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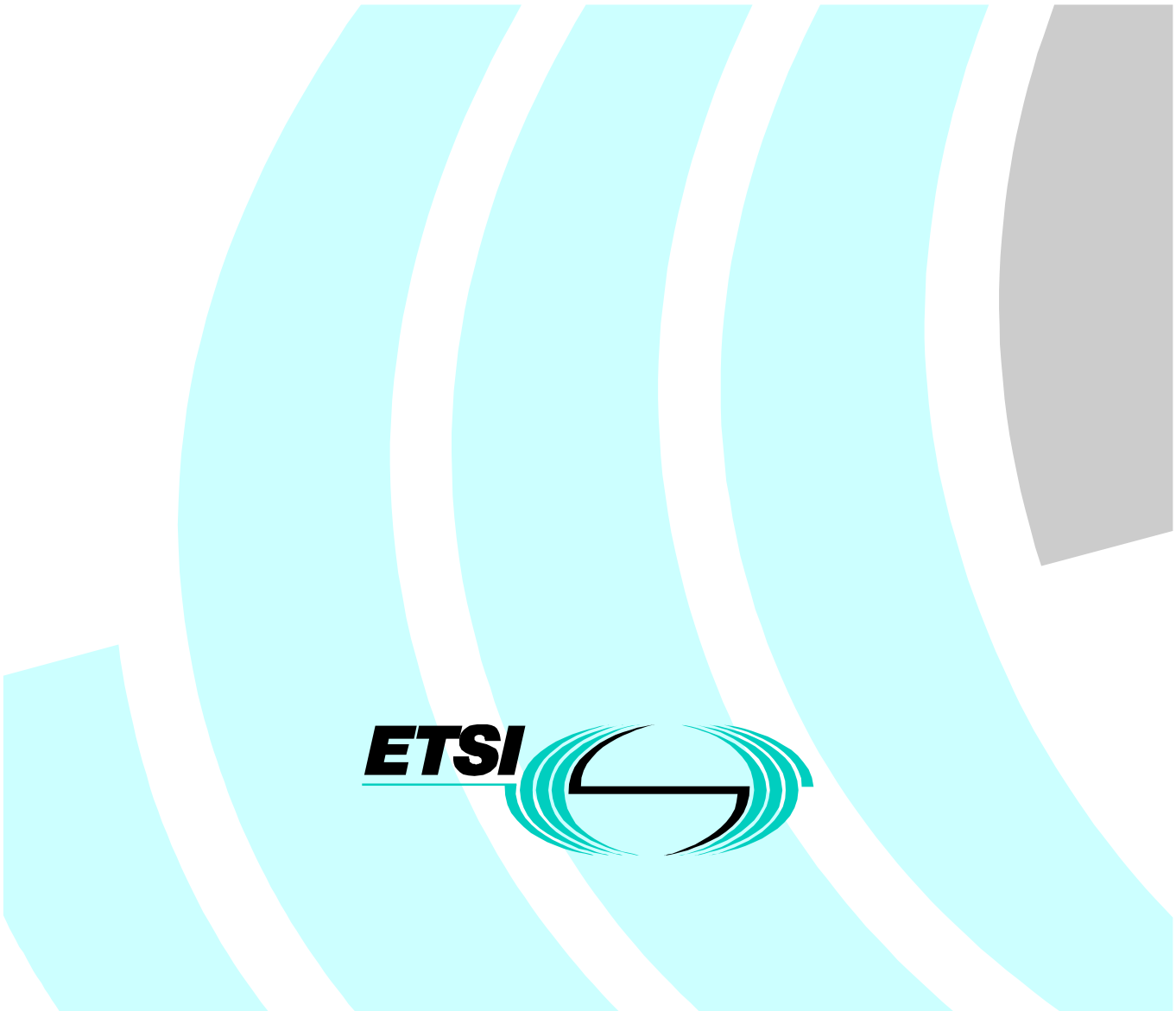
Technical Specification

Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON); Protocol Implementation Conformance Statement (PICS) proforma for the support of supplementary services in H.323; Support of H.450.3: Call diversion supplementary services for H.323



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Contents

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Foreword

This Technical Specification (TS) has been produced by ETSI Project Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON).

Introduction

To evaluate conformance of a particular implementation, it is necessary to have a statement of which capabilities and options have been implemented for a telecommunication specification. Such a statement is called an Implementation Conformance Statement (ICS).

1 Scope

The present document provides the Protocol Implementation Conformance Statement (PICS) proforma for the Call diversion supplementary service in H.323 [2] as specified in ITU-T Recommendation H.450.3 [1] in compliance with the relevant requirements and in accordance with the relevant guidance given in ISO/IEC 9646-7 [5].

The supplier of a protocol implementation which is claimed to conform to ITU-T Recommendation H.450.3 [1] is required to complete a copy of the PICS proforma provided in annex A of the present document and is required to provide the information necessary to identify both the supplier and the implementation.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[1] ITU-T Recommendation H.450.3: "Call diversion supplementary service for H.323".

[2] ITU-T Recommendation H.323: "Packet based multimedia communications systems".

[3] ITU-T Recommendation H.225.0: "Call signalling protocols and media stream packetization for packet-based multimedia communication systems".

[4] ISO/IEC 9646-1 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".

[5] ISO/IEC 9646-7 (1995): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".

[6] ITU-T "Implementers Guide for the ITU-T H.323, H.225.0, H.245, H.246, H.235 and H.450 Series Recommendations - Packet-Based Multimedia Communication Systems", maintained by ITU-T SG16.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

- terms defined in ITU-T Recommendation H.323 [2];
- terms defined in ITU-T Recommendation H.450.3 [1];
- terms defined in ISO/IEC 9646-1 [4] and in ISO/IEC 9646-7 [5].

In particular, the following terms defined in ISO/IEC 9646-1 [4] apply:

Implementation Conformance Statement (ICS): statement made by the supplier of an implementation or system claimed to conform to a given specification, stating which capabilities have been implemented. The PICS can take several forms: protocol PICS, profile PICS, profile specific PICS, information object PICS, etc

ICS proforma: document, in the form of a questionnaire, which when completed for an implementation or system becomes an PICS

Protocol ICS (PICS): ICS for an implementation or system claimed to conform to a given protocol specification

3.2 Abbreviations

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

APDU	Application Protocol Data Unit
CD	Call Deflection
CF	Call Forwarding
CFB	Call Forwarding Busy
CFNR	Call Forward No Reply
CFU	Call Forward Unconditional
GK	Gatekeeper
ICS	Implementation Conformance Statement
IUT	Implementation Under Test
MCU	Multipoint Control Unit
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
SCS	System Conformance Statement
SUT	System Under Test

4 Conformance to this PICS proforma specification

If it claims to conform to the present document, the actual PICS proforma to be filled in by a supplier shall be technically equivalent to the text of the PICS proforma given in annex A, and shall preserve the numbering/naming and ordering of the proforma items.

A PICS which conforms to the present document shall be a conforming PICS proforma completed in accordance with the guidance for completion given in clause A.1.

Annex A (normative): PICS proforma for ITU-T Recommendation H.450.3

A.1 Guidance for completing the PICS proforma

A.1.1 Purposes and structure

The purpose of this PICS proforma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in ITU-T Recommendation H.450.3 [1] may provide information about the implementation in a standardized manner.

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

- guidance for completing the PICS proforma;
- identification of the implementation;
- identification of the protocol;
- global statement of conformance;
- roles;
- major capabilities;
- subsidiary capabilities;
- operations;
- arguments, results and errors;
- timers.

A.1.2 Abbreviations and conventions

The PICS proforma contained in this annex is comprised of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7 [5].

Item column

The item column contains a number which identifies the item in the table.

Item description column

The item description column describes in free text each respective item (for example parameters, timers, etc.). It implicitly means "is < item description > supported by the implementation?".

Status column

The following notations, defined in ISO/IEC 9646-7 [5], are used for the status column:

m	mandatory - the capability is required to be supported.
o	optional - the capability may be supported or not.
n/a	not applicable - in the given context, it is impossible to use the capability.
x	prohibited (excluded) - there is a requirement not to use this capability in the given context.
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", "x" or "n/a") depends on the support of other optional or conditional items. "i" is an integer identifying a unique conditional status expression which is defined immediately following the table.
i	irrelevant (out-of-scope) - capability outside the scope of the reference specification. No answer is requested from the supplier.

Reference column

The reference column makes reference to ITU-T Recommendation H.450.3 [1], except where explicitly stated otherwise.

Support column

The support column shall be filled in by the supplier of the implementation. The following common notations, defined in ISO/IEC 9646-7 [5], are used for the support column:

Y or y	supported by the implementation;
N or n	not supported by the implementation;
N/A, n/a or -	no answer required (allowed only if the status is n/a, directly or after evaluation of a conditional status).

If this PICS proforma is completed in order to describe a multiple-profile support in a system, it is necessary to be able to answer that a capability is supported for one profile and not supported for another. In that case, the supplier shall enter the unique reference to a conditional expression, preceded by "?" (for example ?3). This expression shall be given in the space for comments provided at the bottom of the table. It uses predicates defined in the SCS, each of which refers to a single profile and which takes the value TRUE if and only if that profile is to be used.

EXAMPLE: ?3: IF prof1 THEN Y ELSE N

It is also possible to provide a comment to an answer in the space provided at the bottom of the table.

NOTE: As stated in ISO/IEC 9646-7 [5], support for a received PDU requires the ability to parse all valid parameters of that PDU. Supporting a PDU while having no ability to parse a valid parameter is non-conformant. Support for a parameter on a PDU means that the semantics of that parameter are supported.

Values allowed column

The values allowed column contains the type, the list, the range, or the length of values allowed. The following notations are used:

- range of values: < min value > .. < max value >;
  - example: 5 .. 20.
- List of values: < value1 >, < value2 >, ..., < valueN >;
  - example: 2, 4, 6, 8, 9;
  - example: '1101'B, '1011'B, '1111'B;
  - example: '0A'H, '34'H, '2F'H.
- List of named values: < name1 >(< val1 >), < name2 >(< val2 >), ..., < nameN >(< valN >;
  - example: reject(1), accept(2).
- Length: size (< min size > .. < max size >);
  - example: size (1 .. 8).

Values supported column

The values supported column shall be filled in by the supplier of the implementation. In this column, the values or the ranges of values supported by the implementation shall be indicated.

References to items

For each possible item answer (answer in the support column) within the PICS proforma a unique reference exists, used, for example, in the conditional expressions. It is defined as the table identifier, followed by a solidus character "/", followed by the item number in the table. If there is more than one support column in a table, the columns are discriminated by letters (a, b, etc.), respectively.

EXAMPLE 1: A.5/4 is the reference to the answer of item 4 in table 5 of annex A.

EXAMPLE 2: A.6/3b is the reference to the second answer (i.e. in the second support column) of item 3 in table 6 of annex A.

Prerequisite line

A prerequisite line takes the form: Prerequisite: < predicate >.

A prerequisite line after a clause or table title indicates that the whole clause or the whole table is not required to be completed if the predicate is FALSE.

A.1.3 Instructions for completing the PICS proforma

The supplier of the implementation shall complete the PICS proforma in each of the spaces provided. In particular, an explicit answer shall be entered, in each of the support or supported column boxes provided, using the notation described in subclause A.1.2.

If necessary, the supplier may provide additional comments in space at the bottom of the tables, or separately on sheets of paper.

More detailed instructions are given at the beginning of the different subclauses of the PICS proforma.

A.2 Identification of the implementation

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 PICS should be named as the contact person.

A.2.1 Date of the statement

.....

A.2.2 Implementation Under Test (IUT) identification

IUT name:

.....

.....

IUT version:

.....

A.2.3 System Under Test (SUT) identification

SUT name:

.....

.....

Hardware configuration:

.....

.....

.....

Operating system:

.....

A.2.4 Product supplier

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

A.2.5 Client (if different from product supplier)

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

A.2.6 PICS contact person

(A person to contact if there are any queries concerning the content of the PICS)

Name:

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

A.3 PICS/System Conformance Statement (SCS)

Provide the relationship of the PICS with the SCS for the system:

A.4 Identification of the protocol

The PICS proforma applies to the following standard:

ITU-T Recommendation H.450.3 [1]: "Call diversion supplementary service for H.323 [2]".

A.5 Global statement of conformance

Are all mandatory capabilities implemented?

(Yes/No)

NOTE: Answering "No" to this question indicates non-conformance to the protocol specification. Non-supported mandatory capabilities are to be identified in the PICS, with an explanation of why the implementation is non-conforming, on pages attached to the PICS proforma.

A.6 Roles

Table A.1: Roles

Item	Role	Reference	Status	Support Y | N | n/a
R 1	client/terminal		o.1	
R 2	gatekeeper		o.1	
R 3	gateway		o.1	
R 4	MCU		o.1	
R 5.1	originating endpoint		o.2	
R 5.2	served endpoint		o.2	
R 5.3	rerouting endpoint		o.2	
R 5.4	diverted-to endpoint		o.2	
R 5.5	activating endpoint		o.2	
R 5.6	deactivating endpoint		o.2	
R 5.7	interrogating endpoint		o.2	
NOTE 1: o.1: Support of at least one of these options is required. NOTE 2: o.2: Support of at least one of these options is required.				
Comments:				

A.7 Capabilities

A.7.1 Major capabilities

Table A.2: Major capabilities

Item	Capability	Reference	Status	Support Y | N | n/a
MC 1.1	Call forwarding unconditional (CFU)	5	o.1	
MC 1.2	Call forwarding busy (CFB)	6	o.1	
MC 1.3	Call forwarding no reply (CFNR)	7	o.1	
MC 1.4	Call deflection (CD)	8	o.1	
MC 2	originating endpoint actions	9.1	R 5.1:m	
MC 3	served endpoint actions	9.3	R 5.2:m	
MC 4	re-routing endpoint actions	9.4	R 5.3:m	
MC 5	diverted-to endpoint actions	9.5	R 5.4:m	
MC 6	activating endpoint actions	9.6	R 5.5:m	
MC 7	deactivating endpoint actions	9.7	R 5.6:m	
MC 8	interrogating endpoint actions	9.8	R 5.7:m	
MC 9	GK actions	9.2	R 2:m	
NOTE: o.1: Support of at least one of these options is required.				
Comments:				

A.7.2 Subsidiary capabilities

Table A.3: Subsidiary capabilities – procedures

Item	Procedure	Reference	Status	Support Y | N | n/a
SC 1.1	Local activation/deactivation		i	
SC 1.2	Remote activation/deactivation	9.3.1, 9.3.2 9.6 9.7	R 5.2:o R 5.5:m R 5.6:m	
SC 1.3	Local interrogation		i	
SC 1.4	Remote interrogation	9.3.3 9.8	R 5.2:o R 5.7:m	
SC 2.1	Served user notification	9.3.5	o	
SC 2.2	Diverted-to user notification	9.5	o	
SC 2.3	Calling user notification	9.1	o	
SC 3	Served endpoint verifies the diverted-to endpoint's number	9.3.4	o	
SC 4	ITU-T Recommendation H.225.0 [3] Call Identifier value in the forwarded call is preserved from the original call	ITU-T Recommendation H.323 [2] Implementers Guide [6]	MC 4: m	
SC 5.1	GK is transparent for all ITU-T Recommendation H.450.3 [1] related APDUs	9.2	R 2: o	
SC 5.2	GK can provide partial re-routing, i.e. it can act on a received call Rerouting invoke APDU	9.2.1, figure 10	R 2: o	
SC 5.3	GK can become destination for an activate Diversion invoke APDU	9.2.2	R 2: o	
SC 5.4	Endpoint can activate/deactivate call diversion in a GK	9.2.2	o	
SC 5.5	GK may act as a served endpoint on behalf of the forwarding terminal for CFU	9.2.3.1, figure 12	R 2: o	
SC 5.6	GK may act as a served endpoint on behalf of the forwarding terminal for CFB	9.2.3.2, Fig. 14	R 2: o	
SC 5.7	GK may act as a served endpoint on behalf of the forwarding terminal for CFNR	9.2.3.3, figure 16	R 2: o	
SC 5.8	GK acting as served endpoint for call diversion also acts as re-routing endpoint	9.2.3, figure 12, 14, 16	R 2: o	
SC 6.1	CF diversion counter	10.9.3	m	
SC 6.2	Support of multiple call diversion; indicate max. number of diversions allowed	10.9.3	o	Max:.....
SC 6.3	If diversion counter exceeds its limit due to a further call diversion, the call is cleared	10.9.3	i	
SC 6.4	If diversion counter exceeds its limit due to a further call diversion, the call diversion is ignored and the served user is called	10.9.3	i	
Comments:				

A.7.3 Protocol data units

Table A.4: Call Diversion operations

Item	PDU	Sending			Receiving		
		Reference	Status	Support Y | N | n/a	Reference	Status	Support Y | N | n/a
O 1.1	activateDiversionQ invoke APDU	11	R.5.5:m		11	R.5.2:o	
O 1.2	activateDiversionQ return result and return error APDU	11	R.5.2:o		11	R.5.5:m	
O 2.1	deactivateDiversionQ invoke APDU	11	R.5.6:m		11	R.5.2:o	
O 2.2	deactivateDiversionQ return result and return error APDU	11	R.5.2:o		11	R.5.6:m	
O 3.1	interrogateDiversionQ invoke APDU	11	R.5.7:m		11	R.5.2:o	
O 3.2	interrogateDiversionQ return result and return error APDU	11	R.5.2:o		11	R.5.7:m	
O 4.1	checkRestriction invoke APDU	11	R.5.2:o		11	R 5.4:o	
O 4.2	checkRestriction return result and return error APDU	11	R.5.4:o		11	R.5.2:o	
O 5.1	callRerouting invoke APDU	11	R 5.2:m		11	R 5.3:m	
O 5.2	callRerouting return result and return error APDU	11	R 5.3:m		11	R 5.2:m	
O 6	divertingLegInformation1 and divertingLegInformation3 APDUs	11	c1		11	R 5.1:o	
O 7	divertingLegInformation2 APDU in SETUP	11	R 5.3:m		11	R 5.4:m	
O 8	divertingLegInformation4 APDU	11	c2		11	R 5.2:o	
O 9	cfnrDivertedLegFailed APDU	11	c3		11	R 5.2:o	
NOTE 1: c1: if R 5.3 and not R 5.1 then m else n/a. NOTE 2: c2: if SC 2.1 and SC 5.5 then m else n/a. NOTE 3: c3: if R 5.3 and MC 1.3 then m else n/a.							
Comments:							

A.7.4 Protocol data unit parameters

Table A.5: APDU coding: optional elements

Item	PDU	Sending			Receiving		
		Reference	Status	Support Y | N | n/a	Reference	Status	Support Y | N | n/a
P 1.1	originalReroutingReason in callRerouting APDU	11	o		11	o	
P 1.2	callingPartySubaddress in callRerouting APDU	11	o		11	o	
P 1.3	callingInfo in callRerouting APDU	11	o		11	o	
P 1.4	originalCalledNr in callRerouting APDU	11	o		11	o	
P 1.5	redirectingInfo in callRerouting APDU	11	o		11	o	
P 1.6	originalCalledInfo in callRerouting APDU	11	o		11	o	
P 2.1	nominatedInfo in divertingLegInformation1 APDU	11	o		11	o	
P 2.2	redirectingNr in divertingLegInformation1 APDU	11	o		11	o(m)	
P 2.3	redirectingInfo in divertingLegInformation1 APDU	11	o		11	o	
P 3.1	originalDiversionReason in divertingLegInformation2 APDU	11	o		11	o	
P 3.2	divertingNr in divertingLegInformation2 APDU	11	o		11	o(m)	
P 3.3	originalCalledNr in divertingLegInformation2 APDU	11	o		11	o(m)	
P 3.4	redirectingInfo in divertingLegInformation2 APDU	11	o		11	o	
P 3.5	originalCalledInfo in divertingLegInformation2 APDU	11	o		11	o	
P 4.1	redirectionNr in divertingLegInformation3 APDU	11	o		11	o(m)	
P 4.2	redirectionInfo in divertingLegInformation3 APDU	11	o		11	o	
P 5.1	callingInfo in divertingLegInformation4 APDU	11	o		11	o(m)	
P 5.2	nominatedInfo in divertingLegInformation4 APDU	11	o		11	o(m)	
P 6	Maximum length of BMP string type info supported	12	i	Length:	12	i	Length: .....
P 7.1	Use of proprietary extensions to standardized operations of type ExtensionSeq	12	o		12	o	
P 7.2	Use of proprietary extensions to standardized operations of type NonStandardParameter	12	o		12	o	
P 7.3	Pass on proprietary information if not understood, if the operation itself is passed on	12	o		12	o(m)	
Comments:							

A.7.5 Timers

Table A.6: Timers

	Timer	Reference	Status	Support Y | N | n/a	Supported value
T 1	Timer T1	10.9.2	R 5.2:m		
T 2	Timer T2	10.9.2	R.5.5:m		
T 3	Timer T3	10.9.2	R 5.6:m		
T 4	Timer T4	10.9.2	R 5.7:m		
T 5	Timer T5	10.9.2	R 5.2:o		
Comments:					

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