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Information technology — Open Systems Interconnection — Connectionless Presentation protocol: Protocol Implementation Conformance Statement (PICS) proforma

Technologies de l'information — Interconnexion de systèmes ouverts (OSI) — Protocole de présentation en mode sans connexion: Proforme d'établissement de conformité de mise en œuvre du protocole (PICS)



Reference number
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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

International Standard ISO/IEC 9576-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 21, *Open systems interconnection, data management and open distributed processing*, in collaboration with ITU-T. The identical text is published as ITU-T Recommendation X.256.

ISO/IEC 9576 consists of the following parts, under the general title *Information technology — Open Systems Interconnection — Connectionless Presentation protocol*:

— *Part 1: Protocol specification*

— *Part 2: Protocol Implementation Conformance Statement (PICS) proforma*

Annex A forms an integral part of this part of ISO/IEC 9576.

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Introduction

This Recommendation | International Standard is one of a set of Recommendations | International Standards produced to facilitate the interconnection of information processing systems. It is related to other Recommendations and International Standards in the set as defined by the Reference Model for Open Systems Interconnection (see ITU-T Rec. X.200 | ISO 7498-1). The Reference Model subdivides the area of standardisation for interconnection into a series of layers of specification, each of manageable size.

The goal of Open Systems Interconnection is to allow, with a minimum of technical agreement outside the interconnection Recommendations and International Standards, the interconnection of information processing systems:

- from different manufacturers;
- under different managements;
- of different levels of complexity; and
- of different technologies.

ITU-T Rec. X.236 | ISO/IEC 9576-1 specifies the connectionless presentation protocol. It specifies the presentation protocol encoding and procedures to be used to meet the needs of presentation-service-users.

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

This Recommendation | International Standard includes the PICS proforma for the connectionless presentation protocol as defined in ITU-T Rec. X.236 | ISO/IEC 9576-1.

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INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION – CONNECTIONLESS PRESENTATION PROTOCOL: PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT (PICS) PROFORMA

1 Scope

This Recommendation | International Standard provides the Protocol Implementation Conformance Statement (PICS) proforma for ITU-T Rec. X.236 | ISO/IEC 9576-1 in compliance with the relevant requirements, and in accordance with the relevant guidance given in ITU-T Rec. X.296 | ISO/IEC 9646-7. Detail of the use of this proforma is provided in this Recommendation | International Standard.

The supplier of an implementation which is claimed to conform to ITU-T Rec. X.236 | ISO/IEC 9576-1 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.

2 Normative references

The following Recommendations and International Standards contain provisions which, through reference in this text, constitute provisions of this Recommendation | International Standard. At the time of publication, the editions indicated were valid. All Recommendations and Standards are subject to revision, and the parties to agreements based on this Recommendation | International Standard are encouraged to investigate the possibility of applying the most recent edition of the Recommendations and Standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards. The Telecommunication Standardization Bureau of the ITU maintains a list of currently valid ITU-T Recommendations.

2.1 Identical Recommendations | International Standards

- ITU-T Recommendation X.200 (1994) | ISO/IEC 7498-1:1994, *Information technology – Open Systems Interconnection – Basic Reference Model: The Basic Model.*
- ITU-T Recommendation X.216 (1994) | ISO/IEC 8822:1994, *Information technology – Open Systems Interconnection – Presentation service definition.*
- ITU-T Recommendation X.236 (1995) | ISO/IEC 9576-1:1995, *Information technology – Open Systems Interconnection – Connectionless Presentation protocol: Protocol specification.*
- ITU-T Recommendation X.690 (1994) | ISO/IEC 8825-1:1995, *Information technology – ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER).*

2.2 Paired Recommendations | International Standards equivalent in technical contents

- ITU-T Recommendation X.290 (1995), *OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – General concepts.*

  ISO/IEC 9646-1:1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 1: General concepts.*
- ITU-T Recommendation X.296[1)], *OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – Implementation conformance statements.*

  ISO/IEC 9646-7:1995, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 7: Implementation Conformance Statements.*

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1) Presently at the stage of draft.

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3 Definitions

For the purposes of this Recommendation | International Standard, the following definitions apply:

3.1 Terms defined in ITU-T Rec. X.236 | ISO/IEC 9576-1.

3.2 The following terms defined in ITU-T Rec. X.290 | ISO/IEC 9646-1:

a) Implementation conformance statement;

b) Implementation conformance statement proforma;

c) Protocol Implementation Conformance Statement (PICS);

d) PICS proforma.

3.3 Additional terms

a) **requester**: The PPM that initiates a particular action.

b) **acceptor**: The PPM that accepts a particular action.

4 Abbreviations

For the purposes of this Recommendation | International Standard, the following abbreviations apply:

ICS	Implementation Conformance Statement
PICS	Protocol Implementation Conformance Statement
PCI	Protocol Control Information
PDU	Protocol Data Unit
PDV	Presentation Data Value
PPDU	Presentation Protocol Data Unit
PPM	Presentation Protocol Machine
UD	Unit Data

5 Conformance

A conforming PICS proforma shall be technically equivalent to the ITU-T | ISO/IEC published PICS proforma and shall preserve the numbering and ordering of the items in the ITU-T | ISO/IEC PICS proforma.

A PICS which conforms to this ITU-T Recommendation | International Standard shall:

a) describe an implementation which conforms to ITU-T Rec. X.236 | ISO/IEC 9576-1;

b) be a conforming PICS proforma, which has been completed in accordance with the instruction for completion given in A.2;

c) include the information necessary to uniquely identify both the supplier and the implementation.

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Annex A[2)]

Protocol Implementation Conformance Statement (PICS) proforma for the connectionless presentation protocol

(This annex forms an integral part of this Recommendation | International Standard)

A.1 Identification of PICS proforma corrigenda

The supplier of the PICS proforma shall identify any corrigenda (i.e. Technical Corrigenda or equivalent) to the published proforma that have been applied. Suppliers of the proforma should modify the proforma, or attach relevant additional pages in order to apply the corrigenda, and then record the application of the corrigenda in the table below.

Identification of corrigenda applied to this PICS proforma	ITU-T Rec. X.256 (1995) | ISO/IEC 9576-2:1995 Corr: Corr: Corr:

A.2 Instructions

A.2.1 Purpose and structure of the proforma

The purpose of this PICS proforma is to provide suppliers of implementations of ITU-T Rec. X.236 | ISO/IEC 9576-1 with a consistent means of stating which capabilities have been implemented.

The proforma is in the form of a questionnaire and consists of a set of items. An item is provided for each capability for which an implementation choice is allowed. Items are also provided for major mandatory capabilities for which no implementation choice is allowed. Each item includes an item number, an item description, a status value specifying the support requirement, and room for a support answer to be provided by the supplier.

This clause provides general information and instructions for completion of the proforma.

Subclause A.3 is for identification of the implementation.

Subclause A.4 contains the means of specifying, at a high level, the protocol and corrigenda that have been implemented.

Subclause A.5 contains the global statement of conformance.

Subclause A.6 onwards contain tables in which the supplier specifies details of the implementation options chosen.

A.2.2 Symbols, terms and abbreviations

A.2.2.1 Introduction

In order to reduce the size of tables in the PICS proforma, notations have been introduced. These have allowed the use of multi-column layout where the columns are headed 'Status', and 'Support'. The definition of each is given below.

Additionally, the following definitions apply:

(PICS) item: A row in a PICS proforma table.

(PICS) question: The question to be answered in the intersection of a PICS item and either a support column (i.e. "Is this item supported in the context applying to this table and column?") or supported values column (i.e. "What values are supported for this item in the context applying to this table and column?") in a PICS proforma table.

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2) **Copyright release for PICS proformas**

Users of this Recommendation | International Standard 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.

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status (value): An allowed entry in the status column for an item in a PICS proforma table.

(support) answer: An allowed entry in the support or supported values columns for an item in a PICS, in answer to a PICS question.

A.2.2.2 Prerequisite notation

If a predicate applies to a whole ICS proforma table, a prerequisite line may be specified in front of the table to which it applies. A prerequisite line takes the form:

Prerequisite: <predicate>

The meaning of such a line is that if <predicate> is True, then the table applies, else it is not-applicable.

A.2.2.3 Item numbering

Each line within the PICS proforma which requires implementation detail to be entered is given an item number in the first column. The item number column provides a means of uniquely referencing each possible answer within the PICS proforma. Such referencing is necessary for specifying predicates, conditional expressions, test suite parameters, and test suite selection expressions.

The means of referencing individual answers is to specify the following sequence:

a) If, and only if, the reference is being made from another Specification, then start with an unambiguous identifier for the relevant ICS proforma specification, enclosed in parentheses – this identifier is stated in the PICS proforma specification and is updated whenever the PICS proforma is updated. It is recommended that this identifier be the relevant Specification number and year of publication, as is used in a Normative References clause, and this is the default for such identifiers.

b) The number of the relevant table or, if the tables are not numbered, of the smallest subclause enclosing the relevant table.

c) A solidus character, "/".

d) The item number or mnemonic reference to the item, to identify the row in which the answer appears.

e) If, and only if, more than one question occurs in the row identified by the item number or mnemonic reference, then each possible answer is implicitly labelled a, b, c, etc., from left to right, and this letter is appended to the sequence, prefixed by a solidus character ("/") if a mnemonic reference is used.

   If mnemonic references are specified and each uniquely identify an item in the PICS proforma, then entries b) and c) in the above sequence may be omitted.

A.2.2.4 Status column

'Status' as defined in ITU-T Rec. X.236 | ISO/IEC 9576-1. This column indicates the level of support required for conformance to ITU-T Rec. X.236 | ISO/IEC 9576-1.

A.2.2.4.1 Definitions applying to the table in A.6

The values are as follows:

'o.n' selectable options among a set of items (where *n* is the number which identifies the group of optional items that are grouped together).

If support is claimed for the sending of the PPDU, then the implementation shall be able to

- build the PPDU (i.e. build correctly the heading, all mandatory parameters, and all supported optional parameters) in the situations required by the protocol specification;
- encode the PPDU according to a valid encoding format.

If support is claimed for receiving of the PPDU, then the implementation shall be able to

- syntactically identify the PPDU and parse all valid instances of the PDU, including all valid PDU parameters. Supporting the receipt of a PDU whilst having no ability to parse one of its valid parameters is non-conformant.

A.2.2.4.2 Definitions applying to the tables in A.7

The values for the sender of a PDU are as follows:

'm' Mandatory support is required. The implementation shall be able to build and encode this parameter within the PPDU.

'o' Optional support is permitted for conformance to ITU-T Rec. X.236 | ISO/IEC 9576-1.

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The values for the receiver of a PDU are as follows:

'm' Mandatory support is required. The implementation shall be able to parse this parameter within the PPDU, and also perform the actions required by the semantics of the parameter.

'o' Optional support is permitted for conformance to ITU-T Rec. X.236 | ISO/IEC 9576-1. If support is claimed, the implementation shall support the semantics of the parameter.

A.2.2.5 Support column

The 'Support' column shall be completed by the supplier or implementor to indicate the level of implementation of each feature. The proforma has been designed such that the only entries required in the 'Support' column are:

'Y' Yes, the feature has been implemented;

'N' No, the feature has not been implemented;

A.2.3 Instructions for completion

The supplier shall complete all entries in the column marked 'Support'. In certain clauses of the PICS proforma further guidance for completion may be necessary. Such guidance shall supplement the guidance given in this subclause and shall have a scope restricted to the clause in which it appears. In addition, other specifically identified information shall be provided by the implementor where requested. No changes shall be made to the proforma except the completion as required. Recognising that the level of detail required may, in some instances, exceed the space available for responses a number of responses specifically allow for the addition of appendices to the PICS.

A.3 Identification of the implementation

A.3.1 Date of statement

1	Date of statement? (yy-mm-dd)

A.3.2 Implementation details

The supplier of the protocol implementation shall specify the information necessary to uniquely identify the implementation and the system in which it may reside. This may include details of:

a) supplier, implementation name, operating system, suitable hardware;

b) system supplier and/or client of the test laboratory that is to test the implementation;

c) information on whom to contact if there are queries concerning the content of the PICS.

1	

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A.4 Protocol identification

A.4.1 ITU-T Rec. X.236 | ISO/IEC 9576-1 protocol details

	Identification of Protocol Specification	Support
–	ITU-T Rec. X.236 (1995)	ISO/IEC 9576-1:1995	
1		
2		
3		

A.4.2 ITU-T Rec. X.236 | ISO/IEC 9576-1 technical corrigenda implemented

Identification of corrigenda applied to the implementation	ITU-T Rec. X.236 (1995) | ISO/IEC 9576-1:1995 Corr: Corr: Corr: Corr: Corr:

A.5 Global statement of conformance

1	Are all mandatory features implemented? (Yes or No)
NOTE – If a positive response is not given to this box, then the implementation does not conform to ITU-T Rec. X.236 | ISO/IEC 9576-1.	

A.6 Support for UD PPDU

This subclause is used to declare if the system is capable of initiating a UD PPDU or reacting to a UD PPDU or both. No presentation connection exists and there is no response to a UD PPDU.

		Status	Support	Mnemonic
1	Sender	o.1		PCNLS-UD-Sdr
2	Receiver	o.1		PCLNS-UD-Rcv
o.1	A conforming implementation shall support at least one of the roles.			

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A.7 Supported parameters

A.7.1 UD PPDU sender

Prerequisite: PCNLS-UD-Sdr

	Presentation PDU parameter	Status	Support	Mnemonic
1	Protocol version	o		
2	Calling presentation selector	o		
3	Called presentation selector	o		
4	Presentation context definition list	o		
5	User data	m		

	Session service parameter	Status	Support	Mnemonic
6	Calling session address	m		
7	Called session address	m		
8	Quality of Service	m		

A.7.2 UD PPDU receiver

Prerequisite: PCLNS-UD-Rcv

	Presentation PDU parameter	Status	Support	Mnemonic
1	Protocol version	m		
2	Calling presentation selector	o		
3	Called presentation selector	o		
4	Presentation context definition list	o		
5	User data	m		

	Session service parameter	Status	Support	Mnemonic
6	Calling session address	m		
7	Called session address	m		
8	Quality of Service	m		

A.8 Support of syntaxes

A.8.1 Transfer syntaxes supported

This subclause shall be used to indicate which transfer syntaxes the implementation supports. For each transfer syntax supported a reference to the definition of the transfer syntax shall be given. Implementation restrictions with respect to the encoding variations as offered by the transfer syntax shall be stated separately and referenced in the following table where applicable. If the number of transfer syntaxes supported by the implementation exceeds the space available in the table, then details of support shall be given in an appendix to the PICS using a table with the equivalent layout.

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NOTE – The definition of the ASN.1 basic encoding rules are given in ITU-T Rec. X.690 (1994) | ISO/IEC 8825-1:1995. To complete the specification of a transfer syntax it is necessary to indicate the abstract syntax specification to which the encoding rules should be applied.

	Type	Detail	Support	Reference to definition	Reference to restriction
1	Object identifier	{joint-iso-ccitt asn1(1) basic-encoding(1)}			

A.8.2 Abstract syntaxes supported

This subclause shall be used to indicate which abstract syntaxes the implementation supports. If the number of abstract syntaxes supported by the implementation exceeds the space available in the table, then details of support shall be given in an appendix to the PICS using a table with the equivalent layout.

NOTE – From the Presentation standard point of view, an implementation is required to support any standardised abstract syntax. However, for technical and economic reasons, an implementation may only support a limited number of abstract syntaxes.

	Type	Detail	Support
1	Object identifier	{joint-iso-ccitt association control(2) abstract-syntax(1) clapdu(1) version1(1)}	

A.8.3 Use of ASN.1 basic encoding

This subclause shall be used to indicate whether any encoding restrictions exist for sending:

a) the Presentation PCI of PPDUs;

b) abstract syntaxes using ASN.1 which are stated as supported in A.8.2.

Any restrictions given are assumed to apply to a) and b) unless explicitly stated. In the case that more than one set of restrictions apply, the table shall be replicated and it shall be clearly stated to which abstract syntax each set of restrictions apply.

	Restriction	Support	Comment
1	Only definite form of length encoding used		
2	Indefinite form of length encoding used for all constructed types		
3	Only minimal number of octets used for definite form of length encoding		
4	Only primitive encoding used for OCTETSTRING		
5	Only primitive encoding used for BITSTRING		

A.8.4 PDV structure of User Data parameters

This subclause shall be used to indicate whether particular restrictions exist for the encoding of multiple Presentation data value in Abstract syntaxes using ASN.1, which are stated as supported in A.8.2.

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Any restrictions given are assumed to apply to all abstract syntaxes unless explicitly stated. In the case that more than one set of restrictions apply, the table shall be replicated and it shall be clearly stated to which abstract syntax each set of restrictions apply.

	Restriction	Support	Limit	Comment
1	Limit on number of PDVs in User Data parameter			
2	Limit on number of PDVs in a single PDV-list value			

End Of PICS Proforma

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