
**Information technology — Open Systems
Interconnection — Protocol for the
Commitment, Concurrency and Recovery
service element: Protocol Implementation
Conformance Statement (PICS) proforma**

*Technologies de l'information — Interconnexion de systèmes
ouverts (OSI) — Protocole pour l'élément de service d'engagement, de
concurrence et de reprise: Formulaire de déclaration de conformité de
mise en œuvre du protocole (PICS)*



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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 9805-2 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.853.

ISO/IEC 9805 consists of the following parts, under the general title *Information technology — Open Systems Interconnection — Protocol for the Commitment, Concurrency and Recovery service element*:

- *Part 1: Protocol specification*
- *Part 2: Protocol Implementation Conformance Statement (PICS) proforma*

Annex A forms an integral part of this part of ISO/IEC 9805.

Introduction

This Recommendation | International Standard is one of a set of Recommendations and 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/IEC 7498-1). The Reference Model subdivides the area of standardization for interconnection into 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 standards, the interconnection of information processing systems:

- a) from different manufacturers;
- b) under different managements;
- c) of different levels of complexity; and
- d) of different technologies.

The Recommendations | International Standards for the application-service-element for Commitment Concurrency, and Recovery (CCR) are:

- ITU-T Rec. X.851 | ISO/IEC 9804, CCR service definition;
- ITU-T Rec. X.852 | ISO/IEC 9805-1, CCR protocol specification;
- ITU-T Rec. X.853 | ISO/IEC 9805-2, CCR Protocol Implementation Conformance Statement (PICS) proforma.

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.

The PICS proforma, Annex A, has been designed to be a self contained section of this Recommendation | International Standard for use in testing and procurement.

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INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

**INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION –
 PROTOCOL FOR THE COMMITMENT, CONCURRENCY AND RECOVERY
 SERVICE ELEMENT: PROTOCOL IMPLEMENTATION CONFORMANCE
 STATEMENT (PICS) PROFORMA**

1 Scope

This Recommendation | International Standard defines a Protocol Implementation Conformance Statement (PICS) proforma for the detailed expression of the conformance requirements of ITU-T Rec. X.852 | ISO/IEC 9805-1. This PICS proforma is in compliance with the relevant requirements for a PICS proforma 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. Implementors of implementations claiming conformance to ITU-T Rec. X.852 | ISO/IEC 9805-1 shall complete the proforma as part of the conformance requirements. The level of detail required in the proforma exceeds that of the protocol specification by requiring details to uniquely identify the implementation and the supplier.

NOTE – PICS are related to base standards and only base standards. PICS structure might be expanded and refined for other documents (e.g. ISPs) using the base standards (e.g. ISPICS).

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 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 listed 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 Recommendation | 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.210 (1993) | ISO/IEC 10731:1994, *Information technology – Open Systems Interconnection – Basic Reference Model – Conventions for the definition of OSI services.*
- ITU-T Recommendation X.215 (1995) | ISO/IEC 8326:1996, *Information technology – Open Systems Interconnection – Session service definition.*
- ITU-T Recommendation X.216 (1994) | ISO/IEC 8822:1994, *Information technology – Open Systems Interconnection – Presentation service definition.*
- ITU-T Recommendation X.225 (1995) | ISO/IEC 8327-1:1996, *Information technology – Open Systems Interconnection – Connection-oriented session protocol: Protocol specification.*
- ITU-T Recommendation X.226 (1994) | ISO/IEC 8823-1:1994, *Information technology – Open Systems Interconnection – Connection-oriented presentation protocol: Protocol specification.*
- ITU-T Recommendation X.247 (1994) | ISO/IEC 8650-2:1995, *Information technology – Open Systems Interconnection – Protocol specification for the Association Control Service Element: Protocol Implementation Conformance Statement (PICS) proforma.*

- ITU-T Recommendation X.851 (1993) | ISO/IEC 9804:1994, *Information technology – Open Systems Interconnection – Service definition for the commitment, concurrency and recovery service element.*
- ITU-T Recommendation X.852 (1993) | ISO/IEC 9805-1:1994, *Information technology – Open Systems Interconnection – Protocol for the commitment, concurrency and recovery service element: Protocol specification.*

2.2 Paired Recommendations | International Standards equivalent in technical content

- CCITT Recommendation X.208 (1988), *Specification of Abstract Syntax Notation One (ASN.1).*
ISO/IEC 8824:1990, *Information technology – Open Systems Interconnection – Specification of Abstract Syntax Notation One (ASN.1).*
- CCITT Recommendation X.217 (1992), *Service definition for the Association Control Service Element.*
ISO 8649:1988, *Information processing systems – Open Systems Interconnection – Service definition for the Association Control Service Element.*
- CCITT Recommendation X.227 (1992), *Connection-oriented protocol specification for the Association Control Service Element.*
ISO 8650:1988, *Information processing systems – Open Systems Interconnection – Protocol specification for the Association Control Service Element.*
- 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.*
- CCITT Recommendation X.291 (1992), *OSI Conformance testing methodology and framework for protocol Recommendations for CCITT applications – Abstract test suite specification.*
ISO/IEC 9646-2:1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 2: Abstract Test Suite specification.*
- ITU-T Recommendation X.296 (1995), *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.*

3 Definitions

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

- 3.1 Terms defined in ITU-T Rec. X.852 | ISO/IEC 9805-1.
- 3.2 The following terms are defined in ITU-T Rec. X.290 | ISO/IEC 9646-1:
 - a) Protocol Implementation Conformance Statement (PICS);
 - b) PICS proforma.

4 Abbreviations

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

FU	Function Unit
ISP	International Standardized Profile
ISPICS	ISP Implementation Conformance Statement
PICS	Protocol Implementation Conformance Statement
Rcv	Receiver
Sdr	Sender

5 Conformance

A conforming PICS shall be technically equivalent to the PICS proforma given in Annex A and shall preserve the numbering and ordering of items in Annex A.

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

- a) describe an implementation which conforms to ITU-T Rec. X.852 | ISO/IEC 9805-1;
- b) be a conforming PICS proforma, which has been completed in accordance with the instructions for completion given in A.1 and A.3; and
- c) include the information necessary to uniquely identify both the supplier and the implementation.

6 System conformance statement

This PICS shall be referenced by a System Conformance Statement, which shall include directly, or by reference, questions which relate to the following:

- a) Which of the CCR atomic-action roles are implemented:
 - Master,
 - Intermediate,
 - Leaf?
- b) In the absence of heuristic decision, are all the CCR service-user rules (in Annex A of ITU-T Rec. X.851 | ISO/IEC 9804) enforced?
- c) Following a heuristic decision, which of the service user rules identified in A.1.2 of ITU-T Rec. X.851 | ISO/IEC 9804 are enforced?
- d) What observable event, if any, corresponds to the issue of a CCR primitive?

NOTE – This will often be the transmission of a CCR APDU in a CCR abstract syntax, but different answers apply where CMS is used, or where the implementation under test has a defined lower boundary.

In addition, where the referencing specification determines whether an optional element of the CCR protocol is implemented, the PICS of a referencing specification shall state which response shall be made for that element in this CCR PICS.

NOTE – For example, if the referencing specification makes use of the user-data parameter of a CCR primitive, the referencing specification ICS shall state that support for this parameter is mandatory.

Annex A

Protocol Implementation Conformance Statement (PICS) proforma for Commitment, Concurrency, and Recovery (CCR)¹⁾

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

A.1 Description of the proforma

This proforma is divided into the following sections:

- a) Description of the proforma;
- b) Implementation detail;
- c) General ITU-T Rec. X.852 | ISO/IEC 9805-1 detail; and
- d) CCR protocol detail.

Throughout each section, whenever a line contains a requirement for an implementation response, that line is identified by a reference number. For the significance of this numbering, see A.2.

A.1.1 Implementation detail

The implementation detail provides a number of items of information which allow a unique identification of an implementation and the supplier. These are implementor and supplier specific.

A.1.2 General ITU-T Rec. X.852 | ISO/IEC 9805-1 detail

The general detail clause covers general details of ITU-T Rec. X.852 | ISO/IEC 9805-1. This includes information on which protocol version numbers, technical corrigenda and amendments have been included in the implementation. Also specified in this section is a statement of which roles have been implemented.

A.1.3 CCR protocol detail

Comprising the major portion of the PICS, the CCR Protocol Detail section establishes which field of which APDUs is implemented. It requires a statement of the range of values supported for sending and receiving each particular parameter, and a reference to further detail for many of the fields.

A.1.4 Multi-layer dependencies

This section requires a statement of the support for the dependencies indicated in ITU-T Rec. X.852 | ISO/IEC 9805-1.

A.2 Notations defined for the proforma

In order to reduce the size of the tables in the PICS proforma, notations have been introduced. These have allowed the use of multi-column layout where the columns are PICS No., Item or APDU or Parameter name, Reference (to relevant clause of ITU-T Rec. X.852 | ISO/IEC 9805-1), Status, Support, Cross Reference (to another table in this Recommendation | International Standard – if any), VALUES, and Comment. Some of these columns are subdivided to indicate separately the status or support as Sender (“Sdr”) or Receiver (“Rcv”). The definition of each of these follows.

A.2.1 PICS number column

This column contains a serial number that increases monotonically down the table to enable reference to that row of the table (refer to A.2).

A.2.2 Item column

This column contains an identification of the item, APDU or parameter addressed by this row in the table.

¹⁾ Copyright release for PICS proforma: 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.