CCITT
THE INTERNATIONAL
TELEGRAPH AND TELEPHONE
CONSULTATIVE COMMITEE

P2 Protocol
Protocol Implementation Conformance Statement (PICS) Proforma

Draft Recommendation X.481

GENEVA, 2-13 SEPTEMBER 1991

P2 Protocol

Protocol Implementation Conformance Statement (PICS) Proforma

(GENEVA, SEPTEMBER 1991)

CONTENTS

Introduction

1 Scope

2 Normative References

3 Definitions

4 Abbreviations

5 Conventions

6 Conformance

Introduction

This Recommendation is one of a set of Recommendations for Message Handling. The entire set provides a comprehensive blueprint for a Message Handling System (MHS) realized by any number of cooperation open system.

The purpose of an MHS is to enable users to exchange messages on a store-and-forward basis. A message submitted on behalf of one user, the originator, is conveyed by the Message Transfer System (MTS) and subsequently delivered to the agents of one or more additional users, the recipients. Access Units (AUs) link the MTS to communication systems of other kinds (e.g., postal systems). A user is assisted in the preparation, storage, and display of messages by a user agent (UA). Optionnally, it is assisted in the storage of messages by a Message Store (MS). The MTS comprises a number of Message Transfer Agents (MTAs) which collectively perform the store-and-forward message transfer function.

To evaluate conformance of a particular implementation, it is necessary to have a statement of which capabilities and options have been implemented for a given OSI protocol. Such a statement is called a Protocol Implementation Conformance Statement (PICS).

This Recommendation includes the PICS proforma for the P2 protocol as defined in the Recommendations X.420.

1 Scope

This CCITT Recommendation provides the PICS proforma for the P2 protocol as specified in X.420. This PICS proforma is in compliance with the relevant requirements, and in accordance with the relevant guidance for PICS proforma, given in ISO/IEC 9642-2.

Detail of the use of this proforma is provided in the annex A of this Recommendation.

The scope of this Recommendation is the specification of the conformance statements for an Interpersonal Messaging Sytem User Agent (IPMS-UA) and Interpersonal Messaging System Message Store (IPMS-MS)

2 Normative references

CCITT X.400	Message Handling: System and Service overview
CCITT X.402	Message Handling Systems: Overall Architecture
CCITT X.408	Message Handling System: Encoded information type conversion rules
CCITT X.420	Message Handling System: Interpersonal Messaging System.
ISO/IEC 9646-1	1990, Information technology - Open systems interconnection - Conformance testing methodology and framework - Part 1 : General concepts. (See also CCITT Recommendation X.290(1991))
ISO/IEC 9646-2	1990, Information technology - Open systems interconnection - Conformance testing methodology and framework - Part 2 : Abstract test suite specification. (See also CCITT Recommendation X.291(1991))

MHS Implementors Guide version 5

3 Definitions

This CCITT Recommendation uses terms defined in CCITT Recommendations X.420.

This CCITT Recommendation uses the following terms defined in ISO/IEC 9646-1:

- PICS proforma;
- Protocol Implementation Conformance Statement (PICS).

4 Abbreviations

Abbreviations defined in CCITT X.400 series Recommendations are used in this document.

5 Conventions

The PICS proforma is designed as an annex to this Recommendation.

6 Conformance

The supplier of a protocol implementation which is claimed to conform to X.420 is required to complete a copy of the PICS proforma provided in annex A and is required to provide the information necessary to identify both the supplier and the implementation.

ANNEX A

(To Recommendation X.481)

(This annex forms an integral part of this Recommendation)

P2 Protocol

Protocol Implementation Conformance Statement (PICS) Proforma

Copyright release for PICS Proforma

Users of this document may freely reproduce the PICS Proforma in this annex so that it can be used for its intended purpose and may further publish the completed PICS.

P2 Protocol

Protocol Implementation Conformance Statement (PICS) Proforma

CONTENTS

A.1 Identification of the implementation
- A.1.1 Identification of PICS
- A.1.2 Identification of the Implementation and/or System
- A.1.3 Identification of the system supplier and/or test laboratory client

A.2 Identification of the Protocol

A.3 Global Statement of Conformance

A.4 Instructions for Completing the PICS Proforma

A.5 Abbreviations

A.6 Capabilities and Options
- A.6.1 Initiator/Responder Capability
- A.6.2 Supported application contexts
- A.6.3 Major Capabilities
- A.6.4 Timers and Protocol parameters
- A.6.5 Supported PDUs
- A.6.6 Supported PDU Parameters
- A.6.7 Negociation Capabilities
- A.6.8 Protocol Error Handling
- A.6.9 Other information

A.7 Multi-Layer dependencies
- A.7.1 Upper layers
- A.7.2 Lower layers

A.1 Identifications

A.1.1 Identification of PICS

Ref.No.	Question	Response
1	Date of Statement	
2	PICS Serial Number	
3	SCS Cross Reference	

A.1.2 Identification of the Implementation and/or System

Ref.No.	Question	Response
1	Implementation Name	
2	Version Number	
3	Machine Name	
4	Machine Version Number	
5	Operating System Name	
6	Operating System Version	
7	Special Configuration (1)	
8	Other Information	

(1) please enter here one of the following configurations:

conf1: IPMS-UA collocated with an MTA.

conf2: remote IPMS-UA.

conf3: IPMS-UA making use of a Message Store.

conf4: IPMS-MS.

A.1.3 Identification of the sytem supplier and/or test laboratory client

Ref.No.	Question	Response
1	Organization Name	
2	Contact Name(s)	
3	Address:	
4	Telephone Number	
5	Telex Number	
6	Fax Number	
7	E-Mail Address	
8	Other Information	

A.2 Identification of the Protocol

Ref.No.	Question	Response
1	Title, Reference Number and date of publication of the protocol standard	
2	Protocol Version Numbers	
3	Addenda implemented	
4	Implemented Defects Reports (Ref.No.)	

A.3 Global statement of conformance

Ref.No.	Question	D	I
1	Are all mandatory capabilities implemented?	m	[ ]

Note - Answering "No" to this section 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. Such informations shall be provided in section A.6.9 "Other information".

A.4 Instructions for completing the pics proforma

A.4.1 Definition of support

A capability is said to be supported if the Implementation Under Test (IUT) is able:

- to generate the corresponding service parameters (either automatically or because the end user explicitly requires that capability);
- to interpret, handle and when required make available to the end user the corresponding service paramater(s).

A capability is referred to as either an originator capability "O" (when the MHS end-user is acting as originator) or a recipient capability "R" (when the MHS end-user is acting as recipient).

A protocol element is said to be supported for origination if the IUT is able to generate it under some circumstances (either automatically or because end-user explicitly requires a related capability).

A protocol element is said to be supported for reception if it is correctly interpreted and handled and also, when required, made available to the end-user.

A.4.2 D (Defined) column

This column indicates the level of support required for conformance to the CCITT Recommendation.

The values are as follows:

m - mandatory support is required;

o - optional support is permitted for conformance to the Recommendation. If implemented it must conform to the specifications and restrictions contained in the Recommendation. These restrictions may affect the optionality of other items;

c - the item is conditional, the support of this item is subject to a predicate which is referenced in the note column;

n/a - the item is not applicable.

If Security, Physical Delivery or Message Store options are not supported the corresponding items shall be considered as not applicable.

A.4.3 I (Implemented) column

This column shall be completed by the supplier or implementor, when a "[ ]" is present, to indicate the level of implementation of each item. The proforma has been designed such that the only entries required in that column are:

Y - yes, the item has been implemented;

N - no, the item has not been implemented;

- - the item is not applicable.

In the PICS proforma tables, every leading items marked 'm' should be supported by the IUT. Sub-items marked 'm' should be supported if the corresponding leading feature is supported by the IUT.

All entries within the PICS proforma shall be made in ink. Alterations to such entries shall be made by crossing out, not erasing nor making the original entry illegible, and writing the new entry alongside. All such alterations to records shall be initialled by the staff making them.

A.4.4 Permitted Range of value/value supported columns

In the column marked "PERMIT. RANGE OF VALUES", the upper-bounds values (e.g. length and occurences) have been stated according to the standard. For each line for which an entry in this column is made, the constraints or supported values should be indicated in the "VALUES SUPPORTED" column.

The minimum and maximum lengths and numbers of occurences shall be entered for originator.

The maximum length and number of occurences shall be entered for reception.

A.4.5 Note column

The 'note' column has to be read as follows:

Notexx - refers to Note xx;

pxx - refers to predicate xx (see section A.4.7);

#yy - refers to section A.6.6.4.yy.

d - a default value is defined in the recommendation. When absent in the PDU, both Originator and Recipient shall interpret it as having the default value specified in the Recommendation.

PHY - physical item.

SEC - security item.

X.500 - see X.500 series of Recommendations for a complete definition.

A.4.6 Item reference numbers

Each line within the PICS proforma which requires implementation details to be entered is numbered at the left hand edge of the line. This numbering is included as a mean of uniquely identifying all possible implementation details within the PICS proforma.

The means of referencing individual responses is done by the following sequence:

a) a reference to the smallest subclause enclosing the relevant item;

b) a solidus character, '/';

c) the reference number of the row in which the response appears;

An example of the use of this notation would be A.6.3/1, which refers to the Authorising Users Indication element of service.

A.4.7 Predicate definitions

If the classification of an Element of Service (EoS) or a Protocol ELement (PEL) is subject to a predicate support of the item is mandatory is the related predicate is true. Otherwise support of the item is optional.

Within that annex predicates are clearly defined or are defined as follow:

px = "Item_number".Y or px = S.Y.Z where

S - (Service) takes the value A.6.3

Y - takes the values "O" for originator or "R" for recipient

Z - is the number of the element of service in section A.6.3

List of predicates

p1 = p17 or p16

p2 = Blind copy recipient indication EoS supported in ORIGINATION (S.O.3)

p3 = Obsoleting indication EoS supported in ORIGINATION (S.O.14)

p4 = Cross-referencing indication EoS supported in ORIGINATION (S.O.5)

p5 = Expiry date indication EoS supported in ORIGINATION (S.O.6)

p6 = Reply request indication EoS supported in ORIGINATION (S.O.18)

p7 = Reply request indication EoS supported in ORIGINATION (S.O.19)

p8 = Auto-forwarded indication EoS supported in ORIGINATION (S.O.2)

p9 = p10 or p12

p10 = Incomplete copy indication EoS supported in ORIGINATION (S.O.9)

p11 = Incomplete copy indication EoS supported in RECEPTION (S.R.9)

p12 = Language indication EoS supported in ORIGINATION (S.O.11)

p13 = ipm-return PEL supported in RECEPTION (A.6.6.4.1/1.2.3.R)

p14 = ipm-return PEL supported in ORIGINATION (A.6.6.4.1/1.2.3.O)

p15 = Receipt notification request indication EoS supported in RECEPTION (S.R.17)

p16 = Receipt notification request indication EoS supported in ORIGINATION (S.O.17)

p17 = Non Receipt notification request indication EoS supported in ORIGINATION (S.O.13)

p19 = Importance indication EoS supported in ORIGINATION (S.O.8)

p20 = Authorizing users indication EoS supported in ORIGINATION (S.O.1)

p22 = Forwarded IP-message indication EoS supported in ORIGINATION (S.O.7)

p23 = at least one of the EXTENSION fields is supported in ORIGINATION

p24 = at least one of the EXTENSION fields is supported in RECEPTION

p25 = the implementation is a conf3 or conf4 (see A.1.2/7 for definitions)

examples:

p19 = S.O.8 means that p19 is true if the Importance indication element of service is supported.

p19 = A.6.3/8.O has the same meaning.

p13 = A.6.6.4.1/1.2.3.R means that p13 is true if the ipm-return protocol element is supported in reception.

A.4.8 Additional comments

1 - Parameters which are not supported for reception should normally not be regarded as a protocol violation.

2 - In the following tables, every leading parameter marked "m" should be supported by the IUT in order to fullfil the static conformance requirements. Sub-parameters marked "m" should be supported if the corresponding leading parameter is supported by the IUT.

3 - For ORNames relating to a user of the own system ("local ORName") the IUT might choose to make certain restrictions on the supported forms of ORAddresses. Users of another system ("remote ORName"), however, shall be adressable without any restrictions.

4 - Each line within the PICS proforma which requires implementation detail to be entered is numbered. This numbering is included as a mean of uniquely identifying all possible implementation detail within the PICS proforma.

A.5 Abbreviations

The following abbreviations are used in this PICS proforma:

D	Defined
I	Implemented
m	mandatory
N	NO
n/a	Not Applicable
o	optional
c	conditional
d	default
O/R	O = Origination / R = Reception
PHY	PHYsical Delivery
SEC	SECurity
Y	YES
EoS	Element of Service
PEL	Protocol ELement

A.6 Capabilities and options

Introduction

In this part of the PICS Proforma the supported application contexts, the major capabilities of the supported application contexts and functions are identified. Further the PDUs and Operations are identified. And finally the Operation Arguments and PDU Parameters are identified.

Mapping between X.400 keys and pics entries:

X.400	PICS
BASIC MT SERVICE	m
ESSENTIAL OPTIONAL	m
ADDITIONAL OPTIONAL PER MESSAGE	o
ADDITIONAL OPTIONAL CONTRACTUAL	o

A.6.1 Initiator/Responder Capability

"N/A"

A.6.2 Supported Application Contexts and Options

Supported Application Contexts

"N/A"

Supported Options

Ref.No.	Question	D (ISO)	D (CCITT)	I
1	Are all Security capabilities implemented?	o	o	[ ]
2	Are all Physical Delivery capabilities implemented?	o	o	[ ]

A.6.3 Major Capabilities

Note: Within the following tables "O/R" means "Origination/Reception".

Message Transfer, Physical Delivery, Security and Message Store elements of service have been listed into separate tables.

IPM elements of service

Ref. No.	MHS ELEMENT OF SERVICE	O/R	D	I	Clause Ref. (X.400)
1	Authorizing users indication	O R	o m	[ ] [ ]	B.5
2	Auto-forwarded indication	O R	o m	[ ] [ ]	B.6
3	Blind copy recipient indication	O R	o m	[ ] [ ]	B.8
4	Body part encryption indication	O R	o m	[ ] [ ]	B.9
5	Cross-referencing indication	O R	o m	[ ] [ ]	B.18
6	Expiry date indication	O R	o m	[ ] [ ]	B.29
7	Forwarded IP-message indication	O R	o m	[ ] [ ]	B.31
8	Importance indication	O R	o m	[ ] [ ]	B.35
9	Incomplete copy indication	O R	o o	[ ] [ ]	B.36
10	IP message identification	O R	m m	[ ] [ ]	B.37
11	Language indication	O R	o m	[[ ]	B.38
12	Multi-part body	O R	o m	[ ] [ ]	B.46
13	Non receipt notification request indication	O R	o m	[ ] [ ]	B.48
14	Obsoleting indication	O R	o m	[ ] [ ]	B.52
15	Originator indication	O R	m m	[ ] [ ]	B.55
16	Primary and copy recipients indication	O R	m m	[ ] [ ]	B.62
17	Receipt notification request ndication	O R	o o	[ ] [ ]	B.67

IPM elements of service (continued)

Ref. No.	MHS ELEMENT OF SERVICE	O/R	D	I	Clause Ref. (X.400)
18	Reply request indication	O R	o m	[ ] [ ]	B.72
19	Reply IP message indication	O R	m m	[ ] [ ]	B.73
20	Sensitivity indication	O R	o m	[ ] [ ]	B.80
21	Subject indication	O R	m m	[ ] [ ]	B.88
22	Typed body	O R	m m	[ ] [ ]	B.90

Message Transfer services

Ref. No.	MHS ELEMENT OF SERVICE	O/R	D	I	Clause Ref. (X.400)
23	Access management	O R	m m	[ ] [ ]	B.1
24	Alternate recipient allowed	O R	o o	[ ] [ ]	B.3
25	Alternate recipient assignment	O R	n/a o	[ ] [ ]	B.4
26	Content type indication	O R	m m	[ ] [ ]	B.12
27	Conversion prohibition	O R	m m	[ ] [ ]	B.13
28	Conversion prohibition in case of loss of information	O R	o o	[ ] [ ]	B.14
29	Converted indication	O R	n/a m	[ ] [ ]	B.15
30	Deferred delivery	O R	m n/a	[ ] [ ]	B.19
31	Deferred delivery cancellation	O R	o n/a	[ ] [ ]	B.20
32	Delivery notification	O R	m n/a	[ ] [ ]	B.21
33	Delivery time stamp indication	O R	n/a m	[ ] [ ]	B.22
34	Designation of recipient by directory name	O R	o n/a	[ ] [ ]	B.24
35	Disclosure of other recipients	O R	o m	[ ] [ ]	B.25
36	DL Expansion history indication	O R	n/a m	[ ] [ ]	B.26
37	DL Expansion prohibited	O R	o n/a	[ ] [ ]	B.27
38	Explicit conversion	O R	o n/a	[ ] [ ]	B.30

Message Transfer services (continued)

Ref. No.	MHS ELEMENT OF SERVICE	O/R	D	I	Clause Ref. (X.400)
39	Grade of delivery selection	O R	m m	[ ] [ ]	B.32
40	Hold for delivery	O R	n/a o	[ ] [ ]	B.33
41	Implicit conversion	O R	n/a o	[ ] [ ]	B.34
42	Latest delivery designation	O R	o n/a	[ ] [ ]	B.39
43	Message identification	O R	m m	[ ] [ ]	B.41
44	Multi destination delivery	O R	m n/a	[ ] [ ]	B.45
45	Non delivery notification	O R	n/a m	[ ] [ ]	B.47
46	Original encoded information types indication	O R	m m	[ ] [ ]	B.54
47	Originator requested alternate recipient	O R	o n/a	[ ] [ ]	B.56
48	Prevention of non delivery notification	O R	o n/a	[ ] [ ]	B.61
49	Probe	O R	o n/a	[ ] [ ]	B.63
50	Redirection disallowed by originator	O R	o n/a	[ ] [ ]	B.68
51	Redirection of incomming messages	O R	n/a o	[ ] [ ]	B.69
52	Requested delivery method	O R	m n/a	[ ] [ ]	B.76
53	Restricted delivery	O R	n/a o	[ ] [ ]	B.77
54	Return of content	O R	o n/a	[ ] [ ]	B.78

Message Transfer services (continued)

Ref. No.	MHS ELEMENT OF SERVICE	O/R	D	I	Clause Ref. (X.400)
55	Submission time stamp indication	O R	m m	[ ] [ ]	B.89
56	Use of distribution list	O R	o n/a	[ ] [ ]	B.92
57	User/UA capabilities registration	O R	m m	[ ] [ ]	B.93

Physical Delivery services

This table shall be filled in only if Physical Delivery is supported (see A.6.2/2).

Message Transfer services (continued)

Ref. No.	MHS ELEMENT OF SERVICE	O/R	D	I	Clause Ref. (X.400)
58	Additional physical rendition	O R	o o	[ ] [ ]	B.2
9	Basic physical rendition	O R	o m Note.2	[ ] [ ]	B.7
60	Counter collection	O R	o m Note.2	[ ] [ ]	B.16
61	Counter collection with advice	O R	o o	[ ] [ ]	B.17
62	Delivery via bureaufax service	O R	o o	[ ] [ ]	B.23
63	EMS (Express Mail Service)	O R	o m Note.2	[ ] [ ]	B.28
64	Ordinary mail	O R	o m Note.2	[ ] [ ]	B.53
65	Physical delivery notification by MHS	O R	o o	[ ] [ ]	B.57
66	Physical delivery notification by PDS	O R	o m Note.2	[ ] [ ]	B.58
67	Physical forwarding allowed	O	o	[ ]	B.59
68	Physical forwarding prohibited	O R	o m Note.2	[ ] [ ]	B.60

Message Transfer services (continued)

Ref. No.	MHS ELEMENT OF SERVICE	O/R	D	I	Clause Ref. (X.400)
69	Registered mail	O R	o o	[ ] [ ]	B.70
70	Registered mail to addresses in person	O R	o o	[ ] [ ]	B.71
71	Request for forwarding address	O R	o o	[ ] [ ]	B.75
72	Special delivery	O R	o m Note.2	[ ] [ ]	B.81
73	Undeliverable mail with return of physical message	O R	o m Note.2	[ ] [ ]	B.91

Note.2: Only for PDAU else n/a

Security services

This table shall be filled in only if Security is supported (see A.6.2/1).

Ref. No.	MHS ELEMENT OF SERVICE	O/R	D	I	Clause Ref. (X.400)
74	Content confidentiality	O	o	[ ]	B.10
		R	o	[ ]	
75	Content integrity	O	o	[ ]	B.11
		R	o	[ ]	
76	Message flow confidentiality	O	o	[ ]	B.40
		R	n/a	[ ]	
77	Message origin authentication	O	o	[ ]	B.42
		R	o	[ ]	
78	Message security labelling	O	o	[ ]	B.43
		R	o	[ ]	
79	Message sequence integrity	O	o	[ ]	B.44
		R	o	[ ]	
80	Non repudiation of delivery	O	o	[ ]	B.49
		R	o	[ ]	
81	Non repudiation of origin	O	o	[ ]	B.50
		R	o	[ ]	
82	Non repudiation of submission	O	o	[ ]	B.51
		R	o	[ ]	
83	Probe origin authentication	O	o	[ ]	B.64
		R	n/a	[ ]	
84	Proof of delivery	O	o	[ ]	B.65
		R	o	[ ]	
85	Proof of submission	O	o	[ ]	B.66
		R	n/a	[ ]	
86	Report origin authentication	O	o	[ ]	B.74
		R	o	[ ]	
87	Secure access management	O	o	[ ]	B.79
		R	o	[ ]	

MS elements of service

This table shall be filled in only if predicate p25 is TRUE.

Ref. No.	MHS ELEMENT OF SERVICE	O/R	D	I	Clause Ref. (X.400)
87	MS register	O R	n/a o	[ ] [ ]	B.4n
88	Stored message alert	O R	n/a o	[ ] [ ]	B.82
89	Stored message auto-forward	O R	n/a o	[ ] [ ]	B.83
90	Stored message deletion	O R	n/a m	[ ] [ ]	B.84
91	Stored message fetching	O R	n/a m	[ ] [ ]	B.85
92	Stored message listing	O R	n/a m	[ ] [ ]	B.86
93	Stored message summary	O R	n/a m	[ ] [ ]	B.87

A.6.4 Timers and Protocol parameters

N/A

A.6.5 Supported PDUs

Ref. No.	MHS ELEMENT OF SERVICE	O/R	D	I	Clause Ref. (X.400)
1	Interpersonnal Message (IPM)	O R	m m	[ ] [ ]	7
2	Interpersonnal Notification (IPN)	O R	m c p1	[ ] [ ]	8