

TELECOMMUNICATION STANDARDIZATION SECTOR OF ITU



SERIES Q: SWITCHING AND SIGNALLING Testing specifications – Testing specifications for SIP-IMS

Communication diversion using IP multimedia core network subsystem; Conformance testing – Part 2: Network side; Test suite structure and test purposes

Recommendation ITU-T Q.4004.2

7-0-1



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Recommendation ITU-T Q.4004.2

Communication diversion using IP multimedia core network subsystem; Conformance testing – Part 2: Network side; Test suite structure and test purposes

Summary

Recommendation ITU-T Q.4004.2 v.1 (2016) is part 2 of the testing specifications for communications diversion (CDIV) service implemented on IP multimedia subsystem (IMS) basis on the network side. The Recommendation specifies the test suite structure and test purposes (TSS&TP) which can be used for testing against the Recommendation [ITU-T Q.3620 v.1].

The version number, v.1, indicates that this is version one of Recommendation ITU-T Q.4004.2 and that it relates to Release 10 of the relevant 3GPP/ETSI standard.

History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T Q.4004.2 v.1	2016-02-13	11	11.1002/1000/12737

Keywords

Communications diversion, CDIV, IP multimedia subsystem, IMS, network side session description protocol, SDP, session initiation protocol, SIP, test purposes, TP, test suite structure, TSS, testing.

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^{*} To access the Recommendation, type the URL http://handle.itu.int/ in the address field of your web browser, followed by the Recommendation's unique ID. For example, <u>http://handle.itu.int/11.1002/1000/1</u> <u>1830-en</u>.

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Recommendation ITU-T Q.4004.2

Communication diversion using IP multimedia core network subsystem; Conformance testing – Part 2: Network side; Test suite structure and test purposes

1 Scope

The present Recommendation specifies the test suite structure and test purposes (TSS&TP) for communications diversion (CDIV) services [ITU-T Q.3620 v.1] for the network side. The communications diversion (CDIV) services enables diverting user, to divert the communications addressed to diverting user to another destination.

The present Recommendation is part 2 of a multi-part deliverable covering communication diversion (CDIV), as identified below:

Part 1: "Protocol implementation conformance statement (PICS)";

Part 2: "Test suite structure and test purposes; Network side (TSS&TP)";

Part 3: "Test suite structure and test purposes; User side (TSS&TP)".

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[ITU-T Q.3620 v.1]	Recommendation ITU-T Q.3620 v.1 (2016), <i>Communication diversion</i> (<i>CDIV</i>) using IP multimedia core network subsystem – Protocol specification.
[ITU-T Q.4004.1 v.1]	Recommendation ITU-T Q.4004.1 v.1 (2016), <i>Communication diversion</i> using IP multimedia core network subsystem; Conformance testing – Part 1: Network side and user side; Protocol implementation conformance statement.
[ITU-T X.290]	Recommendation ITU-T X.290 (1995), OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – General concepts.
[IETF RFC 4244]	IETF RFC 4244 (2005), An Extension to the Session Initiation Protocol (SIP) for Request History Information.

3 Definitions

For the purposes of this Recommendation, the terms and definitions given in [ITU-T Q.3620 v.1] and the following apply:

- **3.1** abstract test suite (ATS): Refer to [ITU-T X.290].
- **3.2** implementation under test (IUT): Refer to [ITU-T X.290].
- **3.3** pics proforma: Refer to [ITU-T X.290].

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- **3.4** point of control and observation: Refer to [ITU-T X.290].
- **3.5** protocol implementation conformance statement (PICS): Refer to [ITU-T X.290].
- **3.6** system under test (SUT): Refer to [ITU-T X.290].
- **3.7** test purpose (**TP**): Refer to [ITU-T X.290].

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

- Gm Reference Point between a UE and a P-CSCF
- ISC IP Multimedia Subsystem Service Control
- Mg Reference Point between an MGCF and a CSCF
- Mw Reference Point between a CSCF and another CSCF
- Mx Reference Point between a CSCF/BGCF and IBCF
- NDUB Network Determined User Busy
- NNI Network Network Interface
- TSS Test Suite Structure
- UDUB User Determined User Busy

5 Test suite structure (TSS)

Table 1 – Test suite structure

Netw

ASdivertingUser/DivProcedures	CDIV_N01_xxx
ASdivertingUser/NotOrigUser	CDIV_N02_xxx
ASdivertingUser/NotTermUser	CDIV_N03_xxx
ASdivertingUser/NotDivUser	CDIV_N04_xxx
ASdiverted-to	CDIV_N05_xxx

Interaction

TIP	CDIV_N06_xxx
TIR	CDIV_N07_xxx
OIR	CDIV_N08_xxx
ACR-CB	CDIV_N09_xxx
ECT	CDIV_N10_xxx

5.1 Configuration

The scope of this Recommendation is to test the signalling and procedural aspects of the stage 3 requirements as described in [ITU-T Q.3620 v.1]. The stage 3 description respects the requirements to several network entities and also to requirements regarding end devices. Therefore several interfaces (reference points) are addressed to satisfy the test of the different entities.

In order to test the appropriate entities the configurations below are applicable:

Testing of the Application Server: This entity is responsible for performing the service. Hence the ISC interface is the appropriate access point.as shown in Figure 1.

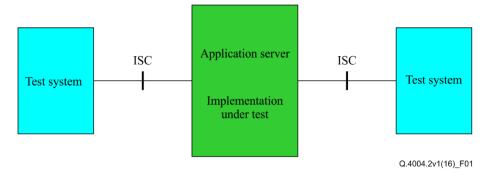


Figure 1 – Applicable interface to test AS functionalities

If the ISC interface is not accessible it is also applicable to perform the test of the AS using any NNI (Mw, Mg, Mx) interface (see Figure 2). In case only the Gm interface is accessible this shall be used instead. In this case, be aware that the verification of several requirements is impeded.

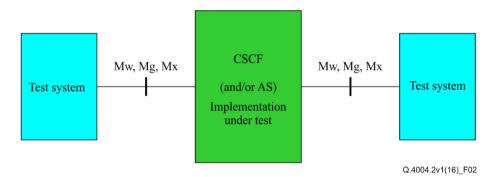


Figure 2 – Applicable interfaces to test using the (generic) NNI interface

6 Test purposes (TP)

6.1 Introduction

6.1.1 TP naming convention

Test purposes (TPs) are numbered, starting at 001, within each group. Groups are organized according to the test suite structure (TSS). Additional references are added to identify the actual test suite and whether it applies to the network or the user (see Figure 3).

Identifier: <ss>_<iut><group>_<n< th=""><th>nn></th><th></th></n<></group></iut></ss>	nn>	
<ss> = supplementary service:</ss>	e.g. "CD	DIV"
<iut> = type of IUT:</iut>	U N yyy	User Network service
<group> = group</group>	2 digit fi	eld representing group reference according to TSS
<nnn> = sequential number</nnn>	(001-99	9)

Figure 3 – TP identifier naming convention scheme

6.1.2 Test strategy

As the base standard [ITU-T Q.3620 v.1] contains no explicit requirements for testing, the TPs were generated as a result of an analysis of the base standard and the protocol implementation conformance statement (PICS) specification [ITU-T Q.4004.1 v.1].

6.2 Signalling requirements

6.2.1 Actions at the AS of the diverting user

6.2.1.1 Diversion procedures

TSS Netw/ASdivertingUser/DivProcedures	TP CDIV_N01_001	Reference [ITU-T Q.3620 v.1] 4.5.2.6.1	Selection expression PICS 1/2
Test purpose			
Served user has activated CFB, maximum	i number of diversion ex	ceeded.	
Ensure that the 486 (Busy here) final resp			
has activated the CFB simulation service exceeded.	and the served user is t	ousy and if the maximu	m number of diversions is
SIP header values:			
INVITE: sip:SIP#n@ example.com SIP/2.0			
History-Info: <sip: <b="">non sig</sip:>			
	es with non significant		
<sip.sip#ii, cause="\<br">Warning: is present</sip.sip#ii,>	/A_CAUSE>;index=1.n.	I	
Warning. is present			
NOTE: For each redirection a history-e			
incremented according the rules redirection is represented by a			v.1]. In short: each
Comments:			
SIP#1	AS	SIP#n	SIP#n+1
INVITE 1 →	→	INVITE 1	
	+	486 Busy Here	
486 (Busy here)	→	ACK	
ACK →			

TSS Netw/ASdivertingUser/DivProcedures	TP CDIV_N01_0	02 [ITU-T Q.36 4.5.2.6	520 v.1] PICS 1/3
Test purpose			
Served user has activated CFNR, maximu	um number of divers	ion exceeded.	
Ensure that the 480 (Temporarily unavaila	ble) final response v	vith a Warning head	ler is sent to the original user if the
served user does not answer the commun	nication request and	if the maximum nur	nber of diversions is exceeded.
SIP header values:			
INVITE: sip:SIP#n@ example.com SIP/2.0	0		
History-Info: <sip: non="" sig<="" td=""><th></th><td>dex=1.</td><th></th></sip:>		dex=1.	
	nal entries with non s		3
	ause=VA_CAUSE>		
Warning: is present		,	
Walning: lo procent			
NOTE: For each redirection a history-e incremented according the rule redirection is represented by a	s described in claus	e 4.5.2.6.2.3 [ITU-T	
Comments:			
SIP#1	AS	SIP#n	SIP#n+1
INVITE 🗕 🗕	→	INVITE	
180 Ringing 🗧 🗲	+	180 Ringing	
No rep	ply timer expires		
480 (Temporarily unavailable) 🛛 🗲 🛛 .		CANCEL	
ACK 🔶	÷	200 OK CANCEL	
	+	487 Request Term	nated
		ACK	

4

TSS Netw/ASdivertingUser/DivProcedures	TP CDIV_N01_003	Reference [ITU-T Q.3620 v.1] 4.5.2.6.1	Selection expression PICS 1/1			
Test purpose						
Served user has activated CFU, maximum r	number of diversion ex	ceeded.				
Ensure that the 480 (Temporarily unavailable served user has activated the CFU simulation						
	ificant uri value >;ind entries with non sign use=VA_CAUSE>;inde	ificant uri values				
NOTE: For each redirection a history-ent incremented according the rules redirection is represented by a "d	described in clause 4.5	5.2.6.2.3 [ITU-T Q.3620 v. ⁻	ant index is I]. In short: each			
Comments:		017 //	017 //			
SIP#1 INVITE →	AS	SIP#n	SIP#n+1			
480 (Temporarily unavailable)						
ACK →						
		.				
TSS Netw/ASdivertingUser/DivProcedures	TP CDIV_N01_004	Reference [ITU-T Q.3620 v.1] 4.5.2.6.1	Selection expression PICS 1/4 OR PICS 1/5			
Test purpose Served user has activated CD, maximum nu	Imber of diversion exc	eeded.				
Ensure that the 480 (Temporarily unavailable			the original user if the			
served user has activated the CD simulation						
SIP header values:						
INVITE. SID. SIP#n@ example com SIP(2.0)						
	icant uri value >;index: entries with non signil ise=VA_CAUSE>;inde	ficant uri values				
History-Info: <sip: non="" signif<br="">Build additional <sip:sip#n; cau<br="">Warning: is present NOTE: For each redirection a history-ent incremented according the rules of redirection is represented by a "d</sip:sip#n;></sip:>	entries with non signifuse=VA_CAUSE>;inde ry is added the History described in clause 4.5	ficant uri values x=1.n.1 r-Info header and the relev 5.2.6.2.3 [ITU-T Q.3620 v.1				
History-Info: <sip: non="" signif<br="">Build additional <sip:sip#n; cau<br="">Warning: is present NOTE: For each redirection a history-ent incremented according the rules or redirection is represented by a "d Comments:</sip:sip#n;></sip:>	entries with non signifuse=VA_CAUSE>;inde ry is added the History described in clause 4.5 ot" in the latest history	ficant uri values x=1.n.1 -Info header and the relev 5.2.6.2.3 [ITU-T Q.3620 v. -entry.	I]. In short: each			
History-Info: <sip: non="" signif<br="">Build additional <sip:sip#n; cau<br="">Warning: is present NOTE: For each redirection a history-ent incremented according the rules of redirection is represented by a "d Comments: SIP#1</sip:sip#n;></sip:>	entries with non signifuse=VA_CAUSE>;inde ry is added the History described in clause 4.5 ot" in the latest history	ficant uri values x=1.n.1 -Info header and the relev 5.2.6.2.3 [ITU-T Q.3620 v. -entry. SIP#n				
History-Info: <sip: non="" signif<br="">Build additional <sip:sip#n; cau<br="">Warning: is present NOTE: For each redirection a history-ent incremented according the rules of redirection is represented by a "d Comments:</sip:sip#n;></sip:>	I entries with non signil use=VA_CAUSE>;inde ry is added the History described in clause 4.5 ot" in the latest history AS → I ← C	ficant uri values ex=1.n.1 -Info header and the relev 5.2.6.2.3 [ITU-T Q.3620 v. -entry. SIP#n NVITE 180 Ringing 302 Moved Temporarily	I]. In short: each			
History-Info: <sip: non="" signif<br="">Build additional <sip:sip#n; cau<br="">Warning: is present NOTE: For each redirection a history-ent incremented according the rules of redirection is represented by a "d Comments: SIP#1 INVITE → 180 Ringing ←</sip:sip#n;></sip:>	I entries with non signil use=VA_CAUSE>;inde ry is added the History described in clause 4.5 ot" in the latest history AS → I ← C	ficant uri values x=1.n.1 -Info header and the relev 5.2.6.2.3 [ITU-T Q.3620 v. -entry. SIP#n NVITE I80 Ringing	I]. In short: each			

6.2.1.2 Notification procedure of the originating terminating and diverting user

6.2.1.2.1 Originating user

TSS Netw/ASdivertingUser/NotOrigUser	TP CDIV_N02_001	Reference [ITU-T Q.3620 v.1] 4.5.2.6.4	Selection expression PICS 3/3 AND (PICS 1/1 OR PICS1/2 OR PICS 1/6 OR PICS 1/7)
Test purpose Communication forwarding using CFU or originating user is not notified.	using CFB NDUB,	CFNL or CFNRc with	applying diversion condition;
When communication diversion occurs and 181 (Call Is Being Forwarded) response sl option is set to: <i>Originating</i> user receives deflected) = no.	hall be sent towards	the originating user if t	he served users subscription
Subscription options:			
Originating user receives notification that h	is communication ha	s been diverted (forwa	rded or deflected) = no
Comments: SIP#1	AS	SIP#2	SIP#3
INVITE >			
			→ INVITE
TSS Netw/ASdivertingUser/NotOrigUser	TP CDIV_N02_002	Reference [ITU-T Q.3620 v.1] 4.5.2.6.4	Selection expression PICS 3/3 AND PICS 3/4 AND PICS 3/5 AND (PICS 1/1 OR PICS1/2 OR PICS 1/6 OR PICS 1/7)
Test purpose Communication forwarding using CFU or u originating user is notified.	sing CFB NDUB, CF	ENL or CFNRc with app	lying diversion condition;
When communication diversion occurs and 181 (Call Is Being Forwarded) response sh a P-Asserted-Identity header with th a History-Info header including a first entry with the hi-targete	all be sent towards t he URI of the served	he originating user con user and	
and including a second entry with the hi-tar	geted-to-URI of the		= CAU_VA and escaped
Privacy header set to 'history', index = Subscription options:	1.1		
Originating user receives notification that h Served user allows the presentation of dive			
Served user allows the presentation of his/			
SIP header values: 181 Call is Being Forwarded: P-Asserted-Identity: SIP#2		<u> </u>	
History-Info: <sip:sip#2>;in</sip:sip#2>		v history jadov 11	
Comments:	ISE=CAU_VA?Privac	y=history>;index=1.1	
SIP#1	AS	SIP#2	SIP#3
INVITE >	-		
181 Call is Being Forwarded ←			
			→ INVITE

TSS Netw/ASdivertingUser/NotOrigUser	TP CDIV_N02_003	Reference [ITU-T Q.3620 v.1] 4.5.2.6.4	Selection expression PICS 3/3 AND (PICS 3/5 OR PICS 4/3) AND PICS 3/4 AND (PICS 1/1 OR PICS1/2 OR PICS 1/6 OR PICS 1/7)		
Test purpose Communication forwarding using CFU or us originating user is notified.	ing CFB NDUB, CFNL o	r CFNRc with applying	g diversion condition;		
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 containing: a P-Asserted-Identity header with the URI of the served user and a Privacy header set to "id" and a History-Info header including a first entry with the hi-targeted-to-URI of the served user with a Privacy header set to "history", index = 1 and including a second entry with the hi-targeted-to-URI of the diverted-to user with a Privacy header set to					
"history", cause = CAU_VA, index = 1.1 Subscription options: <i>Originating</i> user receives notification that his communication has been diverted (forwarded or deflected) = yes Served user allows the presentation of diverted to URI to <i>originating</i> user in diversion notification = no Served user allows the presentation of his/her URI to <i>originating</i> user in diversion notification = no OR Served user has subscribed to TIR in permanent mode					
SIP header values: 181 Call is Being Forwarded: P-Asserted-Identity: SIP#2 Privacy: id History-Info: <sip:sip#2?priv< td=""><th></th><td>index=1.1</td><th></th></sip:sip#2?priv<>		index=1.1			
Comments: SIP#1 INVITE →	AS	SIP#2	SIP#3		
181 Call is Being Forwarded					

TSS Netw/ASdivertingUser/NotOrigUser	TP CDIV_N02_004	Reference [ITU-T Q.3620 v.1] 4.5.2.6.4	Selection expression PICS 3/3 AND (PICS 3/5 OR PICS 4/3) AND PICS 3/4 AND (PICS 1/1 OR PICS1/2 OR PICS 1/6		
T = 1			OR PICS 1/7)		
Test purpose Communication forwarding using CFU or us originating user is notified.	ing CFB NDUB, CFNL o	r CFNRc with applying	y diversion condition;		
When communication diversion occurs and 181 (Call Is Being Forwarded) response sha a P-Asserted-Identity header with the a Privacy header set to "id" and a History-Info header including a first entry with the hi-targeted index = 1 and including a second entry with the hi-targ Privacy header set to 'history', index = 1	all be sent towards the or WRI of the served user a d-to-URI of the served us eted-to-URI of the diverte	iginating user containi and er with a Privacy head	ng: der set to "history",		
Subscription options: Originating user receives notification that his Served user allows the presentation of diver	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 <i>originating</i> user in diversion notification = yes Served user allows the presentation of his/her URI to <i>originating</i> user in diversion notification = no OR				
SIP header values: 181 Call is Being Forwarded: P-Asserted-Identity: SIP#2 Privacy: id History-Info: <sip:sip#2?priv< td=""><th></th><td>story>;index=1.1</td><th></th></sip:sip#2?priv<>		story>;index=1.1			
Comments: SIP#1 INVITE →	AS	SIP#2	SIP#3		
181 Call is Being Forwarded			→ INVITE		

TSS Netw/ASdivertingUser/NotOrigUser	TP CDIV_N02_005	Reference [ITU-T Q.3620 v.1] 4.5.2.6.4	Selection expression PICS 3/3 AND (PICS 3/5 OR PICS 4/3) AND PICS 3/4 AND (PICS 1/1 OR PICS1/2 OR PICS 1/6 OR PICS 1/7)	
Test purpose				
Communication forwarding using CFU or us originating user is notified.	ing CFB NDUB, CFNL o	r CFNRc with applying	diversion condition;	
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 containing: a P-Asserted-Identity header with the URI of the served user and a History-Info header including a first entry with the hi-targeted-to-URI of the served user, index = 1				
and				
including a second entry with the hi-targ "history", cause = CAU_VA, index = 1.1	eted-to-URI of the diverte	ed-to user with a Priva	cy header set to	
Subscription options:				
Originating user receives notification that his	s communication has bee	n diverted (forwarded	or deflected) = yes	
Served user allows the presentation of diver	ted to URI to originating	user in diversion notifi	cation = no	
Served user allows the presentation of his/h	er URI to originating use	r in diversion notificati	on = yes	
SIP header values: 181 Call is Being Forwarded:				
P-Asserted-Identity: SIP#2				
History-Info: <sip:sip#2>;ind</sip:sip#2>	ex=1,			
	U_VA?Privacy=history>;	index=1.1		
Comments:	• •			
SIP#1	AS	SIP#2	SIP#3	
INVITE →				
181 Call is Being Forwarded				

Table 2 – Communication diversion cause, used in CDIV_N02_001-005

CAU_VA	Communication diversion	Value
1	CFU	302
2	CFB NDUB	486
3	CFNL	404
4	CFNRc	503

TSS Netw/ASdivertingUser/NotOrigUser	TP CDIV_N02_006	Reference [ITU-T Q.3620 v.1] 4.5.2.6.4	Selection expression PICS 3/3 AND PICS1/2
Test purpose Communication forwarding using CFB UL			
When communication diversion occurs (s originating user is supported then no 181 user if the served users subscription opti has been diverted (forwarded or deflected	(Call Is Being Forwa on is set to: Originati	rded) response shall be	sent towards the originating
Subscription options:			
Originating user receives notification that	his communication ha	as been diverted (forwar	ded or deflected) = no
Comments:			
SIP#1 INVITE →	AS	SIP#2 → INVITE ← 486 Busy Here → ACK	SIP#3
			→ INVITE

TSS Netw/ASdivertingUser/NotOrigUser	TP CDIV_N02_007	Reference [ITU-T Q.3620 v.1] 4.5.2.6.4	Selection expression PICS 1/2 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5
Test purpose Communication forwarding using CFB UD	UB with applying dive	rsion condition; origina	ting user is notified.
When communication diversion occurs (se originating user is supported then a 181 (C user containing: a P-Asserted-Identity header with th a History-Info header including a first entry with the hi-targete and including a second entry with the hi-tar header set to 'history', index = 1.1	Call Is Being Forwarde he URI of the served u ed-to-URI of the serve	d) response shall be s user and ed, index = 1	ent towards the originating
Subscription options: Originating user receives notification that h Served user allows the presentation of dive Served user allows the presentation of his/ SIP header values: 181 Call is Being Forwarded: P-Asserted-Identity: SIP#2 History-Info: <sip:sip#2?re <sip:sip#3;cat< td=""><td>erted to URI to origina /her URI to originating</td><td>ating user in diversion r user in diversion notifi %3D486>;index=1,</td><td>notification = yes</td></sip:sip#3;cat<></sip:sip#2?re 	erted to URI to origina /her URI to originating	ating user in diversion r user in diversion notifi %3D486>;index=1,	notification = yes
NOTE: According to [ITU-T Q.3620 v.1] the served user, a Reason head [IETF RFC 4244] ".			
Comments: SIP#1 INVITE →	AS	SIP#2 → INVITE ← 486 Busy Here → ACK	SIP#3
181 Call is Being Forwarded +			→ INVITE
TSS	ТР	Reference	Selection

TSS Netw/ASdivertingUser/NotOrigUser	TP CDIV_N02_008	Reference [ITU-T Q.3620 v.1] 4.5.2.6.4	Selection expression PICS 3/3 AND (PICS 3/5 OR PICS 4/3) AND PICS 3/4 AND PICS1/2
Test purpose			
Communication forwarding using CFB UDU	B with applying diversion	condition; originating u	ser is notified.
When communication diversion occurs (serv originating user is supported then a 181 (Ca user containing: a P-Asserted-Identity header with the a Privacy header set to "id" and a History-Info header including a first entry with the hi-targeted index = 1 and including a second entry with the hi-targeted "history", cause = 486, index = 1.1	II Is Being Forwarded) re WRI of the served user a d-to-URI of the served use	sponse shall be sent to and er with a Privacy heade	wards the originating r set to "history",
Subscription options:	a communication has been	n diverted (forwarded a	r doflactad) - yaa
Originating user receives notification that his Served user allows the presentation of diver Served user allows the presentation of his/hi Served user has subscribed to TIR in perma	ted to URI to <i>originating</i> er URI to <i>originating</i> user	user in diversion notifica	ation = no
Served user has subscribed to TIR III perma			

	er values:					
181 Call is	s Being Forwarde					
	P-Asserted-Ic	dentity: SIP#2				
	Privacy: id					
	History-Info:	<sip:sip#2?priv< th=""><td>acy=history&Reas</td><td>on=SI</td><td>P%3Bcause%3D486</td><td>>;index=1,</td></sip:sip#2?priv<>	acy=history&Reas	on=SI	P%3Bcause%3D486	>;index=1,
			e=486?Privacy=hi			
		, ,	,	,	,	
NOTE:	According to [ITL	J-T Q.3620 v.1] (clause 4.5.2.6.2.2.t	o: "If th	e diversion is based	on a SIP response from
	the served user,	a Reason heade	er in escaped form	shall b	e included in accord	ance with
	[IETF RFC 4244]] ".				
Commen	ts:					
SIP#1			AS		SIP#2	SIP#3
INVITE		→		→	INVITE	
				÷		
				÷	ACK	
				-	AUR	
181 Call i	s Being Forwarde	→ b				
	s being i biwalue	u 🔪				→ INVITE
[тее		ТР		Deference	Selection expression
Naturia	TSS Colinearting all a car/l			~	Reference	Selection expression
Netw/A	SdivertingUser/	NotOriguser	CDIV_N02_00	9	[ITU-T Q.3620 v.1]	PICS 3/3 AND
					4.5.2.6.4	(PICS 3/5
						OR PICS 4/3) AND
						PICS 3/4
						AND PICS1/2
Test purp						
Communi	cation forwarding	using CFB UDU	B with applying div	rersion	condition; originating	g user is notified.
When cor	nmunication diver	sion occurs (serv	ed user sends 480	S respo	onse) and if the notifi	cation procedures of the
originating	a user is supporte	d then a 181 (Ca	II Is Being Forward	led) re	sponse shall be sent	towards the originating
user conta		, , , , , , , , , , , , , , , , , , ,	0	,		5 5
		wheader with the	URI of the served	user	and	
	Privacy header set			user		
	listory-Info heade					
		th the hi-targeted	d-to-URI of the serv	/ed us	er with a Privacy hea	ider set to "history",
index	= 1					
and						
includ	ing a second entry	y with the hi-targ	eted-to-URI of the	diverte	ed-to user, cause = 4	86 and escaped Privacy
header set to 'history', index = 1.1						
Subscrip	tion options:					
Originatin	g user receives no	otification that his	s communication h	as bee	n diverted (forwarde	d or deflected) = yes
					user in diversion noti	
					r in diversion notificat	
	ser has subscribed			.g uoo		
	er values:					
	s Being Forwarde	4.				
TOT Call is						
		dentity: SIP#2				
	Privacy: id					
	History-Info:				P%3Bcause%3D486	>;Index=1,
		<sip:sip#3;caus< th=""><td>e=486?Privacy=hi</td><td>story></td><td>;index=1.1</td><td></td></sip:sip#3;caus<>	e=486?Privacy=hi	story>	;index=1.1	
						
NOTE:						on a SIP response from
			er in escaped form	shall b	e included in accord	ance with
	[IETF RFC 4244]]"				
Commen	ts:					
SIP#1			AS		SIP#2	SIP#3
INVITE		→		→	INVITE	
				←		
				÷	ACK	
				-		
181 Call is	s Being Forwarde	d 🗲				
		~ ~				→ INVITE
L						

		Reference	Selection		
Netw/ASdivertingUser/NotOrigUser	CDIV_N02_010				
		4.5.2.6.4	PICS 3/3 AND		
			(PICS 3/5 OR PICS 4/3) AND		
			PICS 3/4		
			AND PICS1/2		
Test purpose					
Communication forwarding using CFB UDU	B with applying dive	rsion condition; originat	ing user is notified.		
When communication diversion occurs (serv	ved user sends 486	response) and if the not	ification procedures of the		
originating user is supported then a 181 (Ca					
user containing:	Ū	, .			
a P-Asserted-Identity header with the	e URI of the served ι	user and			
a History-Info header					
including a first entry with the hi-targe	eted-to-URI of the se	erved user, index = 1			
and					
including a second entry with the hi-t	argeted-to-URI of the	e diverted-to user, with	a Privacy header set to		
"history", cause = 486, index = 1.1					
Subscription options:	a communication has	boon divorted (forward	dad ar daflaatad) - yaa		
<i>Originating</i> user receives notification that his communication has been diverted (forwarded or deflected) = yes Served user allows the presentation of diverted to URI to <i>originating</i> user in diversion notification = no					
Served user allows the presentation of his/her URI to <i>originating</i> user in diversion notification = yes					
SIP header values:					
181 Call is Being Forwarded:					
P-Asserted-Identity: SIP#2					
History-Info: <sip:sip#2?rea< td=""><td>ason=SIP%3Bcause</td><td>%3D486>;index=1,</td><td></td></sip:sip#2?rea<>	ason=SIP%3Bcause	%3D486>;index=1,			
	se=486?Privacy=hist				
NOTE: According to [ITU-T Q.3620 v.1] of					
the served user, a Reason heade	er in escaped form sl	nall be included in acco	rdance with		
[IETF RFC 4244] ".					
Comments: SIP#1	AS	SIP#2	SIP#3		
INVITE →	AS	→ INVITE	3IF#3		
		✓ 486 Busy Here			
		 → ACK 			
		- //011			
181 Call is Being Forwarded					
Ŭ			→ INVITE		
700		D (<u> </u>		
TSS Natur (A Seliverting User (Nat Original Ser		Reference	Selection expression		
Netw/ASdivertingUser/NotOrigUser	CDIV_N02_011	[ITU-T Q.3620 v.1] 4.5.2.6.4	PICS 1/3 AND PICS 3/3		
Test purpose					
Communication forwarding using CFNR with applying diversion condition; originating user is not notified.					
	in applying alvereien	contailion, onginaling at			
When communication diversion occurs (se	rved user does not	respond) and if the no	tification procedures of the		
originating user is supported then no 181 (C					
user if the served users subscription option	is set to: Originatin				
has been diverted (forwarded or deflected) =	= no.				
Subscription options:					

Comments:		40		010#0	010#0
SIP#1	_	AS	_	SIP#2	SIP#3
INVITE	→		→	INVITE	
180 Alerting	+		←	180 Alerting	
Ū.		No re	ply time	er expires	
			→	CANCEL/BYE	
			←		
			÷	487 Request Terminated	
			÷	ACK	
				ACK	

TS Netw/ASdivertingL		TP CDIV_N02_011A	Reference [ITU-T Q.3620 v.1] 4.5.2.6.4	Selection expression PICS 1/3 AND PICS 3/3
Test purpose	rdina usina CENR wi	th applying diversion	condition: Reason hea	der in BYE or CANCEL
When communication s terminated with a C/ 408.	diversion occurs (se	rved user does not re	spond) the initial comn	nunication to the served use t to SIP and the cause set to
SIP header values: CANCEL/BYE:				
	SIP; cause=408			
Comments:			D#2	010#2
SIP#1 NVITE	→	AS SI → IN	P#2 \/ TF	SIP#3
80 Alerting	÷		30 Alerting	
5		No reply timer e		
		← 20	ANCEL/BYE 00 OK CANCEL/BYE 37 Request Terminated CK	1
				→ INVITE
TS: Netw/ASdivertingL	-	TP CDIV_N02_012	Reference [ITU-T Q.3620 v.1] 4.5.2.6.4	Selection expression PICS 1/3 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5
est purpose				
Communication forwa	rding using CFNR wi	th applying diversion	condition; originating u	iser is notified.
priginating user is sup user containing a P-Asserted-lo a History-Info h	ported then a 181 (C dentity header with th eader	all Is Being Forwarde e URI of the served u	d) response shall be suser and	cation procedures of the ent towards the originating
and	l entry with the hi-tar	ed-to-URI of the serve geted-to-URI of the d		= 408 and escaped Privacy
Subscription options Driginating user receiv Served user allows the	ves notification that h presentation of dive	erted to URI to origina	s been diverted (forwar <i>ating</i> user in diversion r y user in diversion notifi	
SIP header values:				
81 Call is Being Forw				
	ted-Identity: SIP#2	ndov_1		
nisiory-	Info: <sip:sip#2>;i <sip:sip#3;ca< td=""><td>ndex=1, use=408?Privacy=hi</td><td>story>:index=1.1</td><td></td></sip:sip#3;ca<></sip:sip#2>	ndex=1, use=408?Privacy=hi	story>:index=1.1	
Comments:			<u> </u>	
SIP#1			SIP#2	SIP#3
NVITE	→		NVITE	

No reply timer expires

→ ←

← 180 Alerting

CANCEL/BYE

200 OK CANCEL/BYE

487 Request Terminated

←

180 Alerting

181 Call is Being Forwarded 🗧 🗲

← → ACK ➔ INVITE

TSS	TP	Reference	Selection expression
Netw/ASNotification/Originating user	CDIV_N02_013	[ITU-T Q.3620 v.1]	PICS 1/3 AND PICS 3/3
		4.5.2.6.4	AND
			(PICS 3/5
			OR PICS 4/3) AND
Test numero			PICS 3/4
Test purpose Communication forwarding using CFNR with a	nalvina divorsion o	andition: ariginating u	por in potified
	ppiying uiversion c	onulion, onginaling u	sel is nouned.
When communication diversion occurs (served	user does not res	pond) and if the notific	ation procedures of the
originating user is supported then a 181 (Call Is			
user containing:	C C	· ·	
a P-Asserted-Identity header with the U	RI of the served us	ser and	
a Privacy header set to "id" and			
a History-Info header			
including a first entry with the hi-targeted-to	o-URI of the served	I user with a Privacy h	eader set to "history",
index = 1 and			
including a second entry with the hi-targete	d to URI of the div	orted to upor with a D	Privoov booder act to
"history", cause = 408, index = 1.1		eneu-io user, with a r	invacy header set to
Subscription options:			
Originating user receives notification that his co	ommunication has	been diverted (forward	ded or deflected) = ves
Served user allows the presentation of diverted			
Served user allows the presentation of his/her			
Served user has subscribed to TIR in permane			
SIP header values:			
181 Call is Being Forwarded:			
P-Asserted-Identity: SIP#2			
Privacy: id			
	cy=history>;index=		
	=408?Privacy=hist	ory>;index=1.1	
Comments: SIP#1 AS	SIP	9#2	SIP#3
INVITE →	→ INV		51F#5
180 Alerting) Ringing	
	No reply timer ex		
181 Call is Being Forwarded 🗧 🗲			
	•		
	-		
) OK CANCEL/BYE	
	← 487 → AC	Request Terminated	
	AC		
			→ INVITE

TSS	TP	Reference	Selection expression
Netw/ASNotification/Originating user	CDIV_N02_014	[ITU-T Q.3620 v.1]	PICS 1/3 AND PICS 3/3
		4.5.2.6.4	AND
			(PICS 3/5
			OR PICS 4/3) AND
			PICS 3/4
Test purpose			
Communication forwarding using CFNR with	n applying diversion	condition; originating u	ser is notified.
When communication diversion occurs (serv			
originating user is supported then a 181 (Ca user containing:	II Is Being Forwarde	d) response shall be se	ent towards the originating
a P-Asserted-Identity header with the	e URI of the served ι	user and	
a Privacy header set to "id" and			
a History-Info header			
including a first entry with the hi-targeted	d-to-URI of the serve	ed user with a Privacy h	eader set to "history",
index = 1			2
and			
including a second entry with the hi-targe	eted-to-URI of the d	iverted-to user, cause =	= 408 and escaped Privacy
header set to 'history', index = 1.1			
Subscription options:			
Originating user receives notification that his			
Served user allows the presentation of diver			
Served user allows the presentation of his/h		user in diversion notifi	cation = no OR
Served user has subscribed to TIR in perma	inent mode		
SIP header values:			
181 Call is Being Forwarded:			
P-Asserted-Identity: SIP#2			
Privacy: id			
	vacy=history>;index		
•	se=408?Privacy=his	story>;index=1.1	
Comments: SIP#1 A	AS SI	P#2	SIP#3
INVITE →	43 SI → IN		517#3
180 Alerting		30 Ringing	
	No reply timer		
		57pii 00	
181 Call is Being Forwarded 🗧 🗲			
	→ C.	ANCEL/BYE	
	← 20	00 OK CANCEL/BYE	
	← 48	37 Request Terminated	
		CK	
			→ INVITE

TSS	TP	Reference	Selection expression
Netw/ASNotification/Originating user	CDIV_N02_015	[ITU-T Q.3620 v.1]	PICS 1/3 AND PICS 3/3
		4.5.2.6.4	AND
			(PICS 3/5
			OR PICS 4/3) AND
			PICS 3/4
Test purpose			
Communication forwarding using CFNR with	h applying diversion	condition; originating u	ser is notified.
When communication diversion occurs (serv	/ed user does not re	spond) and if the notific	cation procedures of the
originating user is supported then a 181 (Ca	II Is Being Forwarde	d) response shall be se	ent towards the originating
user containing:			
a P-Asserted-Identity header with the	e URI of the served u	user and	
a History-Info header			
including a first entry with the hi-targeted	d-to-URI of the serve	ed user, index = 1	
and		· · · · · · · ·	
including a second entry with the hi-targ	eted-to-URI of the d	iverted-to user, with a H	rivacy header set to
"history", cause = 408, index = 1.1 Subscription options:			
Originating user receives notification that his	communication has	s been diverted (forwar	ded or deflected) - ves
Served user allows the presentation of diver			
Served user allows the presentation of diver			
SIP header values:	er er i te enginaling		
181 Call is Being Forwarded:			
P-Asserted-Identity: SIP#2			
History-Info: <sip:sip#2>;in</sip:sip#2>	dex=1,		
	se=408?Privacy=his	story>;index=1.1	
Comments:			
-		P#2	SIP#3
INVITE →		IVITE	
180 Alerting		30 Ringing	
	No reply timer e	expires	
181 Call is Being Forwarded 🗧 🗲			
		ANCEL/BYE	
		00 OK CANCEL/BYE	
		37 Request Terminated	
	→ A	CK	

TSS		Reference	Selection expression PICS 1/4 AND PICS 3/3
Netw/ASdivertingUser/NotOrigUser	CDIV_N02_016	[ITU-T Q.3620 v.1] 4.5.2.6.4	PICS 1/4 AND PICS 3/3
Test purpose			
Communication forwarding using CD (imme	ediate response); or	iginating user is not not	ified.
When communication diversion occurs (ser the originating user is supported then no 181 user if the served users subscription option has been diverted (forwarded or deflected) =	(Call Is Being Forw is set to: Originati	arded) response shall be	e sent towards the originating
Subscription options:			
Originating user receives notification that his	s communication ha	as been diverted (forwar	ded or deflected) = no
Comments:			
SIP#1	AS	SIP#2	SIP#3
INVITE ->	+ € +	 302 Moved Tempora 	rily
			→ INVITE

TSS Netw/ASdivertingUser/NotOrigUser	TP CDIV_N02_017	Reference [ITU-T Q.3620 v.1] 4.5.2.6.4	Selection expression PICS 1/4 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5
Test purpose			
Communication forwarding using CD (imme	diate response); origi	nating user is notified.	
When communication diversion occurs (servente originating user is supported then a 181 originating user containing: a P-Asserted-Identity header with the a History-Info header including a first entry with the hi-targeted and including a second entry with the hi-targ header set to 'history', index = 1.1 Subscription options:	(Call Is Being Forwar e URI of the served us d-to-URI of the served	ded) response shall b ser and I, index = 1	e sent towards the
Originating user receives notification that his	s communication has	been diverted (forward	ded or deflected) = yes
Served user allows the presentation of diver			
Served user allows the presentation of his/h	er URI to originating	user in diversion notifie	cation = yes
SIP header values: 181 Call is Being Forwarded: P-Asserted-Identity: SIP#2 History-Info: <sip:sip#2?rea <sip:sip#3;caus< td=""><td>ason=SIP%3Bcause% se=480?Privacy=histo</td><td></td><td></td></sip:sip#3;caus<></sip:sip#2?rea 	ason=SIP%3Bcause% se=480?Privacy=histo		
NOTE: According to [ITU-T Q.3620 v.1] of the served user, a Reason heade [IETF RFC 4244] ".			
Comments: SIP#1 INVITE →	+	SIP#2 INVITE 302 Moved Temporal ACK	SIP#3
181 Call is Being Forwarded			→ INVITE

TSS	TP	Reference	Selection expression
Netw/ASdivertingUser/NotOrigUser	CDIV_N02_018	[ITU-T Q.3620 v.1]	PICS 1/4 AND PICS 3/3
		4.5.2.6.4	AND
			(PICS 3/5
			OR PICS 4/3) AND
			PICS 3/4
Test purpose			
Communication forwarding using CD (imme	ediate response); origin	ating user is notified.	
When communication diversion occurs (servention occurs)			
the originating user is supported then a 181	(Call Is Being Forward	led) response shall be	sent towards the
originating user containing:			
a P-Asserted-Identity header with the	e URI of the served use	er and	
a Privacy header set to "id" and			
a History-Info header			
including a first entry with the hi-targete	d-to-URI of the served	user with a Privacy hea	ader set to "history",
index = 1			
and		ute di territa e muide e Duis	
including a second entry with the hi-targ	jeted-to-URI of the dive	erted-to user with a Priv	acy header set to
"history", cause = 480, index = 1.1 Subscription options:			
Originating user receives notification that his	e communication has h	oon diverted (forwarde	ad or deflected) - ves
Served user allows the presentation of diver			
Served user allows the presentation of dive			
Served user has subscribed to TIR in perma			
SIP header values:			
181 Call is Being Forwarded:			
P-Asserted-Identity: SIP#2			
Privacy: id			
History-Info: <sip:sip#2?priv< td=""><td>acy=history&Reason=</td><td>SIP%3Bcause%3D302</td><td>2>;index=1,</td></sip:sip#2?priv<>	acy=history&Reason=	SIP%3Bcause%3D302	2>;index=1,
<sip:sip#3;caus< td=""><td>se=480?Privacy=histor</td><td>y>;index=1.1</td><td></td></sip:sip#3;caus<>	se=480?Privacy=histor	y>;index=1.1	
NOTE: According to [ITU-T Q.3620 v.1]			
the served user, a Reason heade	er in escaped form shal	II be included in accord	lance with
[IETF RFC 4244] ".			
Comments:	AS	010#0	015#2
SIP#1 INVITE →		SIP#2 INVITE	SIP#3
			.,
		302 Moved Temporaril <u>y</u> ACK	Ý
	7 /		
181 Call is Being Forwarded			
			→ INVITE

TSS	ТР	Reference	Selection expression
Netw/ASdivertingUser/NotOrigUser	CDIV_N02_019	[ITU-T Q.3620 v.1]	PICS 1/4 AND PICS 3/3
		4.5.2.6.4	AND
			(PICS 3/5
			OR PICS 4/3) AND PICS 3/4
Test purpose			11000,1
Communication forwarding using CD (imme	diate response); origin	ating user is notified.	
When communication diversion occurs (serv			
the originating user is supported then a 181	(Call Is Being Forward	led) response shall be	sent towards the
originating user containing:			
a P-Asserted-Identity header with the	e URI of the served use	er and	
a Privacy header set to "id" and a History-Info header			
including a first entry with the hi-targeted	to-LIRL of the served	user with a Privacy he	ader set to "history"
index = 1			addi set to mistory,
and			
including a second entry with the hi-targe	eted-to-URI of the dive	erted-to user with a Priv	acy header set to
"history", cause = 480, index = 1.1			
Subscription options:			
Originating user receives notification that his			
Served user allows the presentation of diver Served user allows the presentation of his/h			
Served user has subscribed to TIR in perma			auon = no OR
SIP header values:			
181 Call is Being Forwarded:			
P-Asserted-Identity: SIP#2			
Privacy: id			
History-Info: <sip:sip#2?priv< td=""><th></th><td></td><td></td></sip:sip#2?priv<>			
	se=480?Privacy=histor	ry>;index=1.1	
Comments:		212 // 2	015//0
SIP#1 INVITE →		SIP#2 NVITE	SIP#3
	-	302 Moved Temporaril	N .
			у
	2 /		
181 Call is Being Forwarded 🛛 🗲			
-			→ INVITE

TSS Netw/ASdivertingUser/NotOrigUser	TP CDIV_N02_020	Reference [ITU-T Q.3620 v.1] 4.5.2.6.4	Selection expression PICS 1/4 AND PICS 3/3 AND (PICS 3/5 OR PICS 4/3) AND PICS 3/4
Test purpose	<i>""</i>		
Communication forwarding using CD (imme	diate response); origin	ating user is notified.	
When communication diversion occurs (serv the originating user is supported then a 181 originating user containing: a P-Asserted-Identity header with the a History-Info header including a first entry with the hi-targeted index = 1 and including a second entry with the hi-targ "history", cause = 480, index = 1.1	(Call Is Being Forward e URI of the served use d-to-URI of the served	led) response shall be ser er and user with a Privacy heade	nt towards the
Subscription options:			
Originating user receives notification that his Served user allows the presentation of diver Served user allows the presentation of his/h	rted to URI to originatin	ng user in diversion notifica	ation = no
SIP header values: 181 Call is Being Forwarded: P-Asserted-Identity: SIP#2 History-Info: <sip:sip#2>;ind <sip:sip#;cause< td=""><td>ex=1, e=4803?Privacy=histor</td><td>y>;index=1.1</td><th></th></sip:sip#;cause<></sip:sip#2>	ex=1, e=4803?Privacy=histor	y>;index=1.1	
Comments: SIP#1 INVITE →	AS S	SIP#2 NVITE 302 Moved Temporarily	SIP#3
181 Call is Being Forwarded			→ INVITE

TSS	TP	Reference	Selection expression				
Netw/ASdivertingUser/NotOrigUser	CDIV_N02_021	[ITU-T Q.3620 v.1]	PICS 1/5 AND PICS 3/3				
		4.5.2.6.4					
Test purpose							
Communication forwarding using CD during	alerting; originating	user is not notified.					
When communication diversion occurs (ser of the originating user is supported then n originating user if the served users subsc communication has been diverted (forwarde	no 181 (Call Is Bein ription option is set	g Forwarded) respons to: Originating user r	e shall be sent towards the				
Subscription options:							
Originating user receives notification that his	s communication has	s been diverted (forwar	ded or deflected) = no				
Comments:							
SIP#1	AS	SIP#2	SIP#3				
INVITE →	→	INVITE					
180 Ringing 🗧 🗧 🗧 180 Ringing							
← 302 Moved Temporarily							
	→	ACK	,				
			→ INVITE				

TSS Netw/ASdivertingUser/NotOrigUser	TP CDIV_N02_022	Reference [ITU-T Q.3620 v.1] 4.5.2.6.4	Selection expression PICS 1/5 AND PICS 3/3 AND PICS 3/4 AND PICS 3/5
Test purpose Communication forwarding using CD during	alerting; originating	user is notified.	
When communication diversion occurs (served user allows the presentation of the originating user is supported then a 1- originating user containing: a P-Asserted-Identity header with the a History-Info header including a first entry with the hi-targeted and including a second entry with the hi-targeted header set to 'history', index = 1.1 Subscription options: <i>Originating</i> user receives notification that his Served user allows the presentation of diver Served user allows the presentation of his/h	81 (Call Is Being For e URI of the served u d-to-URI of the served eted-to-URI of the div s communication has rted to URI to <i>origina</i>	warded) response sha ser and d, index = 1 verted-to user, cause = been diverted (forward ting user in diversion n	I be sent towards the = 487 and escaped Privacy ded or deflected) = yes otification = yes
181 Call is Being Forwarded: P-Asserted-Identity: SIP#2 History-Info: <sip:sip#2>;ind</sip:sip#2>	ex=1,		
	se=487?Privacy=hist	ory>;index=1.1	
Comments: SIP#1 INVITE → 180 Ringing ←	+ +	SIP#2 INVITE 180 Ringing 302 Moved Tempora ACK	SIP#3
181 Call is Being Forwarded			

TSS	TP	Reference	Selection expression
Netw/ASdivertingUser/NotOrigUser	CDIV_N02_023	[ITU-T Q.3620 v.1]	PICS 1/5 AND PICS 3/3
		4.5.2.6.4	AND (PICS 3/5
			OR PICS 4/3) AND
			PICS 3/4
Test purpose			
Communication forwarding using CD during	alerting; originating us	ser is notified.	
When communication diversion occurs (serv	ved user deflects call d	uring alerting) and if th	e notification procedures
of the originating user is supported then a 1			
originating user containing:			
a P-Asserted-Identity header with the	e URI of the served use	er and	
a Privacy header set to "id" and a History-Info header			
including a first entry with the hi-targeted	d-to-URI of the served	user with a Privacy he	ader set to "history".
index = 1		,	·····, ,
and			
including a second entry with the hi-targ	eted-to-URI of the dive	erted-to user with a Priv	vacy header set to
"history", cause = 487, index = 1.1 Subscription options:			
Originating user receives notification that his	communication has h	een diverted (forwarde	ed or deflected) = ves
Served user allows the presentation of diver			
Served user allows the presentation of his/h	er URI to originating u		
Served user has subscribed to TIR in perma	inent mode		
SIP header values:			
181 Call is Being Forwarded:			
P-Asserted-Identity: SIP#2 Privacy: id			
History-Info: <sip:sip#2?priv< td=""><td>acv=historv>:index=1</td><td></td><td></td></sip:sip#2?priv<>	acv=historv>:index=1		
	e=487?Privacy=histor	y>;index=1.1	
Comments:	•	r '	
SIP#1	AS	SIP#2	SIP#3
INVITE → 180 Ringing ←		NVITE	
180 Ringing		180 Ringing 302 Moved Temporaril [,]	N/
			у
		-	
181 Call is Being Forwarded			
			→ INVITE

TSS	TP	Reference	Selection expression
Netw/ASdivertingUser/NotOrigUser	CDIV_N02_024	[ITU-T Q.3620 v.1]	PICS 1/5 AND PICS 3/3
		4.5.2.6.4	AND (PICS 3/5
			OR PICS 4/3) AND
			PICS 3/4
Test purpose			
Communication forwarding using CD during	alerting; originating us	er is notified.	
When communication diversion occurs (serv	ved user deflects call d	uring alerting) and if th	e notification procedures
of the originating user is supported then a 18			
originating user containing:	ί σ	/ 1	
a P-Asserted-Identity header with the	e URI of the served use	er and	
a Privacy header set to "id" and			
a History-Info header			
including a first entry with the hi-targeted index = 1	d-to-URI of the served	user with a Privacy he	ader set to "history",
and			
including a second entry with the hi-targ	eted-to-URI of the dive	rted-to user, cause = 4	187 and escaped Privacy
header set to 'history', index = 1.1		,	····
Subscription options:			
Originating user receives notification that his			
Served user allows the presentation of diver			
Served user allows the presentation of his/h		ser in diversion notifica	ition = no OR
Served user has subscribed to TIR in perma SIP header values:	inent mode		
181 Call is Being Forwarded:			
P-Asserted-Identity: SIP#2			
Privacy: id			
History-Info: <sip:sip#2?priv< td=""><td>acy=history>;index=1,</td><td></td><td></td></sip:sip#2?priv<>	acy=history>;index=1,		
	e=487?Privacy=history	y>;index=1.1	
Comments:			
SIP#1	AS	SIP#2	SIP#3
INVITE → 180 Ringing ←		NVITE 180 Ringing	
		302 Moved Temporaril	M
	→ A		3
181 Call is Being Forwarded 🗧 🗲			N
			➔ INVITE

TSS	TP	Reference	Selection expression
Netw/ASdivertingUser/NotOrigUser	CDIV_N02_025	[ITU-T Q.3620 v.1] 4.5.2.6.4	PICS 1/5 AND PICS 3/3 AND (PICS 3/5 OR PICS 4/3) AND
			PICS 3/4
Test purpose Communication forwarding using CD during	alerting; originating	user is notified.	
When communication diversion occurs (serv of the originating user is supported then a 18 originating user containing: a P-Asserted-Identity header with the	81 (Call Is Being For	warded) response sha	
a History-Info header			
including a first entry with the hi-targeted	d-to-URI of the serve	ed user, index = 1	
and			
including a second entry with the hi-targ	eted-to-URI of the d	iverted-to user with a F	rivacy header set to
"history", cause = 487 , index = 1.1			
Subscription options:		- ¹	
Originating user receives notification that his			
Served user allows the presentation of diver Served user allows the presentation of his/h			
Served user has subscribed to TIR in perma			cation - yes on
SIP header values:			
181 Call is Being Forwarded:			
P-Asserted-Identity: SIP#2			
History-Info: <sip:sip#>;inde</sip:sip#>	x=1,		
	e=487?Privacy=hist	tory>;index=1.1	
Comments:			
SIP#1	AS	SIP#2	SIP#3
INVITE -			
180 Ringing ←	_	180 Ringing	
		 302 Moved Tempor 	anly
	-	ACK	
181 Call is Being Forwarded			
			→ INVITE

6.2.1.2.2 Diverted-to user

TSS	TP	Reference	Selection expression		
Netw/ASdivertingUser/NotTermUser	CDIV_N03_001	[ITU-T Q.3620 v.1]	PICS 1/1 AND PICS		
		4.5.2.6.2.2 4.5.2.6.2.4	4/1 AND		
			PICS 3/6		
Test purpose					
Communication Forwarding using CFU.					
	· <u>-</u> , ,				
The served user subscribes to the CFU serv					
and the subscription option "Served user allo "yes".	ows the presentation of	of his/her URI to diverted	-to user" is set to value		
Ensure that the IUT, on receipt of an INVITE					
(not) including a History-Info header, applies					
the diverted-to user containing the cause val			History-Info header		
including a first entry with the hi-targeted	I-to-URI of the served	user, index = 1			
and					
including a second entry with the hi-targeted-to-URI of the diverted-to user, cause = 302, index = 1.1.					
SIP header values:					
INVITE: sip:SIP#3@ example.com; cause =	302 SIP/2.0				
History-Info: <sip:sip#2>;inc</sip:sip#2>	dex=1,				
<sip:sip#3; cau<="" td=""><th>Ise=302>;index=1.1</th><th></th><th></th></sip:sip#3;>	Ise=302>;index=1.1				
Comments:					
SIP#1	AS	SIP#2	SIP#3		
			→ INVITE		

TSS	ТР	Reference	Selection expression	
Netw/ASdivertingUser/NotTermUser	CDIV_N03_002	[ITU-T Q.3620 v.1] 4.5.2.6.2.2 4.5.2.6.2.4	PICS 1/2 AND PICS 4/1 AND PICS 3/6	
Test purpose Communication Forwarding using CFB ND	UB.			
The served user subscribes to the CFB serv OIR in permanent mode and the subscription diverted-to user" is set to value "yes" .				
Ensure that the IUT, on receipt of an INVITE which is NDUB (not) including a History-Info request towards the diverted-to user contain History-Info header including a first entry with the hi-targeter and	b header, applies comn hing the cause value "4	nunication diversion and 86" in the Request URI	forwards the INVITE	
including a second entry with the hi-	targeted-to-URI of the o	diverted-to user, cause	= 486, index = 1.1.	
SIP header values: INVITE: sip:SIP#3@ example.com; cause = History-Info: <sip:sip#2>;in <sip:sip#3; ca<br="">NOTE: According to [ITU-T Q.3620 v.1[, the served user, a Reason [IETF RFC 4244] ".</sip:sip#3;></sip:sip#2>	dex=1, use=486>;index=1.1 clause 4.5.2.6.2.2.b: "			
Comments:				
SIP#1 INVITE →	AS	SIP#2	SIP#3	
			→ INVITE	
TSS Netw/ASdivertingUser/NotTermUser	TP CDIV_N03_003	Reference [ITU-T Q.3620 v.1] 4.5.2.6.2.2 4.5.2.6.2.4	Selection expression PICS 1/6 AND PICS 4/1 AND PICS 3/6	
Test purpose Communication Forwarding using CFNL.				
The served user subscribes to the CFNL se OIR in permanent mode and the subscription diverted-to user" is set to value "yes" .				
Ensure that the IUT, on receipt of an INVITE which is not logged in (not) including a Histo INVITE request towards the diverted-to use History-Info header including a first entry with the hi-targete	ory-Info header, applies r containing the cause	s communication divers value "404" in the Requ	ion and forwards the	
and including a second entry with the hi-targeted-to-URI of the diverted-to user, cause = 404, index = 1.1.				
SIP header values: INVITE: sip:SIP#3@ example.com; cause = History-Info: <sip:sip#2>;in <sip:sip#3; ca<="" td=""><td>= 404 SIP/2.0</td><td></td><td></td></sip:sip#3;></sip:sip#2>	= 404 SIP/2.0			
Comments:		010#0	010#0	
SIP#1 INVITE →	AS	SIP#2	SIP#3	
			→ INVITE	

TSS	ТР	Reference	Selection expression
Netw/ASdivertingUser/NotTermUser	CDIV_N03_004	[ITU-T Q.3620 v.1] 4.5.2.6.2.2 4.5.2.6.2.4	PICS 1/2 AND PICS 4/1 AND PICS 3/6
Test purpose		4.3.2.0.2.4	FIC3 3/6
Communication Forwarding using CFB UDU	JB.		
The served user subscribes to the CFB serv OIR in permanent mode and the subscription diverted-to user" is set to value " yes ".			
Ensure that the IUT, on receipt of an INVITE which is UDUB (not) including a History-Info request towards the diverted-to user contain History-Info header	header, applies comn ing the cause value "4	nunication diversion and 86" in the Request URI	d forwards the INVITE and containing a
including a first entry with the hi-targeted index = 1 and			0
including a second entry with the hi-ta	argeted-to-URI of the c	diverted-to user, cause	= 486, index = 1.1.
SIP header values: INVITE: sip:SIP#3@ example.com; cause = History-Info: <sip:sip#2?rea <sip:sip#3;cau< td=""><td></td><td>53D486>;index=1,</td><td></td></sip:sip#3;cau<></sip:sip#2?rea 		53D486>;index=1,	
NOTE: According to [b-ETSI TS 124 604] the served user, a Reason I [IETF RFC 4244] ".			
Comments: SIP#1	AS	SIP#2	SIP#3
INVITE ->	→ ← →	INVITE 486 Busy Here ACK	

TS	8	TP	Reference	Selection expression
Netw/ASdivertingU	ser/NotTermUser	CDIV_N03_005	[ITU-T Q.3620 v.1]	PICS 1/3 AND PICS 4/1
			4.5.2.6.2.2	AND
Testauras			4.5.2.6.2.4	PICS 3/6
Test purpose Communication Forwa	ardina usina CENP			
Communication r orwa	aronny using Crivin.			
The served user subs	cribes to the CFNR a	and does not reply. T	The served user does not s	ubscribe to OIR in
		ion "Served user allo	ows the presentation of his/	her URI to diverted-to
user" is set to value "	yes".			
Ensure that the ILIT of	n receipt of an INIV/I	FE request (diversion	n status DIV_VA, see Table	2) for the conveducer
			lies communication diversion	
			use value "408" in the Requ	
History-Info header				
5	try with the hi-target	ed-to-URI of the ser	ved user, index = 1	
and	, 5			
			the diverted-to user, cause	
			a CANCEL or a BYE reque	est with a Reason header
with protocol set to SI	P and the cause set	to 408.		
SIP header values:				
INVITE: sip:SIP#3@ e				
History-	Info: <sip:sip#2;in< td=""><td>dex=1, ause=408>;index=1.</td><td>1</td><td></td></sip:sip#2;in<>	dex=1, ause=408>;index=1.	1	
CANCEL/BYE:	<sip.5ip#3,08< td=""><td>ause=400>, index=1.</td><td>1</td><td></td></sip.5ip#3,08<>	ause=400>, index=1.	1	
	: SIP; cause=408			
Comments:				
SIP#1		AS	SIP#2	SIP#3
INVITE	→	→	INVITE	
180 Ringing	←	+	180 Ringing	
		No reply timer e		
		=	CANCEL/BYE	
			200 OK CANCEL/BYE	
			487 Request Terminated	
		7	ACK	
				→ INVITE

TSS Netw/ASdivertingUs		TP CDIV_N03_006	Reference [ITU-T Q.3620 v.1] 4.5.2.6.2.2 4.5.2.6.2.4 Reference [IETF RFC 4244] 4.3.3.1.2	Selection expression PICS 1/4 AND PICS 4/1 AND PICS 3/6
Test purpose				
Communication Forwar	ding using CD (imm	ediate response),		
	permanent mode a	nd the subscription of	iverts the communication. otion "Served user allows t	
which immediately diver diversion and forwards Request URI and conta including a first entr	rts the communication the INVITE request ining a History-Info I	on (not) including a H towards the diverted- header	tatus DIV_VA, see Table 3 istory-Info header, applies to user containing the caus d user and a Reason head	communication se value "480" in the
index = 1				
and including a seco	nd entry with the hi-	targeted-to-LIRL of the	e diverted-to user, cause =	480 index = 1 1
SIP header values:			a and the to use a , cause =	
INVITE: sip:SIP#3@ ex	ample.com: cause =	= 480 SIP/2.0		
	fo: <sip:sip#2?re< td=""><td>eason=SIP%3Bcause use=480>;index=1.1</td><td>%3D302>;index=1,</td><td></td></sip:sip#2?re<>	eason=SIP%3Bcause use=480>;index=1.1	%3D302>;index=1,	
Comments:		,		
SIP#1 INVITE	→	÷	SIP#2 INVITE 302 Moved Temporarily	SIP#3
		→	ACK	→ INVITE
TSS		ТР	Reference	Coloction expression
Netw/ASdivertingUs		CDIV_N03_007	[ITU-T Q.3620 v.1] 4.5.2.6.2.2 4.5.2.6.2.4 Reference [IETF RFC 4244] 4.3.3.1.2	Selection expression PICS 1/5 AND PICS 4/1 AND PICS 3/6
Test purpose Communication Forwar	ding using CD durin	g alerting.		
	DIR in permanent mo	ode and the subscript	mmunication during alertin ion option "Served user al	
which diverts the comm diversion and forwards Request URI and conta including a first entr index = 1 and	unication during ale the INVITE request ining a History-Info y with the hi-targete	rting (not) including a towards the diverted- header d-to-URI of the served	tatus DIV_VA, see Table 3 History-Info header, applie to user containing the caus d user and a Reason head	es communication se value "487" in the ler indicating cause 302,
	nd entry with the hi-	targeted-to-URI of the	e diverted-to user, cause =	487, index = 1.1.
SIP header values: INVITE: sip:SIP#3@ ex History-Ir	fo: <sip:sip#2?re< td=""><td>= 487 SIP/2.0 eason=SIP%3Bcause use=487>;index=1.1</td><td>%3D302>;index=1,</td><td></td></sip:sip#2?re<>	= 487 SIP/2.0 eason=SIP%3Bcause use=487>;index=1.1	%3D302>;index=1,	
Comments: SIP#1		AS	SIP#2	SIP#3

TSS Netw/ASdivertingUser/No	otTermUser	TP CDIV_N03_008	Reference [ITU-T Q.3620 v.1]	Selection expression PICS 1/7 AND PICS
			4.5.2.6.2.2 4.5.2.6.2.4	4/1 AND PICS 3/6
Test purpose				
Communication Forwarding	using CFNRc.			
The served user subscribes t OIR in permanent mode and diverted-to user" is set to valu	I the subscription			
Ensure that the IUT, on recei which is not reachable (not) i INVITE request towards the History-Info header including a first entry with	including a Hist diverted-to use	ory-Info header, appli r containing the cause	es communication divers value "503" in the Requ	sion and forwards the
and	-		diverted-to user, cause	= 503, index = 1.1.
	Reason heade		If the diversion is based all be included in accorda	
SIP header values:				
INVITE: sip:SIP#3@ example History-Info:	<sip:sip#2;ind< th=""><td>ex=1,</td><td></td><td></td></sip:sip#2;ind<>	ex=1,		
Comments:	<sip:sip#3;cau< th=""><th>use=503>;index=1.1</th><th></th><th></th></sip:sip#3;cau<>	use=503>;index=1.1		
SIP#1		AS	SIP#2	SIP#3
INVITE				→ INVITE
		ТР	Reference	Selection expression
TSS Netw/ASdivertingUser/No	otTermUser	CDIV_N03_009	[ITU-T Q.3620 v.1] 4.5.2.6.2.2 4.5.2.6.2.4	PICS 1/1 AND PICS 4/1 AND PICS 3/6
			[ITU-T Q.3620 v.1] 4.5.2.6.2.2	PICS 1/1 AND PICS 4/1 AND
Netw/ASdivertingUser/No Test purpose Communication Forwarding (using CFU.	CDIV_N03_009	[ITU-T Q.3620 v.1] 4.5.2.6.2.2 4.5.2.6.2.4	PICS 1/1 AND PICS 4/1 AND PICS 3/6
Netw/ASdivertingUser/No	<i>using CFU.</i> to the CFU ser	CDIV_N03_009	[ITU-T Q.3620 v.1] 4.5.2.6.2.2 4.5.2.6.2.4 subscribes to OIR in per	PICS 1/1 AND PICS 4/1 AND PICS 3/6

and including a second entry with the hi-targeted-to-URI of the diverted-to user, cause = 302, index = 1.1. SIP header values: INVITE: sip:SIP#3@ example.com; cause = 302 SIP/2.0 To: <sip:SIP#3> History-Info: <sip:SIP#2?Privacy=history>;index=1, <sip:SIP#3;cause=302>;index=1.1 Comments: SIP#1 AS SIP#2 SIP#3 INVITE → INVITE

TSS	ТР	Reference	Selection expression
Netw/ASdivertingUser/NotTermUser	CDIV_N03_010	[ITU-T Q.3620 v.1] 4.5.2.6.2.2 4.5.2.6.2.4	PICS 1/2 AND PICS 4/1 AND PICS 3/6
Test purpose Communication Forwarding using CFB NDU	JB.		
The served user subscribes to the CFB served permanent mode or the subscription option is set to value "no" .			
Ensure that the IUT, on receipt of an INVITE which is NDUB not including a History-Info h request towards the diverted-to user contain header the diverted-to URI and containing a including a first entry with the hi-targeted index = 1 and	neader, applies communing the cause value "4 I History-Info header d-to-URI of the served	inication diversion and 86" in the Request URI user with a Privacy hea	forwards the INVITE , indicating in the To der set to "history",
including a second entry with the hi-t SIP header values:	argeted-to-URI of the c	diverted-to user, cause	= 486, index = 1.1.
INVITE: sip:SIP#3@ example.com; cause = To: <sip:sip#3></sip:sip#3>			
History-Info: <sip:sip#2?pri <sip:sip#3;cau< td=""><td>vacy=history>;index=1 ise=486>;index=1.1</td><td>,</td><td></td></sip:sip#3;cau<></sip:sip#2?pri 	vacy=history>;index=1 ise=486>;index=1.1	,	
Comments: SIP#1	AS	SIP#2	SIP#3
INVITE →	AJ	517#2	3IF#3
			→ INVITE
700	70	D.C.	
TSS Netw/ASdivertingUser/NotTermUser	TP CDIV_N03_011	Reference [ITU-T Q.3620 v.1] 4.5.2.6.2.2 4.5.2.6.2.4	Selection expression PICS 1/6 AND PICS 4/1 AND PICS 3/6
Test purpose Communication Forwarding using CFNL.			
The served user subscribes to the CFNL spermanent mode or the subscription option is set to value "no" .			
Ensure that the IUT, on receipt of an INVIT which is not logged in not including a History request towards the diverted-to user contain the diverted-to URI and containing a History including a first entry with the hi-targeted	r-Info header, applies c ing the cause value "40 r-Info header	ommunication diversior 04" in the Request URI, i	n and forwards the INVITE ndicating in the To header
1			
	argeted-to-URI of the o	diverted-to user, cause	= 404, index = 1.1.
1 and including a second entry with the hi-t SIP header values: INVITE: sip:SIP#3@ example.com; cause = To: <sip:sip#3></sip:sip#3>	404 SIP/2.0		= 404, index = 1.1.
1 and including a second entry with the hi-t SIP header values: INVITE: sip:SIP#3@ example.com; cause = To: <sip:sip#3> History-Info: <sip:sip#2;priv< td=""><td></td><td></td><td>= 404, index = 1.1.</td></sip:sip#2;priv<></sip:sip#3>			= 404, index = 1.1.
1 and including a second entry with the hi-t SIP header values: INVITE: sip:SIP#3@ example.com; cause = To: <sip:sip#3> History-Info: <sip:sip#2;priv <sip:sip#3;cau< td=""><td>404 SIP/2.0 vacy=history>;index=1, ise=404>;index=1.1</td><td></td><td></td></sip:sip#3;cau<></sip:sip#2;priv </sip:sip#3>	404 SIP/2.0 vacy=history>;index=1, ise=404>;index=1.1		
1 and including a second entry with the hi-t SIP header values: INVITE: sip:SIP#3@ example.com; cause = To: <sip:sip#3> History-Info: <sip:sip#2;priv <sip:sip#3;cau< td=""><td>404 SIP/2.0 vacy=history>;index=1,</td><td></td><td>= 404, index = 1.1. SIP#3</td></sip:sip#3;cau<></sip:sip#2;priv </sip:sip#3>	404 SIP/2.0 vacy=history>;index=1,		= 404, index = 1.1. SIP#3

	S	TP	Reference	Selection expression
Netw/ASdivertingU	ser/NotTermUser	CDIV_N03_012	[ITU-T Q.3620 v.1]	PICS 1/2 AND PICS 4/1
			4.5.2.6.2.2	AND DICC 3/C
Test mumeres			4.5.2.6.2.4	PICS 3/6
Test purpose Communication Forwa	arding using CFB UDL	JB.		
			ondition. The served use he presentation of his/he	er subscribes to OIR in er URI to diverted-to user"
which is UDUB not inc	luding a History-Info h verted-to user contain	neader, applies comming the cause value	tatus DIV_VA, see Table nunication diversion and 486" in the Request UR	forwards the INVITE
header the diverted-to including a first en	try with the hi-targeted	d-to-URI of the serve	d user with a Privacy hea	ader set to "history" and a
header the diverted-to including a first en Reason header ind and	try with the hi-targeted dicating cause 486, ind	d-to-URI of the serve dex = 1		
header the diverted-to including a first en Reason header ind and including a sec	try with the hi-targeted dicating cause 486, ind	d-to-URI of the serve dex = 1	d user with a Privacy hea diverted-to user, cause	
header the diverted-to including a first en Reason header ind and including a sec SIP header values:	try with the hi-targeted dicating cause 486, inc ond entry with the hi-t	d-to-URI of the serve dex = 1 argeted-to-URI of the		
header the diverted-to including a first en Reason header ind and	try with the hi-targeted dicating cause 486, ind ond entry with the hi-t xample.com; cause =	d-to-URI of the serve dex = 1 argeted-to-URI of the		
header the diverted-to including a first en Reason header ind and including a sec SIP header values: INVITE: sip:SIP#3@ e To: <sip< td=""><th>try with the hi-targeted dicating cause 486, ind ond entry with the hi-t xample.com; cause = :SIP#3> Info: <sip:sip#2?pri< th=""><th>d-to-URI of the server dex = 1 argeted-to-URI of the 486 SIP/2.0 vacy=history&Reaso</th><td></td><td>= 486, index = 1.1.</td></sip:sip#2?pri<></th></sip<>	try with the hi-targeted dicating cause 486, ind ond entry with the hi-t xample.com; cause = :SIP#3> Info: <sip:sip#2?pri< th=""><th>d-to-URI of the server dex = 1 argeted-to-URI of the 486 SIP/2.0 vacy=history&Reaso</th><td></td><td>= 486, index = 1.1.</td></sip:sip#2?pri<>	d-to-URI of the server dex = 1 argeted-to-URI of the 486 SIP/2.0 vacy=history&Reaso		= 486, index = 1.1.
header the diverted-to including a first en Reason header ind and including a sec SIP header values: INVITE: sip:SIP#3@ e To: <sip History-</sip 	try with the hi-targeted dicating cause 486, ind ond entry with the hi-t xample.com; cause = :SIP#3> Info: <sip:sip#2?pri< th=""><th>d-to-URI of the server dex = 1 argeted-to-URI of the 486 SIP/2.0</th><td>diverted-to user, cause</td><td>= 486, index = 1.1.</td></sip:sip#2?pri<>	d-to-URI of the server dex = 1 argeted-to-URI of the 486 SIP/2.0	diverted-to user, cause	= 486, index = 1.1.
header the diverted-to including a first en Reason header ind and including a sec SIP header values: INVITE: sip:SIP#3@ e To: <sip History-</sip 	try with the hi-targeted dicating cause 486, ind ond entry with the hi-t xample.com; cause = :SIP#3> Info: <sip:sip#2?pri< th=""><th>d-to-URI of the server dex = 1 argeted-to-URI of the 486 SIP/2.0 vacy=history&Reaso</th><td>diverted-to user, cause</td><td>= 486, index = 1.1.</td></sip:sip#2?pri<>	d-to-URI of the server dex = 1 argeted-to-URI of the 486 SIP/2.0 vacy=history&Reaso	diverted-to user, cause	= 486, index = 1.1.
header the diverted-to including a first em Reason header ind and including a sec SIP header values: INVITE: sip:SIP#3@ e To: <sip History- Comments: SIP#1</sip 	try with the hi-targeted dicating cause 486, ind ond entry with the hi-t xample.com; cause = :SIP#3> Info: <sip:sip#2?pri< th=""><th>d-to-URI of the server dex = 1 argeted-to-URI of the 486 SIP/2.0 vacy=history&Reaso ise=486>;index=1.1 AS →</th><td>diverted-to user, cause n=SIP=cause%3D486>;i SIP#2 INVITE</td><td>= 486, index = 1.1.</td></sip:sip#2?pri<>	d-to-URI of the server dex = 1 argeted-to-URI of the 486 SIP/2.0 vacy=history&Reaso ise=486>;index=1.1 AS →	diverted-to user, cause n=SIP=cause%3D486>;i SIP#2 INVITE	= 486, index = 1.1.
header the diverted-to including a first en Reason header ind and including a sec SIP header values: INVITE: sip:SIP#3@ e To: <sip< td=""><th>try with the hi-targeted dicating cause 486, ind ond entry with the hi-t xample.com; cause = :SIP#3> Info: <sip:sip#2?pri <sip:sip#3;cau< th=""><th>d-to-URI of the server dex = 1 argeted-to-URI of the 486 SIP/2.0 vacy=history&Reaso ise=486>;index=1.1 AS ←</th><td>diverted-to user, cause n=SIP=cause%3D486>;i SIP#2 INVITE 486 Busy Here</td><td>= 486, index = 1.1.</td></sip:sip#3;cau<></sip:sip#2?pri </th></sip<>	try with the hi-targeted dicating cause 486, ind ond entry with the hi-t xample.com; cause = :SIP#3> Info: <sip:sip#2?pri <sip:sip#3;cau< th=""><th>d-to-URI of the server dex = 1 argeted-to-URI of the 486 SIP/2.0 vacy=history&Reaso ise=486>;index=1.1 AS ←</th><td>diverted-to user, cause n=SIP=cause%3D486>;i SIP#2 INVITE 486 Busy Here</td><td>= 486, index = 1.1.</td></sip:sip#3;cau<></sip:sip#2?pri 	d-to-URI of the server dex = 1 argeted-to-URI of the 486 SIP/2.0 vacy=history&Reaso ise=486>;index=1.1 AS ←	diverted-to user, cause n=SIP=cause%3D486>;i SIP#2 INVITE 486 Busy Here	= 486, index = 1.1.
header the diverted-to including a first em Reason header ind and including a sec SIP header values: INVITE: sip:SIP#3@ e To: <sip History- Comments: SIP#1</sip 	try with the hi-targeted dicating cause 486, ind ond entry with the hi-t xample.com; cause = :SIP#3> Info: <sip:sip#2?pri <sip:sip#3;cau< th=""><th>d-to-URI of the server dex = 1 argeted-to-URI of the 486 SIP/2.0 vacy=history&Reaso ise=486>;index=1.1 AS →</th><td>diverted-to user, cause n=SIP=cause%3D486>;i SIP#2 INVITE</td><td>= 486, index = 1.1.</td></sip:sip#3;cau<></sip:sip#2?pri 	d-to-URI of the server dex = 1 argeted-to-URI of the 486 SIP/2.0 vacy=history&Reaso ise=486>;index=1.1 AS →	diverted-to user, cause n=SIP=cause%3D486>;i SIP#2 INVITE	= 486, index = 1.1.

TSS	ТР	Reference	Selection expression
Netw/ASdivertingUser/NotTermUser	CDIV_N03_013	[ITU-T Q.3620 v.1]	PICS 1/3 AND PICS 4/1
		4.5.2.6.2.2	AND
		4.5.2.6.2.4	PICS 3/6
Test purpose			
Communication Forwarding using CFNR.			
The served user subscribes to the CFNR ar mode or the subscription option "Served use value "no" .			
Ensure that the IUT, on receipt of an INVITE which does not reply not including a History INVITE request towards the diverted-to use To header the diverted-to URI and containin including a first entry with the hi-targeted index = 1 and	Info header, applies r containing the cause g a History-Info head	communication diversion value "408" in the Requ er	and forwards the est URI, indicating in the
including a second entry with the hi-t	argeted-to-LIRL of the	diverted-to user cause -	- 408 index - 1 1
The initial communication to the served use			
with protocol set to SIP and the cause set to		1	
SIP header values:			
INVITE: sip:SIP#3@ example.com; cause =	408 SIP/2.0		
To: <sip:sip#3></sip:sip#3>	A		
History-Info: <sip:sip#2;inde< td=""><td>ex=1, ise=408>;index=1.1</td><td></td><td></td></sip:sip#2;inde<>	ex=1, ise=408>;index=1.1		
CANCEL/BYE:	13e-400>,1110ex-1.1		
Reason: SIP; cause=408			
Comments:			
SIP#1 AS	SIP#2		SIP#3
INVITE -			
180 Ringing 🗲	← 180 Ring		
	No reply timer exp → CANCE		
		CANCEL/BYE	
		uest Terminated (Note)	
	→ ACK		
	anksha and if a OAA		→ INVITE
NOTE: The 487 Request Terminated will communication.	only be sent, if a CAN	CEL request had been us	sed to terminate the initial
communication.			

	ſSS gUser/NotTermUser	TP CDIV_N03_014	Reference [ITU-T Q.3620 v.1] 4.5.2.6.2.2 4.5.2.6.2.4 Reference [IETF RFC 4244] 4.3.3.1.2	Selection expression PICS 1/4 AND PICS 4/1 AND PICS 3/6
Test purpose Communication For	warding using CD (imm	nediate response).		
subscribes to OIR ir		ne subscription option	liverts the communication. "Served user allows the p	
Ensure that the II IT	, on receipt of an INVIT	E request (diversion a	tatus DIV VA see Table	3) for the served user
which immediately of and forwards the IN URI, indicating in th including a first Reason header and	liverts the communicati VITE request towards to e To header the diverte entry with the hi-targete indicating cause 302, ir	on not including a His he diverted-to user co d-to URI and containi ed-to-URI of the serve ndex = 1	tory-Info header, applies of ntaining the cause value " ng a History-Info header d user with a Privacy head	communication diversion 480" in the Request der set to "history", and a
which immediately of and forwards the IN URI, indicating in th including a first Reason header and including a s SIP header values	liverts the communicati VITE request towards to e To header the diverte entry with the hi-targete indicating cause 302, ir econd entry with the hi-	on not including a His he diverted-to user co d-to URI and containi ed-to-URI of the serve ndex = 1 targeted-to-URI of the	tory-Info header, applies c ntaining the cause value " ng a History-Info header	communication diversion 480" in the Request der set to "history", and a
which immediately of and forwards the IN URI, indicating in th including a first Reason header and including a s SIP header values INVITE: sip:SIP#3@	VITE request towards to VITE request towards to e To header the diverte entry with the hi-targete indicating cause 302, ir econd entry with the hi-	on not including a His he diverted-to user co d-to URI and containi ed-to-URI of the serve ndex = 1 targeted-to-URI of the	tory-Info header, applies of ntaining the cause value " ng a History-Info header d user with a Privacy head	communication diversion 480" in the Request der set to "history", and a
which immediately of and forwards the IN URI, indicating in th including a first Reason header and including a s SIP header values INVITE: sip:SIP#3@ To: < Histo	VITE request towards to VITE request towards to e To header the diverte entry with the hi-targete indicating cause 302, ir econd entry with the hi- econd entry with the hi- econd entry with the hi- cond entry with the hi-	on not including a His he diverted-to user co d-to URI and containi ed-to-URI of the serve ndex = 1 targeted-to-URI of the = 480 SIP/2.0	tory-Info header, applies of ntaining the cause value " ng a History-Info header d user with a Privacy head	communication diversion 480" in the Request der set to "history", and a = 480, index = 1.1.
which immediately of and forwards the IN URI, indicating in th including a first Reason header and including a s SIP header values INVITE: sip:SIP#3@ To: <	VITE request towards to VITE request towards to e To header the diverte entry with the hi-targete indicating cause 302, ir econd entry with the hi- econd entry with the hi- econd entry with the hi- sip:SIP#3> ry-Info: <sip:sip#2?pr< td=""><td>on not including a His he diverted-to user co d-to URI and containi ed-to-URI of the serve ndex = 1 targeted-to-URI of the = 480 SIP/2.0 rivacy=history&Reaso use=480>;index=1.1</td><td>tory-Info header, applies of ntaining the cause value " ng a History-Info header d user with a Privacy head e diverted-to user, cause =</td><td>communication diversion 480" in the Request der set to "history", and a = 480, index = 1.1.</td></sip:sip#2?pr<>	on not including a His he diverted-to user co d-to URI and containi ed-to-URI of the serve ndex = 1 targeted-to-URI of the = 480 SIP/2.0 rivacy=history&Reaso use=480>;index=1.1	tory-Info header, applies of ntaining the cause value " ng a History-Info header d user with a Privacy head e diverted-to user, cause =	communication diversion 480" in the Request der set to "history", and a = 480, index = 1.1.

TSS Netw/ASdivertingUser/NotTermUser	TP CDIV_N03_015	Reference [ITU-T Q.3620 v.1]	Selection expression PICS 1/5 AND PICS
		4.5.2.6.2.2 4.5.2.6.2.4 Reference [IETF RFC 4244] 4.3.3.1.2	4/1 AND PICS 3/6
Test purpose			
Communication Forwarding using CD durin	g alerting.		
The served user subscribes to the CD servi subscribes to OIR in permanent mode or th URI to diverted-to user" is set to value "no "	e subscription option		
Ensure that the IUT, on receipt of an INVITI which diverts the communication during ale diversion and forwards the INVITE request Request URI, indicating in the To header th including a first entry with the hi-targete Reason header indicating cause 302, in and	rting not including a H towards the diverted- e diverted-to URI and d-to-URI of the serve	History-Info header, applies to user containing the caus d containing a History-Info I	communication e value "487" in the neader
including a second entry with the hi-	targeted-to-URI of the	e diverted-to user. cause =	487. index = 1.1.
SIP header values: INVITE: sip:SIP#3@ example.com; cause = To: <sip:sip#3> History-Info: <sip:sip#2?pr< td=""><td>= 487 SIP/2.0 ivacy=history&Reaso</td><td>n=SIP=cause%3D302>;ind</td><td></td></sip:sip#2?pr<></sip:sip#3>	= 487 SIP/2.0 ivacy=history&Reaso	n=SIP=cause%3D302>;ind	
<pre><sip:sip#3;cai comments:<="" pre=""></sip:sip#3;cai></pre>	use=487>;index=1.1		
SIP#1 INVITE → 180 Ringing ←	AS ↔	SIP#2 INVITE 180 Ringing 302 Moved Temporarily	SIP#3
	→	ACK	
TSS Netw/ASdivertingUser/NotTermUser	TP CDIV_N03_016	Reference [ITU-T Q.3620 v.1] 4.5.2.6.2.2 4.5.2.6.2.4	Selection expression PICS 1/7 AND PICS 4/1 AND PICS 3/6
Test purpose		4.3.2.0.2.4	PIC3 3/0
Communication Forwarding using CFNRc.			
The served user subscribes to the CFNRc s permanent mode or the subscription option is set to value "no" .			
Ensure that the IUT, on receipt of an INVITI which is not reachable not including a Histo INVITE request towards the diverted-to use To header the diverted-to URI and containing	ry-Info header, applie r containing the causing a History-Info head	es communication diversior e value "503" in the Reque der	and forwards the st URI, indicating in the
including a first entry with the hi-targete index = 1	a-to-URI of the serve	a user with a Privacy head	er set to "history",
and		P / I /	
including a second entry with the hi-	targeted-to-URI of the	e diverted-to user, cause =	503, index = 1.1.
		e diverted-to user, cause =	503, index = 1.1.

Comments: SIP#1		AS	SIP#2	SIP#3
INVITE	→			→ INVITE

DIV_VA	Value	Description
1	First Diversion	INVITE received: History-Info header absent or present and not containing the hi-targeted-to-uri of the served user in the last history-info entry
2	Subsequent Diversion	INVITE received: History-Info header present and containing the hi-targeted-to-uri of the served user in the last history-info entry

Table 3 – Status of diversions, used in CDIV_N03_001-016

6.2.1.2.3 Diverting user

TSS	TP	Reference	Selection expression
Netw/ASdivertingUser/NotDivUser	CDIV_N04_001	[ITU-T Q.3620 v.1] 4.5.2.6.5.0	PICS 3/1
Test purpose	•		·
Communication forwarding using CDIV_ MESSAGE request.	VA; Indication of comm	unication diversion to tl	he diverting user using the
Ensure that when call diversion of type sends a MESSAGE request to the divert			
Subscription options:			
Served user receives notification that a	communication has beer	forwarded (indication c	of communication diversion
	communication has beer	forwarded (indication c	of communication diversion
Served user receives notification that a		forwarded (indication c	of communication diversion
Served user receives notification that a c to the diverting user) = yes		n forwarded (indication c	of communication diversion
Served user receives notification that a c to the diverting user) = yes SIP header values: MESSAGE (text/pla		n forwarded (indication of signal of	of communication diversion
Served user receives notification that a c to the diverting user) = yes SIP header values: MESSAGE (text/pla Comments:	in)	SIP#2	
Served user receives notification that a c to the diverting user) = yes SIP header values: MESSAGE (text/pla Comments:	in) SUT	SIP#2	
Served user receives notification that a c to the diverting user) = yes SIP header values: MESSAGE (text/pla Comments:	in) SUT Diverting user regis	SIP#2 sters MESSAGE	
Served user receives notification that a c to the diverting user) = yes SIP header values: MESSAGE (text/pla Comments:	in) SUT Diverting user regis MESSAGE → 200 OK MESSAGE ←	SIP#2 sters MESSAGE 200 OK MESSAGE	SIP#3

TSS	ТР	Reference	Selection expression
Netw/ASdivertingUser/NotDivUser	CDIV N04 002	[ITU-T Q.3620 v.1]	PICS 3/2
C C		4.5.2.6.5.0	
Test purpose			
Communication forwarding using CDIV_VA	; Indication of commu	nication diversion to th	ne diverting user using the
MESSAGE request when a new outgoing co	ommunication is reques	sted.	
Ensure that when communication diversion			0
outgoing communication, the AS will send a	MESSAGE request cor	ntaining the forwarded-	to address of the activated
communication to the diverting user.			
Subscription options:			
Served user receives reminder indication on	outgoing communicat	ion that CDIV is currer	ntly activated = yes
SIP header values: MESSAGE (text/plain)			
Comments:			
SIP#1	SUT	SIP#2	SIP#3
_			
Comm	unication diversion i		
	+	INVITE	
	MESSAGE ->		
20			
20		200 OK WESSAGE	

TSS Netw/ ASdivertingUser / NotDivUser	TP CDIV_N04_00)3	Reference [ITU-T Q.3620 v.1] 4.5.2.6.5	Selection expression PICS 2/3 AND PICS 3/1			
Test purpose							
Communication forwarding using CDIV_VA; Communication Diversion Notification applies.							
Ensure that when the diverting user has diversion of type CDIV_VA occurred, regarding the current communication div	the served user						
Subscription options:							
Subscription options. Served user receives notification that a communication has been forwarded (indication of communication diversion							
to the diverting user) = yes			· · · · · · · · · · · · · · · · · · ·				
SIP header values:							
<pre><diverting-u <comm-div-ntfy-<="" <diversion="" <diverted-to="" pre=""></diverting-u></pre>	 > ction-criteria> g-user-selection-crito-user-selection-crito-user-selection-criteria> -time-selection-ctrigger-criteria> n-time-selection- fo +xml -tinfo>SIP#1 info>SIP#2 	iteria: criter riteria n-crite	>SIP#2 ia>SIP#3 a >(Date-time)				
<diversion-reaso <diversion-rule-i< td=""><td>info> (time range on-info>DIV_VAL info-type> rule> (any text)</td><td></td><th></th><td></td></diversion-rule-i<></diversion-reaso 	info> (time range on-info>DIV_VAL info-type> rule> (any text)						
Comments:							
SIP#1	SUT		SIP#2 (served user)	SIP#3			
200 OI	SUBSCRIBE < SUBSCRIBE		SUBSCRIBE 200 OK SUBSCRIBE				
	NOTIFY 00 OK NOTIFY		NOTIFY 200 OK NOTIFY				
INVITE 1 →	Communication	dive	rsion occurs				
20	NOTIFY 00 OK NOTIFY		NOTIFY 200 OK NOTIFY				
NOTE 1: In case of CFNRc and CFNL	the served user	nee	ds to become reachable	e/log in before the MESSAGE			
request can be delivered. NOTE 2: The CDIV indication timer ma				C C			

Table 4 – Communication diversion in use,	, used in CDIV_N04_001-003
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CDIV_VA	Communication diversion	Diversion Reason DIV_VAL
1	CFU	302
2	CFB	486
3	CFNRy	408
4	CFNRc	503
r	CFNL	404

6.2.2 Actions at the AS of the diverted to User

TSS Netw/ASdiverted-to	TP CDIV_N05_001	Reference [ITU-T Q.3620 v.1] 4.5.2.7	Selection expression
Test purpose Previous stored History-Info header returned	d in a 180 Ringing.		
The SUT in the Idle state, receives an INVIT last History Index; cause-param =CAUSE_\ receives a 180 Ringing, the stored History-I in the last index if the response does not con SIP header values: INVITE 1: History-Info header: hi-targeted-to-uri of dive 180 Ringing 2 History-Info header: hi-targeted-to-uri of dive	/AL defined in Table 5, the nfo header is covered in th ntain a History-Info header. erted-to user; cause=CAUS	History-Info header is st is response without esc E_VAL, index=1.x	ored. When the SUT
Comments:	···· · · · · · · · · · · · · · · · · ·		
SIP#1 INVITE 1 → 180 Ringing 2 ← 200 OK (INVITE) ← ACK →	SUT	 SIP#2 → INVITE 2 ← 180 Ringing 1 ← 200 OK (INVIT → ACK 	E)
BYE → 200 OK (BYE) ←		 → BYE ← 200 OK (BYE) 	
TSS Netw/ASdiverted-to	TP CDIV_N05_002	Reference [ITU-T Q.3620 v.1] 4.5.2.7	Selection expression
Test purpose Previous stored History-Info header returne	d in a 181 Being Forwarded	d.	
The SUT in the Idle state, receives an INVIT last History Index; cause-param =CAUSE_\ receives a 181 Being Forwarded, the stored header in the last index if the response does	/AL defined in Table 5, the History-Info header is cove	History-Info header is st ared in this response with	ored. When the SUT
SIP header values: SIP header values: INVITE 1: History-Info header: hi-targeted-to-uri of dive 181 Being Forwarded 2			
History-Info header: hi-targeted-to-uri of dive	erted-to user; cause=CAUS	SE_VAL, index=1.x	
Comments:			
SIP#1 INVITE 1 → 181 Call is Being Forwarded 2 ← 180 Ringing ← 200 OK (INVITE) ← ACK →	SUT	SIP#2 → INVITE 2 ← 181 Call is Being F ← 180 Ringing ← 200 OK (INVITE) → ACK	Forwarded 1
BYE → 200 OK (BYE) ←		 → BYE ← 200 OK (BYE) 	

		ТР	_	ference	Selection
Netw/ASdiverted-t	0	CDIV_N05_003	[ITU-T	Q.3620 v.1]	expression
			4	.5.2.7	
Test purpose					
Previous stored History-Info he	eader returned	l in a 200 OK response.			
The SUT in the Idle state, rece	ives an INVITI	E message for the diverte	d-to-user	without TIR w	ith Cause Value in the
last History Index; cause-parar					
receives a 200 OK INVITE, the				response wit	nout escaped Privacy
header in the last index if the re SIP header values: SIP header		not contain a History-Inic	neader.		
INVITE 1:					
History-Info header: hi-targeted	d-to-uri of dive	rted-to user; cause=CAU	SE_VAL,	index=1.x	
200 OK INVITE 2	-1 (.				
History-Info header: hi-targeted Comments:	d-to-uri of dive	rted-to user; cause=CAU	SE_VAL,	index=1.x	
SIP#1		SUT	SIF	P#2	
INVITE 1	→		→ IN\	/ITE 2	
180 Ringing	() Ringing	
200 OK (INVITE) 2	← →) ok (INVITE)	1
ACK	7		→ AC	n	
BYE	→		→ BY	E	
200 OK (BYE)	+		← 200	OK (BYE)	
TSS		ТР	Ref	erence	Selection
Netw/ASdiverted-t	0	CDIV_N05_004		Q.3620 v.1]	expression
				.6.3	PICS 4/3
			-	erence RFC 4244]	
			-	4.5	
1				•	
Test purpose	<u> </u>				
Test purpose Diverted to user is subscribed	to the TIR ser	vice.			
Diverted to user is subscribed			ted-to-use	er with TIR wi	h Cause Value in the
	eives an INVI	TE message for the diver			
Diverted to user is subscribed The SUT in the Idle state, reculast History Index; cause-parar receives a 180 Ringing, the s	eives an INVIT n = CAUSE_V tored History-I	TE message for the diver AL defined in Table 5, the Info header is covered in	History-I this resp	nfo header is:	stored. When the SUT
Diverted to user is subscribed The SUT in the Idle state, recu last History Index; cause-parar receives a 180 Ringing, the s header in the last index if the re	eives an INVI n = CAUSE_V tored History-I esponse does	TE message for the diver AL defined in Table 5, the Info header is covered in	History-I this resp	nfo header is:	stored. When the SUT
Diverted to user is subscribed The SUT in the Idle state, rece last History Index; cause-parar receives a 180 Ringing, the s header in the last index if the re SIP header values: SIP header	eives an INVI n = CAUSE_V tored History-I esponse does	TE message for the diver AL defined in Table 5, the Info header is covered in	History-I this resp	nfo header is:	stored. When the SUT
Diverted to user is subscribed The SUT in the Idle state, rece last History Index; cause-parar receives a 180 Ringing, the si header in the last index if the re SIP header values: SIP header INVITE 1:	eives an INVIT m = CAUSE_V tored History-I esponse does er values:	TE message for the diver AL defined in Table 5, the Info header is covered in not contain a History-Info	e History-I this resp header.	nfo header is a oonse with eso	stored. When the SUT
Diverted to user is subscribed The SUT in the Idle state, reca last History Index; cause-parar receives a 180 Ringing, the s header in the last index if the m SIP header values: SIP heade INVITE 1: History-Info header: hi-targeted 180 Ringing 2	eives an INVIT m = CAUSE_V tored History-I <u>esponse does</u> er values: d-to-uri of dive	TE message for the diver AL defined in Table 5, the Info header is covered in not contain a History-Info rted-to user; cause=CAU	e History-I this resp <u>b header.</u> SE_VAL,	nfo header is soonse with eso	stored. When the SUT caped Privacy=history
Diverted to user is subscribed The SUT in the Idle state, reco last History Index; cause-parar receives a 180 Ringing, the si- header in the last index if the re- SIP header values: SIP header INVITE 1: History-Info header: hi-targeted 180 Ringing 2 History-Info header: hi-targeted	eives an INVIT m = CAUSE_V tored History-I <u>esponse does</u> er values: d-to-uri of dive	TE message for the diver AL defined in Table 5, the Info header is covered in not contain a History-Info rted-to user; cause=CAU	e History-I this resp <u>b header.</u> SE_VAL,	nfo header is soonse with eso	stored. When the SUT caped Privacy=history
Diverted to user is subscribed The SUT in the Idle state, reco last History Index; cause-parar receives a 180 Ringing, the si- header in the last index if the re- SIP header values: SIP header INVITE 1: History-Info header: hi-targeted 180 Ringing 2 History-Info header: hi-targeted Comments:	eives an INVIT m = CAUSE_V tored History-I <u>esponse does</u> er values: d-to-uri of dive	TE message for the diver AL defined in Table 5, the Info header is covered in not contain a History-Info rted-to user; cause=CAU rted-to user; cause=CAU	e History-I this resp <u>b header.</u> SE_VAL,	nfo header is conse with eso index=1.x Privacy=histo	stored. When the SUT caped Privacy=history
Diverted to user is subscribed The SUT in the Idle state, reco last History Index; cause-parar receives a 180 Ringing, the si- header in the last index if the re- SIP header values: SIP header INVITE 1: History-Info header: hi-targeted 180 Ringing 2 History-Info header: hi-targeted Comments: SIP#1	eives an INVIT m = CAUSE_V tored History-I esponse does er values: d-to-uri of dive d-to-uri of dive	TE message for the diver AL defined in Table 5, the Info header is covered in not contain a History-Info rted-to user; cause=CAU	History-I this resp header. SE_VAL, SE_VAL;	nfo header is sonse with eso index=1.x <u>Privacy=histo</u> SIP#2	stored. When the SUT caped Privacy=history
Diverted to user is subscribed The SUT in the Idle state, reco last History Index; cause-parar receives a 180 Ringing, the si- header in the last index if the re- SIP header values: SIP header INVITE 1: History-Info header: hi-targeted 180 Ringing 2 History-Info header: hi-targeted Comments: SIP#1 INVITE 1	eives an INVIT m = CAUSE_V tored History-I <u>esponse does</u> er values: d-to-uri of dive	TE message for the diver AL defined in Table 5, the Info header is covered in not contain a History-Info rted-to user; cause=CAU rted-to user; cause=CAU	e History-I this resp <u>b header.</u> SE_VAL,	nfo header is sonse with eso index=1.x <u>Privacy=histo</u> SIP#2 INVITE 2	stored. When the SUT caped Privacy=history ry, index=1.x
Diverted to user is subscribed The SUT in the Idle state, reco last History Index; cause-parar receives a 180 Ringing, the si- header in the last index if the re- SIP header values: SIP header INVITE 1: History-Info header: hi-targeted 180 Ringing 2 History-Info header: hi-targeted Comments: SIP#1 INVITE 1 180 Ringing 2 200 OK (INVITE)	eives an INVIT m = CAUSE_V tored History-I esponse does er values: d-to-uri of dive d-to-uri of dive	TE message for the diver AL defined in Table 5, the Info header is covered in not contain a History-Info rted-to user; cause=CAU rted-to user; cause=CAU	History-I this resp <u>b header.</u> SE_VAL, <u>SE_VAL;</u> ✦ ✦	nfo header is conse with esc index=1.x <u>Privacy=histo</u> SIP#2 INVITE 2 180 Ringing 2 200 OK (INVI	stored. When the SUT caped Privacy=history ry, index=1.x
Diverted to user is subscribed The SUT in the Idle state, reco last History Index; cause-parar receives a 180 Ringing, the si- header in the last index if the re- SIP header values: SIP header INVITE 1: History-Info header: hi-targeted 180 Ringing 2 History-Info header: hi-targeted Comments: SIP#1 INVITE 1	eives an INVIT m = CAUSE_V tored History-I esponse does er values: d-to-uri of dive d-to-uri of dive	TE message for the diver AL defined in Table 5, the Info header is covered in not contain a History-Info rted-to user; cause=CAU rted-to user; cause=CAU	History-I this resp <u>b header.</u> SE_VAL, <u>SE_VAL;</u> ✦ ✦	nfo header is conse with esc index=1.x <u>Privacy=histo</u> SIP#2 INVITE 2 180 Ringing 2	stored. When the SUT caped Privacy=history ry, index=1.x
Diverted to user is subscribed The SUT in the Idle state, reco last History Index; cause-parar receives a 180 Ringing, the si- header in the last index if the re- SIP header values: SIP header INVITE 1: History-Info header: hi-targeted 180 Ringing 2 History-Info header: hi-targeted Comments: SIP#1 INVITE 1 180 Ringing 2 200 OK (INVITE)	eives an INVIT m = CAUSE_V tored History-I esponse does er values: d-to-uri of dive d-to-uri of dive	TE message for the diver AL defined in Table 5, the Info header is covered in not contain a History-Info rted-to user; cause=CAU rted-to user; cause=CAU	History-I this resp <u>b header.</u> SE_VAL, SE_VAL; → ← ← ←	nfo header is conse with esc index=1.x <u>Privacy=histo</u> SIP#2 INVITE 2 180 Ringing 2 200 OK (INVI	stored. When the SUT caped Privacy=history ry, index=1.x

TSS Netw/ASdiverted-to	TP CDIV_N05_005	Reference [ITU-T Q.3620 v.1] 4.6.3 Reference [IETF RFC 4244] 4.5	Selection expression PICS 4/3	
Test purpose				
Diverted to user is subscribed to the TIR se	rvice.			
The SUT in the Idle state, receives an INV last History Index; cause-param = CAUSE_ receives a 181 Being Forwarded, the st Privacy=history header in the last index if th SIP header values: SIP header values: INVITE 1: History-Info header: hi-targeted-to-uri of div 181 Being Forwarded 2 History-Info header: hi-targeted-to-uri of div	VAL defined in Table 5. The ored History-Info header ie response does not conta erted-to user; cause=CAUS	History-Info header is is covered in this re in a History-Info head SE_VAL, index=1.x	stored. When the SUT esponse with escaped er.	
Comments:			Jry, index=1.x	
SIP#1	SUT	SIP#2		
INVITE 1 →		→ INVITE 2		
181 Call is Being Forwarded 2 🗧 🗧 🗧 🗧 🗧 181 Call is Being Forwarded 1				
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_N05_006	Reference [ITU-T Q.3620 v.1] 4.6.3 Reference [IETF RFC 4244] 4.5	Selection expression PICS 4/3			
Test purpose						
Diverted to user is subscribed to the TIR s	ervice.					
The SUT in the Idle state, receives an IN last History Index; cause-param = CAUSE receives a 200 OK INVITE, the stored Hist header in the last index if the response do SIP header values: SIP header values: INVITE 1: History-Info header: hi-targeted-to-uri of di 200 OK INVITE 2 History-Info header: hi-targeted-to-uri of di	_VAL defined in Table 5, the ory-Info header is covered i es not contain a History-Info verted-to user; cause=CAUS	History-Info header is n this response with es header. SE_VAL, index=1.x	stored. When the SUT scaped Privacy=history			
Comments:		_ / /	<i>J</i> ,			
SIP#1	SUT	SIP#2				
INVITE 1 →		→ INVITE 2				
· · · · · · · · · · · · · · · · · · ·						
200 OK (INVITE) 2		← 200 OK (INVITE	i) 1			
ACK →		→ ACK				
BYE →		→ BYE				
200 OK (BYE)		← 200 OK (BYE)				

Table 5 – Cause values the ''cause'' parameter in the History-Info header, used in CDIV_N05_001-006

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

6.3 Interaction with other services

6.3.1 Terminating identification presentation (TIP)

TSS Interaction/TIP	TP CDIV_N06_001	Reference [ITU-T Q.3620 v.1] 4.6.2	Selection expression PICS 4/3
Test purpose	•		
The served user subscribes to the CDIV sin	nulation service; the	P-Asserted header is pas	sed on unchanged.
Ensure that the communication is forwarde	ed to the diverted to	user if the served user i	s subscribed to the CDIV
simulation service.			
Ensure that a P-Asserted-Identity and Histo originating entity.	ory header field rece	ived in the diverting AS is	passed unmodified to the
The Cause Value in the latest History Index	:: cause-param =CA	USE VAL defined in Table	e 7.
Subscription options:	,		-
Originating user receives notification that his Served user allows the presentation of dive			
SIP header values:			
180 Ringing: P-Asserted-Identity with the U History-Info: <sip:sip#2>;in <sip:sip#3; ca<="" td=""><td></td><td>· •</td><td>and not "header"</td></sip:sip#3;></sip:sip#2>		· •	and not "header"
History-Info: <sip:sip#2>;in</sip:sip#2>		erted-to user, Privacy is n ;index=1.1	ot "id" and not "header"
Comments:			
SIP#1	SUT	SIP#2 (served user)	
			SIP#3
INVITE			SIP#3
Communication diversion is performed	· · ·	R, CD, CFNL, CFNRc)	
	→	R, CD, CFNL, CFNRc)	→ INVITE
Communication diversion is performed	· · ·	R, CD, CFNL, CFNRc)	
	→	R, CD, CFNL, CFNRc)	 → INVITE ← 180 Ringing
Communication diversion is performed	→ +	R, CD, CFNL, CFNRc)	 → INVITE ← 180 Ringing
Communication diversion is performed 180 Ringing ←	→ +	R, CD, CFNL, CFNRc)	 → INVITE ← 180 Ringing
Communication diversion is performed 180 Ringing ← 200 OK (INVITE) ←	→ +	R, CD, CFNL, CFNRc)	 → INVITE ← 180 Ringing ← 200 OK (INVITE)

Table 7 – Cause values the "cause" parameter in the History-Info header, used in CDIV_N06_001

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

6.3.2 Terminating identification restriction (TIR)

TSS Interaction/TIR	TP CDIV_N07_001	Reference [ITU-T Q.3620 v.1] 4.6.3	Selection expression PICS 4/3 AND PICS 4/4
Test purpose			
The served user subscribes to the CDIV sin	nulation service; the a	liverted-to URI is restrict	ed to the originating user.
Ensure that the communication is forwarde simulation service. A P-Asserted-Identity and History header fin entity.	eld received in the div	verting AS is passed uni	modified to the originating
Ensure that if the served (diverting) user se			
number and the diverted-to user indicates the			
history in the History-Info header in any resp communication is answered.	oonse, then the AS sh	all not send the diverted-	to user's identity when the
The Cause Value in the latest History Index	: cause-param =CAU	SE VAL defined in Table	e 8.
Subscription options:	,		
Originating user receives notification that his			
Served user allows the presentation of diver			fication = yes
TIR subscription: Terminating user has TIF		efault restricted	
Originating user has the override category = SIP header values:	= no		
200 OK 1: P-Asserted-Identity with the L History-Info: <sip:sip#2>;in</sip:sip#2>	dex=1,	user ivacy=history>;index=1.	1
200 OK 2: P-Asserted-Identity with the L History-Info: <sip:sip#2>;in <sip:sip#3; cause="C</td"><td>dex=1</td><td></td><td></td></sip:sip#3;></sip:sip#2>	dex=1		
Comments:			
SIP#1	SUT	SIP#2 (served user)	SIP#3
INVITE 1 →			
Communication diversion is performed (CFU, CFB, CFNR, CI	D, CFNL, CFNRC)	→ INVITE
			 ✓ 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 values the "cause" parameter in the History-Info header, used in CDIV_N07_001

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

6.3.3 Originating identification restriction (OIR)

In	TSS teraction/OIR	TP CDIV_N08_001	Reference [ITU-T Q.3620 v.1] 4.6.5	Selection expression PICS 3/1				
	Test purpose Diversion Notification applies. Originating users address is not presented to the served user							
diversion occ communication initial INVITE Subscription Served user to the divertir	curred, the served user rec on diversion and the URI of request the value set to 'id' n options: receives notification that a ong user) = yes	eives a NOTIFY r f the originating us	request containing the info ser is not present if a Priva	on Notification service and call ormation regarding the current acy header was present in the on of communication diversion				
SIP header v INVITE: Priva								
SUBSCRIBE	<pre><diverting-u <diversion-="" <diversion-<="" <diverted-to="" pre=""></diverting-u></pre>	> ction-criteria> g-user-selection-crite p-user-selection-crite -time-selection-crit -reason-selection-rit trigger-criteria>	eria>SIP#2 iteria>SIP#3					
NOTIFY:	<diversion-reaso <diversion-rule-i< td=""><td>+xml nfo>SIP#2 r-info>SIP#3 info> (time range on-info>DIV_VAL</td><td></td><td></td></diversion-rule-i<></diversion-reaso 	+xml nfo>SIP#2 r-info>SIP#3 info> (time range on-info>DIV_VAL						
Comments: SIP#1		SUT	SIP#2 (served user)	SIP#3				
	200 Oł	SUBSCRIBE	SUBSCRIBE200 OK SUBSCRIBE	0.1.20				
INVITE	→	00 OK NOTIFY						
		NOTIFY	NOTIFY					

TSS Interaction/OIR	TP CDIV_N08_002	Reference [ITU-T Q.3620 v.1] 4.6.5	Selection expression				
Test purpose Diversion Notification applies. Originating users address is not presented to the diverted to user							
Ensure that when originating user has originating user is not present to the dive INVITE request received from the origina	erted-to user if a Priva						
Subscription options: Served user allows the presentation of h	is/her URI to originat	ing user in diversion not	fication=ves				
SIP header values: INVITE 1: Privacy: id							
INVITE 2: Privacy: id Comments: SIP#1 INVITE 1 →	SUT	SIP#2 (served user)	SIP#3				
CASE A			→ INVITE 2				
CASE B	←	INVITE 486 Busy Here ACK	➔ INVITE 2				
CASE C	+ + +	INVITE 180 Ringing CANCEL 200 OK CANCEL 487 Request Terminate ACK					
			→ INVITE 2				

Table 9 – Void

6.3.4 Anonymous communication rejection and communication barring (ACR/CB)

TSS		ТР	Reference	Selection expression		
Interaction/ACR-CE	5	CDIV_N09_001	[ITU-T Q.3620 v.1] 4.6.9	PICS 4/6		
Test purpose						
CDIV the diverted-to user has s communication".	ubscribed to a	call barring service	"inhibition of incoming f	orwarded		
Ensure that the communication barring service "inhibition of inc header indication this call is a for The Cause Value in the latest H	oming forwarde prwarded.	d communication" a	and the received INVITE	E contains a History-Info		
SIP header values:						
INVITE: History-Info: <s< td=""><th>•</th><th>•</th><th></th><th></th></s<>	•	•				
<s< td=""><td colspan="6"><sip:sip#2; cause="CAUSE_VAL">;index=1.1</sip:sip#2;></td></s<>	<sip:sip#2; cause="CAUSE_VAL">;index=1.1</sip:sip#2;>					
Comments:						
SIP#1		Terminating AS	SIP#2			
INVITE 1	→					
603 (Decline)	←					
ACK	→					

Table 10 – Cause values the "cause" parameter in the History-Info header, used in CDIV_N09_001

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

TSS Interaction/ACR	СВ	TP CDIV_N09_		eference Q.3620 v.1] 4.6.9	Selection expression PICS 4/5
Test purpose			-		-
The served user has subscr	ibed to a call	barring service O	utgoing Commu	inication Barrin	g (OCB).
service Outgoing Communic The Cause Value in the late SIP header values:					e 11.
Comments:					
SIP#1		SUT	SIP#2 (s	erved user)	SIP#3
INVITE 1	→		· ·		
603 (Decline)	←				
ACK	→				

Table 11 – Cause values the "cause" parameter in the History-Info header

Cause Value in History	Cause value	Call diversion	Redirecting Reason
,		information	Subscriber not Logged-in
"cause" EQUAL	302		Unconditional
CAUSE_VAL	486		User busy
	408		No reply
	480		Deflection immediate
	503		Mobile subscriber not reachable
	487		Deflection during alerting

6.3.5 Explicit communication transfer (ECT)

Int	TSS eraction/ECT	TP CDIV_N10_001	Reference [ITU-T Q.3620 v.1] 4.6.10.1.2	Selection expression PICS 4/7
Test purpose Forwarded Com	nmunication, handling of	Refer-To header.		
	contains a Refer-To head			the REFER request sent to FU, CFB, CFNR, CD CFNL
SIP header val	ues:			
REFER 1: Refe				
	r-To: <cdiv ide<="" session="" td=""><td>entifier></td><td></td><td></td></cdiv>	entifier>		
SIP#2: CDIV se	ng user, Transferee rved user, (Transferee) verted-to user, Transfere target	ee		
Comments:	largot			
SIP#1	SUT	SIP#2 (served us	ser) SIP#3	SIP#4
	F	orwarded communica		
REFER 1	→	→ REFER 2		
202 Accepted	÷	← 202 Accepted	 REFER 2 202 Accepted 	Ł
	·			
	INVITE			→ INVITE← 180 Ringing
	180 Ringing	→€ 200 OK	➔ 180 Ringing	← 200 OK
BYE	200 OK	→	 → 200 OK ← ACK 	
200 OK BYE	÷			 ACK Ack Ack
			← BYE	 → BYE ← 200 OK BYE
			→ 200 OK BYE	

	TSS eraction/TIP	TP CDIV_N10_002	Reference [ITU-T Q.3620 v.1] 4.6.10.1.3	Selection expression PICS 4/7
Test purpose Forwarded Com	nmunication, handling of R	equest-Line of the IN	VITE.	
Identifier) of the from the Refer- The INVITE req SIP header val INVITE 1: Requ INVITE 2: Requ H Configuration: SIP#1: originatin SIP#2: CDIV se SIP#3: CDIV div	est URI: <cdiv ic<br="" session="">est URI:<sip#4> istory-Info: <sip:sip#2>; <sip:sip#3;ca ng user, transferee rved user, (Transferee) verted-to user, Transferee</sip:sip#3;ca </sip:sip#2></sip#4></cdiv>	rom the Transferee w REFER request and s ory-Info header. The lentifier>	ith the value of the Transf ends the INVITE request t CFU, CFB, CFNR, CD CF	er target previously stored oward the Transfer target.
SIP#4: Transfer Comments: SIP#1	SUT	SIP#2 (served us warded communicat		SIP#4
REFER		REFER	→ REFER	
202 Accepted	INVITE 2		202 AcceptedINVITE 1	→ INVITE 2
BYE	180 Ringing 🚽	- 200 OK	 → 180 Ringing → 200 OK 	← 180 Ringing← 200 OK
200 OK BYE	E		← ACK	→ ACK
			 ➡ 200 OK BYE 	 → BYE ← 200 OK BYE

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