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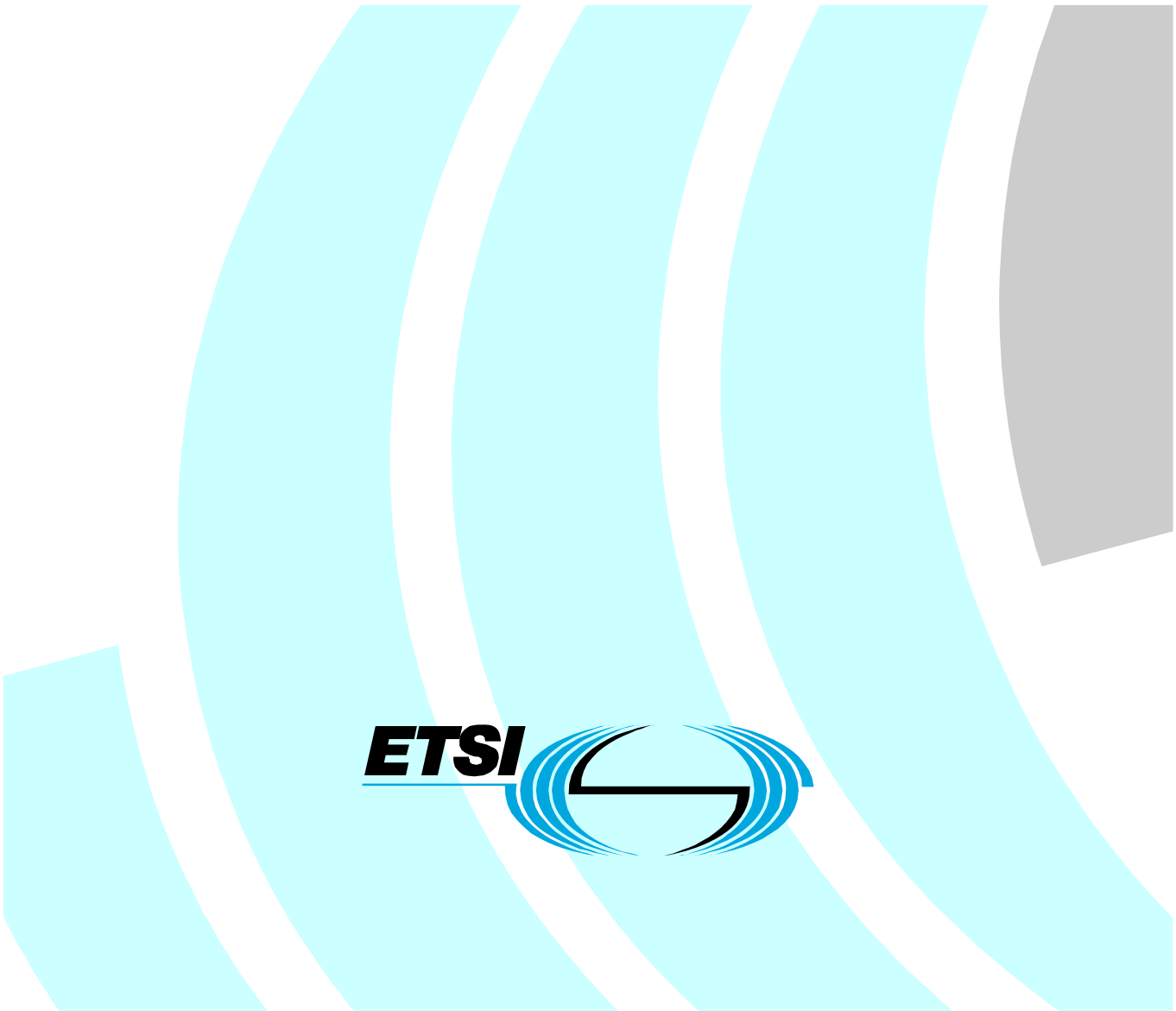
Technical Specification

Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services: Communication Diversion (CDIV); Part 2: Test Suite Structure and Test Purposes (TSS&TP)



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Contents

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN).

The present document is part 2 of a multi-part deliverable covering < Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services: Communication Diversion (CDIV)>, as identified below:

Part 1: "Protocol Implementation Conformance Statement (PICS);

Part 2: "Test Suite Structure and Test Purposes (TSS&TP);

Part 3: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the user".

Introduction

The Communications Diversion (CDIV) services enables the diverting user, to divert the communications addressed to diverting user to an other destination.

1 Scope

The present document specifies the Test Suite Structure and Test Purposes (TSS&TP) for Communications Diversion (CDIV) services, TS 183 004 [1].

A further part of the present document specifies the Protocol Implementation Conformance Statement (PICS), Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma based on the present document.

Within the TISPAN NGN Release 1 Next Generation Network (NGN) the stage 3 description is specified using the IP Multimedia Call Control Protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP).

The Communications Diversion (CDIV) services enables diverting user, to divert the communications addressed to diverting user to an other destination.

2 References

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

- For a specific reference, subsequent revisions do not apply.
- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:
  - if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;
  - for informative references.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

2.1 Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

[1] ETSI TS 183 004: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services: Communication Diversion (CDIV); Protocol specification".

[2] ETSI TS 124 229: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3 (3GPP TS 24.229 8.7.0 Release 8)".

[3] RFC 4244: "An Extension to the Session Initiation Protocol for Request History Information".

[4] RFC 4458: "Session Initiation Protocol (SIP) URIs for Applications such as Voicemail and Interactive Voice Response (IVR)".

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

[6] ETSI TS 183 007: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Originating Identification Presentation (OIP) and Originating Identification Restriction (OIR); Protocol specification".

[7] ETSI TS 183 011: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services: Anonymous Communication Rejection (ACR) and Communication Barring (CB); Protocol specification".

[8] ETSI TS 183 028: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Common Basic Communication procedures; Protocol specification".

[9] ETSI TS 183 008: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services Terminating Identification Presentation (TIP) and Terminating Identification Restriction (TIR); Protocol specification".

[10] ETSI TS 186 014-1: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services: Communication Diversion (CDIV); Part 1: Protocol Implementation conformance Statement (PICS)".

[11] ETSI TS 183 029: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services: Explicit Communication Transfer (ECT); Protocol specification".

[12] ISO/IEC 9646-1: "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 1: General concepts".

[13] ETSI TS 181 002: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Multimedia Telephony with PSTN/ISDN simulation services".

[14] ETSI TS 181 006: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Direct Communication Service in NGN; Service Description [Endorsement of OMA-ERELD-PoC-V1]".

2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area**.** For non-specific references, the latest version of the referenced document (including any amendments) applies.

Not applicable.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ISO/IEC 9646-1 [12] apply.

3.2 Abbreviations

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

3GPP	3rd Generation Partnership Project; www.3gpp.org
ACR	Anonymous Communication Rejection
AoC	Advice of Charge
AS	SIP Application Server
BGCF	Border Gateway Control Function
CD	Communication Deflection
CDIV	Communication DIVersion

CFB	Communication Forwarding Busy
CFNL	Communication Forwarding on Not Logged-in
CFNR	Communication Forward No Reply
CFU	Communication Forward Unconditional
HOLD	Communication Hold
IFC	Initial Filter Criteria
IMS	IP Multimedia Subsystem
IP	Internet Protocol
ISDN	Integrated Service Data Network
MCID	Malicious Communication IDentification
NGN	Next Generation Network
OIP	Originating Identification Presentation
OIR	Originating Identification Restriction
PSTN	Public Switched Telephone Network
SIP	Session Initiation Protocol
TIP	Terminating Identification Presentation
TIR	Terminating Identification Restriction
UA	User Agent
UE	User Equipment

4 Test Suite Structure (TSS)

Table 1: Test suite structure

Netw

DivertigS-CSCF	CDIV_N01
ASdivertingUser	CDIV_N02
ASNotification	CDIV_N03 CDIV_N04 CDIV_N05 CDIV_N06 CDIV_N07 CDIV_N08 CDIV_N09 CDIV_N10
ASdiverted-to	CDIV_N11

User

OrigUE	CDIV_U01
Diverted-toUE	CDIV_U02
DivertingUE	CDIV_U03

Interaction

TIP	CDIV_N11_xxx
TIR	CDIV_N12_xxx
OIP	CDIV_N13_xxx
OIR	CDIV_N14_xxx
ACR-CB	CDIV_N15_xxx
ECT	CDIV_N16_xxx

5 Test Purposes (TP)

5.1 Introduction

For each test requirement a TP is defined.

5.1.1 TP naming convention

TPs are numbered, starting at 001, within each group. Groups are organized according to the TSS. Additional references are added to identify the actual test suite and whether it applies to the network or the user (see figure 1).

Identifier:	**<ss>_<iut><group>_<nnn>**			
<ss>	=	supplementary service:	e.g. "CDIV"	
<iut>	=	type of IUT:	U	User
			N	Network
			yyy	service
<group>	=	group	2 digit field representing group reference according to TSS	
<nnn>	=	sequential number	(001-999)	

Figure 1: TP identifier naming convention scheme

5.1.2 Test strategy

As the base standard TS 183 004 [1] contains no explicit requirements for testing, the TPs were generated as a result of an analysis of the base standard and the PICS specification TS 186 014-1 [10].

5.1.3 Configuration

For Application Server procedure testing, the ISC interface should be used. In case when the ISC interface is not explicitly available it is also applicable to use any **NNI** interface such as the Mw, Mg or the Mx interface. The use of the Gm interface is explicitly stated.

5.2 Signalling requirements

5.2.1 Actions at the diverting S-CSCF

TSS **Netw/DivertigS-CSCF**	**TP** **CDIV_N01_001**	**Reference**	**Selection expression**
Test purpose *The S-CSCF forwards the request to the AS based on the initial filter criteria roles indicating the UE B is subscribed to CFU simulation service.* Ensure that the **S-CSCF** is able to forward a request to the AS based on the initial filter criteria for the CDIV service if the called user is subscribed to the communication diversion service.			
SIP header values:			
Comments:			

SIP#1 (Mw)		**S-CSCF**		**SIP#2 (ISC)**
INVITE 1	→		→	INVITE 1
180 Ringing	←		←	180 Ringing
200 OK (INVITE)	←		←	200 OK (INVITE)
ACK	→		→	ACK
BYE	→		→	BYE
200 OK (BYE)	←		←	200 OK (BYE)

5.2.2 Actions at the AS of the diverting User

TSS Netw/ASdivertingUser	TP CDIV_N02_001	Reference 4.5.2.6.1	Selection expression PICS 1/2

Test purpose

Served user has activated CFB, maximum number of diversion exceeded.

Ensure that the 486 (Busy here) final response is sent to the original user if the served user has activated the CFB simulation service and the served user is busy and if the maximum number of diversions is exceeded.

SIP header values:

INVITE: sip:SIP#n@ example.com SIP/2.0
History-Info: <sip: **non significant uri** value >;index=1,
Build additional entries with **non significant uri** values
<sip:SIP#n; cause=VA_CAUSE>;index=1.n.1

Remark: for each redirection a history-entry is added the History-Info header and the relevant index is incremented according the rules described in 4.5.2.6.2.3/ [1]. In short: each redirection is represented by a "." (dot) in the latest history-entry.

Comments:

SIP#1		AS		SIP#n	SIP#n+1
INVITE 1	→		→		
180 Ringing	←		←	180 Ringing	
200 OK INVITE	←		←	200 OK INVITE	
ACK	→		→	ACK	
INVITE 2	→		→	INVITE 2	
			←	486 (Busy here)	
486 (Busy here)	←		→	ACK	
ACK	→				
BYE 1	→		→	BYE 1	
200 OK BYE	←		←	200 OK BYE	

TSS Netw/ASdivertingUser	TP CDIV_N02_002	Reference 4.5.2.6.1	Selection expression PICS 1/3

Test purpose

Served user has activated CFNR, maximum number of diversion exceeded.

Ensure that the 480 (Temporarily unavailable) final response is sent to the original user if the served user does not answer the communication request and if the maximum number of diversions is exceeded.

SIP header values:

INVITE: sip:SIP#n@ example.com SIP/2.0
History-Info: <sip: non significant uri value>;index=1,
Build additional entries with non significant uri values
<sip:SIP#n; cause=VA_CAUSE>;index=1.n.1

Remark: for each redirection a history-entry is added the History-Info header and the relevant index is incremented according the rules described in 4.5.2.6.2.3/ [1]. In short: each redirection is represented by a "dot" in the latest history-entry.

Comments:

SIP#1		AS		SIP#n	SIP#n+1
INVITE	→		→	INVITE	
180 Ringing	←		←	180 Ringing	
		No reply timer expires			
480 (Temporarily unavailable)	←		→	CANCEL	
ACK	→		←	200 OK CANCEL	
			←	487 Request Terminated	
			→	ACK	

TSS Netw/ASdivertingUser	TP CDIV_N02_003	Reference 4.5.2.6.1	Selection expression PICS 1/1

Test purpose
Served user has activated CFU, maximum number of diversion exceeded.

Ensure that the 480 (Temporarily unavailable) final response is sent to the original user if the served user has activated the CFU simulation service and if the maximum number of diversions is exceeded.

SIP header values:
INVITE: sip:SIP#n@ example.com SIP/2.0
History-Info: <sip: **non significant uri value** >;index=1,
Build additional entries with **non significant uri** values
<sip:SIP#n; cause=VA_CAUSE>;index=1.n.1

Remark: for each redirection a history-entry is added the History-Info header and the relevant index is incremented according the rules described in 4.5.2.6.2.3/ [1]. In short: each redirection is represented by a "dot" in the latest history-entry.

Comments:

SIP#1		**AS**	**SIP#n**	**SIP#n+1**
INVITE	→			
480 (Temporarily unavailable)	←			
ACK	→			

TSS Netw/ASdivertingUser	TP CDIV_N02_004	Reference 4.5.2.6.1	Selection expression PICS 1/4 OR PICS 1/5

Test purpose
Served user has activated CD, maximum number of diversion exceeded.

Ensure that the 480 (Temporarily unavailable) final response is sent to the original user if the served user has activated the CD simulation service and if the maximum number of diversions is exceeded.

SIP header values:
INVITE: sip:SIP#n@ example.com SIP/2.0
History-Info: <sip: non significant uri value >;index=1,
Build additional entries with non significant uri values
<sip:SIP#n; cause=VA_CAUSE>;index=1.n.1

Remark: for each redirection a history-entry is added the History-Info header and the relevant index is incremented according the rules described in 4.5.2.6.2.3/ [1]. In short: each redirection is represented by a "dot" in the latest history-entry.

Comments:

SIP#1		**AS**		**SIP#n**	**SIP#n+1**
INVITE	→		→	INVITE	
180 Ringing	←		←	180 Ringing	
	←		←	302 Moved Temporarily	
			→	ACK	
480 (Temporarily unavailable)	←				
ACK	→				

TSS Netw/ASdivertingUser	TP CDIV_N02_005	Reference 4.5.2.6.2.2/ [1]	Selection expression

Test purpose
Request URI is set to the diverted to destination History-info header contained in the INVITE.

The served user subscribes to the CDIV service defined as CDIV in table 2. The first diversion has already undergone, no History header has been received.

Ensure that the Request URI shall be set to the public user identity where the communication is to be diverted.
Ensure that two hist-info entries shall be generated.
Ensure that the first entry shall include the hi-targeted-to-uri of the served user. The Index is set to index=1.

SIP header values:
INVITE: sip:SIP#3@ example.com SIP/2.0
History-Info: <sip:SIP#2?Privacy=history>;index=1,
<sip:SIP#3; cause=VA_CAUSE>;index=1.1

Comments:

SIP#1		**AS**	**SIP#2**		**SIP#3**
INVITE 1	→				
				→	INVITE
180 Ringing	←			←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
			Communication		
BYE	→			→	BYE
200 OK BYE	←			←	200 OK BYE

TSS Netw/ASdivertingUser	TP CDIV_N02_006	Reference 4.5.2.6.2.2/ [1]	Selection expression PICS 4/1 OR PICS 4/2

Test purpose
To header is sent unchanged.

The served user subscribes to the CDIV service defined as CDIV in table 2. The To header is sent unchanged if the user does not reveal its identity.

SIP header values:
INVITE 1: To: userB@domain
INVITE 2: To: userB@domain

Comments:

SIP#1		**AS**	**SIP#2**		**SIP#3**
INVITE 1	→				
				→	INVITE 2
180 Ringing	←			←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
			Communication		
BYE	→			→	BYE
200 OK BYE	←			←	200 OK BYE

TSS Netw/ASdivertingUser	TP CDIV_N02_007	Reference 4.5.2.6.2.2/ [1]	Selection expression PICS 4/1 OR PICS 4/2

Test purpose
To header changed with respect to the OIR service.

The served user subscribes to the CDIV service defined as CDIV in table 2. The first diversion has already undergone, no History header has been received.

Ensure that when the served user wishes privacy, the served user is subscribed to the OIR Service, the "To header" shall be changed to the URI where the communication is diverted to.

OIP Subscription option values:
Permanent mode = yes
or
Temporary mode default presentation restricted = yes

SIP header values:
INVITE 1: To: userB@domain
INVITE 2: To: userC@domain

Comments:

SIP#1		AS	SIP#2		SIP#3
INVITE 1	→				
				→	INVITE 2
180 Ringing	←			←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
		Communication			
BYE	→			→	BYE
200 OK BYE	←			←	200 OK BYE

TSS Netw/ASdivertingUser	TP CDIV_N02_008	Reference 4.5.2.6.2.2/ [1]	Selection expression PICS 3/5

Test purpose
To header changed with respect to the subscription option "Served *user allows the presentation of his/her URI to diverted-to user" set to false.*

The served user subscribes to the CDIV service defined as CDIV in table 2. The first diversion has already undergone, no History header has been received.

Ensure that if the served used has the subscription option "Served user allows the presentation of his/her URI to diverted-to user" set to false, then the "To header" shall be changed to the URI the URI where the communication is diverted to.

Subscription options:
Served user allows the presentation of his/her URI to *diverted-to* user = no

SIP header values:
INVITE 1: To: userB@domain
INVITE 2: To: userC@domain

Comments:

SIP#1		AS	SIP#2		SIP#3
INVITE 1	→				
				→	INVITE 2
180 Ringing	←			←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
		Communication			
BYE	→			→	BYE
200 OK BYE	←			←	200 OK BYE

TSS Netw/ASdivertingUser	TP CDIV_N02_009	Reference 4.5.2.6.2.3/ [1]	Selection expression

Test purpose
The request-URI is set to the public user identity of the diverted to user multiple diversion.

The served user subscribes to the CDIV service defined as CDIV in table 2. Subsequent diversion has already undergone, a History header has been received.
When multiple diversions has undergone ensure that the **Request URI** – shall be set to the public user identity where the communication is diverted to.

SIP header values:
INVITE 1:
History-Info: <sip:SIP#1?Privacy=history>;index=1,
<sip:SIP#n-1; cause=302?Privacy=history>;index=1.1
INVITE 2: INVITE sip:SIP#n@ example.com SIP/2.0

Comments:

SIP#1		AS	SIP#n-1		SIP#n
INVITE 1	→				
				→	INVITE 2
180 Ringing	←			←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
		Communication			
BYE	→			→	BYE
200 OK BYE	←			←	200 OK BYE

TSS Netw/ASdivertingUser	TP CDIV_N02_010	Reference 4.5.2.6.2.3/ [1]	Selection expression

Test purpose
A new History-Info entry is added to the received History-Info header.

The served user subscribes to the CDIV service defined as CDIV in table 2. Subsequent diversion has already undergone, a History header has been received.
Ensure that when a multiple diversion has undergone, a new History-Info entry shall be added to the History-Info header field.

SIP header values:
INVITE 1:
History-Info: <sip:SIP#1>;index=1,
<sip:SIP#n-1; cause=302>;index=1.1
INVITE 2:
History-Info: <sip:SIP#1>;index=1,
<sip:SIP#n-1; cause=302>;index=1.1
<sip:SIP#n; cause=VA_CAUSE>;index=1.1.1

Comments:

SIP#1		AS	SIP#n-1		SIP#n
INVITE 1	→				
				→	INVITE 2
180 Ringing	←			←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
		Communication			
BYE	→			→	BYE
200 OK BYE	←			←	200 OK BYE

TSS Netw/ASdivertingUser	TP CDIV_N02_011	Reference 4.5.2.6.2.3/ [1]	Selection expression PICS 4/1 OR PICS 4/2

Test purpose

Additional History-Info entry with respect to the OIR service.

The served user subscribes to the CDIV service defined as CDIV in table 2. Subsequent diversion has already undergone, a History header has been received.
When a multiple diversion has undergone, a new History-Info entry shall be added to the History-Info header field.

Ensure that the history entry representing the served user privacy header "history" shall be escaped within the hi-targeted-to-uri, if the served user wishes privacy the served user is subscribed to the OIR Service.

OIP Subscription option values:

Permanent mode = yes
or
Temporary mode default presentation restricted = yes

SIP header values:

INVITE 1:
History-Info: <sip:SIP#1>;index=1,
<sip:SIP#n-1; cause=302>;index=1.1
INVITE 2:
History-Info: <sip:SIP#1>;index=1,
<sip:SIP#n-1; cause=302?Reason=history >;index=1.1
<sip:SIP#n; cause=VA_CAUSE>;index=1.1.1

Comments:

SIP#1		**AS**	**SIP#n-1**		**SIP#n**
INVITE 1	→				
				→	INVITE 2
180 Ringing	←			←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
			Communication		
BYE	→			→	BYE
200 OK BYE	←			←	200 OK BYE

TSS Netw/ASdivertingUser	TP CDIV_N02_012	Reference 4.5.2.6.2.3/ [1]	Selection expression PICS 3/6

Test purpose

Additional History-Info entry with respect to the subscription option "Served *user allows the presentation of his/her URI to diverted-to user" set to false.*

The served user subscribes to the CDIV service defined as CDIV in table 2. Subsequent diversion has already undergone, a History header has been received.
When a multiple diversion has undergone, a new History-Info entry shall be added to the History-Info header field.

Ensure that the history entry representing the served user privacy header "history" shall be escaped within the hi-targeted-to-uri, if the served used has the subscription option "Served user allows the presentation of his/her URI to diverted-to user" set to false.

Subscription options:

Served user allows the presentation of his/her URI to *diverted-to* user = no

SIP header values:

INVITE 1:

History-Info: <sip:SIP#1>;index=1,
<sip:SIP#n-1; cause=302>;index=1.1

INVITE 2:

History-Info: <sip:SIP#1>;index=1,
<sip:SIP#n-1; cause=302?Reason: history >;index=1.1
<sip:SIP#n; cause=VA_CAUSE>;index=1.1.1

Comments:

SIP#1		**AS**	**SIP#n-1**		**SIP#n**
INVITE 1	→				
				→	INVITE 2
180 Ringing	←			←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
			Communication		
BYE	→			→	BYE
200 OK BYE	←			←	200 OK BYE

TSS Netw/ASdivertingUser	TP CDIV_N02_013	Reference 4.5.2.6.2.3/ [1]	Selection expression PICS 3/6

Test purpose
The To header is set with respect to the subscription option "Served *user allows the presentation of his/her URI to diverted-to user" set to false.*

The served user subscribes to the CDIV service defined as CDIV in table 2. Subsequent diversion has already undergone, a History header has been received.
When a multiple diversion the communication has undergone:

ensure that if the served user does not want to reveal its identity to the diverted-to party and the server used has the subscription option "Served user allows the presentation of his/her URI to diverted-to user" set to false, then the To header shall be changed the URI where the communication is diverted to.
In all other cases the To header shall not be changed.

Subscription options:
Served user allows the presentation of his/her URI to *diverted-to* user = no

SIP header values:
INVITE 1:
History-Info: <sip:SIP#1>;index=1,
<sip:SIP#n-1; cause=302>;index=1.1
INVITE 2:
To: To: user#n@domain

Comments:

SIP#1		AS	SIP#n-1		SIP#n
INVITE 1	→				
				→	INVITE 2
180 Ringing	←			←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
		Communication			
BYE	→			→	BYE
200 OK BYE	←			←	200 OK BYE

TSS Netw/ASdivertingUser	TP CDIV_N02_014	Reference 4.5.2.6.2.3/ [1]	Selection expression PICS 4/1 OR PICS 4/2

Test purpose
The To header is set with respect to the OIR service of the served user.
The served user subscribes to the CDIV service defined as CDIV in table 2. Subsequent diversion has already undergone, a History header has been received.
When this a multiple diversion the communication has undergone:

ensure that if the served user does not want to reveal its identity to the diverted-to party and the served user wishes privacy (e.g. the served user is subscribed to the OIR Service) then the To header shall be changed the URI where the communication is diverted to.

OIP Subscription option values:
Permanent mode = yes
or
Temporary mode default presentation restricted = yes

SIP header values:
INVITE 1:
History-Info: <sip:SIP#1>;index=1,
<sip:SIP#n-1; cause=302>;index=1.1
INVITE 2:
To: To: user#n@domain

Comments:

SIP#1		AS	SIP#n-1		SIP#n
INVITE 1	→				
				→	INVITE 2
180 Ringing	←			←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
		Communication			
BYE	→			→	BYE
200 OK BYE	←			←	200 OK BYE

Table 2

Cause Value in hi-targeted-to-uri VA_CAUSE	**Cause value**	**Call diversion information**	**Redirecting Reason**
	302		Unconditional
	486		User busy
	408		No reply
	480		Deflection immediate
	404		Subscriber not Logged in
	487		Deflection during alerting
	503		Subscriber Not reachable

5.2.2.1 Notification procedure of the originating and terminating user

5.2.2.1.1 Communication Forwarding Unconditional **(**CFU)

TSS Netw/ASNotification	**TP CDIV_N03_001**	**Reference 4.5.2.6.4/ [1]**	**Selection expression PICS 1/1 AND PICS 3/3**

Test purpose
The served user subscribes to the CFU simulation service; originating user is not notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CFU simulation service. The origination user is not notified.

Subscription options:
Originating user receives notification that his communication has been diverted (forwarded or deflected) = no

SIP header values:

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**		**SIP#3**
INVITE 1	→				
Communication diversion is performed					
				→	INVITE
				←	180 Ringing
180 Ringing	←				
				←	200 OK (INVITE)
200 OK (INVITE)	←				
ACK	→			→	ACK
BYE	→			→	BYE
200 OK (BYE)	←			←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N03_002	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/1 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose

The served user subscribes to the CFU simulation service; originating user is notified.

When Communication Diversion occurs and if the notification procedures of the originating user is supported then a 181 (Call Is Being Forwarded) response shall be sent towards the originating user. A Privacy header value history is escaped in the **first and the second entry** of the History-Info header.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = no
Served user allows the presentation of his/her URI to *originating* user in diversion notification = no

SIP header values:

181 Call is Being Forwarded: P-Asserted-Identity SIP#2
History-Info: <sip:SIP#2?Privacy=history>;index=1,
<sip:SIP#3; cause=302?Privacy=history>;index=1.1

Comments:

SIP#1		SUT	SIP#2 (served user)	SIP#3
INVITE 1	→			
Communication diversion is performed				
181 Call is Being Forwarded	←			
			→	INVITE
			←	180 Ringing
180 Ringing	←			
			←	200 OK (INVITE)
200 OK (INVITE)	←			
ACK	→		→	ACK
BYE	→		→	BYE
200 OK (BYE)	←		←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N03_003	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/1 AND PICS 3/3 AND PICS 2/2

Test purpose

The served user subscribes to the CFU simulation service; originating user is notified. Additionally an announcement is played.

When Communication Diversion occurs and if the notification procedures of the originating user is supported then a 181 (Call Is Being Forwarded) response shall be sent towards the originating user.
Additional the AS initiates an announcement to be included towards the calling user in order to inform about the diversion. Announcements may be played.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes

SIP header values:

181 Call is Being Forwarded: P-Asserted-Identity SIP#2

Comments:

SIP#1		SUT	SIP#2 (served user)		SIP#3
INVITE 1	→				
Communication diversion is performed					
181 Call is Being Forwarded	←				
				→	INVITE
				←	180 Ringing
180 Ringing	←				
An announcement toward the calling user					
				←	200 OK (INVITE)
200 OK (INVITE)	←				
ACK	→			→	ACK
BYE	→			→	BYE
200 OK (BYE)	←			←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N03_004	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/1 AND PICS 3/3 AND PICS3/4 AND PICS 3/5

Test purpose

The served user subscribes to the CFU simulation service; originating user is notified, the URI of the served user is received.

When Communication Diversion occurs and if the notification procedures of the originating user is supported then a 181 (Call Is Being Forwarded) response shall be sent towards the originating user.
The P-Asserted-Identity includes the URI of the diverting user. The served user allows the presentation of his/her URI to the originating user. The URI of the served user is contained in **first entry** of the History-Info header. A Privacy header value history is escaped in the **second entry** of the History-Info header.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = no
Served user allows the presentation of his/her URI to *originating* user in diversion notification = yes

SIP header values:

181 Call is Being Forwarded: P-Asserted-Identity SIP#2
History-Info: <**sip:SIP#2>;index=1**,
<sip:SIP#3; cause=302?Privacy=history>;index=1.1

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**		**SIP#3**
INVITE 1	→				
Communication diversion is performed					
181 Call is Being Forwarded	←				
				→	INVITE
				←	180 Ringing
180 Ringing	←				
				←	200 OK (INVITE)
200 OK (INVITE)	←				
ACK	→			→	ACK
BYE	→			→	BYE
200 OK (BYE)	←			←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N03_005	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/1 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose

The served user subscribes to the CFU simulation service; originating user is notified, the URI of the diverted-to user is received.

When Communication Diversion occurs and if the notification procedures of the originating user is supported then a 181 (Call Is Being Forwarded) response shall be sent towards the originating user. The 181 (Call Is Being Forwarded) response contains the P-Asserted-Identity header field and Privacy header field.
The P-Asserted-Identity includes the URI of the diverting user. The served user allows the presentation of diverted-to URI to the originating user. The URI of the diverted-to user is contained in **second entry** of the History-Info header. A Privacy header value history is escaped in the **first entry** of the History-Info header.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = yes
Served user allows the presentation of his/her URI to *originating* user in diversion notification = no

SIP header values:

181 Call is Being Forwarded: P-Asserted-Identity SIP#2
History-Info: <sip:SIP#2?Privacy=history >;index=1,
<**sip:SIP#3; cause=302>;index=1.1**

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**		**SIP#3**
INVITE 1	→				
Communication diversion is performed					
181 Call is Being Forwarded	←				
				→	INVITE
				←	180 Ringing
180 Ringing	←				
				←	200 OK (INVITE)
200 OK (INVITE)	←				
ACK	→			→	ACK
BYE	→			→	BYE
200 OK (BYE)	←			←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N03_006	Reference 4.5.2.6.2/ [1]	Selection expression PICS 1/1 AND PICS 3/6

Test purpose
The served user subscribes to the CFU simulation service; the diverted to user is not notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CFU simulation service. The diverted to user is not notified. A Privacy header value history is escaped in the first entry of the History-Info header.

Subscription options:
Served user allows the presentation of his/her URI to *diverted-to* user = no

SIP header values:
INVITE P-Asserted-Identity SIP#1
History-Info: <sip:SIP#2?**Privacy=history**>;index=1,
<sip:SIP#3; cause=302>;index=1.1

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**		**SIP#3**
INVITE 1	→				
Communication diversion is performed					
				→	INVITE
				←	180 Ringing
180 Ringing	←				
				←	200 OK (INVITE)
200 OK (INVITE)	←				
ACK	→			→	ACK
BYE	→			→	BYE
200 OK (BYE)	←			←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N03_007	Reference 4.5.2.6.2/ [1]	Selection expression PICS 1/1 AND PICS 3/6

Test purpose
The served user subscribes to the CFU simulation service; the diverted to user is notified. URI of served user is sent.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CFU simulation service. The diverted to user is notified. Served user allows the presentation of his/her URI to the *diverted-to* user. No Privacy header is escaped in the first entry of the History-Info header.

Subscription options:
Served user allows the presentation of his/her URI to *diverted-to* user = yes

SIP header values:
INVITE P-Asserted-Identity SIP#1
History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause=302>;index=1.1

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**		**SIP#3**
INVITE 1	→				
Communication diversion is performed					
				→	INVITE
				←	180 Ringing
180 Ringing	←				
				←	200 OK (INVITE)
200 OK (INVITE)	←				
ACK	→			→	ACK
BYE	→			→	BYE
200 OK (BYE)	←			←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N03_008	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/1 AND PICS 3/1

Test purpose
The served user subscribes to the CFU simulation service; Indication of communication diversion to the diverting user using the MESSAGE request.

Ensure that when the diverting user is registering the AS sends a MESSAGE request to the diverting user including the information where the call is forwarded Unconditional.

Subscription options:
Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values: MESSAGE (text/plain)

Comments:

SIP#1	SUT	SIP#2 (served user)	SIP#3
INVITE 1 →			
Communication diversion is performed			
			→ INVITE
	MESSAGE →	MESSAGE	
	200 OK MESSAGE ←	200 OK MESSAGE	
			← 180 Ringing
180 Ringing ←			
			← 200 OK (INVITE)
200 OK (INVITE) ←			
ACK →			→ ACK
BYE →			→ BYE
200 OK (BYE) ←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N03_009	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/1 AND PICS 2/1 AND PICS 3/1

Test purpose
The served user subscribes to the CFU simulation service; Indication of communication diversion to the diverting user using the MESSAGE request triggered by a timer.

Ensure that when the diverting user is registering the AS sends a MESSAGE request to the diverting user including the information where the call is forwarded Unconditional. The MESSAGE request that is be sent due to an timer value that can be provided by the user.

Subscription options:
Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values: MESSAGE (text/plain) triggered by a timer value provided the served user

Comments:

SIP#1	SUT	SIP#2 (served user)	SIP#3
INVITE 1 →			
Communication diversion is performed			
			→ INVITE
			← 180 Ringing
180 Ringing ←			
			← 200 OK (INVITE)
200 OK (INVITE) ←			
ACK →			→ ACK
	Timer T_{CDIV_IND} expired		
	MESSAGE →	MESSAGE	
	200 OK MESSAGE ←	200 OK MESSAGE	
BYE →			→ BYE
200 OK (BYE) ←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N03_010	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/1 AND PICS 2/4 AND PICS 3/1

Test purpose

The served user subscribes to the CFU simulation service; periodically indication of communication diversion to the diverting user using the MESSAGE request.

Ensure that when the diverting user is registering the AS sends a MESSAGE request to the diverting user including the information where the call is forwarded Unconditional. The diverting user will be informed periodically with a MESSAGE request the information where the call is diverted to.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values: MESSAGE (text/plain)

Comments:

SIP#1		SUT		SIP#2 (served user)		SIP#3
INVITE 1	→					
Communication diversion is performed						
					→	INVITE
					←	180 Ringing
180 Ringing	←					
					←	200 OK (INVITE)
200 OK (INVITE)	←					
ACK	→				→	ACK
		Timer T_{CDIV_IND} expired				
		MESSAGE	→	MESSAGE		
		200 OK MESSAGE	←	200 OK MESSAGE		
		Timer T_{CDIV_IND} expired				
		MESSAGE	→	MESSAGE		
		200 OK MESSAGE	←	200 OK MESSAGE		
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N03_011	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/1 AND PICS 3/1 AND PICS 3/2

Test purpose

The served user subscribes to the CFU simulation service; Indication of communication diversion to the diverting user using the MESSAGE request when a new outgoing communication is requested.

Ensure that a diverting user will be informed with a MESSAGE request to the diverting user after the diverting user has initiated a new outgoing communication the information where the call is forwarded Unconditional.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

Served user receives reminder indication on outgoing communication that CDIV is currently activated = yes

SIP header values: MESSAGE (text/plain)

Comments:

SIP#1		SUT		SIP#2 (served user)		SIP#3
INVITE 1	→					
Communication diversion is performed						
		INVITE 2	→		→	INVITE
		MESSAGE	→	MESSAGE		
		200 OK MESSAGE		200 OK MESSAGE		
		180 Ringing	←		←	180 Ringing
180 Ringing	←	180 Ringing				
		200 OK (INVITE)	←		←	200 OK (INVITE)
200 OK (INVITE)	←	200 OK (INVITE)				
ACK	→				→	ACK
				INVITE 2	→	INVITE
				180 Ringing	←	180 Ringing
				200 OK (INVITE)	←	200 OK (INVITE)
				ACK	→	ACK
		MESSAGE	→	MESSAGE		
		200 OK MESSAGE	←	200 OK MESSAGE		
				BYE	→	BYE
				200 OK (BYE)	←	200 OK (BYE)
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N03_012	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/1 AND PICS 2/3 AND PICS 3/1

Test purpose

The served user subscribes to the CFU simulation service; Communication Diversion Notification applies.

Ensure that when the diverting user has subscribed the Communication Diversion Notification service, the served user receives a NOTIFY request containing the information regarding the current communication diversion unconditional.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values:

SUBSCRIBE: Event:comm-div-info
application/comm-div-info+xml
<comm-div-info>
<comm-div-subs-info >
<comm-div-selection-criteria>
< originating-user-selection-criteria>SIP#1
<diverting-user-selection-criteria>SIP#2
<diverted-to-user-selection-criteria>SIP#3
< diversion-time-selection-criteria >(Date-time)
< diversion-reason-selection-criteria >302
<comm-div-ntfy-trigger-criteria>
<notification-time-selection-criteria>(Date/Time range PIXIT)
</comm-div-info>

NOTIFY: Event:comm-div-info
application/comm-div-info+xml
<comm-div-info>
<comm-div-ntfy-info>
<originating-user-info>SIP#1
<diverting-user-info>SIP#2
<diverted-to-user-info>SIP#3
<diversion-time-info> (time range
<diversion-reason-info>302
<diversion-rule-info-type>
<diversion-rule> (any text)
</comm-div-info>

Comments:

SIP#1	SUT	SIP#2 (served user)	SIP#3
	SUBSCRIBE ←	SUBSCRIBE	
	200 OK SUBSCRIBE →	200 OK SUBSCRIBE	
	NOTIFY →	NOTIFY	
	200 OK NOTIFY ←	200 OK NOTIFY	
INVITE 1 →			
Communication diversion is performed			
			→ INVITE
			← 180 Ringing
180 Ringing ←			
			← 200 OK (INVITE)
200 OK (INVITE) ←			
ACK →			→ ACK
	NOTIFY →	NOTIFY	
	200 OK NOTIFY ←	200 OK NOTIFY	
BYE →			→ BYE
200 OK (BYE) ←			← 200 OK (BYE)

5.2.2.1.2 Communication Forwarding on Busy user (CFB)

TSS Netw/ASNotification	TP CDIV_N04_001	Reference 4.5.2.6/ [1]	Selection expression PICS 1/2

Test purpose
The served user subscribes to the CFB simulation service.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CFB simulation service.

SIP header values:

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**	**SIP#3**
INVITE 1	→			
			→ INVITE	
			← 486 Busy Here	
			→ ACK	
181 Call is Being Forwarded	←			
				→ INVITE
180 Ringing	←			← 180 Ringing
200 OK (INVITE)	←			← 200 OK (INVITE)
ACK	→			→ ACK
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N04_002	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/2 AND PICS 3/3

Test purpose
The served user subscribes to the CFB simulation service; originating user is not notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CFB simulation service. The origination user is not notified.

Subscription options:
Originating user receives notification that his communication has been diverted (forwarded or deflected) = no

SIP header values:

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**	**SIP#3**
INVITE 1	→			
			→ INVITE	
			← 486 Busy Here	
			→ ACK	
		CFB performed		
				→ INVITE
180 Ringing	←			← 180 Ringing
200 OK (INVITE)	←			← 200 OK (INVITE)
ACK	→			→ ACK
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N04_003	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/2 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose

The served user subscribes to the CFB simulation service; originating user is notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CFB simulation service. The originating user receives notification that a communication has been forwarded. A 181 (Call Is Being Forwarded) response shall be sent towards the originating user. A Privacy header value history is escaped in the **first and the second entry** of the History-Info header.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = no
Served user allows the presentation of his/her URI to *originating* user in diversion notification = no

SIP header values:

181 Call is Being Forwarded: P-Asserted-Identity SIP#2
History-Info: <sip:SIP#2?Privacy=history>;index=1,
<sip:SIP#3; cause=486?Privacy=history>;index=1.1

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→					
			→	INVITE		
			←	486 Busy Here		
			→	ACK		
		CFB performed				
181 Call is Being Forwarded	←					
					→	INVITE
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N04_004	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/2 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose

The served user subscribes to the CFB simulation service. The originating user receives the URI of the served user.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CFB simulation service. The originating user receives notification that a communication has been forwarded and the served user allows the presentation of his/her URI to the originating user. A 181 (Call Is Being Forwarded) response shall be sent towards the originating user. The URI of the served user is contained in **first entry** of the History-Info header.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of his/her URI to *originating* user in diversion notification = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = no

SIP header values:

181 Call is Being Forwarded: P-Asserted-Identity: SIP#2
History-Info: **<sip:SIP#2>;index=1**,
<sip:SIP#3; cause=486?Privacy=history>;index=1.1

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→					
			→	INVITE		
			←	486 Busy Here		
			→	ACK		
		CFB performed				
181 Call is Being Forwarded	←					
					→	INVITE
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N04_005	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/2 AND PICS 3/3AND PICS 3/4 AND PICS 3/5

Test purpose

The served user subscribes to the CFB simulation service. The originating user receives the URI of the diverted-to user.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CFB simulation service. The originating user receives notification that a communication has been forwarded and the served user allows the presentation of his/her URI to the originating user. A 181 (Call Is Being Forwarded) response shall be sent towards the originating user. The URI of the diverted-to user is contained in **second entry** of the History-Info header.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of his/her URI to *originating* user in diversion notification = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = yes

SIP header values:

181 Call is Being Forwarded: P-Asserted-Identity: SIP#2
History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause=486>;index=1.1

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→					
			→	INVITE		
			←	486 Busy Here		
			→	ACK		
		CFB performed				
181 Call is Being Forwarded	←					
					→	INVITE
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N04_006	Reference 4.5.2.6.2/ [1]	Selection expression PICS 1/2 AND PICS 3/6

Test purpose
The served user subscribes to the CFB simulation service; the diverted to user is not notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CFB simulation service. The diverted to user is not notified. A Privacy header value history is escaped in the first entry of the History-Info header.

Subscription options:
Served user allows the presentation of his/her URI to *diverted-to* user = no

SIP header values:
INVITE 2 P-Asserted-Identity SIP#1
History-Info: <sip:SIP#2?**Privacy=history**>;index=1,
<sip:SIP#3; cause=486>;index=1.1

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→					
			→	INVITE		
			←	486 Busy Here		
			→	ACK		
		CFB performed				
					→	INVITE 2
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N04_007	Reference 4.5.2.6.2/ [1]	Selection expression PICS 1/2 AND PICS 3/6

Test purpose
The served user subscribes to the CFB simulation service; the diverted to user is notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CFB simulation service. The diverted to user is notified. Served user allows the presentation of his/her URI to the *diverted-to* user. No Privacy header is escaped in the first entry of the History-Info header.

Subscription options:
Served user allows the presentation of his/her URI to *diverted-to* user = yes

SIP header values:
INVITE 2 P-Asserted-Identity SIP#1
History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause=486;>;index=1.1

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→					
			→	INVITE		
			←	486 Busy Here		
			→	ACK		
		CFB performed				
					→	INVITE 2
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N04_008	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/2 AND PICS 3/1

Test purpose
The served user subscribes to the CFB simulation service; Indication of communication diversion to the diverting user using the MESSAGE request.

Ensure that when the diverting user is registering the AS sends a MESSAGE request to the diverting user including the information where the call is forwarded on busy user.

Subscription options:
Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values: MESSAGE (text /plain)

Comments:

SIP#1		SUT		SIP#2 (served user)		SIP#3
INVITE 1	→					
				→	INVITE	
				←	486 Busy Here	
				→	ACK	
		CFB performed				
			MESSAGE	→	MESSAGE	
			200 OK MESSAGE	←	200 OK MESSAGE	
						→ INVITE
180 Ringing	←					← 180 Ringing
200 OK (INVITE)	←					← 200 OK (INVITE)
ACK	→					→ ACK
BYE	→					→ BYE
200 OK (BYE)	←					← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N04_009	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/2 AND PICS 2/1 AND PICS 3/1

Test purpose
The served user subscribes to the CFB simulation service; Indication of communication diversion to the diverting user using the MESSAGE request triggered by a timer.

Ensure that when the diverting user is registering the AS sends a MESSAGE request to the diverting user including the information where the call is forwarded on busy user. The MESSAGE request that is be sent due to an timer value that can be provided by the user.

Subscription options:
Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values: MESSAGE (text /plain) triggered by a timer value provided the served user

Comments:

SIP#1		SUT		SIP#2 (served user)		SIP#3
INVITE 1	→					
				→	INVITE	
				←	486 Busy Here	
				→	ACK	
		CFB performed				
						→ INVITE
180 Ringing	←					← 180 Ringing
200 OK (INVITE)	←					← 200 OK (INVITE)
ACK	→					→ ACK
		Timer T_{CDIV_IND} expired				
			MESSAGE	→	MESSAGE	
			200 OK MESSAGE	←	200 OK MESSAGE	
BYE	→					→ BYE
200 OK (BYE)	←					← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N04_010	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/2 AND PICS 2/4 AND PICS 3/1

Test purpose

The served user subscribes to the CFB simulation service; periodically indication of communication diversion to the diverting user using the MESSAGE request.

Ensure that when the diverting user is registering the AS sends a MESSAGE request to the diverting user including the information where the call is forwarded on busy user. The diverting user will be informed periodically with a MESSAGE request the information where the call is diverted to.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values: MESSAGE (text /plain)

Comments:

SIP#1		SUT	SIP#2 (served user)	SIP#3
INVITE 1	→			
			→ INVITE	
			← 486 Busy Here	
			→ ACK	
		CFB performed		
				→ INVITE
180 Ringing	←			← 180 Ringing
200 OK (INVITE)	←			← 200 OK (INVITE)
ACK	→			→ ACK
		Timer T_{CDIV_IND} expired		
		MESSAGE	→ MESSAGE	
		200 OK MESSAGE	← 200 OK MESSAGE	
		Timer T_{CDIV_IND} expired		
		MESSAGE	→ MESSAGE	
		200 OK MESSAGE	← 200 OK MESSAGE	
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N04_011	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/2 AND PICS 3/1 AND PICS 3/2

Test purpose

The served user subscribes to the CFB simulation service; Indication of communication diversion to the diverting user using the MESSAGE request when a new outgoing communication is requested.

Ensure that a diverting user will be informed with a MESSAGE request to the diverting user after the diverting user has initiated a new outgoing communication the information where the call is forwarded on busy user.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes
Served user receives reminder indication on outgoing communication that CDIV is currently activated = yes

SIP header values: MESSAGE (text /plain)

Comments:

SIP#1		SUT		SIP#2 (served user)		SIP#3
INVITE 1	→					
			→	INVITE		
			←	486 Busy Here		
			→	ACK		
		CFB performed				
					→	INVITE
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
				INVITE		INVITE
				180 Ringing		180 Ringing
				200 OK (INVITE)		200 OK (INVITE)
				ACK		ACK
		MESSAGE	→	MESSAGE		
		200 OK MESSAGE	←	200 OK MESSAGE		
				BYE	→	BYE
				200 OK (BYE)	←	200 OK (BYE)
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N04_012	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/2 AND PICS 2/3 AND PICS 3/1

Test purpose

The served user subscribes to the CFB simulation service; Communication Diversion Notification applies.

Ensure that when the diverting user has subscribed the Communication Diversion Notification service, the served user receives a NOTIFY request containing the information regarding the current communication diversion busy.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values:

SUBSCRIBE: Event:comm-div-info
application/comm-div-info+xml
<comm-div-info>
<comm-div-subs-info >
<comm-div-selection-criteria>
< originating-user-selection-criteria>SIP#1
<diverting-user-selection-criteria>SIP#2
<diverted-to-user-selection-criteria>SIP#3
< diversion-time-selection-criteria >(Date-time)
< diversion-reason-selection-criteria >486
<comm-div-ntfy-trigger-criteria>
<notification-time-selection-criteria>(Date/Time range PIXIT)
</comm-div-info>

NOTIFY: Event:comm-div-info
application/comm-div-info+xml
<comm-div-info>
<comm-div-ntfy-info>
<originating-user-info>SIP#1
<diverting-user-info>SIP#2
<diverted-to-user-info>SIP#3
<diversion-time-info> (time range
<diversion-reason-info> 486
<diversion-rule-info-type>
<diversion-rule> (any text)
</comm-div-info>

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
		SUBSCRIBE	←	SUBSCRIBE		
		200 OK SUBSCRIBE	→	200 OK SUBSCRIBE		
		NOTIFY	→	NOTIFY		
		200 OK NOTIFY	←	200 OK NOTIFY		
INVITE 1	→		→	INVITE		
			←	486 Busy Here		
			→	ACK		
		CFB performed				
		NOTIFY	→	NOTIFY		
		200 OK NOTIFY	←	200 OK NOTIFY		
					→	INVITE
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

5.2.2.1.3 Communication Forwarding on no Reply **(**CFNR)

TSS Netw/ASNotification	TP CDIV_N05_001	Reference 4.5.2.6/ [1]	Selection expression PICS 1/3

Test purpose
The served user subscribes to the CFNR simulation service.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *CFNR* simulation service.

SIP header values:

Comments:

SIP#1		SUT		SIP#2 (served user)		SIP#3
INVITE 1	→					
			→	INVITE		
180 Ringing	←		←	180 Ringing		
			→	CANCEL		
			←	200 OK CANCEL		
			←	487 Request Terminated		
			→	ACK		
			CFNR performed			
					→	INVITE
					←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N05_002	Reference 4.5.2.6.3/ [1]	Selection expression PICS 1/3

Test purpose
The served user subscribes to the CFNR simulation service Forking is provided CFNR timer is not refreshed

Ensure that the communication is forwarded to multiple diverted to users (forking) if the served user is subscribed to the CFNR simulation service. After receiving the first 180 (Ringing) response the no reply timer shall be started. Ensure that a further received 180 (Ringing) response does not refresh the timer.

SIP header values:

Comments:

SIP#1		SUT		SIP#2 (served user)		SIP#2 forked		SIP#3
INVITE 1	→							
			→	INVITE				
180 Ringing	←		←	180 Ringing				
					→	INVITE		
					←	180 Ringing		
			CFNR performed after first 180 was received					
					→	CANCEL		
					←	200 OK CANCEL		
					←	487 Request Terminated		
					→	ACK		
							→	INVITE
							←	180 Ringing
200 OK (INVITE)	←						←	200 OK (INVITE)
ACK	→						→	ACK
BYE	→						→	BYE
200 OK (BYE)	←						←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N05_003	Reference 4.5.2.6.3/ [1]	Selection expression PICS 1/3

Test purpose

The served user subscribes to the CFNR simulation service the CFNR timer is terminated when a 200 OK was received.

Ensure that if the served user is subscribed to the *CFNR* simulation service when a 180 response is received. Ensure that with receiving a 200 (OK) response the no reply timer shall be terminated and the call follows the Basic call procedure. Other open early dialogs shall be terminated.

SIP header values:

Comments:

SIP#1		SUT	SIP#2 (served user)		SIP#3
INVITE 1	→				
			→ INVITE		
180 Ringing	←		← 180 Ringing		
			No CFNR performed		
200 OK (INVITE)	←		← 200 OK (INVITE)		
ACK	→		→ ACK		
BYE	→			→	BYE
200 OK (BYE)	←			←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N05_004	Reference 4.5.2.6.3/ [1]	Selection expression PICS 1/3

Test purpose

The served user subscribes to the CFNR simulation service. Dialogue to the served user is terminated.

Ensure that the served user is subscribed to the *CFNR* simulation service and the no reply timer expires. Ensure that if the dialog(s) to the diverting user shall be terminated e.g. by sending a CANCEL request.

SIP header values:

Comments:

SIP#1		SUT	SIP#2 (served user)		SIP#3
INVITE 1	→				
			→ INVITE		
180 Ringing	←		← 180 Ringing		
		$T_{no\ reply}$ expired			
			→ CANCEL		
			← 200 OK CANCEL		
			← 487 Request Terminated		
			→ ACK		
			CFNR performed		
				→	INVITE
				←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
BYE	→			→	BYE
200 OK (BYE)	←			←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N05_005	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/3 AND PICS 3/3

Test purpose

The served user subscribes to the CFNR simulation service; originating user is not notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *CFNR* simulation service. The origination user is not notified.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = no

SIP header values:

Comments:

SIP#1		SUT	SIP#2 (served user)	SIP#3
INVITE 1	→			
			→ INVITE	
180 Ringing	←		← 180 Ringing	
		$T_{no\ reply}$ expired		
			→ CANCEL	
			← 200 OK CANCEL	
			← 487 Request Terminated	
			→ ACK	
			CFNR performed	
				→ INVITE
				← 180 Ringing
200 OK (INVITE)	←			← 200 OK (INVITE)
ACK	→			→ ACK
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N05_006	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/3 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose
The served user subscribes to the CFNR simulation service; originating user is notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *CFNR* simulation service. The originating user receives notification that a communication has been forwarded. A 181 (Call Is Being Forwarded) response shall be sent towards the originating user. A Privacy header value history is escaped in the **first and the second entry** of the History-Info header.

Subscription options:
Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = no
Served user allows the presentation of his/her URI to *originating* user in diversion notification = no

SIP header values:
181 Call is Being Forwarded: P-Asserted-Identity SIP#2
History-Info: <sip:SIP#2?Privacy=history>;index=1,
<sip:SIP#3; cause=408?Privacy=history>;index=1.1

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**	**SIP#3**
INVITE 1	→			
			→ INVITE	
180 Ringing	←		← 180 Ringing	
		$T_{no\ reply}$ expired		
			→ CANCEL	
			← 200 OK CANCEL	
			← 487 Request Terminated	
			→ ACK	
		CFNR performed		
181 Call is Being Forwarded	←			→ INVITE
				← 180 Ringing
200 OK (INVITE)	←			← 200 OK (INVITE)
ACK	→			→ ACK
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N05_007	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/3 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose

The served user subscribes to the CFNR simulation service. The originating user receives the URI of the served user.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *CFNR* simulation service. The originating user receives notification that a communication has been forwarded and the served user allows the presentation of his/her URI to the originating user. The URI of the served user is contained in **first entry** of the History-Info header.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of his/her URI to *originating* user in diversion notification = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = no

SIP header values:

181 Call is Being Forwarded: P-Asserted-Identity: SIP#2
History-Info: **<sip:SIP#2>;index=1**,
<sip:SIP#3; cause=408?Privacy=history>;index=1.1

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**	**SIP#3**
INVITE 1	→			
			→ INVITE	
180 Ringing	←		← 180 Ringing	
		$T_{no\ reply}$ expired		
			→ CANCEL	
			← 200 OK CANCEL	
			← 487 Request Terminated	
			→ ACK	
			CFNR performed	
181 Call is Being Forwarded				→ INVITE
				← 180 Ringing
200 OK (INVITE)	←			← 200 OK (INVITE)
ACK	→			→ ACK
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N05_008	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/3 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose

The served user subscribes to the CFNR simulation service. The originating user receives the URI of the diverted-to user.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *CFNR* simulation service. The originating user receives notification that a communication has been forwarded and the served user allows the presentation of diverted-to URI to the originating user. The URI of the diverted-to user is contained in **second entry** of the History-Info header.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of his/her URI to *originating* user in diversion notification = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = yes

SIP header values:

181 Call is Being Forwarded: P-Asserted-Identity: SIP#2
History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause=408>;index=1.1

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**		**SIP#3**
INVITE 1	→				
			→	INVITE	
180 Ringing	←		←	180 Ringing	
		$T_{no\ reply}$ expired			
			→	CANCEL	
			←	200 OK CANCEL	
			←	487 Request Terminated	
			→	ACK	
			CFNR performed		
181 Call is Being Forwarded				→	INVITE
				←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
BYE	→			→	BYE
200 OK (BYE)	←			←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N05_009	Reference 4.5.2.6.2/ [1]	Selection expression PICS 1/3 AND PICS 3/6

Test purpose

The served user subscribes to the CFNR simulation service; the diverted to user is not notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *CFNR* simulation service. The diverted to user is not notified. . A Privacy header value history is escaped in the first entry of the History-Info header.

Subscription options:

Served user allows the presentation of his/her URI to *diverted-to* user = no

SIP header values:

INVITE 2 P-Asserted-Identity SIP#1
History-Info: <sip:SIP#2?Privacy=history>;index=1,
<sip:SIP#3; cause=408>;index=1.1

Comments:

SIP#1		SUT	SIP#2 (served user)	SIP#3
INVITE 1	→			
			→ INVITE	
180 Ringing	←		← 180 Ringing	
		$T_{no\ reply}$ expired		
			→ CANCEL	
			← 200 OK CANCEL	
			← 487 Request Terminated	
			→ ACK	
			CFNR performed	
				→ INVITE 2
				← 180 Ringing
200 OK (INVITE)	←			← 200 OK (INVITE)
ACK	→			→ ACK
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N05_010	Reference 4.5.2.6.2/ [1]	Selection expression PICS 1/3 AND PICS 3/6

Test purpose

The served user subscribes to the CFNR simulation service; the diverted to user is notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *CFNR* simulation service. Served user allows the presentation of his/her URI to the *diverted-to* user. No Privacy header is escaped in the first entry of the History-Info header.

Subscription options:

Served user allows the presentation of his/her URI to *diverted-to* user = yes

SIP header values:

INVITE 2 P-Asserted-Identity SIP#1
History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause=408;>;index=1.1

Comments:

SIP#1		SUT	SIP#2 (served user)	SIP#3
INVITE 1	→			
			→ INVITE	
180 Ringing	←		← 180 Ringing	
		$T_{no\ reply}$ expired		
			→ CANCEL	
			← 200 OK CANCEL	
			← 487 Request Terminated	
			→ ACK	
			CFNR performed	
				→ INVITE 2
				← 180 Ringing
200 OK (INVITE)	←			← 200 OK (INVITE)
ACK	→			→ ACK
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N05_011	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/3 AND PICS 3/1

Test purpose

The served user subscribes to the CFNR simulation service; Indication of communication diversion to the diverting user using the MESSAGE request.

Ensure that when the diverting user is registering the AS sends a MESSAGE request to the diverting user including the information where the call is forwarded on no Reply.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values: MESSAGE (text /plain)

Comments:

SIP#1		SUT		SIP#2 (served user)		SIP#3
INVITE 1	→					
				→	INVITE	
180 Ringing	←			←	180 Ringing	
		$T_{no\ reply}$ expired				
				→	CANCEL	
				←	200 OK CANCEL	
				←	487 Request Terminated	
				→	ACK	
			CFNR performed			
		MESSAGE	→	MESSAGE		
		200 OK MESSAGE	←	200 OK MESSAGE		
					→	INVITE
					←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N05_012	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/3 AND PICS 2/1 AND PICS 3/1

Test purpose

The served user subscribes to the CFNR simulation service; Indication of communication diversion to the diverting user using the MESSAGE request triggered by a timer.

Ensure that when the diverting user is registering the AS sends a MESSAGE request to the diverting user including the information where the call is forwarded on no Reply. The MESSAGE request that is be sent due to an timer value that can be provided by the user.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values: MESSAGE (text /plain) triggered by a timer value provided the served user

Comments:

SIP#1		SUT	SIP#2 (served user)	SIP#3
INVITE 1	→			
			→ INVITE	
180 Ringing	←		← 180 Ringing	
		$T_{no\ reply}$ expired		
			→ CANCEL	
			← 200 OK CANCEL	
			← 487 Request Terminated	
			→ ACK	
			CFNR performed	
				→ INVITE
				← 180 Ringing
200 OK (INVITE)	←			← 200 OK (INVITE)
ACK	→			→ ACK
		Timer T_{CDIV_IND} expired		
		MESSAGE	→ MESSAGE	
		200 OK MESSAGE	← 200 OK MESSAGE	
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N05_013	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/3 AND PICS 2/4 AND PICS 3/1

Test purpose

The served user subscribes to the CFNR simulation service; periodically indication of communication diversion to the diverting user using the MESSAGE request.

Ensure that when the diverting user is registering the AS send a MESSAGE request to the diverting user including the information where the call is forwarded on no Reply. The diverting user will be informed periodically with a MESSAGE request the information where the call is diverted to.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values: MESSAGE (text/plain)

Comments:

SIP#1		SUT	SIP#2 (served user)	SIP#3
INVITE 1	→			
			→ INVITE	
180 Ringing	←		← 180 Ringing	
		$T_{no\ reply}$ expired		
			→ CANCEL	
			← 200 OK CANCEL	
			← 487 Request Terminated	
			→ ACK	
			CFNR performed	
				→ INVITE
				← 180 Ringing
200 OK (INVITE)	←			← 200 OK (INVITE)
ACK	→			→ ACK
		Timer T_{CDIV_IND} expired		
		MESSAGE	→ MESSAGE	
		200 OK MESSAGE	← 200 OK MESSAGE	
		Timer T_{CDIV_IND} expired		
		MESSAGE	→ MESSAGE	
		200 OK MESSAGE	← 200 OK MESSAGE	
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N05_014	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/3 AND PICS 3/1 AND PICS 3/2

Test purpose

The served user subscribes to the CFNR simulation service; Indication of communication diversion to the diverting user using the MESSAGE request when a new outgoing communication is requested.

Ensure that a diverting user will be informed with a MESSAGE request to the diverting user after the diverting user has initiated a new outgoing communication the information where the call is forwarded on no Reply.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

Served user receives reminder indication on outgoing communication that CDIV is currently activated = yes

SIP header values: MESSAGE (text/plain)

Comments:

SIP#1		SUT		SIP#2 (served user)		SIP#3
INVITE 1	→					
			→	INVITE		
180 Ringing	←		←	180 Ringing		
		$T_{no\ reply}$ expired				
			→	CANCEL		
			←	200 OK CANCEL		
			←	487 Request Terminated		
			→	ACK		
			CFNR performed			
					→	INVITE 2
					←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
				INVITE	→	INVITE 3
				180 Ringing	←	180 Ringing
				200 OK (INVITE)	←	200 OK (INVITE)
				ACK	→	ACK
		MESSAGE	→	MESSAGE		
		200 OK MESSAGE	←	200 OK MESSAGE		
				BYE	→	BYE
				200 OK (BYE)	←	200 OK (BYE)
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N05_015	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/3 AND PICS 2/3 AND PICS 3/1

Test purpose

The served user subscribes to the CFNR simulation service; Communication Diversion Notification applies.

Ensure that when the diverting user has subscribed the Communication Diversion Notification service, the served user receives a NOTIFY request containing the information regarding the current communication forwarding no reply.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values:

SUBSCRIBE: Event:comm-div-info
application/comm-div-info+xml
<comm-div-info>
<comm-div-subs-info >
<comm-div-selection-criteria>
< originating-user-selection-criteria>SIP#1
<diverting-user-selection-criteria>SIP#2
<diverted-to-user-selection-criteria>SIP#3
< diversion-time-selection-criteria >(Date-time)
< diversion-reason-selection-criteria >408
<comm-div-ntfy-trigger-criteria>
<notification-time-selection-criteria>(Date/Time range PIXIT)
</comm-div-info>

NOTIFY: Event:comm-div-info
application/comm-div-info+xml
<comm-div-info>
<comm-div-ntfy-info>
<originating-user-info>SIP#1
<diverting-user-info>SIP#2
<diverted-to-user-info>SIP#3
<diversion-time-info> (time range
<diversion-reason-info>408
<diversion-rule-info-type>
<diversion-rule> (any text)
</comm-div-info>

Comments:

SIP#1		SUT		SIP#2 (served user)	SIP#3
		SUBSCRIBE	←	SUBSCRIBE	
		200 OK SUBSCRIBE	→	200 OK SUBSCRIBE	
		NOTIFY	→	NOTIFY	
		200 OK NOTIFY	←	200 OK NOTIFY	
INVITE 1	→				
			→	INVITE	
180 Ringing	←		←	180 Ringing	
		$T_{no\ reply}$ expired			
			→	CANCEL	
			←	200 OK CANCEL	
			←	487 Request Terminated	
			→	ACK	
		CFNR performed			
		NOTIFY	→	NOTIFY	
		200 OK NOTIFY	←	200 OK NOTIFY	
					→ INVITE
					← 180 Ringing
200 OK (INVITE)	←				← 200 OK (INVITE)
ACK	→				→ ACK
BYE	→				→ BYE
200 OK (BYE)	←				← 200 OK (BYE)

5.2.3.1.4 Communication Forwarding on no Reply **(**CFNR) ringing continues

TSS Netw/ASNotification	TP CDIV_N06_001	Reference 4.5.2.6.3/ [1]	Selection expression PICS 1/3 AND PICS 2/5

Test purpose
The served user subscribes to the CFNR simulation service (ringing continues).

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *CFNR* simulation service the early dialogue remains established until the final response is received from the diverted to user.

SIP header values:

Comments:

SIP#1		SUT	SIP#2 (served user)	SIP#3
INVITE 1	→			
			→ INVITE	
180 Ringing	←		← 180 Ringing	
		CFNR performed		
				→ INVITE 2
				← 180 Ringing
200 OK (INVITE)	←			← 200 OK (INVITE)
ACK	→			→ ACK
			→ CANCEL	
			← 200 OK CANCEL	
			← 487 Request Terminated	
			→ ACK	
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N06_002	Reference 4.5.2.6.3/ [1]	Selection expression PICS 1/3 AND PICS 2/5

Test purpose
The served user subscribes to the CFNR simulation service (ringing continues) Forking is provided the CFNR timer is not refreshed.

Ensure that the communication is forwarded to multiple diverted to user if the served user is subscribed to the CFNR simulation service. After receiving the first 180 (Ringing) response the no reply timer shall be started. Ensure that a further received 180 (Ringing) response does not refresh the timer.

SIP header values:

Comments:

SIP#1		SUT	SIP#2 (served user)	SIP#2 forked	SIP#3
INVITE 1	→				
			→ INVITE		
180 Ringing	←		← 180 Ringing		
				→ INVITE	
				← 180 Ringing	
		CFNR performed after first 180 was received			
					→ INVITE
					← 180 Ringing
200 OK (INVITE)	←				← 200 OK (INVITE)
ACK	→				→ ACK
			→ CANCEL	→ CANCEL	
			← 200 OK CANCEL	← 200 OK CANCEL	
			← 487 Request Terminated	← 487 Request Terminated	
			→ ACK	→ ACK	
BYE	→				→ BYE
200 OK (BYE)	←				← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N06_003	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/3 AND PICS 2/5 AND PICS 3/3

Test purpose

The served user subscribes to the CFNR simulation service (ringing continues); originating user is not notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *CFNR* simulation service. The origination user is not notified.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = no

SIP header values:

Comments:

SIP#1		SUT	SIP#2 (served user)	SIP#3
INVITE 1	→			
			→ INVITE	
180 Ringing	←		← 180 Ringing	
		CFNR performed		
				→ INVITE 2
				← 180 Ringing
200 OK (INVITE)	←			← 200 OK (INVITE)
ACK	→			→ ACK
			→ CANCEL	
			← 200 OK CANCEL	
			← 487 Request Terminated	
			→ ACK	
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N06_004	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/3 AND PICS 2/5 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose

The served user subscribes to the CFNR simulation service (ringing continues); originating user is notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *CFNR* simulation service. The originating user receives notification where the call is diverted to. A 181 (Call Is Being Forwarded) response shall be sent towards the originating user. The 181 (Call Is Being Forwarded) response contains the P-Asserted-Identity header field and Privacy header field. A Privacy header value history is escaped in the **first and the second entry** of the History-Info header.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = no
Served user allows the presentation of his/her URI to *originating* user in diversion notification = no

SIP header values:

181 Call is Being Forwarded: P-Asserted-Identity: SIP#2
History-Info: <sip:SIP#2?Privacy=history>;index=1,
<sip:SIP#3; cause=408?Privacy=history>;index=1.1

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**	**SIP#3**
INVITE 1	→			
			→ INVITE	
180 Ringing	←		← 180 Ringing	
		CFNR performed		
				→ INVITE 2
				← 180 Ringing
181 Call is Being Forwarded	←			← 200 OK (INVITE)
200 OK (INVITE)	←			→ ACK
ACK	→			
			→ CANCEL	
			← 200 OK CANCEL	
			← 487 Request Terminated	
			→ ACK	
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N06_005	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/3 AND PICS 2/5 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose

The served user subscribes to the CFNR simulation service (ringing continues). The originating user receives the URI of the served user.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *CFNR* simulation service. The originating user receives notification that a communication has been forwarded and the served user allows the presentation of his/her URI to the originating user The URI of the served user is contained in **first entry** of the History-Info header.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = no
Served user allows the presentation of his/her URI to *originating* user in diversion notification = yes

SIP header values:

181 Call is Being Forwarded: P-Asserted-Identity: SIP#2
History-Info: **<sip:SIP#2>;index=1**,
<sip:SIP#3; cause=408?Privacy=history>;index=1.1

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**	**SIP#3**
INVITE 1	→			
			→ INVITE	
180 Ringing	←		← 180 Ringing	
		CFNR performed		
				→ INVITE 2
				← 180 Ringing
181 Call is Being Forwarded	←			← 200 OK (INVITE)
200 OK (INVITE)	←			→ ACK
ACK	→			
			→ CANCEL	
			← 200 OK CANCEL	
			← 487 Request Terminated	
			→ ACK	
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N06_006	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/3 AND PICS 2/5 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose

The served user subscribes to the CFNR simulation service (ringing continues). The originating user receives the URI of the diverted-to user.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *CFNR* simulation service. The originating user receives notification that a communication has been forwarded and the served user allows the presentation of the diverted-to URI to the originating user The URI of the diverted-to user is contained in **second entry** of the History-Info header.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = yes
Served user allows the presentation of his/her URI to *originating* user in diversion notification = no

SIP header values:

181 Call is Being Forwarded: P-Asserted-Identity: SIP#2
History-Info: **<sip:SIP#2**?Privacy=history **>;index=1**,
<sip:SIP#3; cause=408 >;index=1.1

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**	**SIP#3**
INVITE 1	→			
			→ INVITE	
180 Ringing	←		← 180 Ringing	
		CFNR performed		
				→ INVITE 2
				← 180 Ringing
181 Call is Being Forwarded	←			← 200 OK (INVITE)
200 OK (INVITE)	←			→ ACK
ACK	→			
			→ CANCEL	
			← 200 OK CANCEL	
			← 487 Request Terminated	
			→ ACK	
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N06_007	Reference 4.5.2.6.2/ [1]	Selection expression PICS 1/3 AND PICS 2/5 AND PICS 3/6

Test purpose

The served user subscribes to the CFNR simulation service (ringing continues); the diverted to user is not notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *CFNR* simulation service. The diverted to user is not notified. A Privacy header value history is escaped in the first entry of the History-Info header.

Subscription options:

Served user allows the presentation of his/her URI to *diverted-to* user = no

SIP header values:

INVITE 2 P-Asserted-Identity SIP#1
History-Info: **<sip:SIP#2?Privacy=history>;index=1**,
<sip:SIP#3; cause=408>;index=1.1

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**	**SIP#3**
INVITE 1	→			
			→ INVITE	
180 Ringing	←		← 180 Ringing	
		CFNR performed		
				→ INVITE 2
				← 180 Ringing
200 OK (INVITE)	←			← 200 OK (INVITE)
ACK	→			→ ACK
			→ CANCEL	
			← 200 OK CANCEL	
			← 487 Request Terminated	
			→ ACK	
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N06_008	Reference 4.5.2.6.2/ [1]	Selection expression PICS 1/3 AND PICS 2/5 AND PICS 3/6

Test purpose

The served user subscribes to the CFNR simulation service (ringing continues); the diverted to user is notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *CFNR* simulation service. The diverted to user is notified. Served user allows the presentation of his/her URI to the *diverted-to* user. No Privacy header value history is escaped in the first entry of the History-Info header.

Subscription options:

Served user allows the presentation of his/her URI to *diverted-to* user = yes

SIP header values:

INVITE 2 P-Asserted-Identity SIP#1
History-Info: **<sip:SIP#2>;index=1,**
<sip:SIP#3; cause=408;>;index=1.1

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**	**SIP#3**
INVITE 1	→			
			→ INVITE	
180 Ringing	←		← 180 Ringing	
		CFNR performed		
				→ INVITE 2
				← 180 Ringing
200 OK (INVITE)	←			← 200 OK (INVITE)
ACK	→			→ ACK
			→ CANCEL	
			← 200 OK CANCEL	
			← 487 Request Terminated	
			→ ACK	
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N06_009	Reference / 4.5.2.6.5/ [1]	Selection expression PICS 1/3 AND PICS 2/5 AND PICS 3/1

Test purpose

The served user subscribes to the CFNR simulation service; Indication of communication diversion to the diverting user using the MESSAGE request.

Ensure that when the diverting user is registering the AS sends a MESSAGE request to the diverting user including the information where the call is forwarded on no Reply ringing continues.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values: MESSAGE (text/plain)

Comments:

SIP#1		SUT		SIP#2 (served user)		SIP#3
INVITE 1	→					
			→	INVITE		
180 Ringing	←		←	180 Ringing		
		CFNR performed				
					→	INVITE 2
					←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
			→	CANCEL		
			←	200 OK CANCEL		
			←	487 Request Terminated		
			→	ACK		
		MESSAGE	→	MESSAGE		
		200 OK MESSAGE	←	200 OK MESSAGE		
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N06_010	Reference / [1] 4.5.2.6.5/ [1]	Selection expression PICS 1/3 AND PICS 2/5 AND PICS 2/1 AND PICS 3/1

Test purpose

The served user subscribes to the CFNR simulation service; Indication of communication diversion to the diverting user using the MESSAGE request triggered by a timer.

Ensure that when the diverting user is registering the AS sends a MESSAGE request to the diverting user including the information where the call is forwarded on no Reply ringing continues. The MESSAGE request that is be sent due to an timer value that can be provided by the user.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values: MESSAGE (text/plain) triggered by a timer value provided the served user

Comments:

SIP#1		SUT	SIP#2 (served user)	SIP#3
INVITE 1	→			
			→ INVITE	
180 Ringing	←		← 180 Ringing	
		CFNR performed		
				→ INVITE 2
				← 180 Ringing
200 OK (INVITE)	←			← 200 OK (INVITE)
ACK	→			→ ACK
			→ CANCEL	
			← 200 OK CANCEL	
			← 487 Request Terminated	
			→ ACK	
		Timer T_{CDIV_IND} expired		
		MESSAGE →	MESSAGE	
		200 OK MESSAGE ←	200 OK MESSAGE	
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N06_011	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/3 AND PICS 2/5 AND PICS 2/4 AND PICS 3/1

Test purpose
The served user subscribes to the CFNR simulation service; periodically indication of communication diversion to the diverting user using the MESSAGE request.

Ensure that when the diverting user is registering the AS sends a MESSAGE request to the diverting user including the information where the call is forwarded on no Reply ringing continues. The diverting user will be informed periodically with a MESSAGE request the information where the call is diverted to.

Subscription options:
Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values: MESSAGE (text/plain)

Comments:

SIP#1		SUT	SIP#2 (served user)	SIP#3
INVITE 1	→			
			→ INVITE	
180 Ringing	←		← 180 Ringing	
		CFNR performed		
				→ INVITE 2
				← 180 Ringing
200 OK (INVITE)	←			← 200 OK (INVITE)
ACK	→			→ ACK
			→ CANCEL	
			← 200 OK CANCEL	
			← 487 Request Terminated	
			→ ACK	
		Timer T_{CDIV_IND} expired		
		MESSAGE	→ MESSAGE	
		200 OK MESSAGE	← 200 OK MESSAGE	
		Timer T_{CDIV_IND} expired		
		MESSAGE	→ MESSAGE	
		200 OK MESSAGE	← 200 OK MESSAGE	
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N06_012	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/3 AND PICS 2/5 AND PICS 3/1 AND PICS 3/2

Test purpose

The served user subscribes to the CFNR simulation service; Indication of communication diversion to the diverting user using the MESSAGE request when a new outgoing communication is requested.

Ensure that a diverting user will be informed with a MESSAGE request to the diverting user after the diverting user has initiated a new outgoing communication the information where the call is forwarded on no Reply ringing continues.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

Served user receives reminder indication on outgoing communication that CDIV is currently activated = yes

SIP header values: MESSAGE (text/plain)

Comments:

SIP#1		SUT		SIP#2 (served user)		SIP#3
INVITE 1	→					
			→	INVITE		
180 Ringing	←		←	180 Ringing		
		CFNR performed				
					→	INVITE 2
					←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
			→	CANCEL		
			←	200 OK CANCEL		
			←	487 Request Terminated		
			→	ACK		
				INVITE	→	INVITE 3
				180 Ringing	←	180 Ringing
				200 OK (INVITE)	←	200 OK (INVITE)
				ACK	→	ACK
		MESSAGE	→	MESSAGE		
		200 OK MESSAGE	←	200 OK MESSAGE		
		Communication				
				BYE 3	→	BYE
				200 OK (BYE)	←	200 OK (BYE)
BYE 1	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

5.2.2.1.5 Communication Forwarding on Not Logged-in (CFNL)

TSS Netw/ASNotification	TP CDIV_N07_001	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/6 AND PICS 3/3

Test purpose
The served user subscribes to the CFNL simulation service; originating user is not notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CFNL simulation service. The origination user is not notified.

Subscription options:
Originating user receives notification that his communication has been diverted (forwarded or deflected) = no

SIP header values:

Comments:

SIP#1		SUT	SIP#2 (served user)		SIP#3
INVITE 1	→				
Communication diversion is performed					
				→	INVITE
180 Ringing	←			←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
BYE	→			→	BYE
200 OK (BYE)	←			←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N07_002	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/6 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose
The served user subscribes to the CFNL simulation service; originating user is notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CFNL simulation service. The originating user receives notification that a communication has been forwarded. In all entries in the History-Info header a Privacy parameter value history is escaped.

Subscription options:
Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = no
Served user allows the presentation of his/her URI to *originating* user in diversion notification = no

SIP header values:
181 Call is Being Forwarded: P-Asserted-Identity SIP#2, Privacy id
History-Info: <sip:SIP#2?Privacy=history>;index=1,
<sip:SIP#3; cause=404?Privacy=history>;index=1.1

Comments:

SIP#1		SUT	SIP#2 (served user)		SIP#3
INVITE 1	→				
Communication diversion is performed					
181 Call is Being Forwarded	←			→	INVITE
180 Ringing	←			←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
BYE	→			→	BYE
200 OK (BYE)	←			←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N07_003	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/6 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose

The served user subscribes to the CFNL simulation service. The originating user receives the URI of the served user.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CFNL simulation service. The originating user receives notification that a communication has been forwarded and the served user allows the presentation of his/her URI to the originating user. The URI of the served user is contained in **first entry** of the History-Info header. A Privacy header value history is escaped in the **second** entry of the History-Info header.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = no
Served user allows the presentation of his/her URI to *originating* user in diversion notification = yes

SIP header values:

181 Call is Being Forwarded:
P-Asserted-Identity: SIP#2
History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause=404?Privacy=history>;index=1.1

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**		**SIP#3**
INVITE 1	→				
Communication diversion is performed					
181 Call is Being Forwarded	←			→	INVITE
180 Ringing	←			←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
BYE	→			→	BYE
200 OK (BYE)	←			←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N07_004	Reference 4.5.2.6.3/ [1]	Selection expression PICS 1/6 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose
The served user subscribes to the CFNL simulation service. The originating user receives the URI of the diverted-to user.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CFNL simulation service. The originating user receives notification that a communication has been forwarded and the served user allows the presentation of the diverted-to URI to the originating user. The URI of the diverted-to user is contained in **second entry** of the History-Info header. A Privacy header value history is escaped in the **first entry** of the History-Info header.

Subscription options:
Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = yes
Served user allows the presentation of his/her URI to *originating* user in diversion notification = no

SIP header values:
181 Call is Being Forwarded:
P-Asserted-Identity: SIP#2
History-Info: <sip:SIP#2?Privacy=history >;index=1,
<sip:SIP#3; cause=404 >;index=1.1

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**		**SIP#3**
INVITE 1	→				
Communication diversion is performed					
181 Call is Being Forwarded	←			→	INVITE
180 Ringing	←			←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
BYE	→			→	BYE
200 OK (BYE)	←			←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N07_005	Reference 4.5.2.6.2/ [1]	Selection expression PICS 1/6 AND PICS 3/6

Test purpose
The served user subscribes to the CFNL simulation service; the diverted to user is not notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CFNL simulation service. The diverted to user is not notified. The URI of the served user is contained in **first entry** of the History-Info header. A Privacy header value history is escaped in the **first** entry of the History-Info header.

Subscription options:
Served user allows the presentation of his/her URI to *diverted-to* user = no

SIP header values:
INVITE 2 P-Asserted-Identity SIP#1
History-Info: <sip:SIP#2?Privacy=history>;index=1,
<sip:SIP#3; cause=404>;index=1.1

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**		**SIP#3**
INVITE 1	→				
Communication diversion is performed					
				→	INVITE 2
180 Ringing	←			←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
BYE	→			→	BYE
200 OK (BYE)	←			←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N07_006	Reference 4.5.2.6.2/ [1]	Selection expression PICS 1/6 AND PICS 3/6

Test purpose

The served user subscribes to the CFNL simulation service; the diverted to user is not notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CFNL simulation service. The diverted to user is notified. Served user allows the presentation of his/her URI to the *diverted-to* user.

Subscription options:

Served user allows the presentation of his/her URI to *diverted-to* user = yes

SIP header values:

INVITE 2 P-Asserted-Identity SIP#1
History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause=404;>;index=1.1

Comments:

SIP#1		SUT	SIP#2 (served user)		SIP#3
INVITE 1	→				
Communication diversion is performed					
				→	INVITE 2
180 Ringing	←			←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
BYE	→			→	BYE
200 OK (BYE)	←			←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N07_007	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/6 AND PICS 2/3 AND PICS 3/1

Test purpose

The served user subscribes to the CFNL simulation service; Communication Diversion Notification applies.

Ensure that when the diverting user has subscribed the Communication Diversion Notification service, the served user receives a NOTIFY request containing the information regarding the current communication deflection.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values:

SUBSCRIBE: Event:comm-div-info
application/comm-div-info+xml
<comm-div-info>
<comm-div-subs-info >
<comm-div-selection-criteria>
< originating-user-selection-criteria>SIP#1
<diverting-user-selection-criteria>SIP#2
<diverted-to-user-selection-criteria>SIP#3
< diversion-time-selection-criteria >(Date-time)
< diversion-reason-selection-criteria >487
<comm-div-ntfy-trigger-criteria>
<notification-time-selection-criteria>(Date/Time range PIXIT)
</comm-div-info>

NOTIFY: Event:comm-div-info
application/comm-div-info+xml
<comm-div-info>
<comm-div-ntfy-info>
<originating-user-info>SIP#1
<diverting-user-info>SIP#2
<diverted-to-user-info>SIP#3
<diversion-time-info> (time range
<diversion-reason-info>487
<diversion-rule-info-type>
<diversion-rule> (any text)
</comm-div-info>

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
		SUBSCRIBE	←	SUBSCRIBE		
		200 OK SUBSCRIBE	→	200 OK SUBSCRIBE		
		NOTIFY	→	NOTIFY		
		200 OK NOTIFY	←	200 OK NOTIFY		
		REGISTER(Expires: 0)	←	REGISTER(Expires: 0)		
		200 OK REGISTER	→	200 OK REGISTER		
INVITE 1						
		CFNL performed				
					→	INVITE
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)
		REGISTER(Expires: x)	←	REGISTER(Expires: x)		
		200 OK REGISTER	→	200 OK REGISTER		
		NOTIFY	→	NOTIFY		
		200 OK NOTIFY	←	200 OK NOTIFY		

TSS Netw/ASNotification	TP CDIV_N07_008	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/6 AND PICS 2/3 AND PICS 3/1

Test purpose

The served user subscribes to the CFNL simulation service; Communication Diversion Notification does not apply.

Ensure that when the diverting user has subscribed the Communication Diversion Notification service, the served user receives no NOTIFY request after the $T_{CDIVN\ Buffer}$ was expired and the user is logged in again.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values:

SUBSCRIBE: Event:comm-div-info
application/comm-div-info+xml
<comm-div-info>
<comm-div-subs-info >
<comm-div-selection-criteria>
< originating-user-selection-criteria>SIP#1
<diverting-user-selection-criteria>SIP#2
<diverted-to-user-selection-criteria>SIP#3
< diversion-time-selection-criteria >(Date-time)
< diversion-reason-selection-criteria >487
<comm-div-ntfy-trigger-criteria>
<notification-time-selection-criteria>(Date/Time range PIXIT)
</comm-div-info>

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
		SUBSCRIBE	←	SUBSCRIBE		
		200 OK SUBSCRIBE	→	200 OK SUBSCRIBE		
		NOTIFY	→	NOTIFY		
		200 OK NOTIFY	←	200 OK NOTIFY		
		REGISTER(Expires: 0)	←	REGISTER(Expires: 0)		
		200 OK REGISTER	→	200 OK REGISTER		
INVITE 1						
		CFNL performed				
		Start $T_{CDIVN\ Buffer}$				
					→	INVITE
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)
		Timeout $T_{CDIVN\ Buffer}$				
		REGISTER(Expires: x)	←	REGISTER(Expires: x)		
		200 OK REGISTER	→	200 OK REGISTER		
				No NOTIFY!		

5.2.2.1.6 Communication Deflection immediate response (CDi)

TSS Netw/ASNotification	TP CDIV_N08_001	Reference 4.5.2.6/ [1]	Selection expression PICS 1/4

Test purpose
The served user subscribes to the Communication Deflection immediate response simulation service.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *Communication Defection immediate response* simulation service.

SIP header values:
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		SUT		SIP#2 (served user)		SIP#3
INVITE 1	→	INVITE				
			→	INVITE		
			←	302 Moved Temporarily		
			→	ACK		
		CDi performed				
181 Call is Being Forwarded	←				→	INVITE
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N08_002	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/4 AND PICS 3/3

Test purpose
The served user subscribes to the Communication Defection immediate response simulation service; originating user is not notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *Communication Defection immediate response* simulation service. The origination user is not notified.

Subscription options:
Originating user receives notification that his communication has been diverted (forwarded or deflected) = no

SIP header values:
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		SUT		SIP#2 (served user)		SIP#3
INVITE 1	→	INVITE				
			→	INVITE		
			←	302 Moved Temporarily		
			→	ACK		
		CDi performed				
					→	INVITE
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N08_003	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/4 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose

The served user subscribes to the Communication Defection immediate response simulation service; originating user is notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *Communication Defection immediate response* simulation service. The originating user receives notification that a communication has been forwarded. A Privacy header value history is escaped in the **first and the second entry** of the History-Info header.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = no
Served user allows the presentation of his/her URI to *originating* user in diversion notification = no

SIP header values:

181 Call is Being Forwarded: P-Asserted-Identity SIP#2, Privacy id
History-Info: <sip:SIP#2?Privacy=history>;index=1,
<sip:SIP#3; cause=480?Privacy=history>;index=1.1
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**	**SIP#3**
INVITE 1	→	INVITE		
			→ INVITE	
			← 302 Moved Temporarily	
			→ ACK	
		CDi performed		
181 Call is Being Forwarded	←			→ INVITE
180 Ringing	←			← 180 Ringing
200 OK (INVITE)	←			← 200 OK (INVITE)
ACK	→			→ ACK
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N08_004	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/4 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose

The served user subscribes to the Communication Defection immediate response simulation service. The originating user receives the URI of the served user.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *Communication Defection immediate response* simulation service. The originating user receives notification that a communication has been forwarded and the served user allows the presentation of his/her URI to the originating user. The URI of the served user is contained in **first entry** of the History-Info header. A Privacy header value history is escaped in the **second entry** of the History-Info header.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = no
Served user allows the presentation of **his/her** URI to *originating* user in diversion notification = yes

SIP header values:

181 Call is Being Forwarded: P-Asserted-Identity: SIP#2
History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause=480?Privacy=history>;index=1.1

302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→	INVITE				
			→	INVITE		
			←	302 Moved Temporarily		
			→	ACK		
		CDi performed				
181 Call is Being Forwarded	←				→	INVITE
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N08_005	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/4 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose

The served user subscribes to the Communication Defection immediate response simulation service. The originating user receives the URI of the diverted-to user.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *Communication Defection immediate response* simulation service. The originating user receives notification that a communication has been forwarded and the served user allows the presentation of the diverted-to URI to the originating user. The URI of the diverted-to user is contained in **second entry** of the History-Info header. A Privacy header value history is escaped in the **first entry** of the History-Info header.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = yes
Served user allows the presentation of his/her URI to *originating* user in diversion notification = no

SIP header values:

181 Call is Being Forwarded: P-Asserted-Identity: SIP#2
History-Info: <sip:SIP#2?Privacy=history >;index=1,
<sip:SIP#3; cause=480 >;index=1.1
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→	INVITE				
			→	INVITE		
			←	302 Moved Temporarily		
			→	ACK		
		CDi performed				
181 Call is Being Forwarded	←				→	INVITE
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N08_006	Reference 4.5.2.6.2/ [1]	Selection expression PICS 1/4 AND PICS 3/6

Test purpose
The served user subscribes to the Communication Defection immediate response simulation service; the diverted to user is not notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *Communication Defection immediate response* simulation service. The diverted to user is not notified. A Privacy header value history is escaped in the first entry of the History-Info header.

Subscription options:
Served user allows the presentation of his/her URI to *diverted-to* user = no

SIP header values:
INVITE 2 P-Asserted-Identity SIP#1
History-Info: <sip:SIP#2?Privacy=history>;index=1,
<sip:SIP#3; cause=480>;index=1.1
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→	INVITE				
			→	INVITE		
			←	302 Moved Temporarily		
			→	ACK		
		CDi performed				
181 Call is Being Forwarded	←				→	INVITE 2
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N08_007	Reference 4.5.2.6.2/ [1]	Selection expression PICS 1/4 AND PICS 3/6

Test purpose
The served user subscribes to the Communication Defection immediate response simulation service; the diverted to user is notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *Communication Defection immediate response* simulation service. The diverted to user is notified. Served user allows the presentation of his/her URI to the *diverted-to* user.

Subscription options:
Served user allows the presentation of his/her URI to *diverted-to* user = yes

SIP header values:
INVITE 2 P-Asserted-Identity
History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause=480;>;index=1.1
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→	INVITE				
			→	INVITE		
			←	302 Moved Temporarily		
			→	ACK		
		CDi performed				
181 Call is Being Forwarded	←				→	INVITE 2
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N08_008	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/4 AND PICS 3/1

Test purpose

The served user subscribes to the CDi simulation service; Indication of communication diversion to the diverting user using the MESSAGE request.

Ensure that when the diverting user is registering the AS sends a MESSAGE request to the diverting user including the information where the call is deflected immediate response.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values: MESSAGE (text/plain)
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→	INVITE				
			→	INVITE		
			←	302 Moved Temporarily		
			→	ACK		
		CDi performed				
		MESSAGE	→	MESSAGE		
		200 OK MESSAGE	←	200 OK MESSAGE		
					→	INVITE
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N08_009	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/4 AND PICS 2/1 AND PICS 3/1

Test purpose

The served user subscribes to the CDi simulation service; Indication of communication diversion to the diverting user using the MESSAGE request triggered by a timer.

Ensure that when the diverting user is registering the AS sends a MESSAGE request to the diverting user including the information where the call is deflected immediate response. The MESSAGE request that is be sent due to an timer value that can be provided by the user.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values: MESSAGE (text/plain) triggered by a timer value provided the served user
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**		**SIP#3**
INVITE 1	→	INVITE			
			→	INVITE	
			←	302 Moved Temporarily	
			→	ACK	
		CDi performed			
				→	INVITE
180 Ringing	←			←	180 Ringing
200 OK (INVITE)	←			←	200 OK (INVITE)
ACK	→			→	ACK
		Timer T_{CDIV_IND} expired			
		MESSAGE	→	MESSAGE	
		200 OK MESSAGE	←	200 OK MESSAGE	
BYE	→			→	BYE
200 OK (BYE)	←			←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N08_010	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/4 AND PICS 2/4 AND PICS 3/1

Test purpose

The served user subscribes to the CDi simulation service; periodically indication of communication diversion to the diverting user using the MESSAGE request.

Ensure that when the diverting user is registering the AS sends a MESSAGE request to the diverting user including the information where the call is deflected immediate response. The diverting user will be informed periodically with a MESSAGE request the information where the call is diverted to.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values: MESSAGE (text/plain)
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→	INVITE				
			→	INVITE		
			←	302 Moved Temporarily		
			→	ACK		
		CDi performed				
181 Call is Being Forwarded	←				→	INVITE
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
		Timer T_{CDIV_IND} expired				
		MESSAGE	→	MESSAGE		
		200 OK	←	200 OK MESSAGE		
		MESSAGE				
		Timer T_{CDIV_IND} expired				
		MESSAGE	→	MESSAGE		
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N08_011	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/4 AND PICS 3/1 AND PICS 3/2

Test purpose

The served user subscribes to the CDi simulation service; Indication of communication diversion to the diverting user using the MESSAGE request when a new outgoing communication is requested.

Ensure that a diverting user will be informed with a MESSAGE request to the diverting user after the diverting user has initiated a new outgoing communication the information where the call is deflected immediate response.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes
Served user receives reminder indication on outgoing communication that CDIV is currently activated = yes

SIP header values: MESSAGE (text/plain)
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→	INVITE				
			→	INVITE		
			←	302 Moved Temporarily		
			→	ACK		
		CDi performed				
181 Call is Being Forwarded	←				→	INVITE 2
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
				INVITE	→	INVITE 3
				180 Ringing	←	180 Ringing
				200 OK (INVITE)	←	200 OK (INVITE)
				ACK	→	ACK
		MESSAGE	→	MESSAGE		
		200 OK	←	200 OK MESSAGE		
		MESSAGE				
				BYE 3	→	BYE
				200 OK (BYE)	←	200 OK (BYE)
BYE 1	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

5.2.2.1.7 Communication Deflection during alerting (CDa)

TSS Netw/ASNotification	TP CDIV_N09_001	Reference 4.5.2.6/ [1]	Selection expression PICS 1/5

Test purpose
The served user subscribes to the Communication Deflection during alerting simulation service.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *Communication Defection immediate response* simulation service.

SIP header values:
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→					
			→	INVITE		
180 Ringing	←		←	180 Ringing		
			←	302 Moved Temporarily		
			→	ACK		
		CDa performed				
					→	INVITE
					←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N09_002	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/5 AND PICS 3/3

Test purpose
The served user subscribes to the Communication Defection during alerting simulation service; originating user is not notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *Communication Defection immediate response* simulation service. The origination user is not notified.

Subscription options:
Originating user receives notification that his communication has been diverted (forwarded or deflected) = no

SIP header values:
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→					
			→	INVITE		
180 Ringing	←		←	180 Ringing		
			←	302 Moved Temporarily		
			→	ACK		
		CDa performed				
					→	INVITE
					←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N09_003	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/5 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose

The served user subscribes to the Communication Defection during alerting simulation service; originating user is notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *Communication Defection immediate response* simulation service. The originating user receives notification that a communication has been forwarded. A Privacy header value history is escaped in the **first and the second entry** of the History-Info header.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = no
Served user allows the presentation of his/her URI to *originating* user in diversion notification = no

SIP header values:

181 Call is Being Forwarded: P-Asserted-Identity, Privacy id
History-Info: <sip:SIP#2?Privacy=history>;index=1,
<sip:SIP#3; cause=487?Privacy=history>;index=1.1
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→					
			→	INVITE		
180 Ringing	←		←	180 Ringing		
			←	302 Moved Temporarily		
			→	ACK		
		CDa performed				
181 Call is Being Forwarded	←				→	INVITE
					←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N09_004	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/5 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose

The served user subscribes to the Communication Defection during alerting simulation service. The originating user receives the URI of the served user.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *Communication Defection immediate response* simulation service. The originating user receives notification that a communication has been forwarded and the served user allows the presentation of his/her URI to the originating user. The URI of the served user is contained in **first entry** of the History-Info header. A Privacy header value history is escaped in the **second entry** of the History-Info header.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = no
Served user allows the presentation of his/her URI to *originating* user in diversion notification = yes

SIP header values:

181 Call is Being Forwarded: P-Asserted-Identity: SIP#2
History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause=487?Privacy=history>;index=1.1
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→					
			→	INVITE		
180 Ringing	←		←	180 Ringing		
			←	302 Moved Temporarily		
			→	ACK		
		CDa performed				
181 Call is Being Forwarded	←				→	INVITE
					←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N09_005	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/5 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose

The served user subscribes to the Communication Defection during alerting simulation service. The originating user receives the URI of the diverted-to user.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *Communication Defection immediate response* simulation service. The originating user receives notification that a communication has been forwarded and the served user allows the presentation of diverted-to URI to the originating user. The URI of the diverted-to user is contained in **second entry** of the History-Info header. A Privacy header value history is escaped in the **first entry** of the History-Info header.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = yes
Served user allows the presentation of his/her URI to *originating* user in diversion notification = no

SIP header values:

181 Call is Being Forwarded: P-Asserted-Identity: SIP#2
History-Info: <sip:SIP#2?Privacy=history >;index=1,
<sip:SIP#3; cause=487 >;index=1.1
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→					
			→	INVITE		
180 Ringing	←		←	180 Ringing		
			←	302 Moved Temporarily		
			→	ACK		
		CDa performed				
181 Call is Being Forwarded	←				→	INVITE
					←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N09_006	Reference 4.5.2.6.2/ [1]	Selection expression PICS 1/5 AND PICS 3/6

Test purpose

The served user subscribes to the Communication Defection during alerting simulation service; the diverted to user is not notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *Communication Defection immediate response* simulation service. The diverted to user is not notified. A Privacy header value history is escaped in the first entry of the History-Info header.

Subscription options:

Served user allows the presentation of his/her URI to *diverted-to* user = no

SIP header values:

INVITE 2 P-Asserted-Identity SIP#1
History-Info: <sip:SIP#2?Privacy=history>;index=1,
<sip:SIP#3; cause=487>;index=1.1
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→					
			→	INVITE		
180 Ringing	←		←	180 Ringing		
			←	302 Moved Temporarily		
			→	ACK		
		CDa performed				
					→	INVITE 2
					←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N09_007	Reference 4.5.2.6.2/ [1]	Selection expression PICS 1/5 AND PICS 3/6

Test purpose

The served user subscribes to the Communication Defection during alerting simulation service; the diverted to user is notified.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the *Communication Defection immediate response* simulation service. The diverted to user is not notified. Served user allows the presentation of his/her URI to the *diverted-to* user.

Subscription options:

Served user allows the presentation of his/her URI to *diverted-to* user = yes

SIP header values:

INVITE 2 P-Asserted-Identity

History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause=487;>;index=1.1

302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→					
			→	INVITE		
180 Ringing	←		←	180 Ringing		
			←	302 Moved Temporarily		
			→	ACK		
		CDa performed				
					→	INVITE 2
					←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N09_008	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/5 AND PICS 3/1

Test purpose

The served user subscribes to the CDa simulation service; Indication of communication diversion to the diverting user using the MESSAGE request.

Ensure that when the diverting user is registering the AS sends a MESSAGE request to the diverting user including the information where the call is deflected during alerting.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values: MESSAGE (text/plain)
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**	**SIP#3**
INVITE 1	→				
			→	INVITE	
180 Ringing	←		←	180 Ringing	
			←	302 Moved Temporarily	
			→	ACK	
		CDa performed			
		MESSAGE	→	MESSAGE	
		200 OK MESSAGE	←	200 OK MESSAGE	
					→ INVITE
					← 180 Ringing
200 OK (INVITE)	←				← 200 OK (INVITE)
ACK	→				→ ACK
BYE	→				→ BYE
200 OK (BYE)	←				← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N09_009	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/5 AND PICS 2/1 AND PICS 3/1

Test purpose

The served user subscribes to the CDa simulation service; Indication of communication diversion to the diverting user using the MESSAGE request triggered by a timer.

Ensure that when the diverting user is registering the AS sends a MESSAGE request to the diverting user including the information where the call is deflected during alerting. The MESSAGE request that is be sent due to an timer value that can be provided by the user.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values: MESSAGE (text/plain) triggered by a timer value provided the served user
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**	**SIP#3**
INVITE 1	→				
			→	INVITE	
180 Ringing	←		←	180 Ringing	
			←	302 Moved Temporarily	
			→	ACK	
		CDa performed			
					→ INVITE
					← 180 Ringing
200 OK (INVITE)	←				← 200 OK (INVITE)
ACK	→				→ ACK
		Timer T_{CDIV_IND} expired			
		MESSAGE	→	MESSAGE	
		200 OK MESSAGE	←	200 OK MESSAGE	
BYE	→				→ BYE
200 OK (BYE)	←				← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N09_010	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/5 AND PICS 2/4 AND PICS 3/1

Test purpose

The served user subscribes to the CDa simulation service; periodically indication of communication diversion to the diverting user using the MESSAGE request.

Ensure that when the diverting user is registering the AS sends a MESSAGE request to the diverting user including the information where the call is deflected during alerting. The diverting user will be informed periodically with a MESSAGE request the information where the call is deflected during alerting.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values: MESSAGE (text/plain)
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**	**SIP#3**
INVITE 1	→				
			→	INVITE	
180 Ringing	←		←	180 Ringing	
			←	302 Moved Temporarily	
			→	ACK	
		CDa performed			
					→ INVITE
					← 180 Ringing
200 OK (INVITE)	←				← 200 OK (INVITE)
ACK	→				→ ACK
		Timer T_{CDIV_IND} expired			
		MESSAGE	→	MESSAGE	
		200 OK MESSAGE	←	200 OK MESSAGE	
		Timer T_{CDIV_IND} expired			
		MESSAGE	→	MESSAGE	
		200 OK MESSAGE	←	200 OK MESSAGE	
BYE	→				→ BYE
200 OK (BYE)	←				← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N09_011	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/5 AND PICS 3/1 AND PICS 3/2

Test purpose

The served user subscribes to the CDa simulation service; Indication of communication diversion to the diverting user using the MESSAGE request when a new outgoing communication is requested.

Ensure that a diverting user will be informed with a MESSAGE request to the diverting user after the diverting user has initiated a new outgoing communication the information where the call is deflected during alerting.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes
Served user receives reminder indication on outgoing communication that CDIV is currently activated = yes

SIP header values: MESSAGE (text/plain)
302 Moved Temporarily: Contact: < **SIP#3>**

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**	**SIP#3**
INVITE 1	→				
			→	INVITE	
180 Ringing	←		←	180 Ringing	
			←	302 Moved Temporarily	
			→	ACK	
		CDa performed			
					→ INVITE 2
					← 180 Ringing
200 OK (INVITE)	←				← 200 OK (INVITE)
ACK	→				→ ACK
				INVITE	→ INVITE 3
				180 Ringing	← 180 Ringing
				200 OK (INVITE)	← 200 OK (INVITE)
				ACK	→ ACK
		MESSAGE	→	MESSAGE	
		200 OK MESSAGE	←	200 OK MESSAGE	
				BYE 3	→ BYE
				200 OK (BYE)	← 200 OK (BYE)
BYE 1	→				→ BYE
200 OK (BYE)	←				← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N09_012	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/5 AND PICS 2/3 AND PICS 3/1

Test purpose

The served user subscribes to the CDa simulation service; Communication Diversion Notification applies.

Ensure that when the diverting user has subscribed the Communication Diversion Notification service, the served user receives a NOTIFY request containing the information regarding the current communication deflection.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values:

SUBSCRIBE: Event:comm-div-info
application/comm-div-info+xml
<comm-div-info>
<comm-div-subs-info >
<comm-div-selection-criteria>
< originating-user-selection-criteria>SIP#1
<diverting-user-selection-criteria>SIP#2
<diverted-to-user-selection-criteria>SIP#3
< diversion-time-selection-criteria >(Date-time)
< diversion-reason-selection-criteria >487
<comm-div-ntfy-trigger-criteria>
<notification-time-selection-criteria>(Date/Time range PIXIT)
</comm-div-info>

NOTIFY: Event:comm-div-info
application/comm-div-info+xml
<comm-div-info>
<comm-div-ntfy-info>
<originating-user-info>SIP#1
<diverting-user-info>SIP#2
<diverted-to-user-info>SIP#3
<diversion-time-info> (time range
<diversion-reason-info>487
<diversion-rule-info-type>
<diversion-rule> (any text)
</comm-div-info>

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
		SUBSCRIBE	←	SUBSCRIBE		
		200 OK SUBSCRIBE	→	200 OK SUBSCRIBE		
		NOTIFY	→	NOTIFY		
		200 OK NOTIFY	←	200 OK NOTIFY		
INVITE 1	→	INVITE				
			→	INVITE		
			←	302 Moved Temporarily		
			→	ACK		
		CDi performed				
		NOTIFY	→	NOTIFY		
		200 OK NOTIFY	←	200 OK NOTIFY		
					→	INVITE
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

5.2.2.1.8 Communication Forwarding on Subscriber Not Reachable (CFNRc)

TSS Netw/Netw/ASNotification	TP CDIV_N10_001	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/7 AND PICS 3/3

Test purpose

The served user subscribes to the **(CFNRc)** *simulation service; originating user is not notified.*

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the **(CFNRc)** simulation service. The origination user is not notified. The not reachable indication is sent in the CFNRc_VA final response.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = no

SIP header values:

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→		→	INVITE		
			←	CFNRc_VA		
			→	ACK		
Communication diversion is performed						
					→	INVITE
180 Ringing	←				←	180 Ringing
200 OK (INVITE)	←				←	200 OK (INVITE)
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N10_002	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/7 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose
The served user subscribes to the **(CFNRc)** *simulation service; originating user is notified.*

The served user is subscribed to the **(CFNRc)** simulation service. When Communication Diversion occurs and if the notification procedures of the originating user is supported then a 181 (Call Is Being Forwarded) response shall be sent towards the originating user. A Privacy header value history is escaped in the **first and the second entry** of the History-Info header.

Subscription options:
Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = no
Served user allows the presentation of his/her URI to *originating* user in diversion notification = no

SIP header values:
181 Call is Being Forwarded: P-Asserted-Identity SIP#2
History-Info: <sip:SIP#2?Privacy=history>;index=1,
<sip:SIP#3; cause=503?Privacy=history>;index=1.1

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→		→	INVITE		
			←	CFNRc_VA		
			→	ACK		
Communication diversion is performed						
181 Call is Being Forwarded	←					
					→	INVITE
					←	180 Ringing
180 Ringing	←					
					←	200 OK (INVITE)
200 OK (INVITE)	←					
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N10_003	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/7 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose
The served user subscribes to the **(CFNRc)** *simulation service; originating user is notified, the URI of the served user is received.*

The served user is subscribed to the **(CFNRc)** simulation service. When Communication Diversion occurs and if the notification procedures of the originating user is supported then a 181 (Call Is Being Forwarded) response shall be sent towards the originating user.
The P-Asserted-Identity includes the URI of the diverting user. The served user allows the presentation of his/her URI to the originating user. The URI of the served user is contained in **first entry** of the History-Info header. A Privacy header value history is escaped in the **second entry** of the History-Info header.

Subscription options:
Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = no
Served user allows the presentation of his/her URI to *originating* user in diversion notification = yes

SIP header values:
181 Call is Being Forwarded: P-Asserted-Identity SIP#2
History-Info: <**sip:SIP#2>;index=1**,
<sip:SIP#3; cause=503?Privacy=history>;index=1.1

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→		→	INVITE		
			←	CFNRc_VA		
			→	ACK		
Communication diversion is performed						
181 Call is Being Forwarded	←					
					→	INVITE
					←	180 Ringing
180 Ringing	←					
					←	200 OK (INVITE)
200 OK (INVITE)	←					
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N10_004	Reference 4.5.2.6.4/ [1]	Selection expression PICS 1/7 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5

Test purpose

The served user subscribes to the **(CFNRc)** *simulation service; originating user is notified, the URI of the diverted-to user is received.*

The served user is subscribed to the **(CFNRc)** simulation service. When Communication Diversion occurs and if the notification procedures of the originating user is supported then a 181 (Call Is Being Forwarded) response shall be sent towards the originating user. The 181 (Call Is Being Forwarded) response contains the P-Asserted-Identity header field and Privacy header field.
The P-Asserted-Identity includes the URI of the diverting user. The served user allows the presentation of diverted-to URI to the originating user. The URI of the diverted-to user is contained in **second entry** of the History-Info header. A Privacy header value history is escaped in the **first entry** of the History-Info header.

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = yes
Served user allows the presentation of his/her URI to *originating* user in diversion notification = no

SIP header values:

181 Call is Being Forwarded: P-Asserted-Identity SIP#2
History-Info: <sip:SIP#2?Privacy=history >;index=1,
<**sip:SIP#3; cause=503>;index=1.1**

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→		→	INVITE		
			←	CFNRc_VA		
			→	ACK		
Communication diversion is performed						
181 Call is Being Forwarded	←					
					→	INVITE
					←	180 Ringing
180 Ringing	←					
					←	200 OK (INVITE)
200 OK (INVITE)	←					
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N10_005	Reference 4.5.2.6.2/ [1]	Selection expression PICS 1/7 AND PICS 3/6

Test purpose

The served user subscribes to the **(CFNRc)** *simulation service; the diverted to user is not notified.*

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the **(CFNRc)** simulation service. The diverted to user is not notified. A Privacy header value history is escaped in the first entry of the History-Info header.

Subscription options:

Served user allows the presentation of his/her URI to *diverted-to* user = no

SIP header values:

INVITE P-Asserted-Identity SIP#1
History-Info: <sip:SIP#2?**Privacy=history**>;index=1,
<sip:SIP#3; cause=503>;index=1.1

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
				→	INVITE	
				←	CFNRc_VA	
INVITE 1	→			→	ACK	
Communication diversion is performed						
						→ INVITE
						← 180 Ringing
180 Ringing	←					
						← 200 OK (INVITE)
200 OK (INVITE)	←					
ACK	→					→ ACK
BYE	→					→ BYE
200 OK (BYE)	←					← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N10_006	Reference 4.5.2.6.2/ [1]	Selection expression PICS 1/7 AND PICS 3/6

Test purpose

The served user subscribes to the **(CFNRc)** *simulation service; the diverted to user is notified. URI of served user is sent.*

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the **(CFNRc)** simulation service. The diverted to user is notified. Served user allows the presentation of his/her URI to the *diverted-to* user. No Privacy header is escaped in the first entry of the History-Info header.

Subscription options:

Served user allows the presentation of his/her URI to *diverted-to* user = yes

SIP header values:

INVITE P-Asserted-Identity SIP#1
History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause=503>;index=1.1

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**	**SIP#3**
INVITE 1	→			
			→ INVITE	
			← CFNRc_VA	
			→ ACK	
Communication diversion is performed				
				→ INVITE
				← 180 Ringing
180 Ringing	←			
				← 200 OK (INVITE)
200 OK (INVITE)	←			
ACK	→			→ ACK
BYE	→			→ BYE
200 OK (BYE)	←			← 200 OK (BYE)

TSS Netw/ASNotification	TP CDIV_N10_007	Reference 4.5.2.6.5/ [1]	Selection expression PICS 1/7 AND PICS 2/3 AND PICS 3/1

Test purpose

The served user subscribes to the CFNRc simulation service; Communication Diversion Notification applies.

Ensure that when the diverting user has subscribed the Communication Diversion Notification service, the served user receives a NOTIFY request containing the information regarding the current communication forwarding not reachable.

Subscription options:

Served user receives notification that a communication has been forwarded (indication of communication diversion to the diverting user) = yes

SIP header values:

SUBSCRIBE: Event:comm-div-info
application/comm-div-info+xml
<comm-div-info>
<comm-div-subs-info >
<comm-div-selection-criteria>
< originating-user-selection-criteria>SIP#1
<diverting-user-selection-criteria>SIP#2
<diverted-to-user-selection-criteria>SIP#3
< diversion-time-selection-criteria >(Date-time)
< diversion-reason-selection-criteria >503
<comm-div-ntfy-trigger-criteria>
<notification-time-selection-criteria>(Date/Time range PIXIT)
</comm-div-info>

NOTIFY: Event:comm-div-info
application/comm-div-info+xml
<comm-div-info>
<comm-div-ntfy-info>
<originating-user-info>SIP#1
<diverting-user-info>SIP#2
<diverted-to-user-info>SIP#3
<diversion-time-info> (time range
<diversion-reason-info>503
<diversion-rule-info-type>
<diversion-rule> (any text)
</comm-div-info>

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**	**SIP#3**
		SUBSCRIBE	←	SUBSCRIBE	
		200 OK SUBSCRIBE	→	200 OK SUBSCRIBE	
		NOTIFY	→	NOTIFY	
		200 OK NOTIFY	←	200 OK NOTIFY	
INVITE 1	→	INVITE			
			→	INVITE	
			←	CFNRc_VA	
			→	ACK	
Communication diversion is performed					
		NOTIFY	→	NOTIFY	
		200 OK NOTIFY	←	200 OK NOTIFY	
					→ INVITE
180 Ringing	←				← 180 Ringing
200 OK (INVITE)	←				← 200 OK (INVITE)
ACK	→				→ ACK
BYE	→				→ BYE
200 OK (BYE)	←				← 200 OK (BYE)

Table 3

CFNRc_VA	Not reachable indication
CFNRc_VA_01	408 Request timeout response
CFNRc_VA_02	503 Service unavailable
CFNRc_VA_03	500 Server internal error

5.2.3 Actions at the AS of the diverted to User

TSS Netw/Netw/ASdiverted-to	TP CDIV_N11_001	Reference 4.5.2.7/ [1]	Selection expression

Test purpose
Previous stored History-Info header returned in a 180 Ringing.

The SUT in the Idle state, receives an INVITE message for the diverted-to-user without TIR with Cause Value in the last History Index; cause-param =CAUSE_VAL defined in the table 4, the History-Info header is stored. When the SUT receives a 180 Ringing, the stored History-Info header is covered in this response without escaped Privacy header in the last index if the response does not contain a History-Info header.

SIP header values:
INVITE:
History-Info header: hi-targeted-to-uri of diverted-to user; cause=CAUSE_VAL, index=1.x
180 Ringing
History-Info header: hi-targeted-to-uri of diverted-to user; cause=CAUSE_VAL, index=1.x

Comments:

SIP#1		SUT		SIP#2
INVITE 1	→		→	INVITE 2
180 Ringing	←		←	180 Ringing
200 OK (INVITE)	←		←	200 OK (INVITE)
ACK	→		→	ACK
BYE	→		→	BYE
200 OK (BYE)	←		←	200 OK (BYE)

TSS Netw/ASdiverted-to	TP CDIV_N11_002	Reference 4.5.2.7/ [1]	Selection expression

Test purpose
Previous stored History-Info header returned in a 181 Being Forwarded.

The SUT in the Idle state, receives an INVITE message for the diverted-to-user without TIR with Cause Value in the last History Index; cause-param =CAUSE_VAL defined in the table 4, the History-Info header is stored. When the SUT receives a 181 Being Forwarded, the stored History-Info header is covered in this response without escaped Privacy header in the last index if the response does not contain a History-Info header.

SIP header values: SIP header values:
INVITE:
History-Info header: hi-targeted-to-uri of diverted-to user; cause=CAUSE_VAL, index=1.x
181 Being Forwarded
History-Info header: hi-targeted-to-uri of diverted-to user; cause=CAUSE_VAL, index=1.x

Comments:

SIP#1		SUT		SIP#2
INVITE 1	→		→	INVITE 2
181 Call is Being Forwarded	←		←	181 Call is Being Forwarded
180 Ringing	←		←	180 Ringing
200 OK (INVITE)	←		←	200 OK (INVITE)
ACK	→		→	ACK
BYE	→		→	BYE
200 OK (BYE)	←		←	200 OK (BYE)

TSS Netw/ASdiverted-to	TP CDIV_N11_003	Reference 4.5.2.7/ [1]	Selection expression

Test purpose
Previous stored History-Info header returned in a 200 OK response.

The SUT in the Idle state, receives an INVITE message for the diverted-to-user without TIR with Cause Value in the last History Index; cause-param = CAUSE_VAL defined in the table 4, the History-Info header is stored. When the SUT receives a 200 OK INVITE, the stored History-Info header is covered in this response without escaped Privacy header in the last index if the response does not contain a History-Info header.

SIP header values: SIP header values:
INVITE:
History-Info header: hi-targeted-to-uri of diverted-to user; cause=CAUSE_VAL, index=1.x
200 OK INVITEg
History-Info header: hi-targeted-to-uri of diverted-to user; cause=CAUSE_VAL, index=1.x

Comments:

SIP#1		SUT		SIP#2
INVITE 1	→		→	INVITE 2
180 Ringing	←		←	180 Ringing
200 OK (INVITE)	←		←	200 OK (INVITE)
ACK	→		→	ACK
BYE	→		→	BYE
200 OK (BYE)	←		←	200 OK (BYE)

TSS Netw/ASdiverted-to	TP CDIV_N11_004	Reference 4.5.6.2.7/ [1], 4.6.3/ [1]	Selection expression PICS 4/3

Test purpose
Diverted to user is subscribed to the TIR service.

The SUT in the Idle state, receives an INVITE message for the diverted-to-user with TIR with Cause Value in the last History Index; cause-param = CAUSE_VAL defined in the table 4, the History-Info header is stored. When the SUT receives a 180 Ringing, the stored History-Info header is covered in this response with escaped Privacy=history header in the last index if the response does not contain a History-Info header.

SIP header values: SIP header values:
INVITE:
History-Info header: hi-targeted-to-uri of diverted-to user; cause=CAUSE_VAL, index=1.x
180 Ringing
History-Info header: hi-targeted-to-uri of diverted-to user; cause=CAUSE_VAL; ?Privacy=history, index=1.x

Comments:

SIP#1		SUT		SIP#2
INVITE 1	→		→	INVITE 2
180 Ringing	←		←	180 Ringing
200 OK (INVITE)	←		←	200 OK (INVITE)
ACK	→		→	ACK
BYE	→		→	BYE
200 OK (BYE)	←		←	200 OK (BYE)

TSS Netw/ASdiverted-to	TP CDIV_N11_005	Reference 4,5,6,2,7/ [1], 4.6.3/ [1]	Selection expression PICS 4/3

Test purpose
Diverted to user is subscribed to the TIR service.

The SUT in the Idle state, receives an INVITE message for the diverted-to-user with TIR with Cause Value in the last History Index; cause-param = CAUSE_VAL defined in the table 4. the History-Info header is stored. When the SUT receives a 181 Being Forwarded, the stored History-Info header is covered in this response with escaped Privacy=history header in the last index if the response does not contain a History-Info header.

SIP header values: SIP header values:
INVITE:
History-Info header: hi-targeted-to-uri of diverted-to user; cause=CAUSE_VAL, index=1.x
181 Being Forwarded
History-Info header: hi-targeted-to-uri of diverted-to user; cause=CAUSE_VAL; ?Privacy=history, index=1.x

Comments:

SIP#1		SUT		SIP#2
INVITE 1	→		→	INVITE 2
181 Call is Being Forwarded	←		←	181 Call is Being Forwarded
180 Ringing	←		←	180 Ringing
200 OK (INVITE)	←		←	200 OK (INVITE)
ACK	→		→	ACK
BYE	→		→	BYE
200 OK (BYE)	←		←	200 OK (BYE)

TSS Netw/ASdiverted-to	TP CDIV_N11_006	Reference 4,5,6,2,7/ [1] 4.6.3/ [1]	Selection expression PICS 4/3

Test purpose
Diverted to user is subscribed to the TIR service.

The SUT in the Idle state, receives an INVITE message for the diverted-to-user with TIR with Cause Value in the last History Index; cause-param = CAUSE_VAL defined in the table 4, the History-Info header is stored. When the SUT receives a 200 OK INVITE, the stored History-Info header is covered in this response with escaped Privacy=history header in the last index if the response does not contain a History-Info header.

SIP header values: SIP header values:
INVITE:
History-Info header: hi-targeted-to-uri of diverted-to user; cause=CAUSE_VAL, index=1.x
200 OK INVITE
History-Info header: hi-targeted-to-uri of diverted-to user; cause=CAUSE_VAL; ?Privacy=history, index=1.x

Comments:

SIP#1		SUT		SIP#2
INVITE 1	→		→	INVITE 2
180 Ringing	←		←	180 Ringing
200 OK (INVITE)	←		←	200 OK (INVITE)
ACK	→		→	ACK
BYE	→		→	BYE
200 OK (BYE)	←		←	200 OK (BYE)

Table 4

Cause Value in History Index; cause-param = "cause" EQUAL CAUSE_VAL	**Cause value**	Call diversion information	**Redirecting Reason**
	404		Unknown
	302		Unconditional
	486		User busy
	408		No reply
	480		Deflection immediate
	503		Mobile subscriber not reachable
	487		Deflection during alerting
	503		Subscriber not reachable

5.2.4 Void

5.2.5 Actions at the user equipment

5.2.5.1 Actions at the originating UE

TSS **OrigUE**	**TP** **CDIV_U01_001**	**Reference** **4.5.2.1**	**Selection expression** **PICS 5/1**

Test purpose
Communication diversion information received in a 181 Call is Being Forwarded.

Ensure that an User Equipment is able to receive a 181 Call is Being Forwarded and the 181 Response contains a History-Info header.
Ensure that the information contained in the History-Info header (identities, reason of CDIV) is displayed at the device. The Cause Value in the latest History Index; cause-param =CAUSE_VAL defined in the table 5.

SIP header values: SIP header values:
181 Call is Being Forwarded
History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause= CAUSE_VAL>;index=1.1

Comments:

UE			**Test Equipment**
INVITE	→	→	INVITE
181 Call is Being Forwarded	←	←	181 Call is Being Forwarded
180 Ringing	←	←	180 Ringing
200 OK (INVITE)	←	←	200 OK (INVITE)
ACK	→	→	ACK
BYE	→	→	BYE
200 OK (BYE)	←	←	200 OK (BYE)

TSS OrigUE	TP CDIV_U01_002	Reference 4.5.2.1/ [1]	Selection expression PICS 5/2

Test purpose

Communication diversion information received in a 180 Ringing.

Ensure that an User Equipment is able to receive a 180 Ringing and the 180 Response contains a History-Info header.
Ensure that the information contained in the History-Info header (identities, reason of CDIV) is displayed at the device. The Cause Value in the latest History Index; cause-param =CAUSE_VAL defined in the table 5.

SIP header values: SIP header values:

180 Ringing
History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause= CAUSE_VAL>;index=1.1

Comments:

UE			**Test Equipment**
INVITE	→	→	INVITE
181 Call is Being Forwarded	←	←	181 Call is Being Forwarded
180 Ringing	←	←	180 Ringing
200 OK (INVITE)	←	←	200 OK (INVITE)
ACK	→	→	ACK
BYE	→	→	BYE
200 OK (BYE)	←	←	200 OK (BYE)

TSS OrigUE	TP CDIV_U01_003	Reference 4.5.2.1/ [1]	Selection expression PICS 5/3

Test purpose

Communication diversion information received in a 200 OK INVITE.

Ensure that an User Equipment is able to receive a 200 OK INVITE and the 200 OK final Response contains a History-Info header.
Ensure that the information contained in the History-Info header (identities, reason of CDIV) is displayed at the device. The Cause Value in the latest History Index; cause-param =CAUSE_VAL defined in the table 5.

SIP header values: SIP header values:

200 OK (INVITE)
History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause= CAUSE_VAL>;index=1.1

Comments:

UE			**Test Equipment**
INVITE	→	→	INVITE
181 Call is Being Forwarded	←	←	181 Call is Being Forwarded
180 Ringing	←	←	180 Ringing
200 OK (INVITE)	←	←	200 OK (INVITE)
ACK	→	→	ACK
BYE	→	→	BYE
200 OK (BYE)	←	←	200 OK (BYE)

5.2.5.2 Action at the diverted to UE

TSS Diverted-toUE	TP CDIV_U02_001	Reference 4.5.2.15/ [1]	Selection expression PICS 5/4

Test purpose
Communication diversion information received in an INVITE request.

Ensure that an User Equipment is able to receive a INVITE request and the INVITE contains a History-Info header. Ensure that the information contained in the History-Info header (identities, reason of CDIV) is displayed at the device. The Cause Value in the latest History Index; cause-param =CAUSE_VAL defined in the table 5.

SIP header values: SIP header values:
INVITE:
History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause= CAUSE_VAL>;index=1.1

Comments:

UE			**Test Equipment**
INVITE	←	←	INVITE
180 Ringing	→	→	180 Ringing
200 OK (INVITE)	→	→	200 OK (INVITE)
ACK	←	←	ACK
BYE	←	←	BYE
200 OK (BYE)	→	→	200 OK (BYE)

TSS Diverted-toUE	TP CDIV_U02_002	Reference 4.5.2.6.2/ [1], 4.5.2.7/ [1]	Selection expression PICS 5/5

Test purpose
The User Equipment is able to sent a History-Info header in 180 response.

Ensure that an User Equipment is able to sent a History-Info header in a 180 provisional response containing a History-Info header received in the initial INVITE.
The Cause Value in the latest History Index; cause-param =CAUSE_VAL defined in the table 5.

SIP header values: SIP header values:
INVITE: History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause= CAUSE_VAL>;index=1.1
180 Ringing: History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause= CAUSE_VAL>;index=1.1

Comments:

UE			**Test Equipment**
INVITE	←	←	INVITE
180 Ringing	→	→	180 Ringing
200 OK (INVITE)	→	→	200 OK (INVITE)
ACK	←	←	ACK
BYE	←	←	BYE
200 OK (BYE)	→	→	200 OK (BYE)

TSS Diverted-toUE	TP CDIV_U02_003	Reference 4.5.2.6.2/ [1], 4.5.2.7/ [1]	Selection expression PICS 5/6

Test purpose
The User Equipment is able to sent a History-Info header in 200 OK INVITE final response.

Ensure that an User Equipment is able to sent a History-Info header in a 200 OK final response containing a History-Info header received in the initial INVITE.
The Cause Value in the latest History Index; cause-param =CAUSE_VAL defined in the table 5.

SIP header values: SIP header values:

INVITE:	History-Info:	<sip:SIP#2>;index=1,
		<sip:SIP#3; cause= CAUSE_VAL>;index=1.1
200 OK:	History-Info:	<sip:SIP#2>;index=1,
		<sip:SIP#3; cause= CAUSE_VAL>;index=1.1

Comments:

UE			**Test Equipment**
INVITE	←	←	INVITE
180 Ringing	→	→	180 Ringing
200 OK (INVITE)	→	→	200 OK (INVITE)
ACK	←	←	ACK
BYE	←	←	BYE
200 OK (BYE)	→	→	200 OK (BYE)

5.2.5.3 Actions at the diverting UE

TSS DivertingUE	TP CDIV_U03_001	Reference 4.5.2.6.4/ [1]	Selection expression PICS 5/7

Test purpose
Communication diversion using the MESSAGE request method.

Ensure that the User Equipment is able to receive a MESSAGE request containing the notification about a performed communication diversion by the network.
Ensure that the text contained in the text/plain MIME extension is displayed.
The Cause Value in the latest History Index; cause-param =CAUSE_VAL defined in the table 5.

SIP header values: SIP header values:
MESSAGE
Content-Type: text/plain
… text (PIXIT) …

Comments:

UE			**Test Equipment**
MESSAGE	←	←	MESSAGE

TSS DivertingUE	TP CDIV_U03_002	Reference 4.5.2.6.5/ [1], 4.10/ [1]	Selection expression PICS 5/8

Test purpose

Communication diversion using the CDIVN service, subscription of the service.

Ensure that the User Equipment is able to subscribe the communication diversion notification service (CDIVN).
A SUBSCRIBE request is sent. The Event header contains the package name "comm-div-info" and a MIME body containing a XML instance of http://uri.etsi.org/ngn/params/xml/comm-div-info.
The Cause Value in the latest History Index; cause-param =CAUSE_VAL defined in the table 5.

SIP header values: SIP header values:

SUBSCRIBE: Event:comm-div-info
application/comm-div-info+xml
<comm-div-info>
<comm-div-subs-info >
<comm-div-selection-criteria>
< originating-user-selection-criteria >
<diverting-user-selection-criteria>
<diverted-to-user-selection-criteria>
< diversion-time-selection-criteria >
< diversion-reason-selection-criteria > CAUSE_VAL
<comm-div-ntfy-trigger-criteria>
<notification-time-selection-criteria>
</comm-div-info>

NOTIFY: Event:comm-div-info

Comments:

UE		**Test Equipment**
SUBSCRIBE	→	→ SUBSCRIBE
200 OK (SUBSCRIBE)	←	← 200 OK (SUBSCRIBE)
NOTIFY	←	← NOTIFY
200 OK (NOTIFY)	→	→ 200 OK (NOTIFY)

TSS DivertingUE	TP CDIV_U03_003	Reference 4.5.2.6.5/ [1], 4.10/ [1]	Selection expression PICS 5/8

Test purpose

Communication diversion using the CDIVN service, notification applies.

Ensure that the User Equipment is able to receive notification based on the communication diversion notification service (CDIVN).
A NOTIFY request is received. The Event header contains the package name "comm-div-info". The Event header contains the package name "comm-div-info" and a MIME body containing a XML instance of "http://uri.etsi.org/ngn/params/xml/comm-div-info".
Ensure that the notification is displayed at the User Equipment.
The Cause Value in the latest History Index; cause-param =CAUSE_VAL defined in the table 5.

SIP header values: SIP header values:

NOTIFY: Event:comm-div-info
application/comm-div-info+xml
<comm-div-info>
<comm-div-ntfy-info>
<originating-user-info>
<diverting-user-info>
<diverted-to-user-info>
<diversion-time-info>
<diversion-reason-info> CAUSE_VAL
<diversion-rule-info-type>
<diversion-rule> (any text)
</comm-div-info>

Comments:

UE			**Test Equipment**
		CDIVN is activated	
NOTIFY	←	←	NOTIFY
200 OK (NOTIFY)	→	→	200 OK (NOTIFY)

Table 5

Cause Value in History Index; cause-param = "cause" EQUAL CAUSE_VAL	**Cause value**	Call diversion information	**Redirecting Reason**
	404		Unknown
	302		Unconditional
	486		User busy
	408		No reply
	480		Deflection immediate
	503		Mobile subscriber not reachable
	487		Deflection during alerting
	503		Subscriber not reachable

5.3 Interaction with other services

5.3.1 Terminating Identification Presentation (TIP)

TSS Interaction/TIP	TP CDIV_N12_001	Reference 4.6.2	Selection expression PICS 4/3

Test purpose

The served user subscribes to the CDIV simulation service; the P-Asserted header is passed on unchanged.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CDIV simulation service.
Ensure that a P-Asserted-Identity and History header field received in the diverting AS is passed unmodified to the originating entity.
The Cause Value in the latest History Index; cause-param =CAUSE_VAL defined in the table 6.

SIP header values:

180: Ringing: P-Asserted-Identity with the URI of the diverted-to user, Privacy is not "id" and not "header"
History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause= CAUSE_VAL>;index=1.1

200 OK: P-Asserted-Identity with the URI of the diverted-to user, Privacy is not "id" and not "header"
History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause= CAUSE_VAL ;index=1.1

Comments:

SIP#1		**SUT**		**SIP#2 (served user)**		**SIP#3**
INVITE 1	→					
Communication diversion is performed (CFU, CFB, CFNR, CD, CFNL, CFNRc)						
			→		→	INVITE
			←		←	180 Ringing
180 Ringing	←					
			←		←	200 OK (INVITE)
200 OK (INVITE)	←					
ACK	→				→	ACK
BYE	→				→	BYE
200 OK (BYE)	←				←	200 OK (BYE)

Table 6

Cause Value in History Index; cause-param = "cause" EQUAL CAUSE_VAL	**Cause value**	Call diversion information	**Redirecting Reason**
	404		Unknown
	302		Unconditional
	486		User busy
	408		No reply
	480		Deflection immediate
	503		Mobile subscriber not reachable
	487		Deflection during alerting
	503		Subscriber not reachable

5.3.2 Terminating Identification Restriction (TIR)

TSS Interaction/TIR	TP CDIV_N13_001	Reference 4.6.3	Selection expression PICS 4/3 AND PICS 4/4

Test purpose
The served user subscribes to the CDIV simulation service; the diverted-to URI is not sent to the originating user.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CDIV simulation service.
A P-Asserted-Identity and History header field received in the diverting AS is passed unmodified to the originating entity.
Ensure that if the served (diverting) user selects the option that the originating user is notified, but without the diverted-to number, then the AS shall not send the connected user's identity when the communication is answered.
The Cause Value in the latest History Index; cause-param =CAUSE_VAL defined in the table 7.

Subscription options:
Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = no
TIR subscription: Originating user has the override category = no

SIP header values:
200 OK 1: P-Asserted-Identity with the URI of the diverted-to user
History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause=302>;index=1.1

200 OK 2: P-Asserted-Identity with the URI of the diverted-to user
History-Info: <sip:SIP#2>;index=1

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**		**SIP#3**
INVITE 1	→				
Communication diversion is performed (CFU, CFB, CFNR, CD, CFNL, CFNRc)					
				→	INVITE
				←	180 Ringing
180 Ringing	←				
				←	200 OK 1 (INVITE)
200 OK 2(INVITE)	←				
ACK	→			→	ACK
BYE	→			→	BYE
200 OK (BYE)	←			←	200 OK (BYE)

Table 7

Cause Value in History Index; cause-param = "cause" EQUAL CAUSE_VAL	**Cause value**	Call diversion information	**Redirecting Reason**
	404		Unknown
	302		Unconditional
	486		User busy
	408		No reply
	480		Deflection immediate
	503		Mobile subscriber not reachable
	487		Deflection during alerting
	503		Subscriber not reachable

TSS Interaction/TIR	TP CDIV_N13_002	Reference 4.6.3	Selection expression PICS 4/3 AND PICS 4/4

Test purpose

The served user subscribes to the CDIV simulation service, the diverted-to URI is sent to the originating user if the terminating user has the override category.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CDIV simulation service.
A P-Asserted-Identity and History header field received in the diverting AS is passed unmodified to the originating entity. The originating user has the "Override category".
Ensure that if the served (diverting) user selects the option that the originating user is notified, but without the diverted-to number, then the AS shall send the connected user's identity when the communication is answered.
The Cause Value in the latest History Index; cause-param =CAUSE_VAL defined in the table 8

Subscription options:

Originating user receives notification that his communication has been diverted (forwarded or deflected) = yes
Served user allows the presentation of diverted to URI to *originating* user in diversion notification = no
TIR subscription: Originating user has the override category = yes

SIP header values:

200 OK 1: P-Asserted-Identity with the URI of the diverted-to user
History-Info: <sip:SIP#2>;index=1,
<sip:SIP#3; cause=302>;index=1.1

200 OK 2: P-Asserted-Identity with the URI of the diverted-to user
History-Info: <sip:SIP#2>;index=1
<sip:SIP#3; cause=302>;index=1.1

Comments:

SIP#1	**SUT**	**SIP#2 (served user)**	**SIP#3**
INVITE 1	→		
Communication diversion is performed (CFU, CFB, CFNR, CD, CFNL, CFNRc)			
			→ INVITE
			← 180 Ringing
180 Ringing	←		
			← 200 OK 1 (INVITE)
200 OK 2(INVITE)	←		
ACK	→		→ ACK
BYE	→		→ BYE
200 OK (BYE)	←		← 200 OK (BYE)

Table 8

Cause Value in History Index; cause-param = "cause" EQUAL CAUSE_VAL	**Cause value**	Call diversion information	**Redirecting Reason**
	404		Unknown
	302		Unconditional
	486		User busy
	408		No reply
	480		Deflection immediate
	503		Mobile subscriber not reachable
	487		Deflection during alerting
	503		Subscriber not reachable

5.3.3 Originating Identification Presentation (OIP)

TSS Interaction/OIP	TP CDIV_N14_001	Reference 4.6.4	Selection expression PICS 4/1

Test purpose

The diverted-to user subscribes to the OIP simulation service.

When a communication has been diverted and the diverted-to user has been provided with the originating identification presentation simulation service, the S-CSCF of the diverted-to user shall sent the number of the original originating user, if this originating user has not subscribed to or invoked the originating identification restriction simulation service.
The Cause Value in the latest History Index; cause-param =CAUSE_VAL defined in the table 9.

SIP header values:

INVITE: P-Asserted-Identity with the URI of the originating user Privacy value "id" or "header" or "user" not present
History-Info: <sip:SIP#2>;index=1
<sip:SIP#3; cause= CAUSE_VAL>;index=1.1

Comments:

SIP#1		SUT	SIP#2 (served user)		SIP#3
INVITE 1	→				
Communication diversion is performed (CFU, CFB, CFNR, CD, CFNL, CFNRc)					
				→	INVITE
				←	180 Ringing
180 Ringing	←				
				←	200 OK (INVITE)
200 OK (INVITE)	←				
ACK	→			→	ACK
BYE	→			→	BYE
200 OK (BYE)	←			←	200 OK (BYE)

Table 9

Cause Value in History Index; cause-param = "cause" EQUAL CAUSE_VAL	**Cause value**	Call diversion information	**Redirecting Reason**
	404		Unknown
	302		Unconditional
	486		User busy
	408		No reply
	480		Deflection immediate
	503		Mobile subscriber not reachable
	487		Deflection during alerting
	503		Subscriber not reachable

5.3.4 Originating Identification Restriction (OIR)

TSS Interaction/OIR	TP CDIV_N15_001	Reference 4.6.5	Selection expression PICS 4/1 AND PICS 4/2

Test purpose

The served user subscribes to the CDIV simulation service; the terminating user does not have the override category.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CFU simulation service.
When the originating identification restriction simulation service has been invoked, the originating user's address shall not be presented to the diverted-to user.
The Cause Value in the latest History Index; cause-param =CAUSE_VAL defined in the table 10.

SIP header values:

INVITE 1: P-Asserted-Identity, Privacy "id"
INVITE 2: P-Asserted-Identity, Privacy "id"
History-Info: <sip:SIP#2>;index=1
<sip:SIP#3; cause= CAUSE_VAL>;index=1.1

Comments:

SIP#1	SUT	SIP#2 (served user)	SIP#3
INVITE 1	→		
Communication diversion is performed (CFU, CFB, CFNR, CD, CFNL, CFNRc)			
		→	INVITE 2
		←	180 Ringing
180 Ringing	←		
		←	200 OK (INVITE)
200 OK (INVITE)	←		
ACK	→	→	ACK
BYE	→	→	BYE
200 OK (BYE)	←	←	200 OK (BYE)

TSS Interaction/OIR	TP CDIV_N15_002	Reference 4.6.5	Selection expression PICS 4/1 AND PICS 4/2

Test purpose

The served user subscribes to the CDIV simulation service, the terminating user has the override category.

Ensure that the communication is forwarded to the diverted to user if the served user is subscribed to the CFU simulation service.
When the originating identification restriction simulation service has been invoked, the originating user's address shall be presented to the diverted-to user, the diverted-to user has an override capability.
The Cause Value in the latest History Index; cause-param =CAUSE_VAL defined in the table 10.

SIP header values:

INVITE 1: P-Asserted-Identity, Privacy "id"
INVITE 2: P-Asserted-Identity
History-Info: <sip:SIP#2>;index=1
<sip:SIP#3; cause= CAUSE_VAL>;index=1.1

Comments:

SIP#1	SUT	SIP#2 (served user)	SIP#3
INVITE 1	→		
Communication diversion is performed (CFU, CFB, CFNR, CD, CFNL, CFNRc)			
		→	INVITE 2
		←	180 Ringing
180 Ringing	←		
		←	200 OK (INVITE)
200 OK (INVITE)	←		
ACK	→	→	ACK
BYE	→	→	BYE
200 OK (BYE)	←	←	200 OK (BYE)

Table 10

Cause Value in History Index; cause-param = "cause" EQUAL CAUSE_VAL	**Cause value**	Call diversion information	**Redirecting Reason**
	404		Unknown
	302		Unconditional
	486		User busy
	408		No reply
	480		Deflection immediate
	503		Mobile subscriber not reachable
	487		Deflection during alerting
	503		Subscriber not reachable

5.3.5 Anonymous Communication Rejection and Communication Barring (ACR/CB)

TSS **Interaction/ACR-CB**	**TP** **CDIV_N16_001**	**Reference** **4.6.9**	**Selection expression** **PICS 4/6**

Test purpose

CDIV the diverted-to user has subscribed to a call barring service "inhibition of incoming forwarded communication".

Ensure that the communication is rejected with 603 (Decline) if the called user has subscribed to the call barring service "inhibition of incoming forwarded communication" and the received INVITE contains a History-Info header indication this call is a forwarded.
The Cause Value in the latest History Index; cause-param =CAUSE_VAL defined in the table 11.

SIP header values:

INVITE: History-Info: <sip:SIP#1;index=1,
<sip:SIP#2; cause= CAUSE_VAL>;index=1.1

Comments:

SIP#1		**Terminating AS**	**SIP#2**
INVITE 1	→		
603 (Decline)	←		
ACK	→		

Table 11

Cause Value in History Index; cause-param = "cause" EQUAL CAUSE_VAL	**Cause value**	Call diversion information	**Redirecting Reason**
	404		Unknown
	302		Unconditional
	486		User busy
	408		No reply
	480		Deflection immediate
	503		Mobile subscriber not reachable
	487		Deflection during alerting
	503		Subscriber not reachable

TSS Interaction/ACR-CB	TP CDIV_N16_002	Reference 4.6.9	Selection expression PICS 4/5

Test purpose

The served user has subscribed to a call barring service Outgoing Communication Barring (OCB).

Ensure that the communication is rejected with 603 (Decline) if the called user has subscribed to the call barring service Outgoing Communication Barring (OCB) if the forwarded to number is restricted.
The Cause Value in the latest History Index; cause-param =CAUSE_VAL defined in the table 12.

SIP header values:

Comments:

SIP#1		**SUT**	**SIP#2 (served user)**	**SIP#3**
INVITE 1	→			
603 (Decline)	←			
ACK	→			

Table 12

Cause Value in History Index; cause-param = "cause" EQUAL CAUSE_VAL	**Cause value**	Call diversion information	**Redirecting Reason**
	404		Unknown
	302		Unconditional
	486		User busy
	408		No reply
	480		Deflection immediate
	503		Mobile subscriber not reachable
	487		Deflection during alerting
	503		Subscriber not reachable

5.3.6 Explicit Communication Transfer (ECT)

TSS Interaction/ECT	TP CDIV_N17_001	Reference 4.6.10.1.2	Selection expression PICS 4/7

Test purpose
Forwarded Communication, handling of Refer-To header.

Ensure that a forwarded communication is able to transfer and the Refer-To header of the REFER request sent to the Transferee contains a Refer-To header containing the CDIV Session Identifier. The CFU, CFB, CFNR, CD CFNL and CFNRc apply.

SIP header values:
REFER 1: Refer-To:<SIP#4>
REFER 2: Refer-To: <CDIV Session Identifier>

Configuration:
SIP#1: originating user, Transferer
SIP#2: CDIV served user, (Transferee)
SIP#3: CDIV diverted-to user, Transferee
SIP#4: Transfer target

Comments:

SIP#1	SUT	SIP#2 (served user)	SIP#3	SIP#4
		Forwarded communication is active		
REFER 1 →		→ REFER 2		
			→ REFER 2	
			← 202 Accepted	
202 Accepted ←		← 202 Accepted		
		← INVITE	← INVITE	
	INVITE →			→ INVITE
		← 180 Ringing		← 180 Ringing
	180 Ringing →		→ 180 Ringing	
		← 200 OK		← 200 OK
	200 OK →		→ 200 OK	
BYE →			← ACK	
200 OK BYE ←				→ ACK
			Transferred communication	
			← BYE	
				→ BYE
				← 200 OK BYE
			→ 200 OK BYE	

TSS Interaction/TIP	TP CDIV_N17_002	Reference 4.6.10.1.3	Selection expression PICS 4/7

Test purpose

Forwarded Communication, handling of Refer-To header.

Ensure that a forwarded communication is able to transfer and the AS replaces the Request URI (CDIV Session Identifier) of the INVITE request received from the Transferee with the value of the Transfer target previously stored from the Refer-To header received in the REFER request and sends the INVITE request toward the Transfer target. The INVITE request contains also the History-Info header. The CFU, CFB, CFNR, CD CFNL and CFNRc apply.

SIP header values:

INVITE 1: Request URI: <CDIV Session Identifier>
INVITE 2: Request URI:<SIP#4>
History-Info: <sip:SIP#2 >;index=1,
<sip:SIP#3; cause=302>;index=1.1

Configuration:

SIP#1: originating user, Transferer
SIP#2: CDIV served user, (Transferee)
SIP#3: CDIV diverted-to user, Transferee
SIP#4: Transfer target

Comments:

SIP#1		SUT		SIP#2 (served user)		SIP#3		SIP#4
				Forwarded communication is active				
REFER	→		→	REFER				
					→	REFER		
					←	202 Accepted		
202 Accepted	←		←	202 Accepted				
			←	INVITE 1	←	INVITE 1		
		INVITE 2	→				→	INVITE 2
			←	180 Ringing			←	180 Ringing
		180 Ringing	→		→	180 Ringing		
			←	200 OK			←	200 OK
BYE	→	200 OK	→		→	200 OK		
200 OK BYE	←				←	ACK		
							→	ACK
						Transferred communication		
					←	BYE		
							→	BYE
							←	200 OK BYE
					→	200 OK BYE		

History

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