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SERIES Q: SWITCHING AND SIGNALLING

Testing specifications – Testing specifications for SIP-IMS

Communication diversion using IP multimedia core network subsystem; Conformance testing – Part 1: Network side and user side, Protocol implementation conformance statement

Recommendation ITU-T Q.4004.1

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Recommendation ITU-T Q.4004.1

Communication diversion using IP multimedia core network subsystem; Conformance testing – Part 1: Network side and user side; Protocol implementation conformance statement

Summary

Recommendation ITU-T 4004.1 v.1 (2016) is part 1 of a multi-part deliverable covering communication diversion (CDIV). The Recommendation specifies the protocol implementation conformance statement (PICS) for communications diversion (CDIV) services described in Recommendation ITU-T Q.3620 v.1.

The communications diversion (CDIV) services enables diverting user, to divert the communications addressed to them to another destination.

The version number, v.1, indicates that this is version one of Recommendation ITU-T Q.4004.1 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.4004.1 v.1	2016-02-13	11	11.1002/1000/12736

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

* 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, <http://handle.itu.int/11.1002/1000/11830-en>.

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Recommendation ITU-T Q.4004.1

Communication diversion using IP multimedia core network subsystem; Conformance testing – Part 1: Network side and user side; Protocol implementation conformance statement

1 Scope

The present Recommendation specifies the protocol implementation conformance statement (PICS) for communications diversion (CDIV) services, [ITU-T Q.3620 v1].

The communications diversion (CDIV) services enables diverting user, to divert the communications addressed to them to another destination.

The present Recommendation is part 1 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.3617 v.1] Recommendation ITU-T Q.3617 v.1 (2015), *Terminating identification presentation and terminating identification restriction using IP multimedia core network subsystem. Protocol specification.*
- [ITU-T Q.3618 v.1] Recommendation ITU-T Q.3618 v.1 (2015), *Originating identification presentation and originating identification restriction using IP multimedia core network subsystem—Protocol specification.*
- [ITU-T Q.3620 v.1] Recommendation ITU-T Q.3620 v.1 (2016), *Communication diversion (CDIV) using IP multimedia core network subsystem— Protocol specification.*
- [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.*
- [ITU-T X.296] Recommendation ITU-T X.296 (1995), *OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – Implementation conformance statements.*
- [ETSI TS 124 611] ETSI TS 124 611 (2012): *Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Anonymous Communication Rejection (ACR) and Communication Barring (CB) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.611 version 10.2.0 Release 10).*

[ETSI TS 124 629] ETSI TS 124 629 (2013): *Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Explicit Communication Transfer (ECT) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.629 version 10.2.0 Release 10)*.

3 Definitions

None.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

ATS	Abstract Test Suite
CDIV	Communication Diversion
CDIVN	Communication Diversion Notification
CFB	Communication Forwarding Busy
CFNL	Communication Forwarding on No Logged-in
CFNR	Communication Forwarding No Reply
CFU	Communication Forwarding Unconditional
ICB	Incoming Communications Barring
ICS	Implementation Conformance Statement
IP	Internet Protocol
IUT	Implementation Under Test
OCB	Outgoing Communication Barring
OIP	Originating Identification Presentation
OIR	Originating Identification Restriction
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation extra Information for Testing
SIP	Session Initiation Protocol
SUT	System Under Test
TIP	Terminating Identification Presentation
TIR	Terminating Identification Restriction
TP	Test Purpose
UE	User Equipment
URI	Universal Resource Identifier

5 Protocol implementation conformance statement proforma

5.1 Instructions for completing the PICS proforma

5.1.1 More detailed instructions are given at the beginning of the different clauses of the PICS proforma

The supplier of the implementation shall complete the protocol implementation conformance statement (PICS) proforma in each of the spaces provided. If necessary, the supplier may provide additional comments separately in clause 5.

The purpose of this PICS proforma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in specifications [ITU-T Q.3620 v.1], [ETSI TS 124 611] and [ETSI TS 124 629] may provide information about the implementation in a standardized manner.

The PICS proforma is subdivided into clauses for the following categories of information:

- instructions for completing the PICS proforma;
- identification of the implementation;
- product supplier;
- client;
- PICS contact person;
- PICS proforma tables (containing the global statement of conformance).

5.1.2 Abbreviations and conventions

The PICS proforma is composed of information in tabular form in accordance with the guidelines presented in [ITU-T X.296].

Item column

- It contains a number that identifies the item in the table.

Item description column

- It describes each respective item (e.g. parameters, timers, etc.).

Reference column

- It gives reference to the communication diversion (CDIV) specification [ITU-T Q.3620 v.1], except where explicitly stated otherwise.

Status column

- The following notations, defined in [ITU-T X.296], are used for the status column:

m	mandatory – the capability is required to be supported.
n/a	not applicable – in the given context, it is impossible to use the capability. No answer is required in the support column.
o	optional – the capability may be supported or not.
o.i	qualified optional – for mutually exclusive or selectable options from a set. "i" is an integer which identifies a unique group of related optional items and the logic of their selection which is defined immediately following the table.
ci	conditional – the requirement on the capability ("m", "o" or "n/a") depends on the support of other optional or conditional items. "i" is an integer identifying a unique conditional status expression that is defined immediately following the table. For nested conditional expressions, the syntax "IF ... THEN (IF ... THEN ... ELSE...) ELSE ..." shall be used to avoid ambiguities. If an ELSE clause is omitted, "ELSE n/a" shall be implied.

Support column

- The support column shall be filled in by the supplier of the implementation. The following common notations, defined in [ITU-T X.296], are used for the support column:

Y or y supported by the implementation.

N or n not supported by the implementation.

N/A or n/a no answer required (allowed only if the status is N/A, directly or after evaluation of a conditional status).

5.2 Identification of the implementation

5.2.0 General introduction

Identification of the implementation under test (IUT) and the system in which it resides – the system under test (SUT) should be filled in so as to provide as much detail as possible regarding version numbers and configuration options.

The product supplier information and client information should both be filled in if they are different.

A person who can answer queries regarding information supplied in the ICS should be named as the contact person.

5.2.1 Date of the statement

Date of the statement:	
------------------------	--

5.2.2 Implementation under test (IUT) identification

IUT name:	
IUT version:	

5.2.3 System under test (SUT) identification

SUT name:	
Hardware configuration:	
Operating system:	

5.2.4 Product supplier

Name:	
Address:	
Telephone number:	

Facsimile number:	
Additional information:	

5.2.5 Client

Name:	
Address:	
Telephone number:	
Facsimile number:	
Additional information:	

5.2.6 PICS contact person

Name:	
Telephone number:	
Facsimile number:	
Additional information:	

5.3 PICS proforma tables

5.3.1 Global statement of conformance

	(Yes/No)
Are all mandatory capabilities implemented?	

5.3.2 Service capabilities

Table 1 – Communication diversion services

Item	Item description	Reference	Status	Support
1	Communication Forwarding Unconditional (CFU) is supported?	Clause 4.2.1 of [ITU-T Q.3620 v.1]	o	
2	Communication Forwarding on Busy user (CFB) is supported?	Clause 4.2.1 of [ITU-T Q.3620 v.1]	o	
3	Communication Forwarding on No Reply (CFNR) is supported?	Clause 4.2.1 of [ITU-T Q.3620 v.1]	o	

Table 1 – Communication diversion services

Item	Item description	Reference	Status	Support
4	Communication Deflection immediate response (CDi) is supported?	Clause 4.2.1 of [ITU-T Q.3620 v.1]	o	
5	Communication Deflection during alerting (CDa) is supported?	Clause 4.2.1 of [ITU-T Q.3620 v.1]	o	
6	Communication Forwarding on Not Logged-in (CFNL) is supported?	Clause 4.2.1 of [ITU-T Q.3620 v.1]	o	
7	Communication Forwarding on Subscriber Not Reachable (CFNRc)	Clause 4.2.1 of [ITU-T Q.3620 v.1]	o	

Table 2 – Network capabilities

Item	Item description	Reference	Status	Support
1	Is the served user notified by sending a MESSAGE request after a period of time according to the timer value T_{CDIV_IND} as defined in clause 4.8.3 that can be provided by the user?	Clause 4.5.2.6.5 of [ITU-T Q.3620 v.1]	o	
2	The AS initiates an announcement to be included towards the originating user in order to inform about the diversion?	Clause 4.5.2.6.4 of [ITU-T Q.3620 v.1]	o	
3	The Communication Diversion Notification (CDIVN) procedure of the served user is supported?	Clause 4.5.2.6.5.1 of [ITU-T Q.3620 v.1]	o	
4	Is a diverting user informed periodically with a MESSAGE request the information where the call is diverted to?	Clause 4.5.2.6.5 of [ITU-T Q.3620 v.1]	o	
5	[1/3] Is the served user in case of CFNR furthermore alerted if the alerting indication is received from the diverted-to user (ringing continues)?	Clause 4.5.2.6.3 of [ITU-T Q.3620 v.1]	o	
6	Served user communication retention on invocation of diversion (CFNR). Retain call to the served user until alerting begins at the diverted-to user?	Table 4.3.1.2 of [ITU-T Q.3620 v.1]	o	
7	Served user communication retention on invocation of diversion (CFNR). Clear call to the served user on invocation of call diversion	Table 4.3.1.2 of [ITU-T Q.3620 v.1]	o	
8	Served user communication retention when forwarding is rejected at forwarded-to user. Continue to alert the forwarding user	Table 4.3.1.2 of [ITU-T Q.3620 v.1]	o	
9	Served user communication retention when forwarding is rejected at forwarded-to user. No action at the forwarding user	Table 4.3.1.2 of [ITU-T Q.3620 v.1]	o	
10	Served user communication retention on invocation of diversion (CFNR). Clear call to the served user when the diverted-to-user has accepted the communication request	Clause 4.5.2.6.3 of [ITU-T Q.3620 v.1]	o	

Table 3 – Subscription options

Item	Item description	Reference	Status	Support
1	<i>Served user</i> receives notification that a communication has been forwarded (indication of communication diversion to the diverting user)?	Table 4.3.1.1 of [ITU-T Q.3620 v.1]	o	
2	<i>Served user</i> receives reminder notification on outgoing communication that CDIV is currently activated?	Table 4.3.1.1 of [ITU-T Q.3620 v.1]	o	
3	<i>Originating user</i> receives notification that his communication has been diverted (forwarded or deflected)?	Table 4.3.1.1 of [ITU-T Q.3620 v.1]	o	
4	<i>Served user</i> allows the presentation of diverted to URI to <i>originating user</i> in diversion notification?	Table 4.3.1.1 of [ITU-T Q.3620 v.1]	o	
5	<i>Served user</i> allows the presentation of his/her URI to <i>originating user</i> in diversion notification?	Table 4.3.1.1 of [ITU-T Q.3620 v.1]	o	
6	<i>Served user</i> allows the presentation of his/her URI to <i>diverted-to user</i> ?	Table 4.3.1.1 of [ITU-T Q.3620 v.1]	o	

Table 4 – Simulation services

Item	Item description	Reference	Status	Support
1	Does the served user subscribes to the OIR service in permanent mode?	Clause 4.5.2.4 of [ITU-T Q.3618 v.1]	o	
2	Does the terminating user subscribe to the override category for the OIR service?	Clause 4.5.2.9 of [ITU-T Q.3618 v.1]	o	
3	Does the served user subscribe to the TIR service?	Clause 4.5.2.9 of [ITU-T Q.3617 v.1]	o	
4	Does the originating user subscribe to the override category for the TIR service?	Clause 4.5.2.4 of [ITU-T Q.3617 v.1]	o	
5	The Outgoing Communications Barring (OCB) service is supported?	Clause 4.5.2.4.1 of [ETSI TS 124 611]	o	
6	The Incoming Communications Barring (ICB) service is supported?	Clause 4.5.2.6.1 of [ETSI TS 124 611]	o	
7	The Explicit Communication Transfer simulation service is supported?	Clause 4.2.1 of [ETSI TS 124 629]	o	

Table 5 – User Equipment capabilities

Item	Item description	Reference	Status	Support
1	Is the UE able to receive a 181 Call is being Forwarded response, and able to display the information of the History-Info header if included?	Clause 4.5.2.1 of [ITU-T Q.3620 v.1]	o	
2	Is the UE able to receive a 180 Ringing response and able to display the information of the History-Info header if included?	Clause 4.5.2.7 of [ITU-T Q.3620 v.1]	o	
3	Is the UE able to receive a 200 OK INVITE final response and able to display the information of the History-Info header if included?	Clause 4.5.2.7 of [ITU-T Q.3620 v.1]	o	
4	Is the User Equipment able to receive a History-Info header in an INVITE request and able to display the information of the History-Info header?	Clauses 4.5.2.15, 4.5.2.6.2 of [ITU-T Q.3620 v.1]	o	
5	Is the User Equipment able to send the previously stored History-Info header in a 180 Ringing provisional response?	Clause 4.5.2.7 of [ITU-T Q.3620 v.1]	o	
6	Is the User Equipment able to send the previously stored History-Info header in a 200 OK INVITE final response?	Clause 4.5.2.7 of [ITU-T Q.3620 v.1]	o	
7	Is the User Equipment able to receive communication diversion notification information for the served user in a MESSAGE request and able to display the notification information?	Clause 4.5.2.6.4 of [ITU-T Q.3620 v.1]	o	
8	Is the User Equipment able to subscribe the receive communication diversion notification information for the served user in a MESSAGE request and able to display the notification information?	Clause 4.5.2.6.5 of [ITU-T Q.3620 v.1]	o	

Table 6 – Values

Item	Item description	Reference	Status	Support	Values	
					allowed	supported
1	CFNR timer	Table 4.3.1.2 of [ITU-T Q.3620 v.1]	c2		service provider option	[sec]
2	CDIVN Buffer Timer; Timer Value for AS to store CDIVN, if it cannot be delivered as per CDIVN Configuration	Table 4.3.1.2 of [ITU-T Q.3620 v.1]	c1		service provider option	[sec]
3	Maximum number of diverted connections	Table 4.3.1.2 of [ITU-T Q.3620 v.1]	m		service provider option	[number]
NOTE: c1: IF 2/10 THEN m ELSE n/a. c2: IF 1/3 THEN m ELSE n/a.						

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