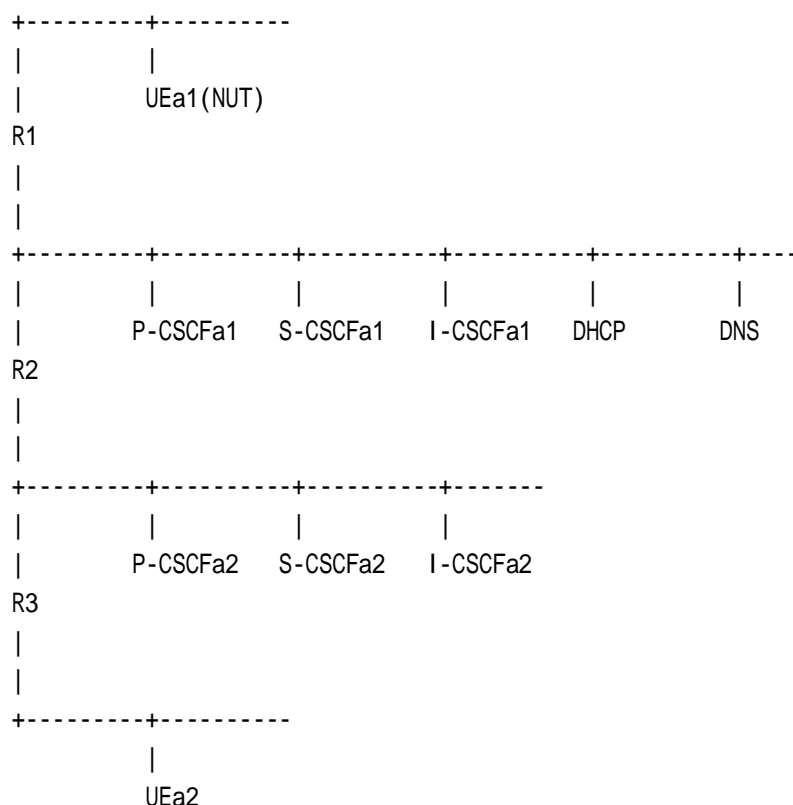
[PARAMETER(TESTER)]

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

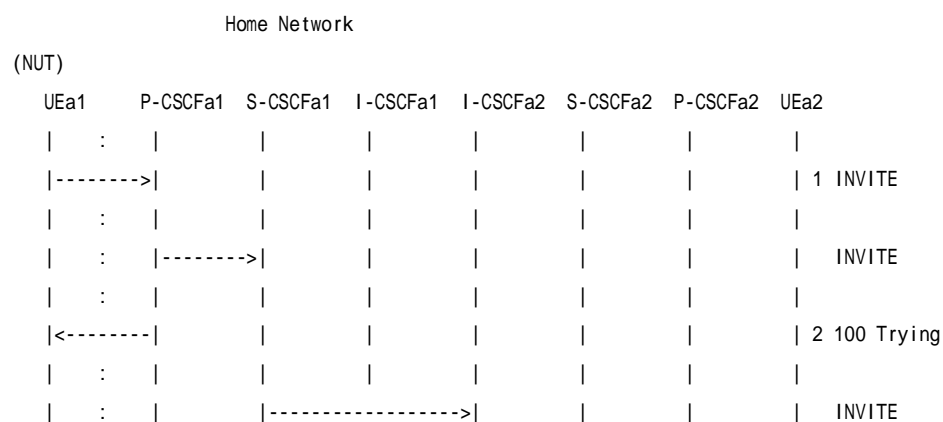
[TOPOLOGY]

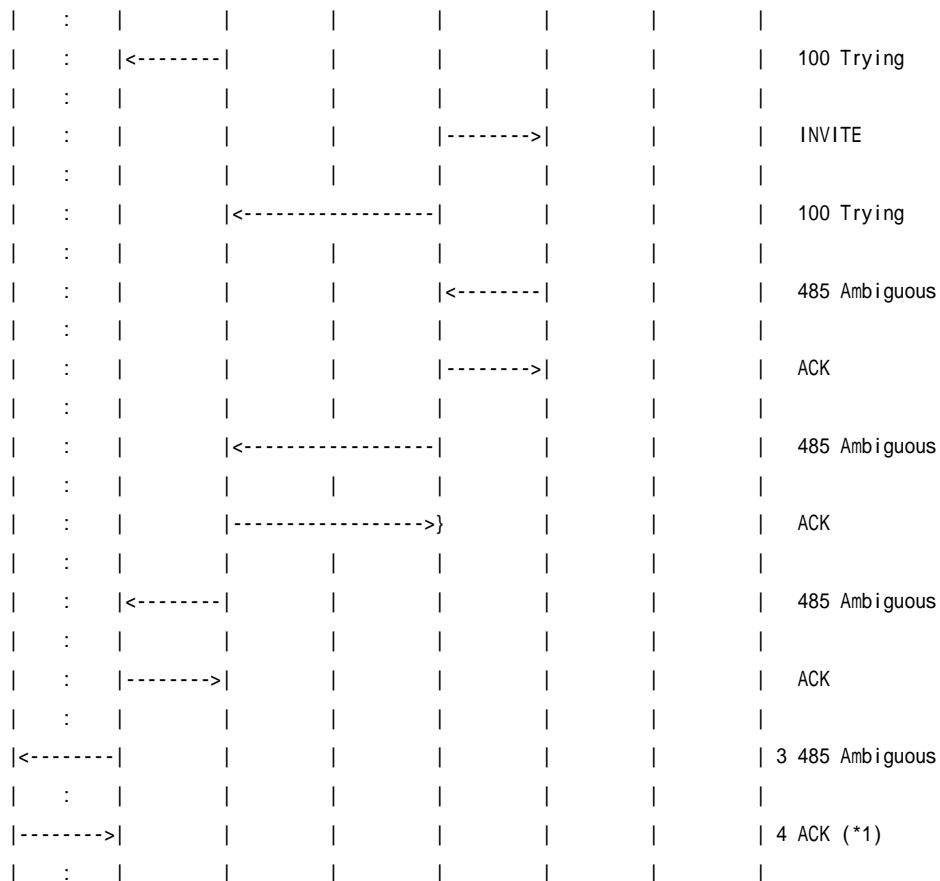


[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





- === Message example ===

3. 485 Ambiguous P-CSCF -> NUT

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



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 - Receiving 488 response

[NAME]

UE-RR-B-19 - Receiving 488 response

[TARGET]

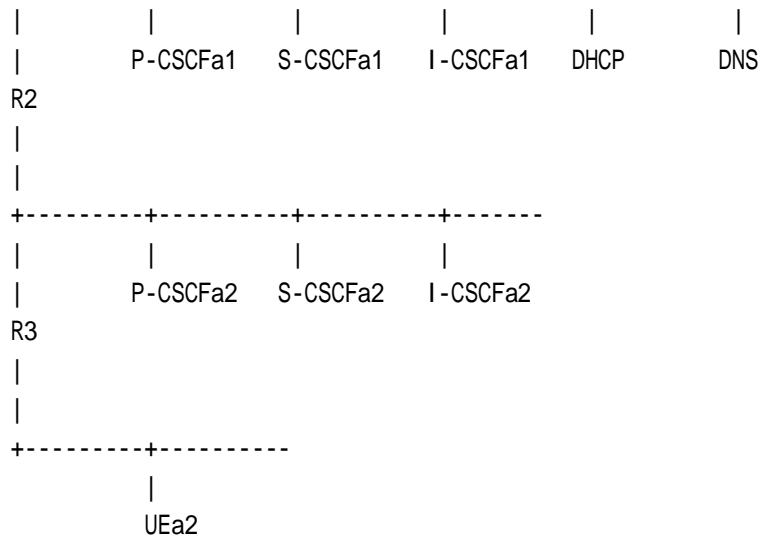
IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly process 488 (Not Acceptable Here) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE]

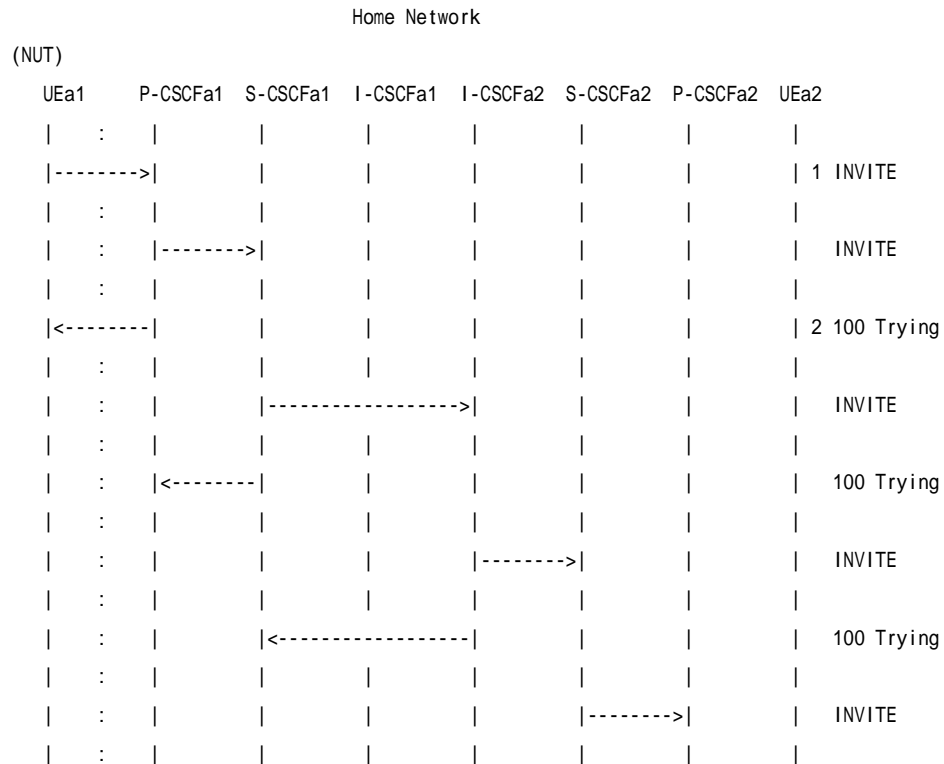
TS24.229 A.2.1.4.1

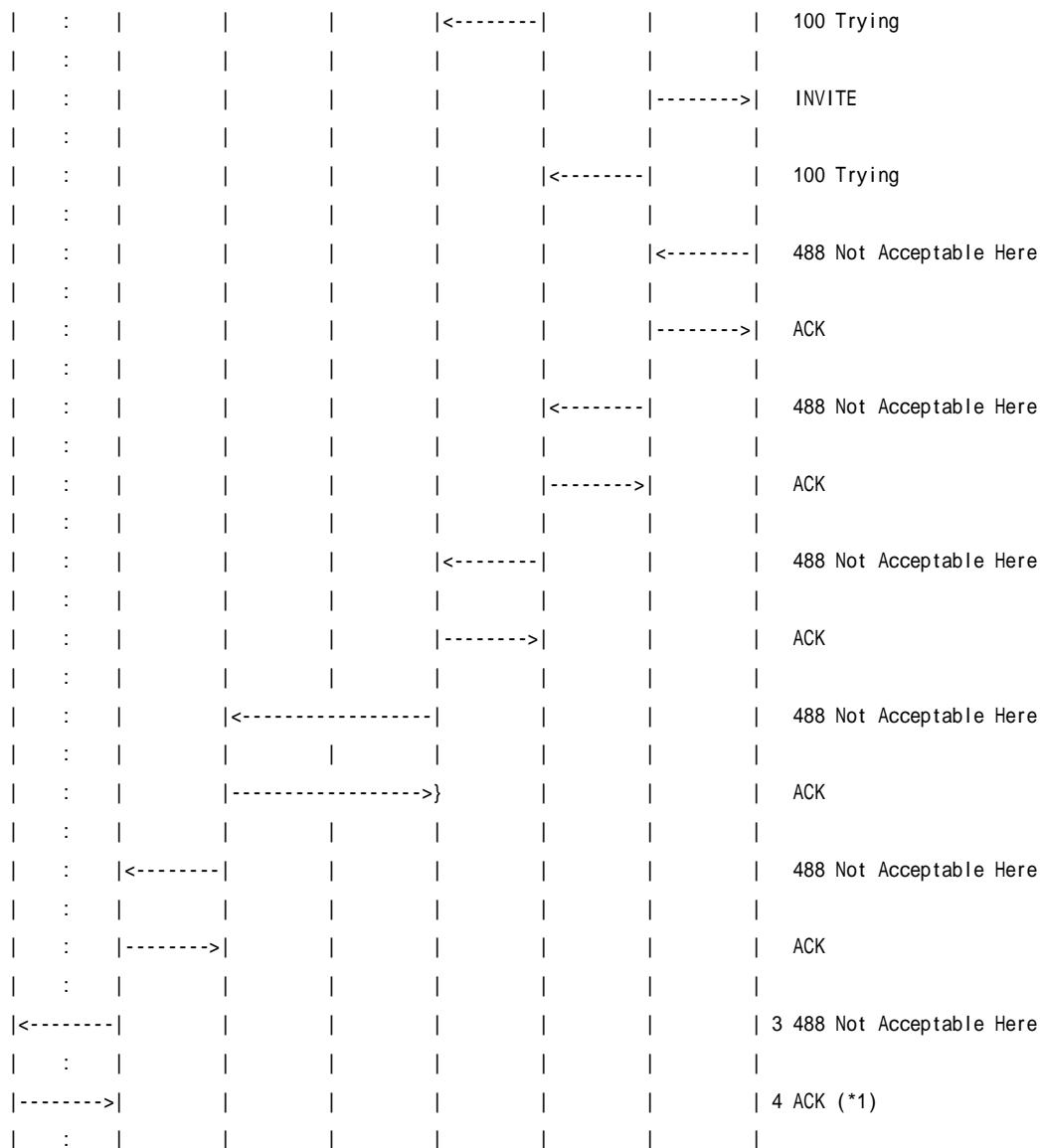


[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-RG-B-1.

[PROCEDURE]





- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 488 Not Acceptable Here
- 4 NUT sends ACK

=== Message example ===

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1.

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
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
Warning: 304 "Media type not available"
Content-Length: 0

4. ACK P-CSCF -> NUT

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 - Receiving 501 response

[NAME]

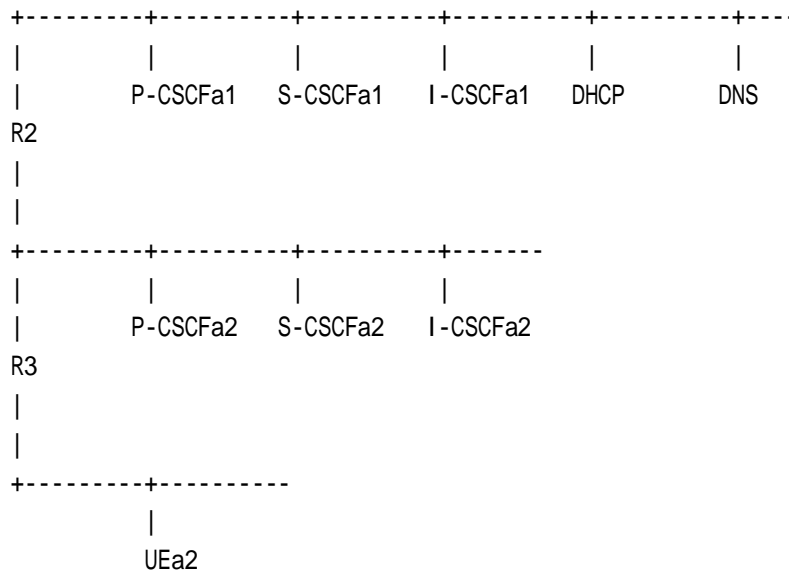
UE-RR-B-20 - Receiving 501 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

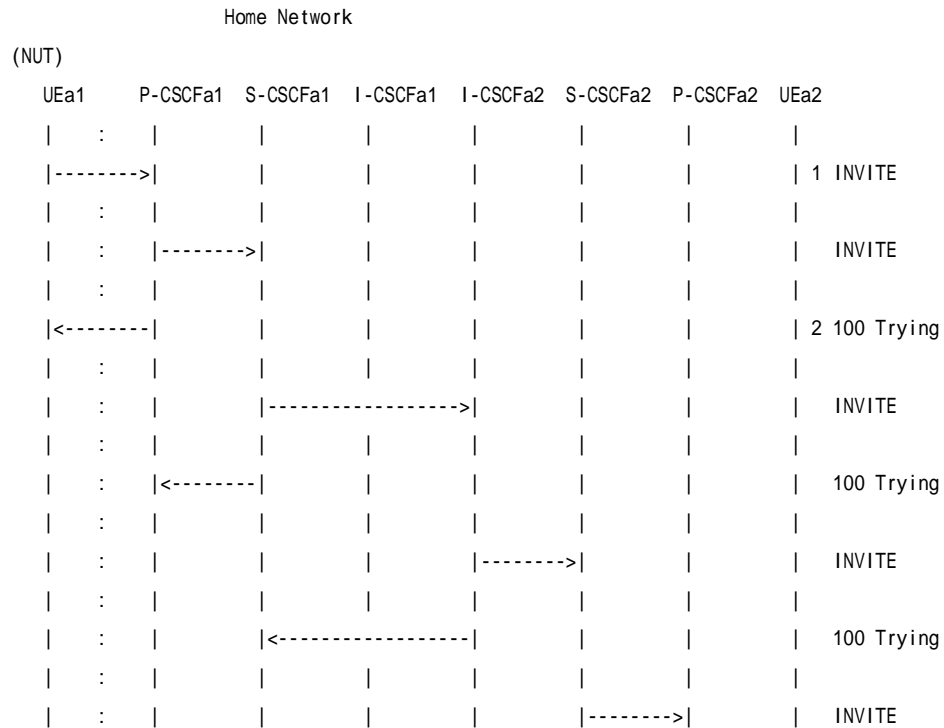
To verify that the UEa1 properly process a 501 (Not Implemented) response,
and verify that the UEa1 properly creates an ACK request.



[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





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

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

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.21 UE-RR-B-21 - Receivning 502 response

[NAME]

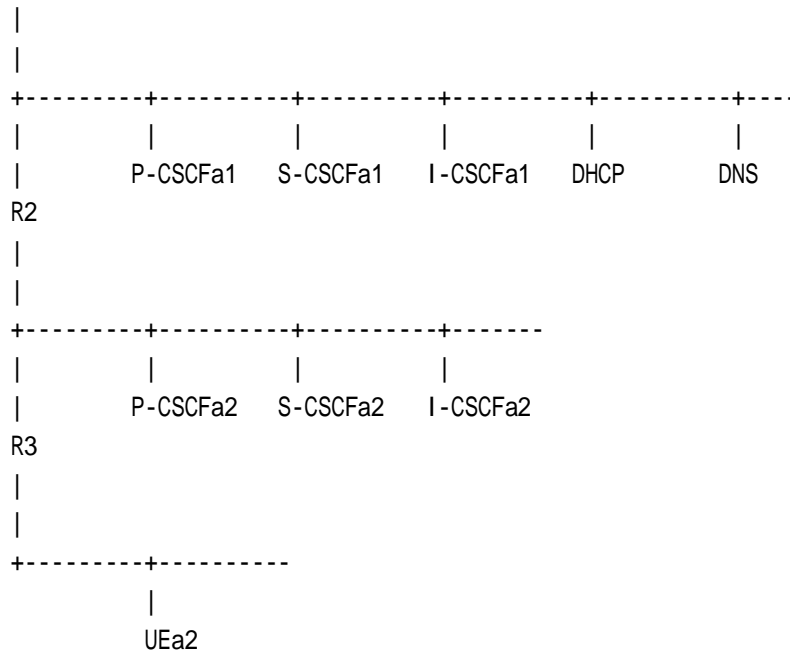
UE-RR-B-21 - Receiving 502 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

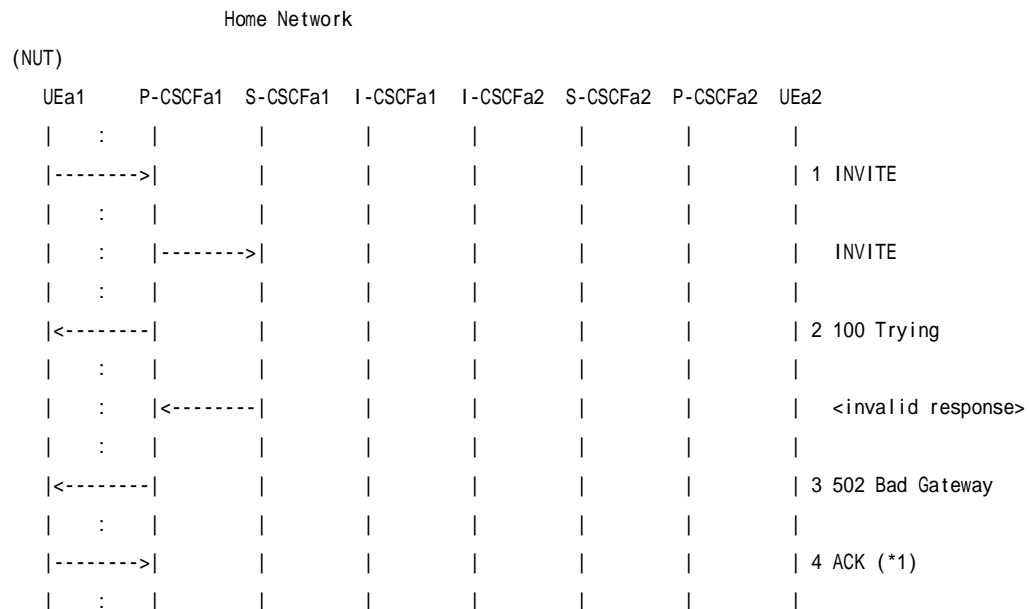
To verify that the UEa1 properly process a 502 (Bad Gateway) response, and verify that the UEa1 properly creates an ACK request.



[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





- 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.

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

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

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.22 UE-RR-B-22 - Receiving 505 response

**[NAME]**

UE-RR-B-22 - 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

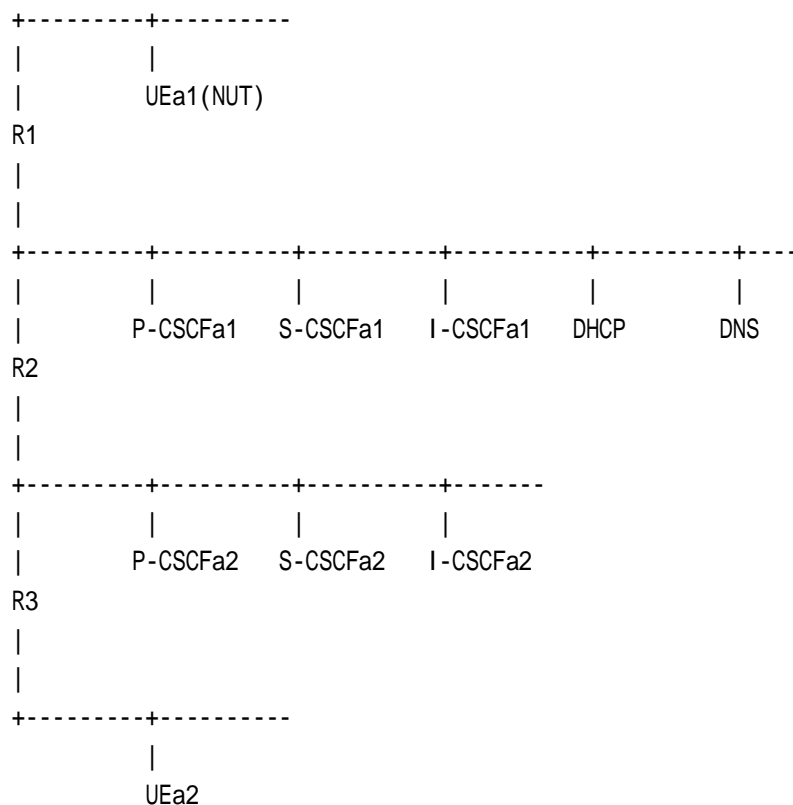
[ADDRESS]

UEa1(NUT)	:	3ffe:501:ffff:1000::1000
Router(R1)	:	3ffe:501:ffff:1000::1
P-CSCFa1	:	3ffe:501:ffff:100::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

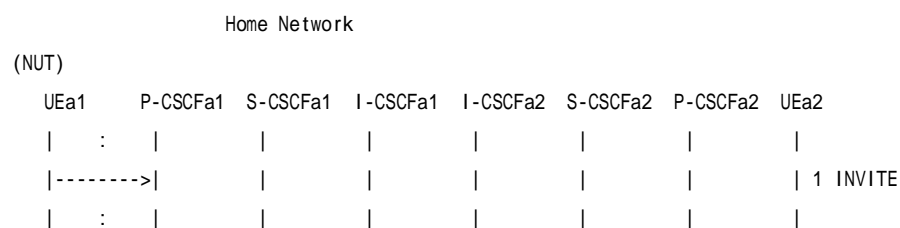
[TOPOLOGY]



[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
 For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





	:	----->							INVITE
	:								
	<-----								2 100 Trying
	:								
	:		----->						INVITE
	:								
	:	<-----							100 Trying
	:								
	:				----->				INVITE
	:								
	:		<-----						100 Trying
	:								
	:					----->			INVITE
	:								
	:				<-----				100 Trying
	:								
	:						----->		INVITE
	:								
	:					<-----			100 Trying
	:								
	:						<-----		505 Version not supported
	:								
	:						----->		ACK
	:								
	:					<-----			505 Version not supported
	:								
	:						----->		ACK
	:								
	:				<-----				505 Version not supported
	:								
	:						----->		ACK
	:								
	:		<-----						505 Version not supported
	:								
	:						----->		ACK
	:								
	:	<-----							3 505 Version not supported
	:								
		----->							4 ACK (*1)



| : | | | | |

- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 505 Version not supported
- 4 NUT sends ACK

=== Message example ===

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1.

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

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

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX



4.7.23 UE-RR-B-23 - Receiving 513 response

[NAME]

UE-RR-B-23 - 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

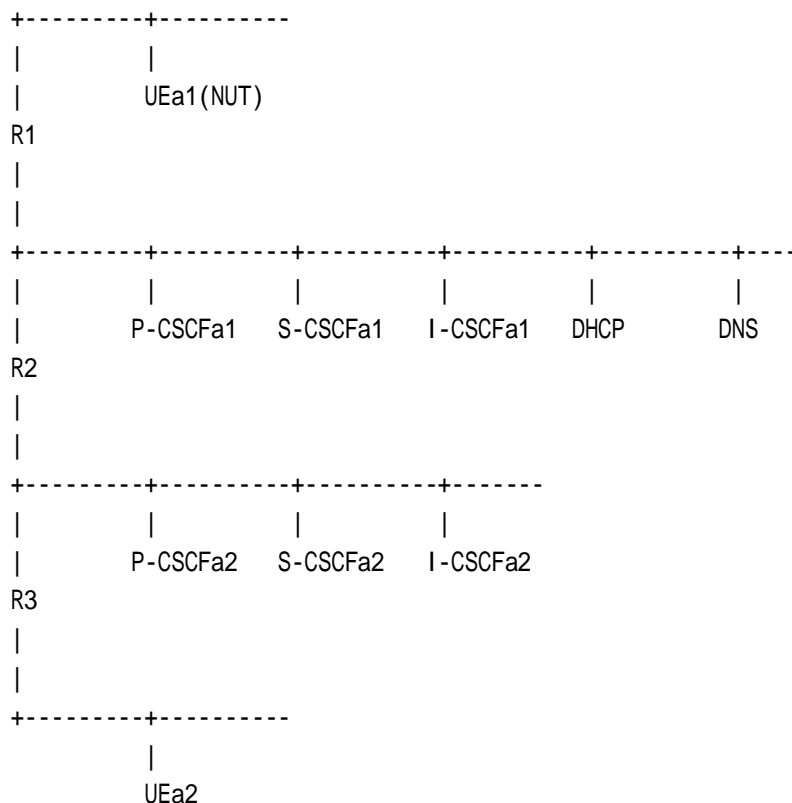
[ADDRESS]

UEa1(NUT)	:	3ffe:501:ffff:1000::1000
Router(R1)	:	3ffe:501:ffff:1000::1
P-CSCFa1	:	3ffe:501:ffff:100::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

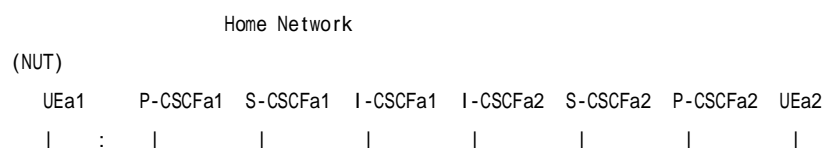
[TOPOLOGY]



[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
 For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





- === Message example ===

3. 513 Message Too Large P-CSCF -> NUT

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

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX



4.7.24 UE-RR-B-24 - Receiving 600 response

[NAME]

UE-RR-B-24 - 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

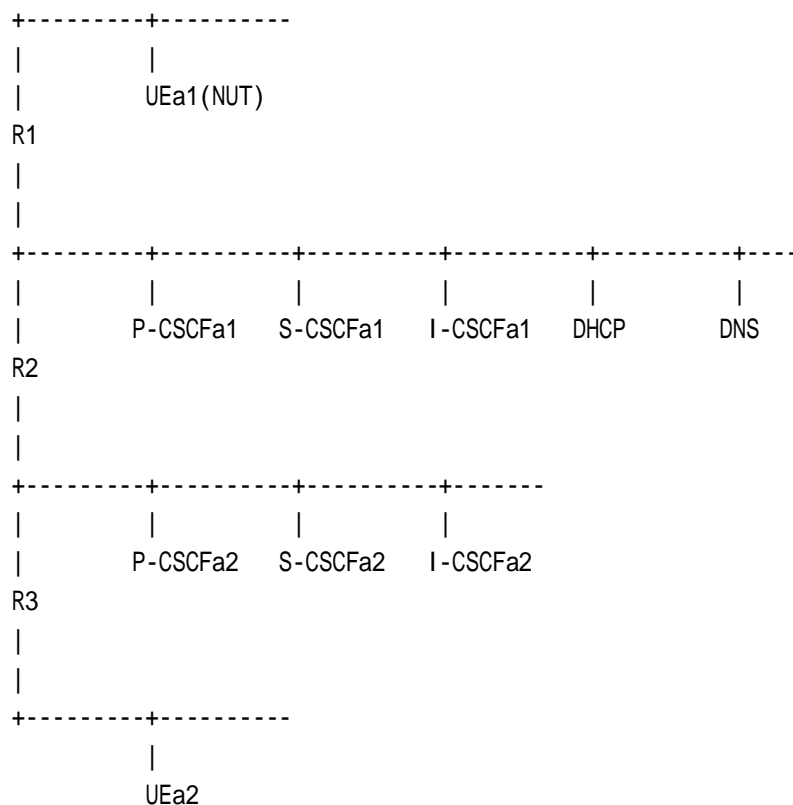
[ADDRESS]

UEa1(NUT)	:	3ffe:501:ffff:1000::1000
Router(R1)	:	3ffe:501:ffff:1000::1
P-CSCFa1	:	3ffe:501:ffff:100::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

[TOPOLOGY]



[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]

Home Network
(NUT)



UEa1	P-CSCFa1	S-CSCFa1	I-CSCFa1	I-CSCFa2	S-CSCFa2	P-CSCFa2	UEa2
:							
----->							1 INVITE
:							
: ----->							INVITE
:							
<-----							2 100 Trying
:							
: ----->							INVITE
:							
: <-----							100 Trying
:							
: ----->							INVITE
:							
: <-----							100 Trying
:							
: ----->							600 Busy Everywhere
:							
: <-----							ACK
:							
: ----->							600 Busy Everywhere
:							
: <-----							ACK
:							
: ----->							600 Busy Everywhere
:							
: <-----							ACK
:							
: ----->							4 ACK (*1)
:							

- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 600 Busy Everywhere
- 4 NUT sends ACK

=== Message example ===

As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1.



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

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

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.25 UE-RR-B-25 - Receiving 603 response

[NAME]

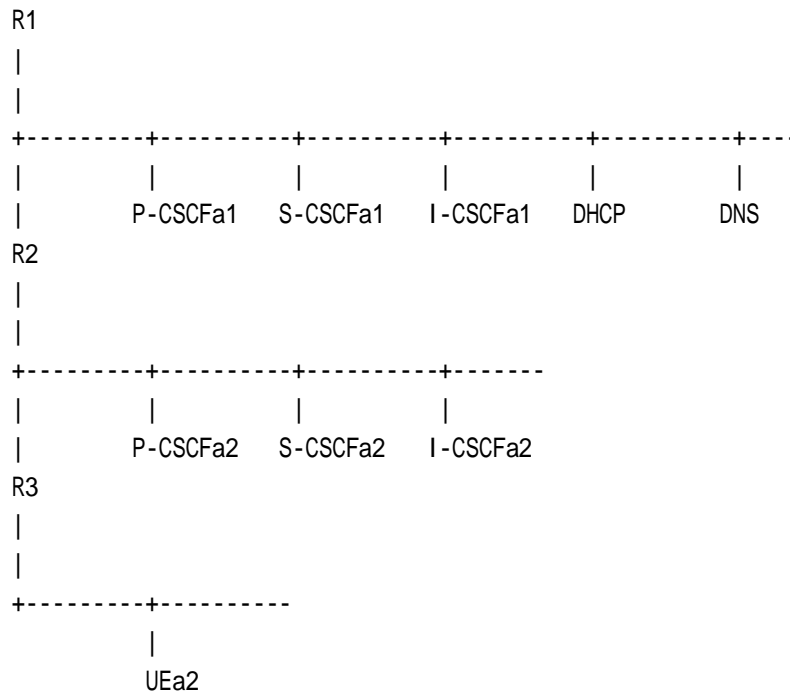
UE-RR-B-25 - Receiving 603 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

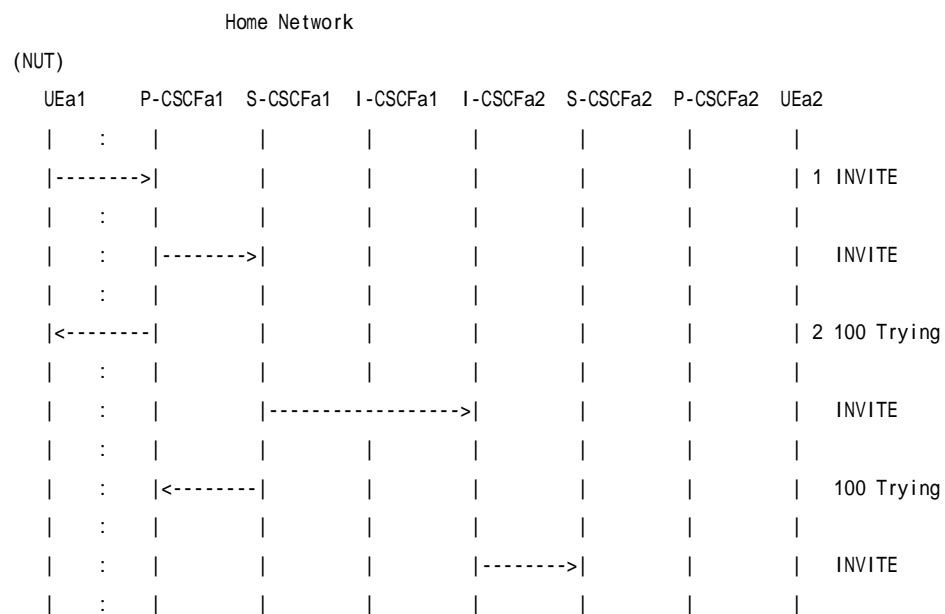
To verify that the UEa1 properly process a 603 (Decline) response,

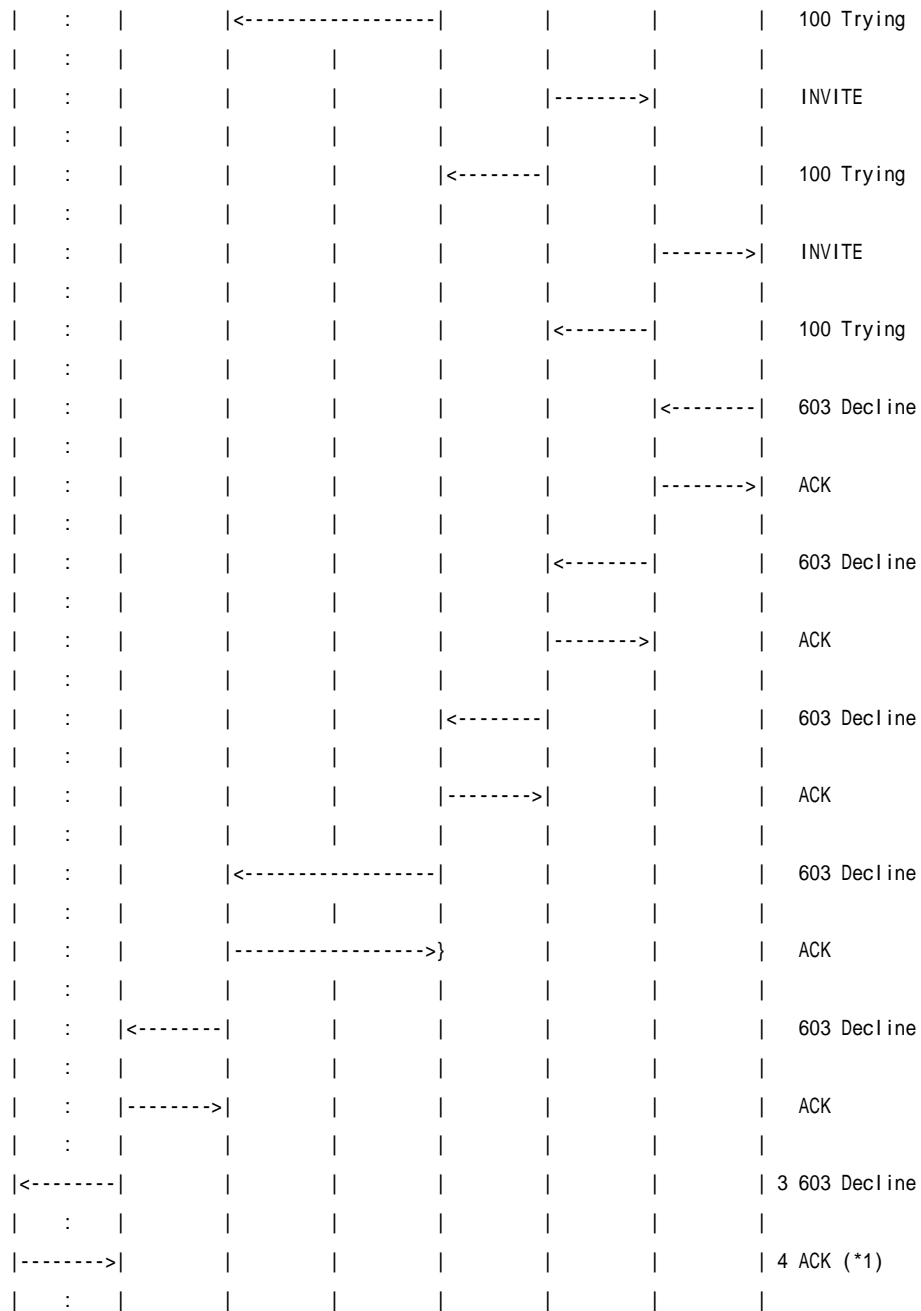


[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





- 1 NUT sends INVITE
- 2 NUT receives 100 Trying
- 3 NUT receives 603 Decline
- 4 NUT sends ACK

=== Message example ===



As regards the message 1-2, please refer to the message 1-2 in UE-SE-B-1.

3. 603 Decline P-CSCF -> NUT

SIP/2.0 603 Decline

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

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.26 UE-RR-B-26 - Receiving 604 response

[NAME]

UE-RR-B-26 - 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)]

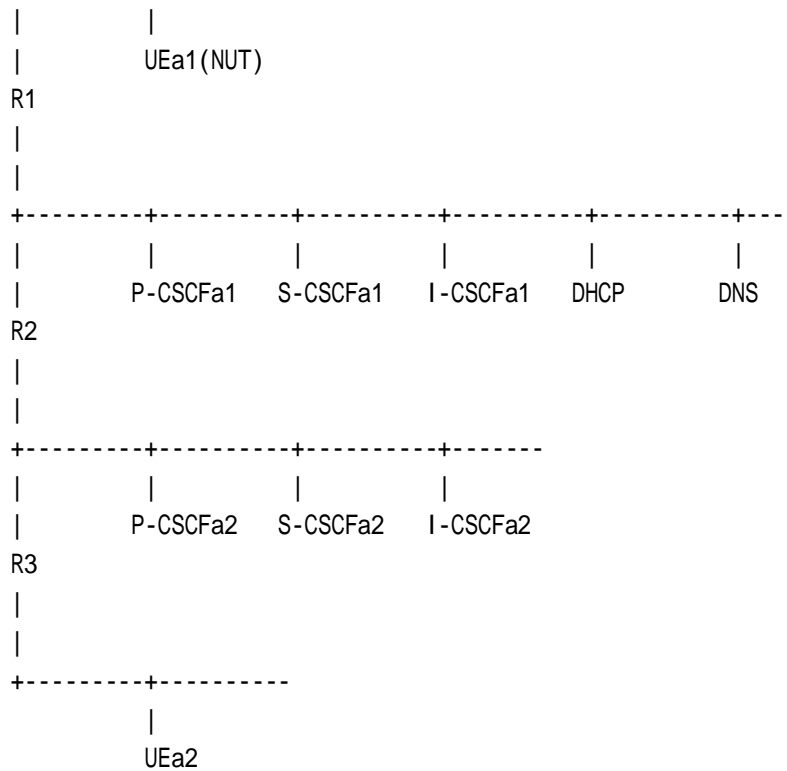
public-user-id(UEa2)	:	sip:UEa2_public_1@under.test.com
P-CSCFa1	:	sip:p.a1.under.test.com

[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::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]

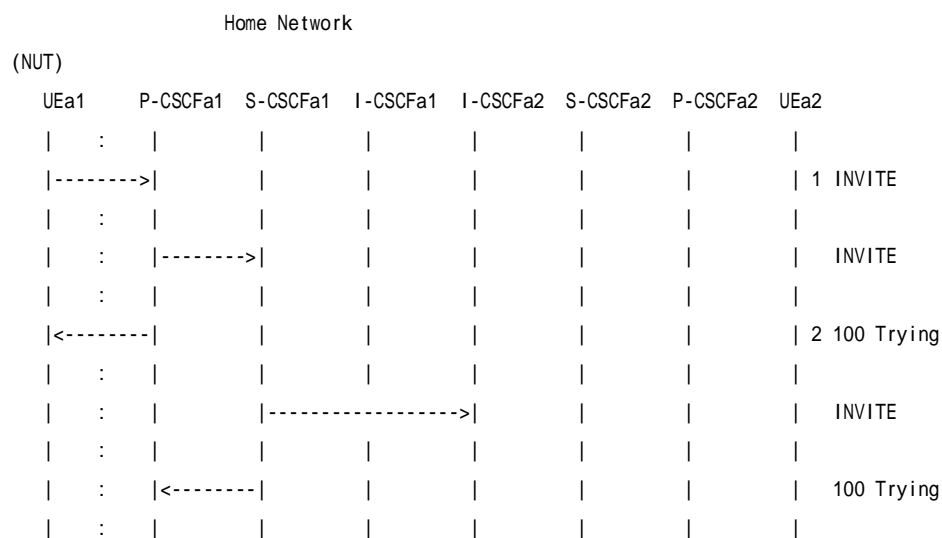
+-----+-----

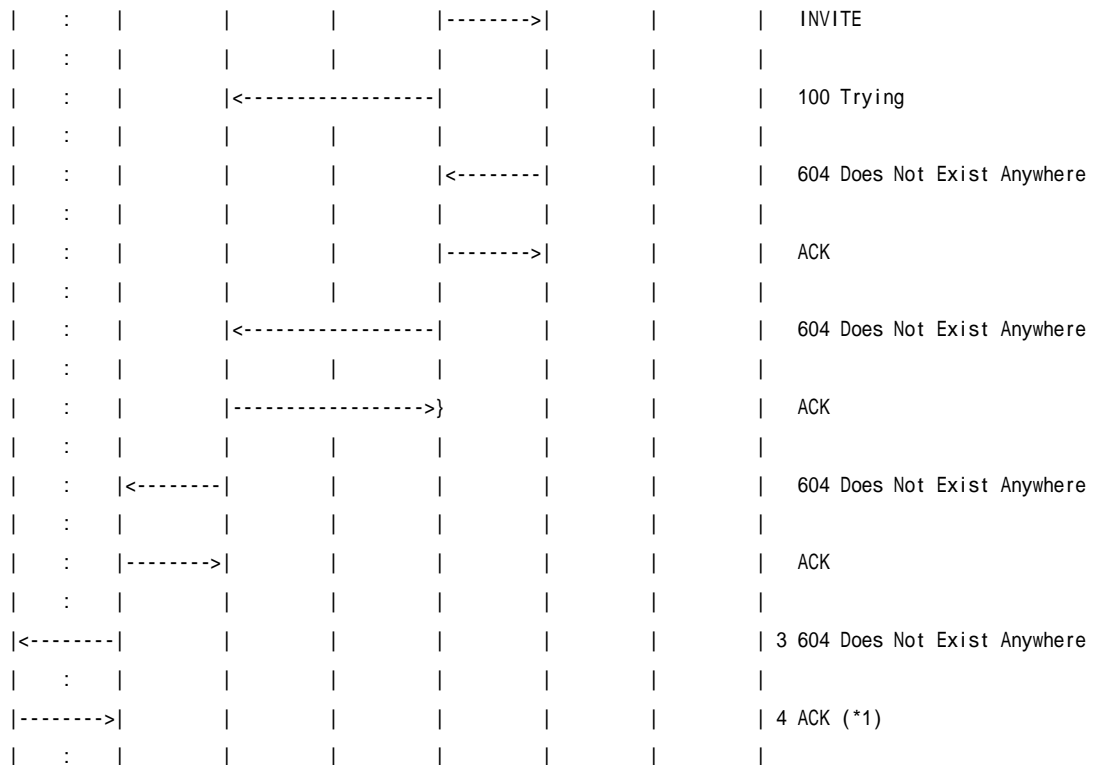


[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





- === Message example ===

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
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

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.7.27 UE-RR-B-27 - Receiving 606 response

[NAME]

UE-RR-B-27 - Receiving 606 response

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

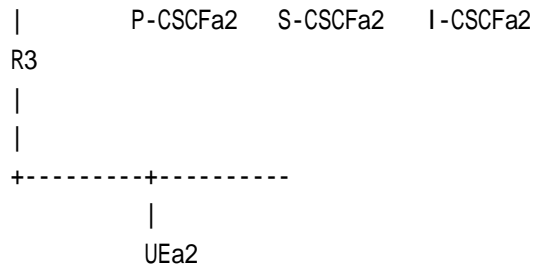
To verify that the UEa1 properly process a 606 (Not Acceptable) response, and verify that the UEa1 properly creates an ACK request.

[REFERENCE]

TS24.229 A.2.1.4.1

[REQUIREMENT]

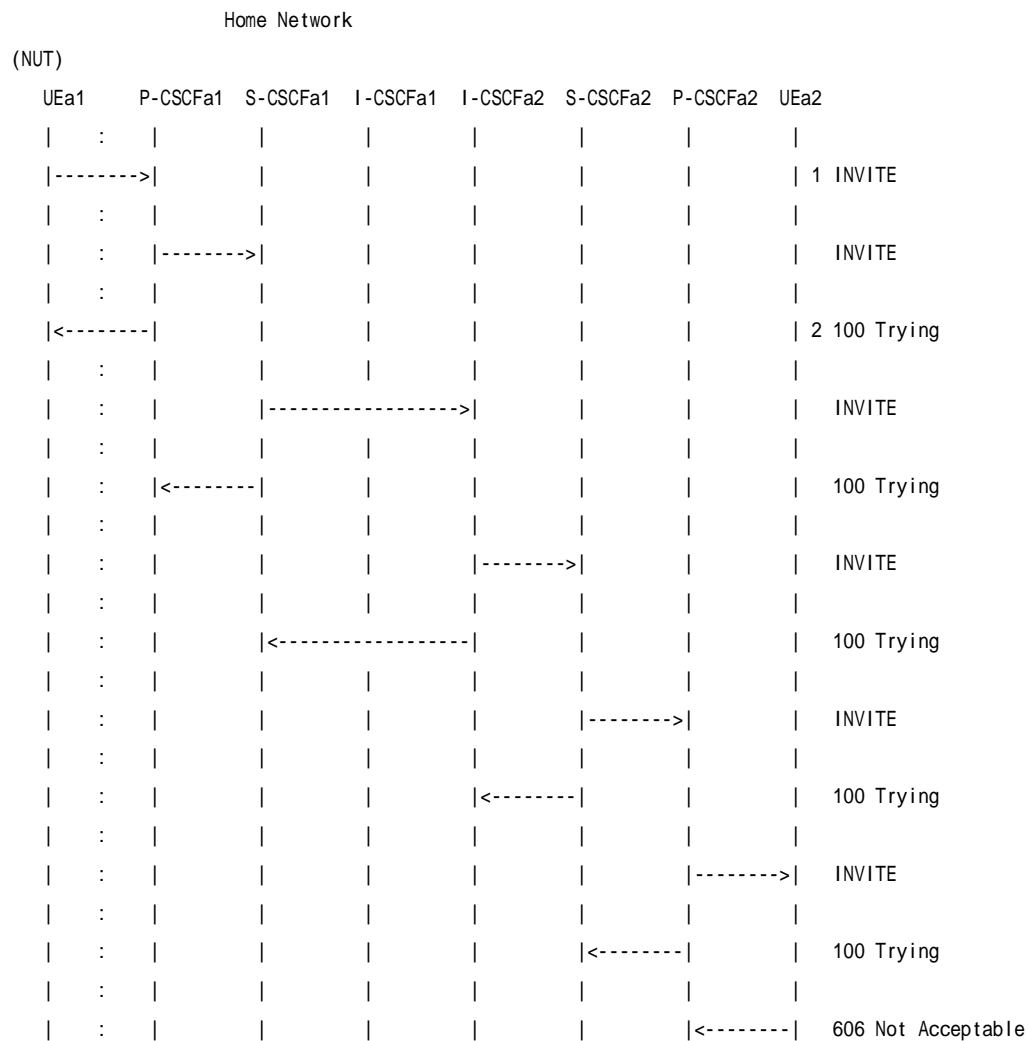
NONE

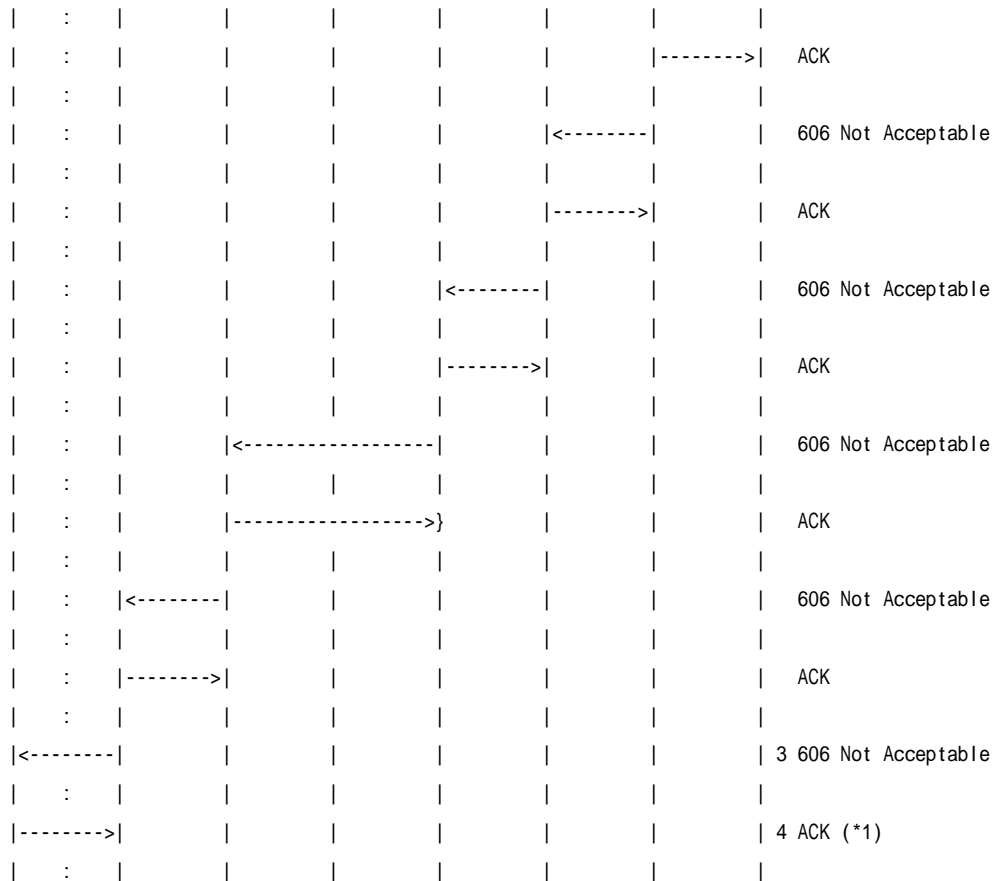


[INITIALIZATION]

UEa1(NUT) must be registered to the tester by scenario "UE-INI-B-1".
For details, refer to the profile of UE-INI-B-1.

[PROCEDURE]





- === Message example ===

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

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

[OBSERVABLE RESULTS]

*1: 4 ACK from NUT to P-CSCF.

See generic_ACK-non2XX

4.8 SigComp

4.8.1 UE-SC-B-1 - SigComp for IMS (Sends INVITE and receives BYE)

[NAME]

UE-SC-B-1 - 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 doesn't use SigComp during set up SAs.

(2)To verify that the UEa1 properly uses SigComp to signaling.



(3) To verify that the UEa1 finished compartment when it is deregistered.

[REFERENCE]

TS24.229 8.1

RFC3486

RFC5049

[TS24.229 8.1.1]

[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

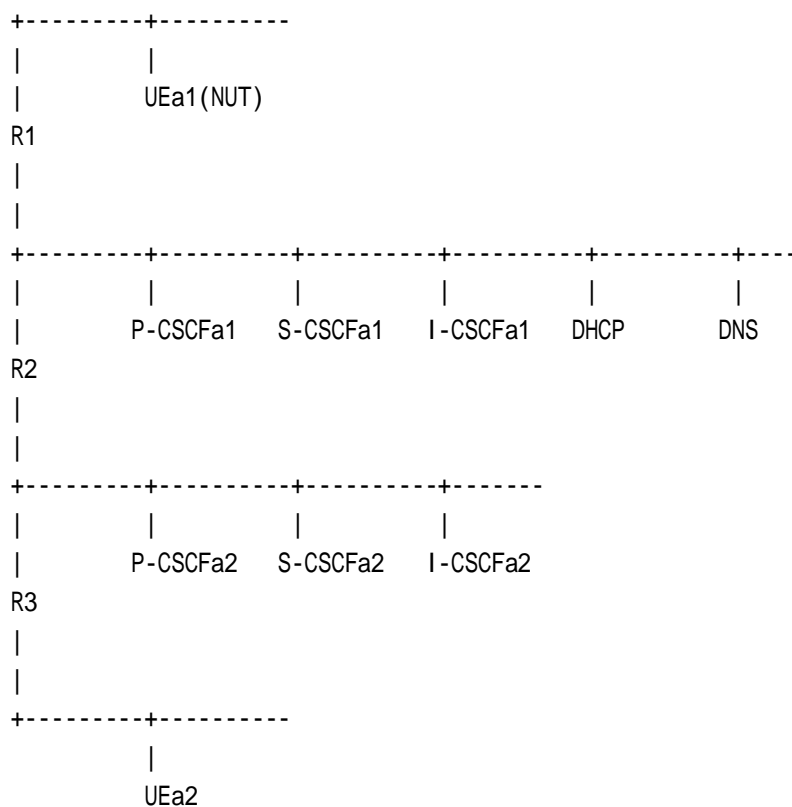
[PARAMETER(TESTER)]

public-user-id(UEa2)	:	sip:UEa2_public_1@under.test.com
P-CSCFa1	:	sip:p.a1.under.test.com
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

[TOPOLOGY]



[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement

B. DHCPv6

(NUT)

UEa1		DHCP
	:	
	----->	1 DHCPv6 SOLICIT
	:	
	<-----	2 DHCPv6 ADVERTISE
	:	
	----->	3 DHCPv6 REQUEST
	:	
	<-----	4 DHCPv6 REPLY
	:	



[PROCEDURE]

Home Network

(NUT)

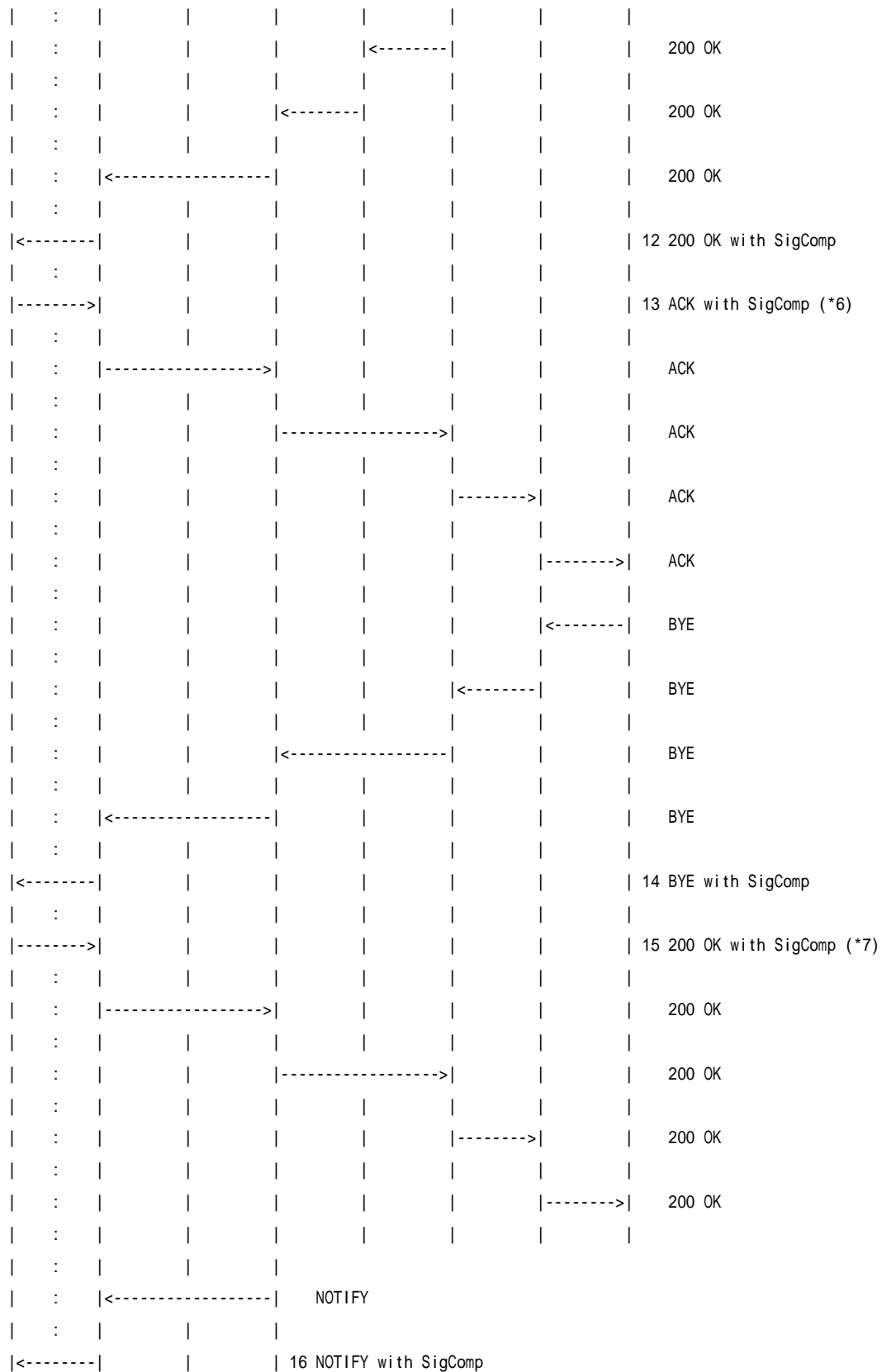
UEa1	P-CSCFa1	I-CSCFa1	S-CSCFa1
	:		
	----->		1 REGISTER (*1)
	:		
	:	----->	REGISTER
	:		
	:	----->	REGISTER
	:		
	:	<-----	401 Unauthorized
	:		
	:	<-----	401 Unauthorized
	:		
	<-----		2 401 Unauthorized
	:		
	----->		3 REGISTER for authentication (*2)
	:		
	:	----->	REGISTER for authentication
	:		
	:	----->	REGISTER for authentication
	:		
	:	<-----	200 OK
	:		
	:	<-----	200 OK
	:		
	<-----		4 200 OK
	:		
	----->		5 SUBSCRIBE (*3)
	:		
	:	----->	SUBSCRIBE
	:		
	:	<-----	200 OK
	:		
	<-----		6 200 OK with SigComp
	:		
	:	<-----	NOTIFY
	:		
	<-----		7 NOTIFY with SigComp
	:		



```

|----->|           | 8 200 OK with SigComp (*4)
| : |           |
| : |----->| 200 OK
| : |           |
| : |           | I-CSCFa2 S-CSCFa2 P-CSCFa2 UEa2
| : |           |
|----->|           | 9 INVITE with SigComp (*5)
| : |           |
| : |----->|           | INVITE
| : |           |
|<-----|           | 10 100 Trying with SigComp
| : |           |
| : |           |----->|           | INVITE
| : |           |
| : |<-----|           | 100 Trying
| : |           |
| : |           |----->|           | INVITE
| : |           |
| : |           |<-----|           | 100 Trying
| : |           |
| : |           |----->|           | INVITE
| : |           |
| : |           |<-----|           | 100 Trying
| : |           |
| : |           |----->|           | INVITE
| : |           |
| : |           |<-----|           | 100 Trying
| : |           |
| : |           |<-----|           | 180 Ringing
| : |           |
| : |           |<-----|           | 180 Ringing
| : |           |
| : |           |<-----|           | 180 Ringing
| : |           |
| : |           |<-----|           | 180 Ringing
| : |           |
| : |<-----|           | 180 Ringing
| : |           |
|<-----|           | 11 180 Ringing with SigComp
| : |           |
| : |           |<-----|           | 200 OK
| : |           |
| : |           |<-----|           | 200 OK

```





```

| : | |
|----->| | 17 200 OK with SigComp (*8)
| : | |
| : |----->| 200 OK
| : | |
| : |<-----| NOTIFY
| : | |
| : |----->| 200 OK
| : | |
| : |<-----| NOTIFY
| : | |
|<-----| | 18 NOTIFY with SigComp
| : | |
| : | | 19 < No response or NACK>

```

- 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 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];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; 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];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=base64(RAND + AUTN + server specific data), algorithm=AKAv1-MD5
Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321; 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=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",



nonce=base64(RAND + AUTN + server specific data),
algorithm=AKAv1-MD5, uri="sip:under.test.com",
response="6629fae49393a05397450978507c4ef1"
Security-Client: ipsec-3gpp; 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=98765432; spi-s=87654321;
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

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;comp=sigcomp SIP/2.0

Via: SIP/2.0/UDP
[3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds7;comp=sigcomp;sigcomp-id="urn: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>

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: b89rjhnedlrfjlsj40a222@under.test.com



CSeq: 61 SUBSCRIBE
Allow-Events: reg
Event: reg
Expires: 600000
Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
port-c=8642; port-s=7531
Contact:
<sip:UEa1_public_1@node.under.test.com:1357;comp=sigcomp;sigcomp-id=urn: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: b89rjhnedlrflslj40a222@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:[3ffe:501:ffff:1000::1000]: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: b89rjhnedlrflslj40a222@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="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: b89rjhnedlrjflslj40a222@under.test.com

CSeq: 62 NOTIFY

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;comp=sigcomp;sigcomp-id=urn:uuid:11edab92-0916-1952-2008ec24b5678>, <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=urn:uuid:00ffde92-0916-1952-2008fa82a473>

Supported:

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

Allow-Events: reg

Require: sec-agree

Proxy-Require: sec-agree

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
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

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="urn: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"

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;sigcomp-id=urn:uuid:11edab92-0916-1952-2



008ec24b5678>

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>

P-Asserted-Identity: <sip:UEa1_public_1@under.test.com>

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;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

P-Asserted-Identity: <sip:UEa1_public_1@under.test.com>

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=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: 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=urn: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="urn: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=9fxcde76sl
Call-ID: 3848276298220188511@under.test.com
CSeq: 2 BYE
Content-Length: 0

16. NOTIFY P-CSCF -> NUT

NOTIFY

sip:[3ffe:501:ffff:1000::1000]: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="deactivated">

<uri>sip:[3ffe:501:ffff:1000::1000]</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="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
Content-Length: 0

[OBSERVABLE RESULTS]

***1: 1 REGISTER from NUT to P-CSCF**

See generic_REGISTER

- Sigcomp behavior:

UE SHALL not creat the compartment untill security associations are set up.
[TS24.229 8.1.1]

***2: 3 REGISTER for authentication from NUT to P-CSCF**

See generic_Auth_REGISTER

- 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[TS24.229 5.1.2A.1]

- Sigcomp behavior:

UE SHALL not creat the compartment untill security associations are set up.
[TS24.229 8.1.1]

***3: 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]



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]

The SIP URI 'sigcomp-id' parameter MUST contain a URN [RFC2141].
[RFC5049 9.1]

URN MUST be persistent as long as the application stores compartment state related to other SIP/SigComp applications.[RFC5049 9.1]

* 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[TS24.229 5.1.2A.1]

* Via

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 topmost entry of the Via header field.
[RFC3486 4]

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]

The Via 'sigcomp-id' parameter MUST contain a URN [RFC2141].
[RFC5049 9.1]

URN MUST be persistent as long as the application stores compartment state related to other SIP/SigComp applications.[RFC5049 9.1]

- Sigcomp behavior:

A client MUST NOT send a compressed request to a server if it does not know whether or not the server supports SigComp.[RFC3486 4]

*4: 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.[TS24.229 5.1.2A.1]

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.[TS24.229 5.1.2A.2]

- Sigcomp behavior:

The dictionary SHALL be used to compress the first message.[TS24.229 8.1.1]

If the topmost Via header field contains the parameter comp=sigcomp, the response SHOULD be compressed.[RFC3486 5]

*5: 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]

If UE sends a compressed request, UE SHOULD add the parameter comp=sigcomp to the URI in the Contact header field[RFC3486 4]

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]

The SIP URI 'sigcomp-id' parameter MUST contain a URN [RFC2141].
[RFC5049 9.1]

URN MUST be persistent as long as the application stores compartment state related to other SIP/SigComp applications.[RFC5049 9.1]

* 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[TS24.229 5.1.2A.1]

* 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]

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]

The Via 'sigcomp-id' parameter MUST contain a URN [RFC2141].
[RFC5049 9.1]

URN MUST be persistent as long as the application stores compartment state related to other SIP/SigComp applications.[RFC5049 9.1]

- Sigcomp behavior:

If the next-hop URI contains the parameter comp=sigcomp, the UE SHOULD compress the request using SigComp[RFC3486 4][RFC5049 9.4]

*6: 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]

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]

The Via 'sigcomp-id' parameter MUST contain a URN [RFC2141].
[RFC5049 9.1]

URN MUST be persistent as long as the application stores compartment state related to other SIP/SigComp applications.[RFC5049 9.1]

- Sigcomp behavior:



If the next-hop URI contains the parameter comp=sigcomp, the UE SHOULD compress the request using SigComp.[RFC3486 4][RFC5049 9.4]

*7: 15 200 OK to BYE from NUT to P-CSCF

See generic_200

- 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.[TS24.229 5.1.2A.1]

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.[TS24.229 5.1.2A.2]

- Sigcomp behavior:

If the topmost Via header field contains the parameter comp=sigcomp, the response SHOULD be compressed.[RFC3486 5]

*8: 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.[TS24.229 5.1.2A.1]

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.[TS24.229 5.1.2A.2]

- Sigcomp behavior:

If the topmost Via header field contains the parameter comp=sigcomp, the response SHOULD be compressed.[RFC3486 5]



*9: 18 No response or send NACK

- Sigcomp behavior:

UE SHALL finish the compertment when the UE is deregistered.[TS24.229 8.1.1]

4.8.2 UE-SC-B-2 - SigComp for IMS (Receive INVITE and send BYE)

[NAME]

UE-SC-B-2 - SigComp for IMS (Receive INVITE and send BYE)

[TARGET]

IMS User Equipment (NUT)

[PURPOSE]

To verify that the UEa1 properly uses SigComp to signaling.

[REFERENCE]

TS24.229 8.1

RFC3486

RFC5049

[TS24.229 8.1.1]

[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)]

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

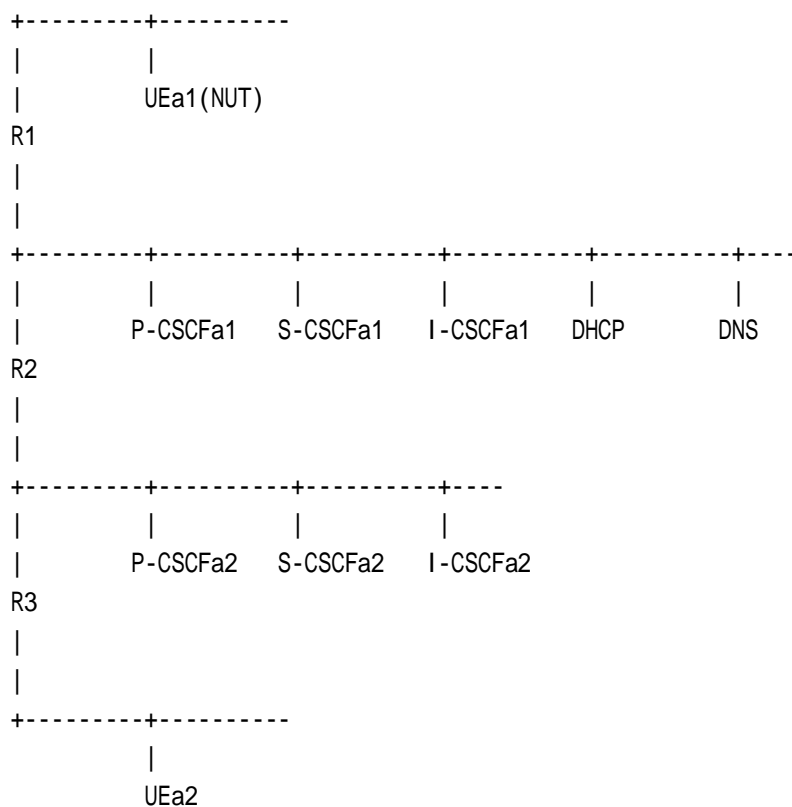
[ADDRESS]



UEa1(NUT)	:	3ffe:501:ffff:1000::1000
Router(R1)	:	3ffe:501:ffff:1000::1
P-CSCFa1	:	3ffe:501:ffff:100::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

[TOPOLOGY]



[INITIALIZATION]

Set up IP Address using A or B.

A. Router Advertisement



B. DHCPv6

(NUT)

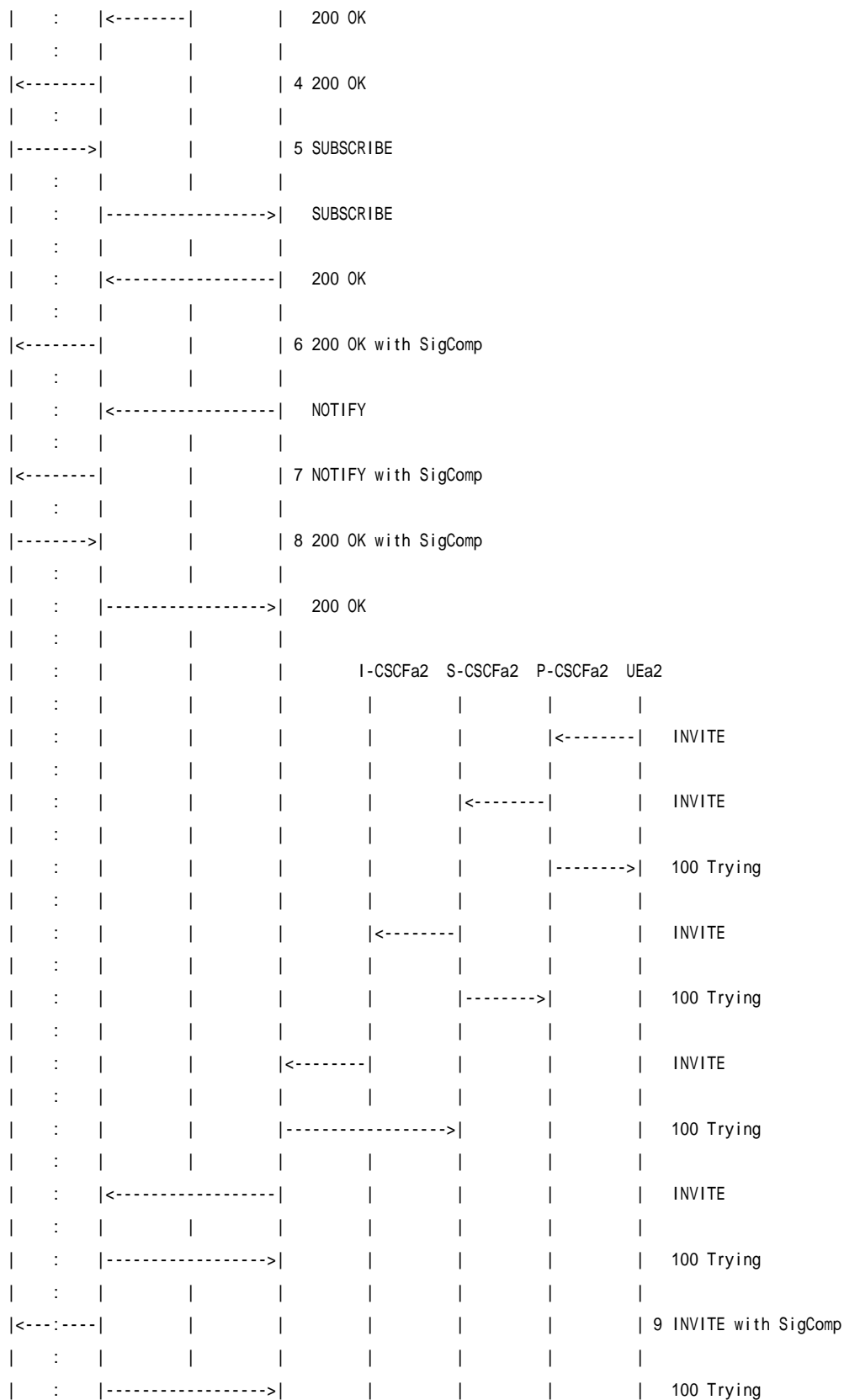
UEa1	DHCP
:	
----->	1 DHCPv6 SOLICIT
:	
<-----	2 DHCPv6 ADVERTISE
:	
----->	3 DHCPv6 REQUEST
:	
<-----	4 DHCPv6 REPLY
:	

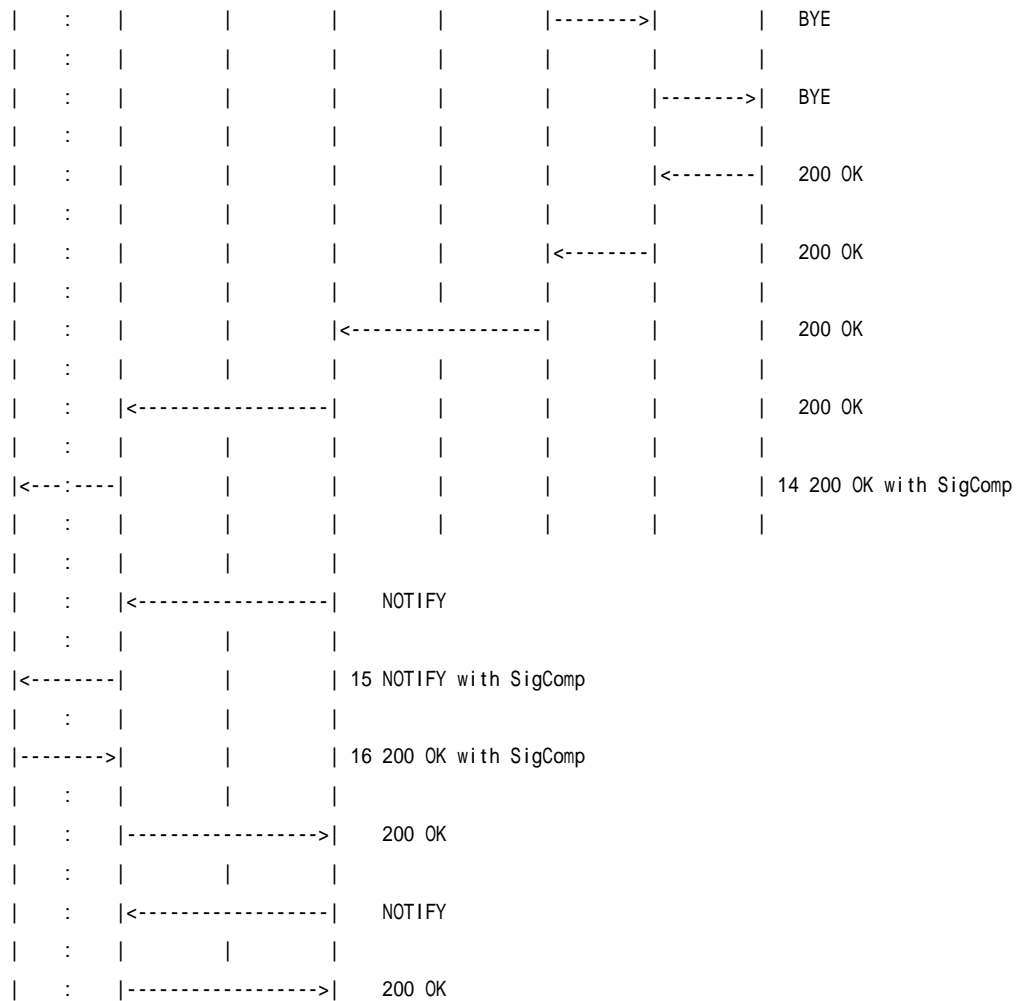
[PROCEDURE]

Home Network

(NUT)

UEa1	P-CSCFa1	I-CSCFa1	S-CSCFa1
:			
:			
----->			1 REGISTER
:			
:	----->		REGISTER
:			
:		----->	REGISTER
:			
:		<-----	401 Unauthorized
:			
:	<-----		401 Unauthorized
:			
<-----			2 401 Unauthorized
:			
----->			3 REGISTER
:			
:	----->		REGISTER
:			
:		----->	REGISTER
:			
:		<-----	200 OK
:			





1. REGISTER
2. NUT receives 401 Unauthorized
3. NUT sends REGISTER
4. NUT receives 200 OK
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 ===

1. REGISTER NUT > P-CSCF

REGISTER sip:under.test.com SIP/2.0
Via: SIP/2.0/UDP [3ffe:501:ffff:1000::1000];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; 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];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=base64(RAND + AUTN + server specific data), algorithm=AKAv1-MD5
Security-Server: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321; 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=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",
 nonce=base64(RAND + AUTN + server specific data),
 algorithm=AKAv1-MD5, uri="sip:under.test.com",
 response="6629fae49393a05397450978507c4ef1"
 Security-Client: ipsec-3gpp; 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=98765432; spi-s=87654321;
 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
 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
 Date: Wed, 11 July 2001 08:49:37 GMT
 Content-Length: 0

5. SUBSCRIBE NUT > P-CSCFa1

SUBSCRIBE sip:UEa1_public_1@under.test.com;comp=sigcomp SIP/2.0

Via: SIP/2.0/UDP
 [3ffe:501:ffff:1000::1000]:1357;branch=z9hG4bKnashds7;comp=sigcomp;sigcomp-id="urn:uui



d:00ffde92-0916-1952-2008fa82a473"

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: b89rjhnedlrflslj40a222@under.test.com

CSeq: 61 SUBSCRIBE

Allow-events: reg

Event: reg

Expires: 600000

Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321;
port-c=8642; port-s=7531

Contact:

<sip:UEa1_public_1@node.under.test.com:1357;comp=sigcomp;sigcomp-id=urn:uuid:00ffde92-0916-1952-2008fa82a473>

Content-Length: 0

6. 200 OK P-CSCFa1 > 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: b89rjhnedlrflslj40a222@under.test.com

CSeq: 61 SUBSCRIBE

Allow-events: reg

Expires: 600000

Contact:

<sip:UEa1_public_1@node.under.test.com:1357;comp=sigcomp;sigcomp-id=urn:uuid:00ffde92-0916-1952-2008fa82a473>

Content-Length: 0

7. NOTIFY P-CSCFa1 > NUT

NOTIFY

sip:[3ffe:501:ffff:1000::1000]:1357;comp=sigcomp;sigcomp-id=urn:uuid:00ffde92-0916-1952-2



008fa82a473 SIP/2.0

Via: SIP/2.0/UDP
 p.a1.under.test.com:10001;branch=z9hG4bK240f34.1;comp=sigcomp;sigcomp-id="urn:uuid:1
 1edab92-0916-1952-2008ec24b5678", 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=31415
 To: <sip:UEa1_public_1@under.test.com>;tag=151170
 Call-ID: b89rjhnedlrflslj40a222@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="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:[3ffe:501:ffff:1000::1000]</uri>
    </contact>
  </registration>
</reginfo>
```

8. 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:1
 1edab92-0916-1952-2008ec24b5678";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=31415
 To: <sip:UEa1_public_1@under.test.com>;tag=151170
 Call-ID: b89rjhnedlrflslj40a222@under.test.com
 CSeq: 62 NOTIFY
 Content-Length: 0

9. INVITE P-CSCFa1 -> NUT

INVITE

sip:UEa1_public_1@node.under.test.com;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:uu
 id: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/UD
 P 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;lr;comp=sigcomp;sigcomp-id=urn:uuid:11edab92-0916-1952-2008ec2
 4b5678>, <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>
 Content-Type: application/sdp
 Content-Length: 154
 Supported: path
 Allow: INVITE, ACK, CANCEL, OPTIONS, BYE
 Allow-Events: reg
 P-Asserted-Identity: <sip:UEa2_public_1@under.test.com>

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:uu
 id: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 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=2i3rjojpg2hopr
 Call-ID: 3848276298220188511@under.test.com
 CSeq: 1 INVITE
 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 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;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=2i3rjojpg2hopr
 Call-ID: 3848276298220188511@under.test.com

CSeq: 1 INVITE

Contact:

<sip:UEa1_public_1@node.under.test.com:1357;comp=sigcomp;sigcomp-id=urn:uuid:00ffde92-0916-1952-2008fa82a473>

Supported: path

Allow: INVITE, ACK, CANCEL, OPTIONS, BYE

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

12. ACK PCSFa1 -> 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;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 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;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: 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
Content-Length: 0
Security-Verify: ipsec-3gpp; alg=hmac-sha-1-96; spi-c=98765432; spi-s=87654321; port-c=10002; port-s=10001
Require: sec-agree
Proxy-Require: sec-agree

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:[3ffe:501:ffff:1000::1000]: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: b89rjhnedlrjflslj40a222@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="deactivated">
      <uri>sip:[3ffe:501:ffff:1000::1000]</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:1
1edab92-0916-1952-2008ec24b5678";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: b89rjhnedlrjflslj40a222@under.test.com
CSeq: 43 NOTIFY
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[TS24.229 5.1.2A.1]

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.[TS24.229 5.1.2A.2]

- Sigcomp behavior:

If the topmost Via header field contains the parameter comp=sigcomp, the response SHOULD be compressed.[RFC3486 5]

*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]

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]

The SIP URI 'sigcomp-id' parameter MUST contain a URN [RFC2141].
[RFC5049 9.1]

URN MUST be persistent as long as the application stores compartment state related to other SIP/SigComp applications.[RFC5049 9.1]

* 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[TS24.229 5.1.2A.1]

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.[TS24.229 5.1.2A.2]

- Sigcomp behavior:

If the topmost Via header field contains the parameter comp=sigcomp, the response SHOULD be compressed.[RFC3486 5]

*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[TS24.229 5.1.2A.1]

* 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]

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]

The Via 'sigcomp-id' parameter MUST contain a URN [RFC2141].
[RFC5049 9.1]

URN MUST be persistent as long as the application stores compartment state related to other SIP/SigComp applications.[RFC5049 9.1]

- Sigcomp behavior:

If the next-hop URI contains the parameter comp=sigcomp, the UE SHOULD compress the request using SigComp.[RFC3486 4][RFC5049 9.4]



Copyright (C) 2005-2009 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)

Kenzo Kodama (NTT-AT)

Naomi Orimo(NTT-AT)

Yoshihiro Inoue (NTT-AT)

Rumi Suyama (NTT-AT)