INTERNATIONAL STANDARD

ISO/IEC 9576-1

Second edition
1995-12-15

Information technology — Open Systems Interconnection — Connectionless Presentation protocol: Protocol specification

Technologies de l'information — Interconnexion de systèmes ouverts — Protocole de présentation en mode sans connexion: Spécification du protocole

Reference number
ISO/IEC 9576-1:1995(E)

CONTENTS

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 9576-1 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.236.

This second edition cancels and replaces the first edition (ISO/IEC 9576:1991), which has been technically revised.

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

— *Part 1: Protocol specification*

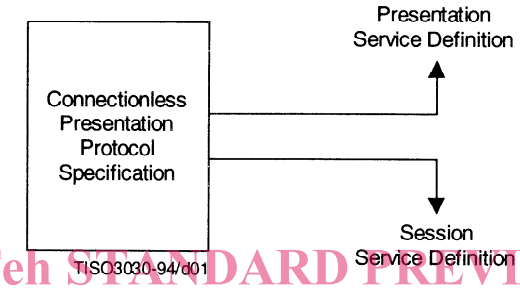
— *Part 2: Protocol Implementation Conformance Statement (PICS) proforma*

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

Introduction

This Recommendation | International Standard is one of a set of Recommendations | International Standards produced to facilitate the interconnection of information technology. The set of Recommendations | International Standards covers the services and protocols required to achieve such interconnection.

This Recommendation | International Standard is positioned with respect to other related Recommendations | International Standards in the set by the layers defined in the Reference Model for Open Systems Interconnection (see ITU-T Rec. X.200 | ISO/IEC 7498-1). In particular, it is protocol of the presentation layer. It is most closely related to the Presentation Service Definition (see ITU-T Rec. X.216 | ISO/IEC 8822) and the Session Service Definition (see ITU-T Rec. X.215 | ISO/IEC 8326). The interrelationships of these Recommendations | International Standards are depicted below:



The structure of this Recommendation | International Standard is similar to the structure of the connection-oriented Presentation Protocol specification in order to facilitate cross-reference between the two Recommendations | International Standards.

INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION – CONNECTIONLESS PRESENTATION PROTOCOL: PROTOCOL SPECIFICATION

1 Scope

This Recommendation | International Standard[1)] specifies

a) procedures for the transfer of data and control information from one presentation-entity to a peer presentation-entity;

b) the structure and encoding of the presentation-protocol-data-units used for the transfer of data and control information.

The procedures are defined in terms of

c) the interactions between peer presentation-entities through the exchange of esentation-protocol-data-units;

d) the interactions between a presentation-entity and the presentation-service-user in the same system through the exchange of presentation-service primitives;

e) the interactions between a presentation-entity and the session-service-provider through the exchange of session-service primitives.

These procedures are defined in the main text of this Recommendation | International Standard supplemented by state tables in Annex A.

These procedures are applicable to instances of communication between systems which support the Presentation Layer of the OSI Reference Model and which wish to transfer presentation service data units using connectionless-mode presentation service primitives.

This Recommendation | International Standard also specifies conformance criteria for systems implementing these procedures. It does not contain tests which can be used to demonstrate this conformance.

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 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.210 (1993) | ISO/IEC 10731:1994, *Information technology – Open Systems Interconnection – Basic Reference Model – Conventions for the definition of OSI services.*

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1) The implementation and use of this Recommendation | International Standard requires the public assignment of values of ASN.1 type OBJECT IDENTIFIER to specifications of abstract syntaxes and transfer syntaxes. Procedures for the naming of abstract syntaxes are contained in ITU-T Rec. X.216 | ISO/IEC 8822. Procedures for the naming of transfer syntaxes are contained in ITU-T Rec. X.226 | ISO/IEC 8823-1.

- ITU-T Recommendation X.215 (1994) | ISO/IEC 8326:...[2], *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.226 (1994) | ISO/IEC 8823-1:1994, *Information technology – Open Systems Interconnection – Connection-oriented presentation protocol: Protocol specification.*
- ITU-T Recommendation X.256 (1995) | ISO/IEC 9576-2:1995, *Information technology – Open Systems Interconnection – Connectionless presentation protocol: Protocol Implementation Conformance Statement (PICS) proforma.*
- CCITT Recommendation X.660 (1992) | ISO/IEC 9834-1:1993, *Information technology – Open Systems Interconnection – Procedures for the operation of OSI Registration Authorities: General procedures.*
- ITU-T Recommendation X.680 (1994) | ISO/IEC 8824-1:1995, *Information technology – Abstract Syntax Notation One (ASN.1): Specification of the basic notation.*
- ITU-T Recommendation X.681 (1994) | ISO/IEC 8824-2:1995, *Information technology – Abstract Syntax Notation One (ASN.1): Information object specification.*
- ITU-T Recommendation X.682 (1994) | ISO/IEC 8824-3:1995, *Information technology – Abstract Syntax Notation One (ASN.1): Constraint specification.*
- ITU-T Recommendation X.683 (1994) | ISO/IEC 8824-4:1995, *Information technology – Abstract Syntax Notation One (ASN.1): Parameterization of ASN.1 specifications.*
- 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 content

- CCITT Recommendation X.650 (1992), *Open Systems Interconnection (OSI) – Reference Model for naming and addressing.*

ISO 7498-3:1989, *Information processing systems – Open Systems Interconnection – Basic Reference Model – Part 3: Naming and addressing.*

3 Definitions

3.1 Reference Model definitions

This Recommendation | International Standard is based on the concepts developed in ITU-T Rec. X.200 | ISO/IEC 7498-1 and makes use of the following terms derived from it:

a) Presentation Layer;
b) presentation-protocol-data-unit;
c) presentation-service;
d) presentation-service-access-point;
e) presentation-service-data-unit;
f) presentation-protocol-control-information;
g) Session Layer;
h) session-service-data-unit;
i) session-service-access-point;
j) transfer syntax;
k) (N)-connectionless-mode-transmission.

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[2] To be published.

3.2 Naming and addressing definitions

This Recommendation | International Standard makes use of the following terms defined in CCITT Recommendation X.650 | ISO 7498-3:

a) session-address;

b) presentation-address;

c) presentation-selector.

3.3 Service conventions definitions

This Recommendation | International Standard makes use of the following terms defined in ITU-T Rec. X.210 | ISO/IEC 10731 as they apply in the Presentation Layer:

a) service-user;

b) service-provider;

c) service primitive;

d) request;

e) indication;

f) non-confirmed-service.

3.4 Presentation Service definitions

This Recommendation | International Standard is also based on concepts developed in ITU-T Rec. X.216 | ISO/IEC 8822 and makes use of the following terms defined therein:

a) abstract syntax;

b) abstract syntax name;

c) transfer syntax name;

d) presentation data value;

e) presentation context;

f) default context.

4 Abbreviations

4.1 Data Units

PPDU	Presentation Protocol Data Unit
PSDU	Presentation Service Data Unit
SSDU	Session Service Data Unit

4.2 Types of presentation-protocol-data-units

UD PPDU	Unit Data PPDU

4.3 Other abbreviations

ASN.1	Abstract Syntax Notation One (see ITU-T Rec. X.680 | ISO/IEC 8824-1, ITU-T Rec. X.681 | ISO/IEC 8824-2, ITU-T Rec. X.682 | ISO/IEC 8824-3, ITU-T Rec. X.683 | ISO/IEC 8824-4)
PPCI	presentation-protocol-control-information
PPM	presentation protocol machine
PS	presentation-service
PSAP	presentation-service-access-point
PS-user	presentation-service-user
SS	session-service
SSAP	session-service-access-point

5 Overview of the connectionless presentation protocol

5.1 Service provided by the Presentation Layer

The protocol specified in this Recommendation | International Standard supports the connectionless-mode presentation-service. The connectionless-mode presentation-service is defined in ITU-T Rec. X.216 | ISO/IEC 8822. The connectionless-mode presentation-service primitives are summarized in Table 1.

Table 1 – Presentation Service Primitives

Primitive	Parameters
P-UNIT-DATA request	Calling-presentation-address Called-presentation-address Presentation context definition list Quality of Service User data
P-UNIT-DATA indication	Calling-presentation-address Called-presentation-address Presentation context definition list User data

5.2 Service assumed from the Session Layer

The protocol specified in this Recommendation | International Standard can operate only over the connectionless-mode session-service indicated in Table 2 and defined in ITU-T Rec. X.215 | ISO/IEC 8326.

Table 2 – Session Service Primitives

Primitive	Parameters
S-UNIT-DATA request	Calling-session-address Called-session-address Quality of Service SS-user data
S-UNIT-DATA indication	Calling-session-address Called-session-address SS-user data

5.3 Functions of the Presentation Layer

The functions of the Presentation Layer for connectionless-mode transmission are described in the Reference Model, ITU-T Rec. X.200 | ISO/IEC 7498-1, and are further expanded in the Presentation Service Definition, ITU-T Rec. X.216 | ISO/IEC 8822.

5.4 Model of the Presentation Layer

A presentation-protocol-entity is comprised of one or more presentation protocol machines (PPMs). A PPM may be connection oriented or connectionless. The connectionless-mode PPM communicates with the presentation-service-user through one or more PSAPs by means of the connectionless-mode presentation-service primitives. These presentation-service primitives cause or result from exchange of PPDUs between the peer presentation-entities engaged in connectionless-mode transmission. These protocol exchanges are effected using the services of the Session Layer as defined in the Session Service Definition covering connectionless-mode transmission (see ITU-T Rec. X.215 | ISO/IEC 8326).

The reception of a service primitive and the generation of dependent actions are considered to be an indivisible action. The reception of a PPDU and the generation of dependent actions are considered to be an indivisible action. The model of the Presentation Layer in connectionless-mode is illustrated in Figure 1.

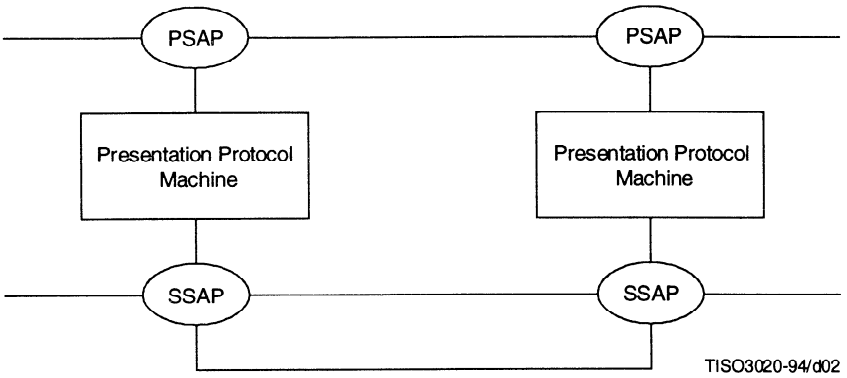

Figure 1 – Model of the Presentation Layer

6 Elements of Procedure

6.1 PPDU transfer

6.1.1 Purpose

The PPDU transfer procedure is used to convey a presentation-protocol-data-unit (PPDU) in a session-service primitive. For the connectionless-mode protocol, only one type of protocol data unit, namely Unit Data PPDU (UD PPDU), is defined.

6.1.2 UD PPDU associated parameters

6.1.2.1 Protocol version

This shall identify the version of the presentation protocol that the sending PPM supports. The version of the protocol defined in this Recommendation | International Standard shall be version-1. Only one protocol version can be proposed by the sending PPM.

6.1.2.2 Presentation context definition list

This shall be a list containing one or more items. Each item represents one item of the Presentation context definition list parameter from the P-UNIT-DATA request service primitive and shall appear as one item of the Presentation context definition list parameter of the P-UNIT-DATA indication service primitive, if issued. Each item contains three components:

- a presentation context identifier;
- an abstract syntax name; and
- a transfer syntax list.

6.1.2.3 Calling-presentation-selector

This shall be the presentation-selector part of the Calling-presentation-address parameter from the P-UNIT-DATA request service primitive and shall appear as the calling-presentation-selector part of the Calling-presentation-address parameter of the P-UNIT-DATA indication service primitive, if issued.