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Draft for Development

Open Systems Interconnection: connection-oriented presentation protocol specification (ISO/DIS 8823)

Projet à développer. Interconnexion de systèmes ouverts: spécification du protocole de présentation orienté connexion

Entwurf zur weiteren Ausarbeitung. Kommunikation Offener Systeme: Spezifikation des verbindungsorientierten Darstellungsprotokolls

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This publication is not to be regarded as a British Standard. It is being issued in the Draft for Development series of publications and is of a provisional nature because the subject matter is in the process of ongoing development within the International Standards Committee (ISO/TC 97/SC 21 Information Retrieval, Transfer and Management for Open Systems Interconnection).

A review of this Draft for Development will be carried out not later than two years after its publication.

Notification of the start of the review period, with a request for the submission of comments from users of this Draft for Development will be made in an announcement in the appropriate issue of *BSI News*. Observations which it is felt should receive attention before the official call for comments will be welcomed. According to the replies received, the responsible BSI Committee will judge whether the Draft for Development can be converted into a British Standard or what other action should be taken.

National foreword

This Draft for Development has been prepared under the direction of the Office and Information Standards Committee. The primary objective of this Draft for Development is to give advance guidance to product and systems designers concerned with the Presentation Layer of the Basic Reference Model for Open Systems Interconnection (OSI).

The text of the Draft for Development is identical with Draft International Standard ISO/DIS 8823 issued June 1985 by the International Organization for Standardization (ISO).

This Draft for Development is a revision of DD 102 : 1985 to take account of comments received on the ISO Draft Proposal. The text has been changed to follow changes made to the presentation service (DD 101), to make use of the latest ASN.1 specification (DD 103) and to align it with CCITT Recommendation X.410. Addressing parameters have been aligned to be consistent with the addendum to the Reference Model for OSI on naming and addressing (DD 149), and the presentation context management functional unit used over the session activity management service (in DD 111) has been simplified.

For ease of reproduction the ISO text has been reproduced unchanged.

The UK has actively participated through BSI Technical Committee IST/21 in the development of the ISO Draft International Standard. The Technical Committee will review any agreed amendments or addenda to the ISO text and will, where appropriate, update the text of this Draft for Development via an amendment or revision. When the ISO draft reaches an appropriate level of agreement and stability, this Draft for Development may then be converted to a British Standard.

This Draft for Development is closely related to DD 101 which defines the service provided by the protocol specified in this Draft for Development.

A brochure giving details of existing and projected British Standards publications for Open Systems Interconnection (OSI), data communications, database and computer graphics may be obtained from the Sales Department, BSI, Linford Wood, Milton Keynes, MK14 6LE, at no charge. Press Releases for new British Standard publications in these areas will be issued to the computing press, and details of all new publications will be recorded in full in *BSI News*.

Terminology and conventions. The text of the Draft International Standard has been approved as suitable for publication as a Draft for Development without deviation. Some terminology and certain conventions are not identical with those used in Drafts for Development; attention is drawn especially to the following.

Wherever the words 'International Standard' appear, referring to this Draft for Development, they should be read as 'Draft for Development'.

Cross-references

International standards	Corresponding British Standards
ISO 7498-1984	BS 6568 : 1984 Description of basic reference model for open systems interconnection (Identical)
ISO/DIS 8326 revised-1984	DD 111 : 1985 Open Systems Interconnection: basic connection-oriented session service definition (ISO/DIS 8326 revised) (Identical)
ISO/DTR 8509	DD 108 : 1986 Open Systems Interconnection: service conventions (ISO/DTR 8509) (Identical)
ISO/DIS 8822	DD 101 : 1986 Open Systems Interconnection: connection-oriented presentation service definition (ISO/DIS 8822) (Identical)
ISO/DIS 8824.2	DD 103 : 1986 Open Systems Interconnection: specification of Abstract Syntax Notation One (ASN.1) (ISO/DIS 8824.2) (Identical)
ISO/DIS 8825.2	DD 104 : 1986 Open Systems Interconnection: specification of basic encoding rules for Abstract Syntax Notation One (ASN.1) (ISO/DIS 8825.2) (Identical)
ISO 7498/PDAD 3 (referred to as ISO 7498/ Add 3 in the text)	DD 149 : 1986 Open Systems Interconnection: naming and addressing (ISO 7498/PDAD 3) (Identical)

0 INTRODUCTION

This International Standard is one of a set of International Standards produced to facilitate the interconnection of information processing systems. It is related to other International Standards in the set as defined by the Reference Model for Open Systems Interconnection (ISO 7498). The Reference Model subdivides the area of standardization for interconnection into a series of layers of specification, each of manageable size.

This International Standard specifies a common encoding and a number of functional units of presentation protocol procedures to be used to meet the needs of Presentation Service users. It is intended that the Presentation Protocol should be simple but general enough to cater for the total range of Presentation Service users' needs without restricting future extensions.

The primary aim of this International Standard is to provide a set of rules for communication expressed in terms of the procedures to be carried out by peer entities at the time of communication. These rules for communication are intended to provide a sound basis for development in order to serve a variety of purposes

- a) as a guide for implementors and designers;
- b) for use in the testing and procurement of equipment;
- c) as part of an agreement for the admittance of systems into the open systems environment;
- d) as a refinement of the understanding of OSI.

It is expected that the initial users of this International Standard will be designers and implementors of equipment and therefore it contains, in notes or in annexes, guidance on the implementation of its procedures.

It has not been possible as yet to prepare a product standard containing a set of objective tests for conformance to this International Standard but it does contain a section on conformance of equipment claiming to implement the procedures it specifies. Attention is drawn to the fact that this International Standard does not contain any tests to demonstrate this conformance and cannot, therefore, be considered as a complete product standard.

The variations and options available within this International Standard are essential to enable a Presentation Service to be provided for a wide variety of applications. Thus, a minimally conforming implementation will not be suitable for use in all possible circumstances. It is necessary, therefore, to qualify all references to this International Standard with statements of the options provided or required, or with statements of the intended purpose of provision or use.

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1 SCOPE AND FIELD OF APPLICATION

1.1 This International Standard specifies

- a) procedures for the transfer of data and control information from one presentation entity to a peer presentation entity;
- b) the means of selecting, by means of functional units, the procedures to be used by the presentation entities;
- c) the structure and encoding of the presentation protocol data units used for the transfer of data and control information.

1.2 The procedures are defined in terms of

- a) the interactions between peer presentation entities through the exchange of presentation protocol data units;
- b) the interactions between a presentation entity and the presentation service user in the same system through the exchange of presentation service primitives;
- c) 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 the standard supplemented by state tables in the annex.

1.3 These procedures are applicable to instances of communication between systems which support the Presentation Layer of the OSI Reference Model and which wish to interconnect in an OSI environment.

1.4 This 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 REFERENCES

- ISO 7498 Information processing systems - Open systems interconnection - Basic Reference Model.
- ISO 7498/Add 3 Information processing systems - Open systems interconnection - Basic Reference Model. ADDENDUM 3 : Naming and Addressing. 1)
- ISO 8822 Information processing systems - Open systems interconnection - Presentation service definition. 1)
- ISO 8326 Information processing systems - Open systems interconnection - Session service definition.
- ISO/TR 8509 Information processing systems - Open systems interconnection - Service Conventions. 1)
- ISO 8824 Information processing systems - Open systems interconnection - Specification of Abstract Syntax Notation One (ASN.1). 1)
- ISO 8825 Information processing systems - Open systems interconnection - Encoding Rules for Abstract Syntax Notation One. 1)

1) At present at the stage of draft.

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SECTION ONE. GENERAL

3 DEFINITIONS

NOTE- The definitions contained in this clause make use of abbreviations defined in clause 4.

3.1 This International Standard is based on the concepts developed in ISO 7498 and makes use of the following terms defined in it:

- a) presentation-connection;
- b) presentation layer;
- c) presentation-protocol-data-unit;
- d) presentation-service;
- e) presentation-service-access-point;
- f) presentation-service-data-unit;
- g) presentation-service-primitive;
- h) session-connection;
- i) session layer;
- j) session-service-primitive;
- k) session-service-data-unit;
- l) session-service-access-point;
- m) transfer syntax.

3.2 This International Standard makes use of the following terms defined in ISO 7498/ Add 3:

- a) session address;
- b) presentation selector.

3.3 For the purpose of this International Standard, the following definitions apply:

3.3.1 presentation-service-user: An abstract representation of the totality of those entities within a single system that make use of the presentation service.

3.3.2 session-service-provider: An abstract machine which models the totality of the entities providing the session service, as viewed by a presentation entity.

3.3.3 local matter: A decision made by a system concerning its behaviour in the Presentation Layer that is not subject to the requirements of this protocol.

3.3.4 initiator: The presentation entity that initiates an interaction due to a presentation service request.

3.3.5 responder: The presentation entity which did not initiate the interaction.

3.3.6 sending presentation-entity: A presentation entity that sends a given PPDU or session service request or response.

3.3.7 receiving presentation-entity: A presentation entity that receives a given PPDU or session service indication or confirm.

NOTE- For a non-confirmed service, the initiator and the sending presentation entity are synonymous, similarly for the responder and the receiving presentation entity. For a confirmed service, both entities are both sending presentation entity and receiving presentation entity at different stages of the interaction.

3.3.8 invalid PPDU: A PPDU which does not comply with the requirements of this International Standard for structure and encoding.

3.3.9 protocol error: A PPDU whose use does not comply with the procedures defined in this International Standard.

3.3.10 original activity identifier: An attribute of an activity in progress. If the activity was started by use of the P-ACTIVITY-START service, the activity identifier parameter value of the request and indication; if the activity was resumed by use of the P-ACTIVITY-RESUME service the old activity identifier parameter value of the request and indication.

3.3.10 self-delimiting: An attribute of a transfer syntax which indicates that the end of each value in that syntax can be determined by means provided by the syntax.

3.3.11 octet-aligned: An attribute of a transfer syntax which indicates that each value in that syntax comprises an integral number of octets.

3.3.12 inter-activity defined context set: When the last service of the activity management functional unit which was invoked was P-ACTIVITY-START or P-ACTIVITY-RESUME, then the inter-activity defined context set is the set of contexts which were available for use on the presentation connection immediately before the last P-ACTIVITY-START or P-ACTIVITY-RESUME service invocation.

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 unit

CP PPDU	Connect presentation PPDU
CPA PPDU	Connect presentation accept PPDU
CFR PPDU	Connect presentation reject PPDU
ARU PPDU	Abnormal release user PPDU
ARP PPDU	Abnormal release provider PPDU
AC PPDU	Alter context PPDU
ACA PPDU	Alter context acknowledge PPDU
TTD PPDU	Presentation Typed Data PPDU
TD PPDU	Presentation Data PPDU
TE PPDU	Expedited Data PPDU
TC PPDU	Capability Data PPDU
TCC PPDU	Capability Data acknowledge PPDU.

NOTE- The first "T" of the abbreviations TTD,TD,TE,TC, and TCC stands for "transfer".

RS PPDU	Resynchronize PPDU
RSA PPDU	Resynchronize acknowledge PPDU

4.3 Other abbreviations

PPCI	Presentation protocol control information
PPM	Presentation protocol Machine.
DCS	Defined context set.
PSAP	Presentation Service Access Point
SSAP	Session Service Access Point

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5 OVERVIEW OF THE PRESENTATION PROTOCOL

5.1 Service provided by the Presentation Layer

The protocol specified in this International Standard supports the Presentation Service defined in ISO 8822.

5.2 Service assumed from the Session Layer

The protocol specified in this International Standard assumes the use of the Session Service defined in ISO 8326.

5.3 Functions of the Presentation Layer

The functions of the Presentation Layer are described in the Reference Model, ISO 7498, and are further expanded in the Presentation Service Definition, ISO 8822.

5.4 Presentation Functional Units

Functional units are logical groupings of related elements of procedure defined by this International Standard for the purpose of

- a) negotiation for use after presentation connection establishment.
- b) specification of conformance requirements.

The PPDUs associated with elements of procedure for each functional units are specified in table 1.

5.4.1 Kernel Functional Unit

This functional unit, which is always available, supports the basic protocol elements of procedure required to establish a presentation connection, transfer data, and release the presentation connection.

NOTE- This is the presentation kernel functional unit; it supports data transfer on whatever session functional units are selected.

5.4.2 Context Management Functional Unit

This functional unit supports the context define and delete services. This functional unit is optional, and its use is negotiable.

5.4.3 Context Restoration Functional Unit

This functional unit adds further presentation layer functionality when the context management functional unit and the session activity management functional unit or synchronization (major or minor) and resynchronization functional units are selected.

TABLE 1 Association of PPDU's with Elements of Procedure

Functional Unit	O/M	PPDU Code	PPDU Name
Kernel functional unit	M	CP	Connect Presentation PPDU
		CPA	Connect Presentation accept PPDU
		CPR	Connect Presentation reject PPDU
		ARU	Abnormal Release-User PPDU
		ARP	Abnormal Release-Provider PPDU
		TD	Data PPDU
		TE	Expedited data PPDU (note 2)
		TTD	Typed data PPDU (note 3)
		TC	Capability data PPDU (note 4)
		TCC	Capability data Ack. PPDU (note 4)
Context Management functional unit	O	DC	Alter Context PPDU
		DCA	Alter Context Ack. PPDU
		RS	Resynchronize PPDU
		RSA	Resynchronize Ack. PPDU
Context Restoration Functional Unit	O		No further PPDU's. (note 5)

NOTES

1- O = Optional M = Mandatory

2- The session expedited functional unit must also have been selected.

3- The session typed data functional unit must also have been agreed by the presentation service users.

4- The session capability data functional unit must also have been agreed.

5- The presentation context management functional unit must also have been selected.

5.5 Model of the Presentation Layer

The presentation protocol machine (PPM), see the note, within the presentation entity communicates with the user through a PSAP by means of service primitives as defined by the

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Presentation service definition ISO 8822. Service primitives will cause or be the result of presentation protocol data unit exchanges and/or session service primitive invocations between the peer PPMs using a session connection. These protocol exchanges are effected using the services of the session layer as defined by the session service definition ISO 8326.

Presentation connection endpoints are identified in end systems by an internal, implementation dependent, mechanism so that the presentation service user and the presentation entity can refer to each presentation connection.

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 is illustrated in figure 1.

NOTE- A presentation entity is comprised of one or more PPMs.

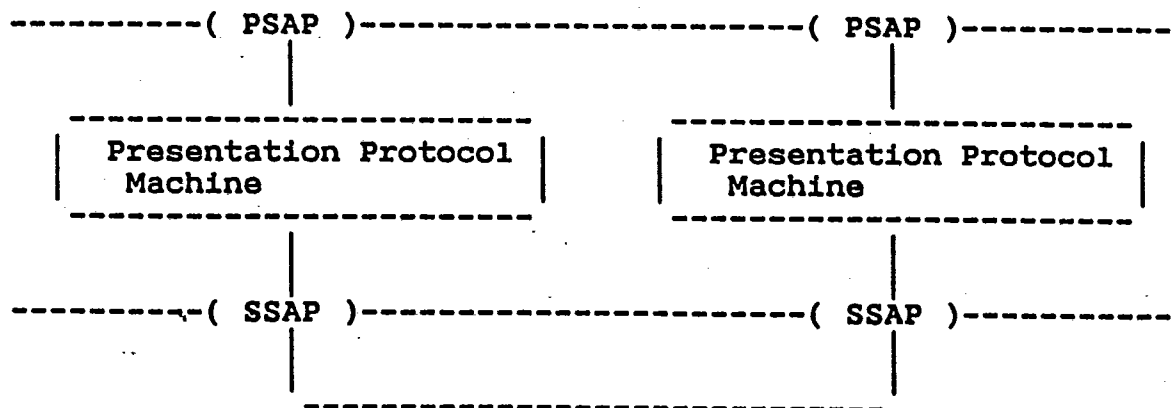


Figure 1 - Model of the presentation layer

SECTION TWO. PRESENTATION PROTOCOL SPECIFICATION

6 ELEMENTS OF PROCEDURE

For further information on the use of parameters refer to the Presentation Service document ISO 8822.

6.1 User Data Parameters

Most of the PPDUs used in the procedures of the presentation layer include user data parameters. This clause gives the rules for determining the contexts in which user information may be represented.

The information in the user data of the TE PPDU shall always be in the default context. When the context management functional unit is not selected and no defined context set is agreed at connection establishment, then all user data shall be expressed in the default context.

Otherwise, the information in all user data parameters except for TE PPDU shall be in contexts determined by the rules governing the defined context set. These are

- a) If the defined context set is empty and (d) does not apply, then the information shall be represented in the default context;
- b) If the defined context set is not empty and no procedure is in train which can amend the contents of the defined context set, then the information shall be represented in any contexts of the defined context set.
- c) If the procedure for the PPDU containing the user data parameter itself amends the defined context set, then the information shall be represented in any contexts of the defined context set which results from this amendment, or in the default context if this leaves the defined context set empty.
- d) If a PPM is awaiting a PPDU which will confirm a proposed amendment to the defined context set then the information shall be represented in any contexts from the defined context set which were not proposed for deletion from the defined context set. If there are no such contexts, then the user data parameter shall not be present.

6.2 Connection Establishment6.2.1 Purpose

The connection establishment procedure is used to establish a connection between two presentation entities. It is used by an initiating entity which has received a P-CONNECT request.

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6.2.2 PPDUs and parameters used

The procedure uses the following PPDUs, PPDU parameters and associated session service parameters

a) CP PPDU

- Calling Presentation Selector
- Calling Session Address
- Called Presentation Selector
- Called Session Address
- Multiple defined contexts
- Proposed presentation context list
- Default context
- Protocol version
- Quality of service
- Presentation requirements
- User session requirements
- Revised session requirements
- Initial synchronization point serial number
- Initial assignment of tokens
- Session connection identifier
- User data

b) CPA PPDU

- Called Presentation Selector
- Called Session Address
- Responding Presentation Selector
- Responding Session Address
- Multiple defined contexts
- Presentation context definition result list
- Default context result
- Protocol version
- Quality of service
- Presentation requirements
- User session requirements
- Revised session requirements
- Initial synchronization point serial number
- Initial assignment of tokens
- Session connection identifier
- User data

c) CPR PPDU

- Called Presentation Selector
- Called Session Address
- Responding Presentation Selector
- Responding Session Address
- Presentation context definition result list
- Default context result
- Quality of service
- Session requirements
- Session connection identifier
- Provider reason

- User data

6.2.3 Procedure

6.2.3.1 When a P-CONNECT request is received by a presentation entity, that entity shall initiate establishment of a connection by issuing a CP PPDU containing the information and proposed parameters necessary for the operation of the presentation connection. (See 6.2.4).

6.2.3.2 The responder may refuse the connection (if for example, the parameter values of the PPDU or of the underlying S-CONNECT indication are unacceptable) in which case it shall issue a CPR PPDU with a provider reason parameter (See 6.2.6). Alternatively, if not refusing, it shall issue a P-CONNECT indication.

6.2.3.3 If the responder then receives a P-CONNECT response with a result parameter of "rejection by user", it shall issue a CPR PPDU, (see 6.2.6) but if it receives a P-CONNECT response with a result parameter of "acceptance", it shall issue a CPA PPDU. (See 6.2.5).

6.2.3.4 If the initiator is unable to establish a connection due to an inability to establish a session connection, it shall issue a P-CONNECT confirm with a result parameter value of "rejection by provider" and the connection shall not be established.

6.2.3.5 If the initiator receives a CPR PPDU refusing the presentation connection, then it shall issue a P-CONNECT confirm with a result parameter value of "rejection by user", if the provider reason parameter is not available or "rejection by provider" if the provider reason parameter is available, (see 6.2.6), and the connection shall not be established.

6.2.3.6 If the initiator receives a CPA PPDU accepting the presentation connection, then it shall issue a P-CONNECT confirm with a result parameter value of "accept" (see 6.2.5), and the connection shall be established.

6.2.3.7 If the connection is established the defined context set of either presentation entity is set according to the parameters of the CPA PPDU.

6.2.4 Use of the CP PPDU parameters

The CP PPDU and associated parameters shall be used as follows

6.2.4.1 Calling Presentation Selector

This shall be the presentation selector part of the calling presentation address parameter from the P-CONNECT request and shall appear as the calling presentation selector part of the calling presentation address parameter of the P-CONNECT indication, if issued.

6.2.4.2 Calling Session Address

This shall be the session address part of the calling presentation address parameter from the P-CONNECT request and shall appear as the session address part of the calling presentation address parameter of the P-CONNECT indication, if issued.

6.2.4.3 Called Presentation Selector

This shall be the presentation selector part of the called presentation address parameter from the P-CONNECT request and shall appear as the called presentation selector part of the called presentation address parameter of the P-CONNECT indication, if issued.

6.2.4.4 Called Session Address

This shall be the session address part of the called presentation address parameter from the P-CONNECT request and shall appear as the session address part of the called presentation address parameter of the P-CONNECT indication, if issued.

6.2.4.5 Multiple Defined Contexts

This shall be the multiple defined contexts parameter from the P-CONNECT request and shall appear as the multiple defined contexts parameter of the P-CONNECT indication, if issued.

6.2.4.6 Proposed presentation context list

This consists of a list containing one or more items. Each item represents one item of the presentation context definition list parameter from the P-CONNECT request and shall be represented by one item of the presentation context definition list parameter of the P-CONNECT indication if issued. Each item contains three components: a presentation context identifier, an abstract syntax name and a transfer syntax list. The transfer syntax list contains those transfer syntaxes the initiating presentation entity is capable of supporting for the named abstract syntax on the presentation connection (at least one for each proposed presentation context). The first element of each of these lists identifies the transfer syntax to be applied to the user data parameter. All presentation context identifiers contained in this parameter shall be different and shall be odd integers.

NOTE- The presentation context identifiers are specified here to be odd integers so that they are chosen from a separate number space from those identifiers allocated by the responding presentation entity.

6.2.4.7 Default context

This represents the default context name parameter of the P-CONNECT request and shall be represented by the default context name parameter of the P-CONNECT indication if issued. It contains two components: an abstract syntax name and a transfer syntax. The transfer syntax component identifies the transfer syntax required by the initiating presentation entity for the default context on the presentation connection.

6.2.4.8 Protocol Version

This shall identify the version of the presentation protocol in use by the initiating PPM. The default value is 1.

6.2.4.9 Quality of Service

This shall be the quality of service parameter from the P-CONNECT request and shall appear as the quality of service parameter of the P-CONNECT indication, if issued.

6.2.4.10 Presentation Requirements

This shall be the presentation requirements parameter of the P-CONNECT request and shall identify the presentation functional units required by the presentation service user in the P-CONNECT request. It shall appear as the presentation requirements parameter of the P-CONNECT indication if issued, unless the receiving presentation entity does not support all of them, in which case only those functional units supported shall appear.

6.2.4.11 User Session Requirements

This shall be the session requirements parameter from the P-CONNECT request and shall identify the requirements to the underlying session service imposed by the presentation service user. It shall appear as the session requirements parameter of the P-CONNECT indication, if issued.

6.2.4.12 Revised Session Requirements

This shall be the value of the session requirements parameter, supplemented by such additional requirements as are needed to support the presentation protocol.

6.2.4.13 Initial Synchronization Point Serial Number

This shall be the initial synchronization point serial number parameter of the P-CONNECT request, and shall appear as the initial synchronisation point serial number parameter of the P-CONNECT indication if issued.

6.2.4.14 Initial Assignment of Tokens

This shall be the initial assignment of tokens parameter from the P-CONNECT request, and shall appear as the initial

assignment of tokens parameter of the P-CONNECT indication, if issued.

6.2.4.15 Session Connection Identifier

This shall be the session connection identifier parameter from the P-CONNECT request, and shall appear as the session connection identifier parameter of the P-CONNECT indication, if issued.

6.2.4.16 User Data

This shall represent the user data parameter from the P-CONNECT request, and shall be represented by the user data parameter of the P-CONNECT indication, if issued. If the proposed presentation context list parameter is not present, then it shall be expressed according to the default context. Otherwise it shall be expressed according to the value of the proposed presentation context list parameter. Each value in the user data is represented as a list of pairs consisting of a transfer syntax identifier from those offered for a context and the data value represented according to the context for which the transfer syntax was offered. The user data parameter of the P-CONNECT indication may contain the value "user data not readable" indicating that the responding presentation entity is not capable of supporting any of the transfer syntaxes in use for a data value in this parameter.

6.2.5 Use of the CPA PPDU parameters

This sub-clause defines the way in which CPA PPDUs shall be used. An instance of a CPA PPDU need not contain values for all possible parameters; in addition to the presentation address parameters, it should only contain values for equivalent parameter values present in the CP PPDU for which it is a reply.

The CPA PPDU and associated parameters shall be used as follows

6.2.5.1 Called Presentation Selector

This shall be the presentation selector part of the called presentation address parameter from the P-CONNECT response and shall appear as the called presentation selector part of the called presentation address parameter of the P-CONNECT confirm, if issued.

6.2.5.2 Called Session Address

This shall be the session address part of the called presentation address parameter from the P-CONNECT response and shall appear as the session address part of the called presentation address parameter of the P-CONNECT confirm, if issued.

6.2.5.3 Responding Presentation Selector

This shall be the presentation selector part of the responding presentation address parameter from the P-CONNECT response and shall appear as the responding presentation selector part of the responding presentation address parameter of the P-CONNECT confirm, if issued.

6.2.5.4 Responding Session Address

This shall be the session address part of the responding presentation address parameter from the P-CONNECT response and shall appear as the session address part of the responding presentation address parameter of the P-CONNECT confirm if issued.

6.2.5.5 Multiple Defined Contexts

This shall be the multiple defined contexts parameter from the P-CONNECT response, and shall appear as the multiple defined contexts parameter of the P-CONNECT confirm, if issued.

6.2.5.6 Presentation Context Definition Result List

This shall represent the result list parameter of the P-CONNECT response and shall be represented by the result list parameter of the P-CONNECT confirm. It consists of a list containing the same number of items as the proposed presentation context list parameter of the CP PPDU. Each item shall be a reply to the corresponding item in the CP PPDU and contains one or two components, a context definition result and an optional component which is either a transfer syntax name or a provider reason.

6.2.5.7 Protocol Version

This shall identify the version of the presentation protocol in use by the initiating PPM. The default value is 1.

NOTE- If the responding PPM can support several versions of the protocol, it should nevertheless conform to the requested version (i.e. that requested by the initiating PPM) for this connection.

6.2.5.8 Quality of Service

This shall be the quality of service parameter from the P-CONNECT response and shall appear as the quality of service parameter of the P-CONNECT indication if issued.

6.2.5.9 Presentation Requirements

This shall be the presentation requirements parameter from the P-CONNECT response. It shall appear as the presentation requirements parameter of the P-CONNECT confirm if issued.

6.2.5.10 User Session Requirements

This shall be the session requirements parameter from the P-CONNECT response and shall appear as the session requirements parameter of the P-CONNECT confirm, if issued.

6.2.5.11 Revised Session Requirements

This shall be the value of the session requirements parameter, supplemented by such additional requirements as are needed to support the presentation protocol.

6.2.5.12 Initial Synchronization Point Serial Number

This shall be the initial synchronization point serial number parameter from the P-CONNECT response, and shall appear as the initial synchronisation point serial number parameter of the P-CONNECT confirm, if issued.

6.2.5.13 Initial Assignment of Tokens

This shall be the initial assignment of tokens parameter from the P-CONNECT response, and shall appear as the initial assignment of tokens parameter of the P-CONNECT confirm, if issued.

6.2.5.14 Session Connection Identifier

This shall be the session connection identifier parameter from the P-CONNECT response, and shall appear as the session connection identifier parameter of the P-CONNECT confirm, if issued.

6.2.5.15 User Data

This shall represent the user data parameter from the P-CONNECT response, and shall be represented by the user data parameter of the P-CONNECT confirm, if issued. This parameter shall be expressed according to the defined context set as established by this CPA PPDU.

6.2.6 Use of the CPR PPDU parameters

This sub-clause defines the way in which CPR PDUs shall be used. An instance of a CPR PDU need not contain values for all possible parameters; in addition to presentation selector parameters it should only contain values for equivalent parameter values present in the CP PDU for which it is a reply.

The CPR PDU and associated parameters shall be used as follows

6.2.6.1 Called Presentation Selector

This shall be the presentation selector part of the called presentation address parameter from the P-CONNECT response and

shall appear as the called presentation selector part of the called presentation address parameter of the P-CONNECT confirm, if issued.

6.2.6.2 Called Session Address

This shall be the session address part of the called presentation address parameter from the P-CONNECT response and shall appear as the session address part of the called presentation address parameter of the P-CONNECT confirm, if issued.

6.2.6.3 Responding Presentation Selector

This shall be the presentation selector part of the responding presentation address parameter from the P-CONNECT response and shall appear as the responding presentation selector part of the responding presentation address parameter of the P-CONNECT confirm, if issued.

6.2.6.4 Responding Session Address

This shall be the session address part of the responding presentation address parameter from the P-CONNECT response and shall appear as the session address part of the responding presentation address parameter of the P-CONNECT confirm, if issued.

6.2.6.5 Presentation Context Definition Result List

This parameter shall only be present if the user data parameter is present. It shall represent the result list parameter of the P-CONNECT response and shall be represented by the result list parameter of the P-CONNECT confirm. It consists of a list containing the same number of items as the proposed presentation context list parameter of the CP PPDU. Each item shall be a reply to the corresponding item in the CP PPDU and contains one or two components, a context definition result and an optional component which is either a transfer syntax name or a provider reason.

6.2.6.6 Quality of Service

This shall be the quality of service parameter from the P-CONNECT response, or if the CPR PPDU is issued by the responding presentation entity on receipt of a CP PPDU it shall be supplied by the responding presentation entity. In either case it shall appear as the quality of service parameter of the P-CONNECT confirm. It shall identify a quality of service required by the responding service user or service provider.

6.2.6.7 Session Requirements

This shall be the session requirements parameter from the P-CONNECT response, or if the CPR PPDU is issued by the responding presentation entity on receipt of a CP PPDU it shall

be supplied by the responding presentation entity. In either case it shall appear as the session requirements parameter of the P-CONNECT confirm. It shall identify those session functional units required by the responding service user or service provider.

NOTE- If the connection establishment proposal is rejected by the presentation service user, this parameter shall represent the session requirements of the presentation service user as indicated in the response primitive; there is no "revised session requirements " parameter in this PPDU.

6.2.6.8 Session Connection Identifier

This shall be the session connection identifier parameter from the P-CONNECT response, and shall appear as the session connection identifier parameter of the P-CONNECT confirm.

6.2.6.9 Provider Reason

If present, this shall indicate that the rejection is by the service provider, and shall indicate the reason for the rejection of the connection establishment proposal. It shall take one of the following values

- no reason given (transient);
- temporary congestion (transient);
- local limit exceeded (permanent);
- called presentation address unknown (permanent)
- protocol version not supported (permanent)
- no PSAP available from the set of PSAPs identified by the called presentation address (transient).

6.2.6.10 User Data

This shall represent the user data parameter from the P-CONNECT response, and shall be represented by the user data parameter of the P-CONNECT confirm, if issued. This parameter shall be expressed according to the transfer syntaxes contained in the selected transfer syntax list parameter of this CPR PPDU, if present, or otherwise according to the default context. It is not present if the connection establishment proposal is rejected by the presentation service provider.

6.2.7 Negotiation

6.2.1 Multiple defined contexts negotiation

The multiple defined contexts parameter may be present in the CPA PPDU only if it was present in the CP PPDU. If it is not present in the CPA PPDU, then the defined context set shall not have more than one member during the presentation connection.

6.2.7.2 Presentation Context Negotiation

The defined context set determined during presentation

connection establishment is negotiated between the peer presentation entities and users.

The initiating presentation entity provides for each abstract syntax requested by the service user a list of transfer syntaxes it is capable of supporting for the presentation connection. The responding presentation entity passes an indication primitive to its user marking as provider-reject those it cannot support. The responding user indicates those it accepts in the response primitive (taking into account 6.2.7.1 above) and selects one item of the transfer syntax list as the transfer syntax of the defined presentation context.

A defined context is identified by a presentation context identifier provided by the initiating presentation entity.

6.2.7.3 Functional Units Negotiation

Presentation functional units are negotiated between the two presentation service users. The presentation functional units selected for the presentation connection are those which are required by both presentation service users. The negotiation of session functional units is subject to the session service definition (ISO 8326).

6.2.8 Collisions and Interactions

6.2.8.1 P-CONNECT

Simultaneous attempts by two presentation users to initiate a common connection shall, if successful, give rise to two distinct, distinguishable connections.

6.2.8.2 P-U-ABORT

If the initiating presentation entity receives a P-U-ABORT request after it has issued a CP PPDU but before it has issued a P-CONNECT confirm, it shall issue an ARU PPDU and the connection shall not be established.

6.2.8.3 ARU PPDU, ARP PPDU and S-P-ABORT

If the initiating presentation entity receives an S-P-ABORT indication or an ARP PPDU, it shall issue a P-P-ABORT indication and the connection shall not be established.

If the initiator receives an ARU PPDU, it shall issue a P-U-ABORT indication and the connection shall not be established.

The responder shall react to ARU PPDUs, ARP PPDUs and S-P-ABORT indications in the same way, once it has issued a P-CONNECT indication.