INTERNATIONAL STANDARDIZED PROFILE

# ISO/IEC ISP 11188-3

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# Information technology — International Standardized Profile — Common upper layer requirements —

## Part 3:
Minimal OSI upper layer facilities

*Technologies de l'information — Profil normalisé international — Prescriptions communes pour la couche supérieure —*

*Partie 3: Facilités minimales pour la couche supérieure OSI*

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 or 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 JTC1. In addition to developing International Standards, ISO/IEC JTC1 has created a Special Group on Functional Standardization for the elaboration of International Standardized Profiles.

An International Standardized Profile is an internationally agreed, harmonized document which identifies a standard or group of standards, together with options and parameters, necessary to accomplish a function or set of functions.

Draft International Standardized Profiles are circulated to national bodies for voting. Publication as an International Standardized Profile requires approval by at least 75% of the national bodies casting a vote.

International Standardized Profile ISO/ISP 11188-3 was prepared with the collaboration of

- Asia-Oceania Workshop (AOW);
- European Workshop for Open Systems (EWOS);
- Open Systems Environment Implementors' Workshop (OIW).

ISO/IEC ISP 11188 consists of the following parts, under the general title *Information technology - International Standardized Profile - Common upper layer requirements:*

- *Part 1: Basic connection oriented requirements*
- *Part 2: Basic connection oriented requirements for ROSE-based Profiles*
- *Part 3: Minimal OSI upper layer facilities*

Annexes A , B, C , D, E and F form an integral part of this part of ISO/IEC ISP 11188. Annexes G and H are for information only.



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## Introduction

This part of ISO/IEC ISP 11188 is defined within the context of Functional Standardization, in accordance with the principles specified by ISO/IEC TR 10000, *Framework and Taxonomy of International Standardized Profiles.* The context of Functional Standardization is one part of the overall field of Information Technology (IT) standardization activities, covering base standards, profiles, and registration mechanisms. A profile defines a combination of base standards that collectively perform a specific, well-defined IT function. Profiles standardize the use of options and other variations in the base standards, and provide a basis for the development of uniform, internationally recognized system tests.

A profile (e.g., an ISO/IEC ISP) or the specification of a basic communications application may reference this part of ISO/IEC ISP 11188. In addition, a referencing ISP may specify further requirements on the protocols, provided it does not contradict this part of ISO/IEC ISP 11188. A specification of an implementation may also reference this part of ISO/IEC ISP 11188.

The purpose of ISO/IEC ISP 11188 is to provide common text for ISPs or other referencing specifications which specify A-profiles. In addition to simplifying their drafting, it also facilitates the common implementation of the protocols for use in different A-profile contexts.

This part of ISO/IEC 11188 specifies a profile of the minimal OSI facilities supporting basic connection-oriented communications applications. These facilities are comprised of a subset of the facilities defined by the ACSE, Presentation, and Session service definitions.



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# Information technology—International Standardized Profile—Common upper layer requirements—

# Part 3:
Minimal OSI upper layer facilities

## 1 Scope

This part of ISO/IEC ISP 11188 introduces the concept of the minimal set of OSI upper layer facilities[1] for basic communications applications. A **basic communications application** simply requires the ability to open and close connection-oriented communications with a peer and to send and receive messages with the peer. It is expected that a large portion of potential OSI applications will be basic communications applications.

### 1.1 General

This part of ISO/IEC ISP 11188 specifies the minimal set of upper layer facilities required for the support of basic communications applications. The minimal OSI facilities are referred to as **mOSI**.

This part of ISO/IEC ISP 11188 defines the mOSI facilities in terms of identified features of the upper layer PICS proformas – the ACSE (ISO/IEC 8650-2), the Presentation layer (ISO/IEC 8823-2), and the Session layer (ISO/IEC 8327-2). The identified features of these PICS proformas are specified in annexes A, B, and C, respectively.

This part of ISO/IEC ISP 11188 complies with the requirements stated in ISO/IEC ISP 11188-1, Basic connection oriented requirements.

This part of ISO/IEC ISP 11188 may be referenced by two classes of entities: upper layer *users* and upper layer *providers*.

— mOSI *users* represent basic communications applications. mOSI users may be profiles (such as A-profiles identified in ISO/IEC TR 10000-2) or specifications of basic communications applications that are not represented by a formal profile. An API specification is a special case of the latter. The term **referencing specification** is used in this part of ISO/IEC ISP 11188 to represent this set of mOSI users.

— mOSI *providers* represent implementations of the upper layer facilities that provide (at a minimum) the facilities defined in this part of ISO/IEC ISP 11188. The term **referencing implementation** is used in this part of ISO/IEC ISP 11188 to represent this set of mOSI providers.

A referencing specification (a mOSI user) may claim **compliance**[2] to this part of ISO/IEC ISP 11188. It may do so if the OSI upper layer facilities that it requires can be expressed by the facilities of this part of ISO/IEC ISP 11188. Subclause 2.1 summarizes the requirements for making such a statement. Annex D provides a proforma for a profile requirements list (PRL) for a compliant application.

A referencing implementation (a mOSI provider) may claim **conformance**[3] to this part of ISO/IEC ISP 11188. It may do so if the OSI upper layer facilities that it provides include those expressed in this part of ISO/IEC ISP 11188. That is, an implementation may contain more upper layer facilities than those required to be conformant to this part of ISO/IEC ISP 11188. However, they must contain at least those of this part of ISO/IEC ISP 11188.

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1 The upper layer facilities considered in this part of ISO/IEC ISP 11188 are ACSE, Presentation, and Session.

2 **Compliance** deals with one specification referencing another specification.

3 **Conformance** deals with a physical implementation that references a particular specification.



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Annex F assigns object identifier values for specific generic definitions of application context, abstract syntax, and transfer syntax.

### 1.2 Position within the taxonomy

This part of ISO/IEC ISP 11188 does not specify a full A-profile, and therefore is not included in the taxonomy of ISO/IEC TR 10000-2.

## 2 Compliance and conformance

### 2.1 Profile or specification of a basic communications application

A specification may reference this part of ISO/IEC ISP 11188 to identify its upper layer requirements and may claim compliance to this part of ISO/IEC ISP 11188.

To be compliant, a referencing specification shall do the following:

a) require that all of the mandatory ("m") features for this part of ISO/IEC ISP 11188 are also mandatory for the referencing specification;

b) require that all of the out of scope ("i") features for this part of ISO/IEC ISP 11188 are also out of scope for the referencing specification;

c) require that all of the optional ("o") features for this part of ISO/IEC ISP 11188 are kept as optional, i.e., they are not redefined by the referencing specification;

d) require that all of the open ("*") features for this part of ISO/IEC ISP 11188 are kept as open or are re-defined as mandatory ("m"), optional ("o") or out of scope ("i"); and

e) comply with the requirements of ISO/IEC ISP 11188-1 and not conflict with the requirements of this part of ISO/IEC ISP 11188.[4]

NOTES

1 The meaning of the status indicators (see 6.1) when used by a referencing specification is given in table 1 column 3.

2 It is recommended that a referencing specification use the tables in annex D to specify its profile requirements list.

A referencing specification may be compliant with this part of ISO/IEC ISP 11188 by either of the following ways:

a) It may repeat all of the specifications contained in this part of ISO/IEC ISP 11188. To claim compliance to this part of ISO/IEC ISP 11188, a referencing specification shall assure that its specification of the ACSE, Presentation, and Session features does not violate those in this part of ISO/IEC ISP 11188.

b) It may claim compliance by reference to this part of ISO/IEC ISP 11188 instead of repeating the provisions of this part of ISO/IEC ISP 11188.

NOTE

3 It is recommended that a referencing specification claim compliance with this part of ISO/IEC ISP 11188 by referencing it instead of repeating its provisions.

### 2.2 OSI upper layer stack implementation

An implementation may reference this part of ISO/IEC ISP 11188 to claim that it supports some or all of the features specified herein. The referencing implementation may in fact support additional upper layer features—without violating any of those in this part of ISO/IEC ISP 11188.

To be conformant, a referencing implementation shall do the following:

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[4] See clause 2 and Annex B in ISO/IEC ISP 11188-1.



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a) support all of the mandatory ("m") features in this part of ISO/IEC ISP 11188;

b) follow the guidelines for support of the out of scope ("i") features outlined in table 1;

c) follow the guidelines for support of the optional ("o") features outlined in table 1;

d) follow the guidelines for support of the open ("*") features outlined in table 1; and

e) conform to the requirements of ISO/IEC ISP 11188-1.

NOTE — It is recommended that a referencing implementation use the tables in annex E to summarize its profile implementation conformance statement.

## 2.3 Facilities, roles and options

This part of ISO/IEC ISP 11188 defines **mOSI compliance and conformance** in terms of facilities, roles and options. This part of ISO/IEC ISP 11188 has three facilities:

a) association establishment;

b) user data transfer; and

c) association release.

Association establishment includes two optional facilities:

a) authentication; and

b) application context negotiation.

Each facility has roles (Initiator/Responder and Requestor/Acceptor). Within this part of ISO/IEC ISP 11188, each role (or an optional facility) is referenced by a variable (see 6.1). For example, the variable name used to describe the capability to establish an association is *establishment-initiator*.

The referencing specification assigns each variable one of the following values:

— mandatory ("m")

— optional ("o")

— out of scope ("i")

The meanings of these values are defined in table 1.

mOSI compliance and conformance can be determined by specifying values ("m", "o", or "i") for all of these variables.

## 2.4 Relationship to base standards

### 2.4.1 ACSE

This part of ISO/IEC ISP 11188 includes rules for incorporating the Kernel functional unit. Optionally, it also includes the Authentication functional unit and Application Context Name Negotiation functional unit. This part of ISO/IEC ISP 11188 allows the roles for association establishment and release identified in ISO/IEC 8650.

The required facilities of ACSE are specified in annex A. A default value for application context name is defined in annex F. The requirements expressed in ISO/IEC ISP 11188-1 also apply to the ACSE aspects of this part of ISO/IEC ISP 11188.

### 2.4.2 Presentation layer

This part of ISO/IEC ISP 11188 includes rules for incorporating the Presentation Kernel functional unit.

The required facilities of Presentation layer are specified in annex B. Default values for user abstract syntax name and user transfer syntax name are defined in annex F. The requirements expressed in ISO/IEC ISP 11188-1 also apply to the Presentation layer aspects of this part of ISO/IEC ISP 11188.

### 2.4.3 Session layer

This part of ISO/IEC ISP 11188 includes rules for incorporating the Session Kernel and Duplex functional units.



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The required facilities of Session layer are specified in annex C. The requirements expressed in ISO/IEC ISP 11188-1 also apply to the Session layer aspects of this part of ISO/IEC ISP 11188.

### 2.5 Transport-provider

This part of ISO/IEC ISP 11188 does not address the lower four OSI layers (Transport, Network, Link, and Physical layers). They are outside of the scope of this part of ISO/IEC ISP 11188 (see also clause 7).

A transport-provider is needed to support the exchange of ACSE, Presentation, and Session PDUs for a conformant mOSI implementation. To meet this requirement, the transport-provider shall supply services equivalent to those defined in the OSI Transport layer service definition (ITU-T Rec. X.214 | ISO 8072).

## 3 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this International Standardized Profile. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this International Standardized Profile are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by ISPs to these documents is that they may be specific to a particular edition. Members of IEC and ISO maintain registers of currently valid International Standards and ISPs, and ITU-T maintains published editions of its current Recommendations.

### 3.1 Identical Recommendations | International Standards

- ITU-T Recommendation X.200 (1994) | ISO/IEC 7498-1 : 1994, *Information technology—Open Systems Interconnection: Basic Reference Model.*
- ITU-T Recommendation X.207 (1993) | ISO/IEC 9545 : 1994, *Information technology—Open Systems Interconnection—Application layer structure.*
- 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.214 (1993) | ISO/IEC 8072 : 1994, *Information technology —Open Systems Interconnection—Transport service definition.*
- ITU-T Recommendation X.215 (1994) | 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.217 (1995) | ISO/IEC 8649 : 1996, *Information technology —Open Systems Interconnection—Service definition for the Association Control Service Element.*
- 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.227 (1995) | ISO/IEC 8650-1 : ____[5], *Information technology — Open Systems Interconnection—Connection-oriented protocol for the Association Control Service Element: Protocol specification.*
- ITU-T Recommendation X.245 (1995) | ISO/IEC 8327-2 : ____[6], *Information technology — Open Systems Interconnection—Connection-oriented session protocol : Protocol Implementation Conformance Statement (PICS) proforma.*

5 To be published. (Revision of ISO 8650:1988)

6 To be published.



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— ITU-T Recommendation X.246 (1994) | ISO/IEC 8823-2 : 1995, *Information technology—Open Systems Interconnection—Connection-oriented presentation protocol : Protocol Implementation Conformance Statement (PICS) proforma.*

— 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.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).*

### 3.2 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.*

### 3.3 Additional references

— ISO/IEC TR 10000-1 : 1995, *Information technology—Framework and taxonomy of International Standardized Profiles—Part 1 : General principles and documentation framework.*

— ISO/IEC TR 10000-2 : 1995, *Information technology—Framework and taxonomy of international standardized profiles—Part 2 : Principles and Taxonomy for OSI profiles.*

— ISO/IEC ISP 11188-1 : 1995, *Information technology—International Standardized Profile—Common upper layer requirements—Part 1 : Basic connection-oriented requirements.*

## 4 Definitions

This part of ISO/IEC ISP 11188 makes use of the following definitions.

### 4.1 Reference model definitions

#### 4.1.1 Basic Reference Model definitions

This part of ISO/IEC ISP 11188 is based on the concepts developed in ITU-T Rec. X.200 | ISO/IEC 7498-1. It makes use of the following terms defined in them:

a) application-entity;

b) Application layer;

c) application-process;

d) application-protocol-control-information;

e) application-protocol-data-unit;

f) application-service-element;

g) compliance;

h) presentation-connection;

i) Presentation layer;

j) presentation-service;

k) session-connection;

l) Session layer;

m) session-protocol;



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n) session-service;

o) Transport layer

### 4.1.2 Naming and addressing definitions

This part of ISO/IEC ISP 11188 makes use of the following terms defined in ISO 7498-3:

a) application-process title;

b) application-entity qualifier;

c) application-entity title;

d) application-process invocation-identifier;

e) application-entity invocation-identifier; and

f) presentation address.

## 4.2 Service conventions definitions

This part of ISO/IEC ISP 11188 makes use of the following terms defined in ITU-T Rec. X.210 | ISO/IEC 10731:

a) primitive;

b) request (primitive);

c) indication (primitive);

d) response (primitive); and

e) confirm (primitive).

## 4.3 Presentation definitions

This part of ISO/IEC ISP 11188 makes use of the following terms defined in ITU-T Rec. X.216 | ISO/IEC 8822 and ITU-T Rec. X.226 | ISO/IEC 8823-1:

a) abstract syntax;

b) abstract syntax name;

c) default context;

d) defined context set;

e) functional unit [Presentation];

f) normal mode [Presentation];

g) presentation context;

h) presentation data value; and

i) presentation selector

## 4.4 Session definitions

This part of ISO/IEC ISP 11188 makes use of the following terms defined in ITU-T Rec. X.215 | ISO/IEC 8326 and ITU-T Rec. X.225 | ISO/IEC 8327-1:

a) session selector.

## 4.5 Application layer structure definitions

This part of ISO/IEC ISP 11188 makes use of the following terms defined in ISO/IEC 9545:

a) application-context;



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b) application-entity invocation;

c) control function; and

d) application-service object.

## 4.6 ACSE service definitions

This part of ISO/IEC ISP 11188 makes use of the following terms defined in ITU-T Rec. X.217 | ISO/IEC 8649 and ITU-T Rec. X.227 | ISO/IEC 8650-1:

a) application-association; association;

b) Association Control Service Element;

c) requestor;

d) acceptor;

e) association-initiator; and

f) association-responder.

## 4.7 Taxonomy of profile definitions

This part of ISO/IEC ISP 11188 makes use of the following terms defined in ISO/IEC TR 10000-1:

a) A-Profile;

b) profile requirements list;

c) profile implementation conformance statement; and

d) PICS Proforma.

## 4.8 Definitions of this part of ISO/IEC ISP 11188

For the purposes of this part of ISO/IEC ISP 11188, the following definitions apply.

**4.8.1 basic communications application:** An application program that simply requires the ability to open and close communications with a peer and to send and receive messages with that peer.

**4.8.2 conformance:** The referencing implementation supports an identified and consistent set of dynamic conformance requirements specified in a set of related OSI protocol, profile, abstract syntax, encoding rule and information object specifications.[7]

**4.8.3 mOSI specification; mOSI stack specification:** This specification that defines the minimal facilities of the Session layer, Presentation layer, and ACSE.

**4.8.4 mOSI stack:** An implementation that supports, at a minimum, the facilities defined in the mOSI stack specification.

**4.8.5 mOSI platform specification:** The functional specification of a formal programmatic interface and a set of supporting local services for the mOSI stack specification.

**4.8.6 mOSI platform:** An implementation of the mOSI platform specification.

**4.8.7 non-basic communications application:** An application program that requires the ability to support functions other than those specified in the definition a basic communications application.

**4.8.8 platform:** An implementation of an identified platform specification.

**4.8.9 platform-based application:** An application program that conforms to a platform specification.

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[7] This definition may be removed at such a time when a definition of conformance is made available in the OSI Reference Model, or some other governing specification.



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**4.8.10 PDV-processor:** part of an implementation which wraps and unwraps the "PDV envelope" around the syntax sent and received in the identified presentation context.

**4.8.11 platform specification:** The functional specification of a formal programmatic interface and a set of supporting local services for an identified stack specification.

**4.8.12 referencing implementation:** A specification of an implementation which references mOSI for defining its upper layer requirements.

**4.8.13 referencing specification:** A specification of an ISO/IEC ISP or the specification of a basic communications application which references mOSI for defining its upper layer requirements.

**4.8.14 specific basic communications application:** an application that is not referenced by any ISP.

**4.8.15 stack; stack implementation:** An implementation of an identified stack specification

**4.8.16 stack specification:** The functional specification of a set of interrelated standards for the purpose of providing a common service (set of facilities).

**4.8.17 standalone application:** Any application program which is not a platform-based application.

**4.8.18 transport-provider:** A provider of those transport services which are defined in ITU-T Rec. X.214 | ISO/IEC 8072.

## 5 Abbreviations

The following abbreviations are used in this part of ISO/IEC ISP 11188.

| | |
|---|---|
| ACSE | Association Control Service Element |
| APDU | application-protocol-data-unit |
| API | application programmatic interface |
| ASN.1 | Abstract Syntax Notation One |
| BCA | basic communications application |
| CCITT | International Telegraph and Telephone Consultative Committee |
| CULR | Common Upper Layers Requirements |
| ICS | implementation conformance statement |
| IEC | International Electrotechnical Commission |
| ISO | International Organization for Standardization |
| ISP | International Standardized Profile |
| ITU-T | International Telecommunications Union — Telecommunications Systems and Services |
| mOSI | minimal OSI upper layer facilities |
| OSI | Open Systems Interconnection |
| PDU | protocol-data-unit |
| PDV | presentation data value |
| PICS | protocol implementation conformance statement |
| PPDU | presentation-protocol-data-unit |
| PRL | profile requirements list |
| SPDU | session-protocol-data-unit |
| TSDU | transport-service-data-unit |



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# 6 Conventions

## 6.1 Profile status indicators

This part of ISO/IEC ISP 11188 states mOSI functionality by defining rules for forming a mOSI Profile Requirements List (PRL) based on the PICS proformas of ACSE, Presentation, and Session. The rules for defining a mOSI PRL are contained in annexes A, B, and C. The rules are specified by a series of tables in each annex. Each table in an annex refers to one identified table in the respective PICS Proforma. Each row in an annex table refers to a row in the corresponding PICS Proforma table.

Annexes A, B, and C consist of rules that determine the status indicator for each entry in the ACSE, Presentation, Session PICS Proformas. A **status indicator** defines rules that a referencing application or a referencing implementation must follow as it relates to the associated entry in annex A, B, or C. The Profile status indicators used in this part of ISO/IEC ISP 11188 are presented in table 1.

The upper layer PICS proforma and consequently an upper layer PRL contain over 120 tables with almost 1000 entries (questions). For BCA applications, a large number of the PICS proforma entries do not apply—they are out of scope (i). Others are obviously required—they are mandatory (m). Some are considered internal and left to the discretion of the implementor—they are optional (o).

The remaining entries of annexes A, B, and C are determined by a referencing specification or a referencing implementation. This is done by assigning status indicators (those defined in table 1) to mOSI variables and open parameters (see 2.3 and 6.2). An open parameter is a variable that is only referenced in one table entry. An open parameter is assigned the profile status of "*" (see table 1).

An **application PRL** results when status identifiers are assigned to mOSI variables and open parameters and they are applied to annexes A, B, and C. Table 1 definitions apply to the resultant status identifiers of the application PRL.

Column 2 of table 1 defines rules for a referencing specification. They define how a referencing specification shall view an entry in annexes A, or B, or C. It also defines the meaning of a status indicator when assigned to a mOSI variable or to an open parameter.

Column 3 of table 1 defines rules for a referencing implementation. They define how a referencing implementation shall view an entry in annexes A, or B, or C or that of an applications PRL.



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**Table 1 – Profile status identifiers**

| | Identifier | Meaning when referenced by a specification | Meaning when referenced by an implementation |
|---|---|---|---|
| 1 | m | mandatory — The feature shall be required for support. The status of the feature shall remain mandatory in a referencing specification (see note). | mandatory — The implementation shall support the feature, i.e. its syntax and procedures shall be implemented as specified in the base standard or in ISO/IEC ISP 11188-1. However, it is not a requirement that the feature shall be used in all instances of communication unless mandated by the base standard or stated otherwise in ISO/IEC ISP 11188-1. The feature shall be the subject of an ISP conformance test (see note). |
| 2 | o | optional — The choice of whether this feature is supported or it is not supported is made by the implementation. The status of the feature shall remain optional in a referencing specification. | optional — The implementation may decide either to support or to not support the feature.<br>• Supporting the feature means that the feature shall be handled as if it was mandatory.<br>• Not supporting a feature depends on receiving or sending:<br>For sending, the feature's capability is not used.<br>For receiving an optional parameter, the syntax shall be implemented and the parameter may be ignored.<br>The feature shall be the subject of an ISP conformance test. |
| 3 | * | open — The status of this feature shall be decided by the referencing specification. The referencing specification shall indicate that the status of the feature is mandatory, optional, or out of scope. Alternately, the referencing specification may keep the feature open. | open — same as optional |
| 4 | x | excluded — The feature shall not be used in a referencing specification. The status of the feature shall remain excluded in a referencing specification. | excluded — The implementation shall not support the feature. When completing the associated PICS proforma table, the answer for the support column shall be that the feature has not been implemented. The implementation shall abort if the feature is received. The exclusion should be the subject of an ISP conformance test. |
| 5 | i | out of scope — The requirement for the support of this feature is not covered by this part of ISO/IEC ISP 11188. The status of the feature shall remain out of scope in a referencing specification. | out of scope — Support for a feature shall follow the guidelines outlined for optional above with the exception that this feature shall not be the subject of an ISP conformance test. |
| 6 | - | not applicable — The feature is not relevant where mentioned in a table. Support for the feature is either meaningless, logically impossible, or physically impossible, after some conditions are evaluated. The status of the feature shall remain not applicable in a referencing specification. | not applicable — The feature is not defined by the base standard in the context where it is mentioned in a table. A support answer is not required from the implementor. |
| 7 | c[n] | conditionally supported — Support for the feature is further defined in this part of ISO/IEC ISP 11188 by condition ("n") annexed to the table. The value evaluated from the condition evaluates to one of the following values defined in this table: "m"; "o"; "i", or "–". | conditionally supported — Support for the feature is further defined by a condition ("n") which is annexed to the table. Depending on the condition, when completing the associated PICS Proforma table, the answer for the support column shall either be: the feature has been implemented; the feature has not been implemented; or not applicable. |

NOTE — The support of a feature can be conditional, depending on the support of a class of features to which it belongs, e.g. a parameter in a PDU, a PDU in a functional unit.



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## 6.2 Definitions of variables

Variables are used in annexes A, B, and C as a method of specifying values for the "Profile status" column of these tables. A variable (for the purpose of this part of ISO/IEC ISP 11188) is used as a simple replacement for two or more table entries and/or in a IF/THEN/ELSE conditional statement to derive a table entry. A variable's name is always written in *italics.* The variables used are

*Establishment-initiator* — capability to establish an association or connection

*Establishment-responder* — capability to respond to an establishment initiation

*Establishment-responder-reject* — capability to reject an establishment initiation

*Release-requestor* — capability to release an association or connection

*Release-acceptor* — capability to accept a release request

*Normal-data-requestor* — capability to request normal data transfer

*Normal-data-acceptor* — capability to accept normal data transfer

*Authentication* — capability to perform authentication

*Application-context-negotiation* — capability to perform application context negotiation

*Transport-expedited* — capability to use transport expedited data for Session PDUs (this does not include the Session ExpeditedData functional unit).

These variables reflect the roles and options identified in 2.3. The values these variables may take are "m", "o", and "i" as defined in table 1. Values for these variables may be assigned by a referencing specification in annex D and by a referencing implementation in annex E.

## 6.3 Definition of mnemonics

Mnemonics are used in annexes A, B, and C to facilitate the interpretation of conditional statements throughout the PRLs of annexes A, B, and C. These mnemonics are introduced in column 4 of several tables in these annexes; they are

| | |
|---|---|
| *A-CON-initiator* | (see A.2.1/1) |
| *A-CON-responder* | (see A.2.1/2) |
| *A-REL-requestor* | (see A.2.2/1) |
| *A-REL-acceptor* | (see A.2.2/2) |
| *A-FU(AU)* | (see A.4/2) |
| *A-FU(ACN)* | (see A.4/3) |
| *P-DATA-requestor* | (see B.3.1.1.2/1) |
| *P-DATA-acceptor* | (see B.3.1.1.2/2) |
| *P-REL-requestor* | (see B.3.1.1.3/1) |
| *P-REL-acceptor* | (see B.3.1.1.3/2) |
| *P-REFUSE* | (see B.3.1.2/3) |
| *S-EXP-T* | (see C.3.2/1) |

These mnemonics are Boolean variables. They reflect whether the feature of the corresponding table entry is supported or not. A mnemonic has the value TRUE if the corresponding feature is supported, otherwise FALSE.



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# 7 Model

This clause presents the mOSI model and defines many of the terms used in this part of ISO/IEC ISP 11188. The mOSI model, as shown in figure 1, illustrates the mOSI stack in three different environments which are detailed in 7.2 and 7.3. It can be viewed in two contexts: it can be viewed abstractly – where the various elements represent abstract specifications; or it can be viewed concretely – where the elements represent those of an implementation.

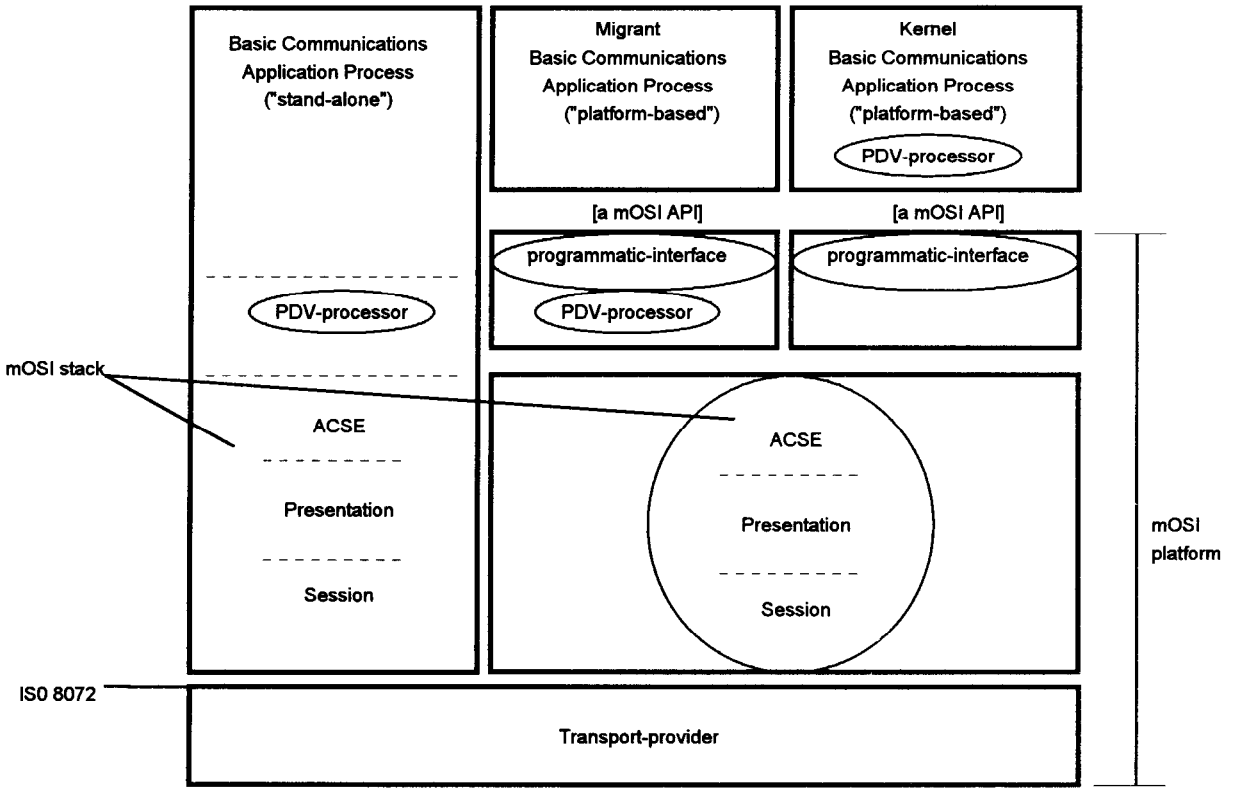



**Figure 1 -- mOSI model**

## 7.1 Common elements

There are common elements in all three environments shown in figure 1. They are:

- basic communications application
- PDV-processor
- mOSI stack
- transport services and
- transport provider

A **basic communications application (BCA)** simply requires the ability to open and close communications with a peer and to send and receive messages with the peer. This part of ISO/IEC ISP 11188 addresses the requirements of basic communications applications.

A stack represents a set of layered, interdependent communication standards (in the abstract sense) and their implementation (in the concrete sense). The **mOSI stack** represents the ACSE, Presentation, and Session standards (protocol specifications) or their implementation with the features specified in this part of ISO/IEC ISP 11188.

NOTE – A stack does not necessarily represent a layered implementation of the layered standards. On the contrary, it is recommended in annex H that the implementation of a mOSI stack is one protocol engine, not three.

From the perspective of the Presentation protocol (ISO/IEC 8823-1), the syntax (encoded data) sent from one application to its peer is a series of one or more presentation-data-values (PDV). The ISO Presentation protocol defines the encoding of the outer envelope around a PDV and the encoding for groups of PDVs (if any). The


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actual contents of a PDV is a function of the mutually agreed upon abstract and transfer syntax of the PDV – its presentation context. While ASN.1 basic encoding rules can be used for encoding abstract and transfer syntax, it is not the only choice.

The negotiation of the transfer syntax and the encoding/decoding of user information is considered in the OSI model to be done by the Presentation layer. The Application layer is concerned only with abstract values, with no defined encoding. Consequently, in a real system the boundary between Application layer and Presentation layer cannot be precisely represented (since real systems are not abstract). In the implementation-oriented mOSI model, any necessary encoding/decoding of the transfer syntax sent between connected applications is outside the scope of the mOSI stack. The encoding produces presentation-data-values in the appropriate presentation context. The Presentation protocol includes the specification of a PDV envelope. The **PDV-processor** represents the wrapping and unwrapping of the PDV envelope around the syntax sent or received in the identified presentation context. As shown in figure 1, the PDV-processor can be located at a number of different places within the model. The mOSI model assumes that PDV encoding and decoding is done outside of the mOSI stack.[8]

This part of ISO/IEC ISP 11188 does not address the four lower OSI layers (Transport, Network, Link, and Physical layers). They are considered outside of the scope of this part of ISO/IEC ISP 11188. However, a **transport-provider** is needed to transport the ACSE, Presentation, and session PDUs of a mOSI implementation. As such, the transport-provider supplies **transport services** equivalent to those defined in the OSI Transport layer service definition (ISO 8072).

This specification does not place any requirements on the actual transport provider (layer 4 and below) used as long as services equivalent to the OSI transport services are provided.

## 7.2 Standalone applications

For the purposes of this part of ISO/IEC ISP 11188, a **standalone application** is one that includes the application PDV-processor and the mOSI stack as a single unit application.[9] For an implementation, the mOSI stack may be a series of separate modules with its own internal programmatic interface or as a single state machine.

## 7.3 Platform-based applications

A communications platform allows a division between an application program and its communications provider. A **platform** comprises the communication facilities in one system necessary to support a distributed application. A **platform-based application** represents the communication aspects of a distributed application in one system. An **application programmatic interface (API)** is the formal interface between a communication platform and its user [platform-based] applications. It is formal in the sense that the API is specified so as to allow the use of the platform by different types of applications – most often, in parallel. The **programmatic interface** represents the mapping of the API to the internals of the supporting system.

A **mOSI platform** consists of a mOSI API, a mOSI stack in conjunction with the normal facilities provided by a platform (e.g. POSIX services in the case of a UNIX based platform).

A **mOSI API** represents the interface to the mOSI stack. It provides the minimal facilities of the OSI upper layers as defined in this part of ISO/IEC ISP 11188.

This part of ISO/IEC ISP 11188 can support two types of basic communications application: migrant application and kernel application (also see annex G). Depending on the type of application, the PDV-processor could either be a part of the platform or a part of each platform-based application.

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[8] This does not preclude sending a Presentation provider Abort (ARP PPDU).

[9] Many ISPs are written from the point of view of standalone applications. However, the actual implementation of the ISP could result in a platform-based application.



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### 7.3.1 Migrant applications

OSI (and mOSI) has two required facilities that are not part of other transport providers:

a) application context[10]; and

b) presentation context[11] – abstract syntax name and transfer syntax name pair.

An OSI upper layer stack requires that names be provided for application context, abstract syntax, and transfer syntax. These names may be hidden from the API user by having the programmatic interface provide default values (see annex F).

A migrant application running over a stack (see G.2.3.2) is unaware (or at least, not concerned) with formally identifying application context and the presentation context of the data sent and received. Instead, it allows the programmatic interface to provide default values (see annex F). The encoding and decoding of the PDVs are hidden by placing the PDV-processor within the platform.

### 7.3.2 Kernel application

A kernel application (see G.2.3.1) is an OSI-based application. It is aware of the mandated application context names and presentation context.

Most likely, (but, not necessarily) the application's own protocol will be specified and encoded using ASN.1. For this reason the PDV-processor is shown in figure 1 within the application itself – rather than as part of the platform. It is not expected that a kernel application will use the default values for abstract syntax and transfer syntax defined in annex F.

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[10] See ISO/IEC 9545 for details.

[11] See ISO/IEC 8823-1 for details.



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# Annex A
(normative)

# mOSI requirements for ACSE facilities

This annex contains the mOSI specifications for completing the ACSE Profile Requirements List (PRL) for the selected facilities, roles and options (see 2.3).

This annex uses the tables in the ACSE PICS Proforma (ISO/IEC 8650-2). The clause numbers and tables referenced in this annex are those of the PICS Proforma. If the PICs proforma contains tables which are not explicitly outlined in this annex, then the features of those tables are out of scope (i) for this part of ISO/IEC ISP 11188.

The specifications of this annex reference the following variables: *Establishment-initiator, Establishment-responder, Normal-data-requestor, Normal-data-acceptor, Release-requestor, and Release-acceptor.* The values for these variables may be set by a referencing specification using the proforma provided in table D.1. The values for these variables may be set by a referencing implementation using the proforma provided in table E.1.

This annex contains several open (*) parameters whose requirements are specified by the referencing specification or the referencing implementation. The requirements are expressed in terms of "m", "o", or "i" as defined in table 1. The parameters have the identifier of "*" in the tables of this annex. A referencing specification may set these open parameters by using the proforma provided in table D.2. A referencing implementation may set the open parameters by using the proforma provided in table E.2.

NOTE—PICS Proforma clauses A.1-A.4 are not covered in this part of ISO/IEC ISP 11188. The questions are answered by an implementor of ACSE.

## A.1 Global statement of conformance – [PICS Proforma clause A.5]

| | Question | Answer | PICS Proforma reference |
|---|---|---|---|
| 1 | Are all mandatory features supported? | yes | A.5/1 |



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## A.2 Supported roles – [PICS Proforma clause A.6]

### A.2.1 Association establishment procedure – [PICS Proforma A.6.1]

| | Role | Profile | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|
| 1 | Initiator | c[1] | A.6.1/1 | [A-CON-initiator] |
| 2 | Responder | c[2] | A.6.1/2 | [A-CON-responder] |

[1] The value of *Establishment-initiator*

[2] The value of *Establishment-responder*

### A.2.2 Normal release procedure – [PICS Proforma A.6.2]

| | Role | Profile | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|
| 1 | Requestor | c[1] | A.6.2/1 | [A-REL-requestor] |
| 2 | Acceptor | c[2] | A.6.2/2 | [A-REL-acceptor] |

[1] The value of *Release-requestor*

[2] The value of *Release-acceptor*

### A.2.3 Abnormal release procedure – [PICS Proforma A.6.3]

| | Role | Profile | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|
| 1 | Requestor | m | A.6.3/1 | |
| 2 | Acceptor | m | A.6.3/2 | |

## A.3 Protocol mechanisms – [PICS Proforma clause A.7]

| | Protocol mechanism | Profile | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|
| 1 | Normal mode | m | A.7/1 | |
| 2 | X.410-1984 mode | i | A.7/2 | Not used by BCA |
| 3 | Rules of extensibility | m | A.7/3 | |
| 4 | Support of session version 2 | m | A.7/4 | |

## A.4 Functional units – [PICS Proforma clause A.8]

| | ACSE functional unit | Profile | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|
| 1 | Kernel | m | A.8/1 | |
| 2 | Authentication | c[1] | A.8/2 | [A-FU(AU)] |
| 3 | AC Name Negotiation | c[2] | not in yet | [A-FU(ACN)] |

[1] Value of *Authentication*

[2] Value of *Application-context-negotiation (A defect report has been raised to add the Application Context Name Negotiation functional unit.*



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## A.5 Supported APDUs – [PICS Proforma clause A.9]

| | APDU | Profile: Sender | Profile: Receiver | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | AARQ | c[1] | c[2] | A.9/1 | |
| 2 | AARE | c[2] | c[1] | A.9/2 | |
| 3 | RLRQ | c[3] | c[4] | A.9/3 | |
| 4 | RLRE | c[4] | c[3] | A.9/4 | |
| 5 | ABRT | m | m | A.9/5 | |

[1] if [A-CON-initiator] then "m" else "-"

[2] if [A-CON-responder] then "m" else "-"

[3] if [A-REL-requestor] then "m" else "-"

[4] if [A-REL-acceptor] then "m" else "-"

## A.6 Supporting APDU parameters – [PICS Proforma clause A.10]

### A.6.1 A-associate-request (AARQ) – [PICS Proforma A.10.1]

| | Parameter | Profile: Sender [a] | Profile: Receiver [b] | PICS Proforma reference | Constraint /[mnemonic] |
|---|---|---|---|---|---|
| 1 | Protocol Version | m[1] | m[1] | A.10.1/1 | If sent, the value shall include "version 1". The default value is "version 1". |
| 2 | Application Context Name | m | m | A.10.1/2 | |
| 3 | Calling AP Title | * | *[5] | A.10.1/3 | If either is supported, then |
| 4 | Calling AE Qualifier | * | *[5] | A.10.1/4 | both shall be supported. |
| 5 | Calling AP Invocation-identifier | * | *[5] | A.10.1/5 | If either is supported then, |
| 6 | Calling AE Invocation-identifier | * | *[5] | A.10.1/6 | both shall be supported. |
| 7 | Called AP Title | * | *[5] | A.10.1/7 | If either is supported, then |
| 8 | Called AE Qualifier | * | *[5] | A.10.1/8 | both shall be supported. |
| 9 | Called AP Invocation-identifier | * | *[5] | A.10.1/9 | If either is supported, then |
| 10 | Called AE Invocation-identifier | * | *[5] | A.10.1/10 | both shall be supported. |
| 11 | ACSE Requirements | c[2] | c[2] | A.10.1/11 | |
| 12 | Authentication-mechanism Name | c[3] | c[3] | A.10.1/12 | |
| 13 | Authentication-value | c[3] | c[3] | A.10.1/13 | |
| 14 | Application Context Name List | c[4] | c[4] | not in yet | |
| 15 | Implementation Information | i | i | A.10.1/14 | |
| 16 | User Information | * | *[5] | A.10.1/15 | |

[a] if NOT [A-CON-initiator] then the entire column has the value of "–" ; else the values are as marked.

[b] if NOT[A-CON-requestor] then the entire column has the value of "–" ; else the values are as marked.

[1] Omission of this parameter, i.e. using the default value, is regarded as support for this parameter.

[2] if [A-FU(AU) or A-FU(ACN)] then "m" else "–"

[3] if [A-FU(AU)] then "m" else "-"

[4] if [A-FU(ACN)] then "m" else "-" (A defect has been raised to add the Application Context Name Negotiation functional unit)



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[5] The status value for this item is not in accord with the current version of ISO/IEC 8650-2 due to a known defect. A defect report has been raised on this item to resolve this difference.

### A.6.2 A-associate-response (AARE) – [PICS Proforma A.10.2]

| | Parameter | Profile: Sender [a] | Profile: Receiver [b] | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Protocol Version | m[1] | m[1] | A.10.2/1 | Value shall be "version 1"; not required to be sent because the default value is "version 1" |
| 2 | Application Context Name | m | m | A.10.2/2 | |
| 3 | Responding AP Title | * | *[6] | A.10.2/3 | If either is supported, then |
| 4 | Responding AE Qualifier | * | *[6] | A.10.2/4 | both shall be supported. |
| 5 | Responding AP Invocation-identifier | * | *[6] | A.10.2/5 | If either is supported, then |
| 6 | Responding AE Invocation-identifier | * | *[6] | A.10.2/6 | both shall be supported. |
| 7 | Result | m | m | A.10.2/7 | |
| 8 | Result Source-diagnostic | m[5] | m[5] | A.10.2/8 | |
| 9 | ACSE Requirements | c[2] | c[2] | A.10.2/9 | |
| 10 | Authentication-mechanism Name | c[3] | c[3] | A.10.2/10 | |
| 11 | Authentication-value | c[3] | c[3] | A.10.2/11 | |
| 12 | Application Context Name List | c[4] | c[4] | | |
| 13 | Implementation Information | i | i | A.10.2/12 | |
| 14 | User Information | * | *[6] | A.10.2/13 | |

[a] if NOT [A-CON-responder] then the entire column has the value of "–" ; otherwise the values are as marked.

[b] If NOT [A-CON-initiator] then the entire column has the value "–"; otherwise the values are as marked.

[1] Omission of this parameter, i.e. using the default value, is regarded as support for this parameter.

[2] if [A-FU(AU) or A-FU(ACN)] then "m" else "–"

[3] if [A-FU(AU)] then "m" else "-"

[4] if [A-FU(ACN)] then "m" else "-" (A defect report has been raised to add the Application Context Name Negotiation functional unit)

[5] if [A-FU(AU)] then "m" with a value range of 0-14; otherwise "m" with a value range of 0-10

[6] The status value for this item is not in accord with the current version of ISO/IEC 8650-2 due to a known defect. A defect report has been raised on this item to resolve this difference.

### A.6.3 A-release-request (RLRQ) – [PICS Proforma A.10.3]

| | Parameter | Profile: Sender [a] | Profile: Receiver [b] | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Reason | * | *[1] | A.10.3/1 | |
| 2 | User Information | * | *[1] | A.10.3/2 | |

[a] if NOT [A-REL-requestor] then the entire column has the value of "–" ; otherwise the values are as marked.

[b] if NOT [A-REL-responder] then the entire column has the value of "–" ; otherwise the values are as marked.

[1] The status value for this item is not in accord with the current version of ISO/IEC 8650-2 due to a known defect. A defect report has been raised on this item to resolve this difference.



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### A.6.4 A-release-response (RLRE) – [PICS Proforma A.10.4]

| | Parameter | Profile: Sender [a] | Profile: Receiver [b] | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Reason | * | *[1] | A.10.4/1 | |
| 2 | User Information | * | *[1] | A.10.4/2 | |

[a] if NOT [A-REL-acceptor] then the entire column has the value of "–" ; otherwise the values are as marked.

[b] if NOT [A-REL-requestor] then the entire column has the value of "-" ; otherwise the values are as marked.

[1] The status value for this item is not in accord with the current version of ISO/IEC 8650-2 due to a known defect. A defect report has been raised on this item to resolve this difference.

### A.6.5 A-abort (ABRT) – [PICS Proforma A.10.5]

| | Parameter | Profile: Sender | Profile: Receiver | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Abort Source | m | *[2] | A.10.5/1 | |
| 2 | Diagnostic | c[1] | c[1] | A.10.5/2 | |
| 3 | User Information | * | *[2] | A.10.5/3 | |

[1] if [A-FU(AU) or A-FU(ACN)] then "m" else "–"

[2] The status value for this item is not in accord with the current version of ISO/IEC 8650-2 due to a known defect. A defect report has been raised on this item to resolve this difference.

## A.7 Supported parameter forms – [PICS Proforma clause A.11]

### A.7.1 AE Title name form – [PICS Proforma A.11.1]

| | Syntax form | Profile: Sender | Profile: Receiver | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Form 1 (Directory name) | * | m | A.11.1/1 | |
| 2 | Form 2 (Object identifier and integer) | * | m | A.11.1/2 | |



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### A.7.2 Authentication value form – [PICS Proforma A.11.2]

| | Syntax form | Profile: Sender | Profile: Receiver | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Graphic string | c[1] | c[2] | A.11.1/1 | If the value evaluated for Sender is "o", then at least one syntax form shall be selected for support. |
| 2 | BIT STRING | c[1] | c[2] | A.11.1/2 | |
| 3 | EXTERNAL | c[1] | c[2] | A.11.1/3 | |
| 4 | Other | c[1] | c[2] | A.11.1/4 | |

[1] if [A-FU(AU)] then "*" else "-"

[2] if [A-FU(AU)] then "m" else "-"



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# Annex B
(normative)

# mOSI requirements for Presentation layer facilities

This annex contains the mOSI specifications for completing the Presentation layer Profile Requirements List (PRL) for the selected facilities, roles and options (see 2.3).

This annex uses the tables in the Presentation layer PICS Proforma (ISO/IEC 8823-2). The clause numbers and tables referenced in this annex are those of the PICS Proforma. If the PICs proforma contains tables which are not explicitly outlined in this annex, then the features of those tables are out of scope (i) for this part of ISO/IEC ISP 11188.

The specifications of this annex reference the following variables: *Establishment-initiator, Establishment-responder, Establishment-responder-reject, Normal-data-requestor, Normal-data-acceptor, Release-requestor, and Release-acceptor*. The values for these variables may be set by a referencing specification using the proforma provided in table D.1. The values for these variables may be set by a referencing implementation using the proforma provided in table E.1.

This annex contains several open (*) parameters whose requirements are specified by the referencing specification or the referencing implementation. The requirements are expressed in terms of "m", "o", or "i" as defined in table 1. The parameters have the identifier of "*" in the tables of this annex. A referencing specification may set these open parameters by using the proforma provided in table D.2. A referencing implementation may set the open parameters by using the proforma provided in table E.2.

NOTE—PICS Proforma clauses A.1-A.4 are not covered in this part of ISO/IEC ISP 11188. The questions are answered by an implementor of the Presentation service.

## B.1 Global statement of conformance – [PICS Proforma clause A.5]

| | Question | Answer | PICS Proforma reference |
|---|---|---|---|
| 1 | Are all mandatory features supported? | yes | A.5/1 |



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## B.2 Protocol mechanisms and functional units – [PICS Proforma clause A.6]

### B.2.1 Protocol mechanisms – [PICS Proforma A.6.1]

| | Protocol mechanism | Profile | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|
| 1 | X.410 (1984) | i | A.6.1/1 | Not used by BCA |
| 2 | Normal mode | m | A.6.1/2 | |

### B.2.2 Functional units – [PICS Proforma A.6.2]

| | Presentation functional units | Profile | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|
| 1 | Kernel | m | A.6.2/1 | |
| 2 | Presentation Context management | i | A.6.2/2 | Not used by BCA |
| 3 | Presentation Context Restoration | i | A.6.2/3 | Not used by BCA |

| | Pass-through to Session functional units | Profile | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|
| 4 | Negotiated Release | i | A.6.2/4 | Not used by BCA |
| 5 | Half Duplex | i | A.6.2/5 | Not used by BCA |
| 6 | Duplex | m | A.6.2/6 | |
| 7 | Expedited Data | i | A.6.2/7 | Not used by BCA |
| 8 | Typed Data | i | A.6.2/8 | Not used by BCA |
| 9 | Capability Data Exchange | i | A.6.2/9 | Not used by BCA |
| 10 | Minor Synchronize | i | A.6.2/10 | Not used by BCA |
| 11 | Symmetric Synchronize | i | A.6.2/11 | Not used by BCA |
| 12 | Major Synchronize | i | A.6.2/12 | Not used by BCA |
| 13 | Resynchronize | i | A.6.2/13 | Not used by BCA |
| 14 | Exceptions | i | A.6.2/14 | Not used by BCA |
| 15 | Activity Management | i | A.6.2/15 | Not used by BCA |


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## B.3 Elements of procedure related to the PICS Proforma – [PICS Proforma clause A.7]

### B.3.1 Kernel functional unit – [PICS Proforma A.7.1]

#### B.3.1.1 Supported roles – [PICS Proforma A.7.1.1]

##### B.3.1.1.1 Presentation-connection – [PICS Proforma A.7.1.1.1]

| | Role | Profile | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|
| 1 | Initiator | c[1] | A.7.1.1.1/1 | |
| 2 | Responder | c[2] | A.7.1.1.1/2 | |

[1] The value of *Establishment-initiator.*

[2] The value of *Establishment-responder.*

##### B.3.1.1.2 Normal data – [PICS Proforma A.7.1.1.2]

| | Role | Profile | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|
| 1 | Requestor | c[1] | A.7.1.1.2/1 | [P-DATA-requestor] |
| 2 | Acceptor | c[2] | A.7.1.1.2/2 | [P-DATA-acceptor] |

[1] The value of *Normal-data-requestor.*

[2] The value of *Normal-data-acceptor.*

##### B.3.1.1.3 Orderly release – [PICS Proforma A.7.1.1.3]

| | Role | Profile | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|
| 1 | Requestor | c[1] | A.7.1.1.3/1 | [P-REL-requestor] |
| 2 | Acceptor | c[2] | A.7.1.1.3/2 | [P-REL-acceptor] |

[1] The value of *Release-requestor.*

[2] The value of *Release-acceptor.*

#### B.3.1.2 Supported PPDUs associated with the kernel service – [PICS Proforma A.7.1.2]

| | PPDU | Profile: Sender | Profile: Receiver | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | CP | c[1] | c[2] | A.7.1.2/1 | |
| 2 | CPA | c[2] | c[1] | A.7.1.2/2 | |
| 3 | CPR | c[3] | c[1] | A.7.1.2/3 | [P-REFUSE] |
| 4 | ARP | m | m | A.7.1.2/4 | |
| 5 | ARU | m | m | A.7.1.2/5 | |
| 6 | TD | c[4] | c[5] | A.7.1.2/6 | |

[1] if [A-CON-initiator] then "m" else "-".

[2] if [A-CON-responder] then "m" else "-"

[3] The value of *Establishment-responder-reject.*

[4] if [P-DATA-requestor] then "m" else "-"



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[5] if [P-DATA-acceptor] then "m" else "-"

NOTE—The remainder of the subclauses in A.7 are out of the scope (i) of this part of ISO/IEC ISP 11188.

## B.4 Supported PPDU parameters – [PICS Proforma clause A.8]

### B.4.1 Connect presentation (CP) parameters – [PICS Proforma A.8.1]

| | Parameter | Profile: Sender [a] | Profile: Receiver [b] | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Calling presentation selector | o | m | A.8.1/1 | Implementation option; only needed if presentation selector is part of the presentation address for the implementation. |
| 2 | Called presentation selector | m | o[1] | A.8.1/2 | |
| 3 | Mode selector | m | m | A.8.1/3 | Value shall be "Normal mode" |
| 4 | Presentation context definition list | m | m | A.8.1/4 | |
| 5 | Default context name | i | i[1] | A.8.1/5 | |
| 6 | Protocol version | m[2] | m[2] | A.8.1/6 | If sent, the value shall be "version 1"; the default value is "version 1" |
| 7 | Presentation requirements | i | i[1] | A.8.1/7 | A BCA only uses the Kernel functional unit. If other functional units are proposed by the initiator, they shall be refused by the acceptor. |
| 8 | User session requirements | i | i[1] | A.8.1/8 | For a BCA, when sending, the revised session requirements will always be the same as the user session requirements, so this parameter will not be present.<br>For a BCA, when receiving, the parameter can be ignored because the mOSI session would never be selected. |
| 9 | User data | m | m | A.8.1/9 | Contains an AARQ APDU |
| 10 | CPC Type | * | *[1] | A.8.1/10 | |

[a] if NOT [A-CON-initiator] then the entire column has the value of "-"; otherwise the values are as marked.

[b] if NOT [A-CON-responder] then the entire column has the value of "–" ; otherwise the values are as marked.

[1] The status value for this item is not in accord with the current version of ISO/IEC 8823-2 due to a known defect. A defect report has been raised on this item to resolve this difference.

[2] Omission of this parameter, i.e. using the default value, is regarded as support for this parameter.

NOTE—The X.410 (1984) parameters are out of the scope (i) of this part of ISO/IEC ISP 11188.



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### B.4.2 Connect presentation accept (CPA) PPDU – [PICS Proforma A.8.2]

| | Parameter | Profile: Sender [a] | Profile: Receiver [b] | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Responding presentation selector | o | m | A.8.2/1 | Implementation option; only needed if presentation selector is part of the presentation address for the implementation. |
| 2 | Mode selector | m | m | A.8.2/2 | Value shall be "Normal" |
| 3 | Presentation context definition result list | m | m | A.8.2/3 | |
| 4 | Protocol version | m[2] | m[2] | A.8.2/4 | Value shall be "version 1"; not required to be sent because the default value is "version 1" |
| 5 | Presentation requirements | i | i[1] | A.8.2/5 | Not used by BCA |
| 6 | User session requirements | i | i[1] | A.8.2/6 | For BCA, the revised session requirements will always be the same as the user session requirements, so this parameter will not be present. |
| 7 | User data | m | m | A.8.2/7 | Contains an AARE + APDU |

[a] if NOT [A-CON-responder] then the entire column has the value of "–"; otherwise the values are as marked.

[b] if NOT [A-CON-initiator] then the entire column has the value of "–" ; otherwise the values are as marked.

[1] The status value for this item is not in accord with the current version of ISO/IEC 8823-2 due to a known defect. A defect report has been raised on this item to resolve this difference.

[2] Omission of this parameter, i.e. using the default value, is regarded as support for this parameter.

NOTE—The X.410 (1984) parameters are out of the scope (i) of this part of ISO/IEC ISP 11188.

### B.4.3 Connect presentation reject (CPR) PPDU – [PICS Proforma A.8.3]

| | Parameter | Profile: Sender [a] | Profile: Receiver [b] | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Responding presentation selector | o | m | A.8.3/1 | |
| 2 | Presentation context definition result list | m | m | A.8.3/2 | |
| 3 | Protocol version | m[2] | m[2] | A.8.3/3 | |
| 4 | Default context result | i | i[1] | A.8.3/4 | |
| 5 | Provider reason | o[1] | o[1] | A.8.3/5 | |
| 6 | User data | m | m | A.8.3/6 | Contains an AARE- APDU |

[a] if NOT [A-CON-responder] then the entire column has the value of "–"; otherwise the values are as marked.

[b] if NOT [A-CON-initiator] then the entire column has the value of "–" ; otherwise the values are as marked.

[1] The status value for this item is not in accord with the current version of ISO/IEC 8823-2 due to a known defect. A defect report has been raised on this item to resolve this difference.

[2] Omission of this parameter, i.e. using the default value, is regarded as support for this parameter.

NOTE—The X.410 (1984) parameter is out of the scope (i) of this part of ISO/IEC ISP 11188.



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### B.4.4 Abnormal release user (ARU) PPDU – [PICS Proforma A.8.4]

| | Parameter | Profile: Sender | Profile: Receiver | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Presentation context identifier list | m | m | A.8.4/1 | |
| 2 | User data | m | m | A.8.4/2 | Contains an ABRT APDU |

NOTE—The X.410 (1984) parameters are out of the scope (i) of this part of ISO/IEC ISP 11188.

### B.4.5 Abnormal release provider (ARP) PPDU – [PICS Proforma A.8.5]

| | Parameter | Profile: Sender | Profile: Receiver | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Provider reason | o[1] | o[1] | A.8.5/1 | |
| 2 | Event identifier | * | *[1] | A.8.5/2 | |

[1] The status value for this item is not in accord with the current version of ISO/IEC 8823-2 due to a known defect. A defect report has been raised on this item to resolve this difference.

NOTE—PICS Proforma subclauses A.8.6 and A.8.7 are out of the scope (i) of this Profile.

### B.4.6 Presentation data (TD) PPDU – [PICS Proforma A.8.8]

| | Parameter | Profile: Sender | Profile: Receiver | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | User data | c[1] | c[2] | A.8.8/1 | |

[1] if [P-DATA-requestor] then "m" else "-".

[2] if [P-DATA-acceptor] then "m" else "-".

NOTE—PICS Proforma subclauses A.8.9 through A.8.14 are out of the scope (i) of this part of ISO/IEC ISP 11188.



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### B.4.7 Session service primitives not carrying Presentation PCI – [PICS Proforma A.8.15]

| | Primitive | Profile: Sender | Profile: Receiver | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | S-REL-req/ind | [1] | [2] | A.8.15/1 | |
| 2 | S-REL-rsp/cnf | [2] | [1] | A.8.15/2 | |
| 3 | S-TG-req/ind | i | i | A.8.15/3 | |
| 4 | S-TP-req/ind | i | i | A.8.15/4 | |
| 5 | S-CG-req/ind | i | i | A.8.15/5 | |
| 6 | S-SYNm-req/ind | i | i | A.8.15/6 | |
| 7 | S-SYNm-rsp/cnf | i | i | A.8.15/7 | |
| 8 | S-SYNM-req/ind | i | i | A.8.15/8 | |
| 9 | s-SYNM-rsp/cnf | i | i | A.8.15/9 | |
| 10 | S-PER-ind | i | i | A.8.15/10 | |
| 11 | S-UER-req/ind | i | i | A.8.15/11 | |
| 12 | S-ACTS-req/ind | i | i | A.8.15/12 | |
| 13 | S-ACTR-req/ind | i | i | A.8.15/13 | |
| 14 | S-ACTI-req/ind | i | i | A.8.15/14 | |
| 15 | S-ACTI-rsp/cnf | i | i | A.8.15/15 | |
| 16 | S-ACTD-req/ind | i | i | A.8.15/16 | |
| 17 | S-ACTD-rsp/cnf | i | i | A.8.15/17 | |
| 18 | S-ACTR-req/ind | i | i | A.8.15/18 | |
| 19 | S-ACTE-rsp/cnf | i | i | A.8.15/19 | |

[1] if [P-REL-requestor] then "m" else "-"

[2] if [P-REL-acceptor] then "m" else "-"

## B.5 Support of syntaxes – [PICS Proforma clause A.9]

### B.5.1 Transfer syntaxes supported – [PICS Proforma A.9.1]

| | Type | Detail | Profile | Reference to definition | Reference to restriction |
|---|---|---|---|---|---|
| 1 | Object identifier | {joint-iso-ccitt asn1(1) basic-encoding(1)} | m | ISO/IEC 8825-1 | ISO/IEC ISP 11188-1, clause 8 |
| 2 | Object identifier | { joint-iso-ccitt standard(0) culr(11188) mosi(3) default-transfer-syntax(2) version(1)} | * | ISO/IEC ISP 11188-3, clause F.2 | none |

NOTE—Other transfer syntaxes may be added to the above table based on the application(s) supported.



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### B.5.2 Abstract syntaxes supported – [PICS Proforma A.9.2]

| | Type | Detail | Profile |
|---|---|---|---|
| 1 | Object identifier | {joint-iso-ccitt association-control(2) abstract-syntax(1) apdus(0) version1(1)} | m |
| 2 | Object identifier | { joint-iso-ccitt standard(0) culr(11188) mosi(3) default-abstract-syntax(1) version(1)}<br>(see annex F) | * |

NOTE—Other abstract syntaxes may be added to the above table based on the application(s) supported.

### B.5.3 Use of ASN.1 encoding – [PICS Proforma A.9.3]

The following table is used to indicate any coding restrictions for sending **all** ACSE APDUs, PPDUs and User Information on ACSE APDUs (see PICS Proforma A.9.3).

| | Restriction | Profile | Constraint / [mnemonic] |
|---|---|---|---|
| 1 | Only definite form of length encoding used | * | See ISO/IEC ISP 11188-1, 8.1.2 |
| 2 | Indefinite form of length encoding used for all constructed types | * | |
| 3 | Only minimal number of octets used for definite form of length encoding | * | See ISO/IEC ISP 11188-1, 8.1.2 |
| 4 | Only primitive encoding used for OCTET STRING | * | See ISO/IEC ISP 11188-1, 8.1.7 (note 2) |
| 5 | Only primitive encoding used for BITSTRING | * | See ISO/IEC ISP 11188-1, 8.1.7 (note 2) |
| | NOTES<br>1 A referencing implementation shall receive all forms of encoding.<br>2 ISO/IEC ISP 11188-1 restricts encoding of an OCTET STRING or a BIT STRING to only one level of constructed encoding. | | |

### B.5.4 PDV structure of User Data parameters

| | Restriction | Profile | Constraint / [mnemonic] |
|---|---|---|---|
| 1 | Limit on number of PDVs in User Data parameter | * | |
| 2 | Limit on number of PDVs in a single PDV-list value | * | |



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# Annex C
(normative)

# mOSI requirements for Session layer facilities

This annex contains the mOSI specifications for completing the Session layer Profile Requirements List (PRL) for the selected facilities, roles and options (see 2.3).

This annex uses the tables in the Session layer PICS Proforma (ISO/IEC 8327-2). The clause numbers and tables referenced in this annex are those of the PICS Proforma. If the PICs proforma contains tables which are not explicitly outlined in this annex, then the features of those tables are out of scope (i) for this part of ISO/IEC ISP 11188.

The specifications of this annex reference the following variables: *Establishment-initiator, Establishment-responder, Establishment-responder-reject, Normal-data-requestor, Normal-data-acceptor, Release-requestor, and Release-acceptor*. The values for these variables may be set by a referencing specification using the proforma provided in table D.1. The values for these variables may be set by a referencing implementation using the proforma provided in table E.1.

NOTE—PICS Proforma clauses A.1-A.4.1 are not covered in this part of ISO/IEC ISP 11188. The questions are answered by an implementor of the Session service.

## C.1 ITU-T Rec. X.225 | ISO/IEC 8327-1 protocol versions – [PICS Proforma clause A.4.2]

| | Version | Profile | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|
| 1 | Version 1 | i | | |
| 2 | Version 2 | m | A.4.2/2 | |

NOTE—PICS Proforma clause A..4.3 is not covered in this part of ISO/IEC ISP 11188. The question is answered by an implementor of the Session service.

## C.2 Global statement of conformance – [PICS Proforma clause A.5]

| | Question | Answer | PICS Proforma reference |
|---|---|---|---|
| 1 | Are all mandatory features supported? | yes | A.5/1 |



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## C.3 Supported functional units and protocol mechanisms – [PICS Proforma clause A.6]

### C.3.1 Functional units – [PICS Proforma A.6.1]

| | Functional unit | Profile | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|
| 1 | Kernel | m | A.6.1/1 | |
| 2 | Negotiated Release | i | A.6.1/2 | Not used by BCA |
| 3 | Half Duplex | i | A.6.1/3 | Not used by BCA |
| 4 | Duplex | m | A.6.1/4 | |
| 5 | Expedited Data | i | A.6.1/5 | Not used by BCA |
| 6 | Typed Data | i | A.6.1/6 | Not used by BCA |
| 7 | Capability Data | i | A.6.1/7 | Not used by BCA |
| 8 | Minor Synchronize | i | A.6.1/8 | Not used by BCA |
| 9 | Symmetric Synchronize | i | A.6.1/9 | Not used by BCA |
| 10 | Data Separation | i | A.6.1/10 | Not used by BCA |
| 11 | Major Synchronize | i | A.6.1/11 | Not used by BCA |
| 12 | Resynchronize | i | A.6.1/12 | Not used by BCA |
| 13 | Exceptions | i | A.6.1/13 | Not used by BCA |
| 14 | Activity Management | i | A.6.1/14 | Not used by BCA |

### C.3.2 Protocol mechanism – [PICS Proforma A.6.2]

| | Mechanism | Profile | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|
| 1 | Use of transport expedited data (Extended control Quality Of Service) | c[1] | A.6.2/1 | [S-EXP-T] |
| 2 | Reuse of transport-connection | i | A.6.2/2 | |
| 3 | Basic concatenation | m | A.6.2/3 | |
| 4 | Extended concatenation (sending) | i | A.6.2/4 | Not used by BCA |
| 5 | Extended concatenation (receiving) | i | A.6.2/5 | Not used by BCA |
| 6 | Segmenting (sending) | i | A.6.2/6 | Not used by BCA |
| 7 | Segmenting (receiving) | i | A.6.2/7 | Not used by BCA |
| 8 | Max size of SS-user data > 512 (S-CONNECT) | m | A.6.2/8 | |
| 9 | Max size of SS-user data > 10240 (S-CONNECT) | i | A.6.2/9 | Allows approximately 10K of user information in the AARQ and AARE APDUs |
| 10 | Max size of SS-user data > 9 (S-ABORT) | m | A.6.2/10 | |

[1] The value of *Transport-expedited.*



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## C.4 Elements of procedures related to the PICS Proforma – [PICS Proforma clause A.7]

### C.4.1 Kernel functional unit – [PICS Proforma A.7.1]

#### C.4.1.1 Supported roles for the Kernel functional unit services – [PICS Proforma A.7.1.1]

##### C.4.1.1.1 Session-connection – [PICS Proforma A.7.1.1.1]

| | Role | Profile | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|
| 1 | Initiator | c[1] | A.7.1.1.1/1 | |
| 2 | Responder | c[2] | A.7.1.1.1/2 | |

[1] The value of *Establishment-initiator*.

[2] The value of *Establishment-responder*.

##### C.4.1.1.2 Orderly release – [PICS Proforma A.7.1.1.2]

| | Role | Profile | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|
| 1 | Requestor | c[1] | A.7.1.1.2/1 | |
| 2 | Acceptor | c[2] | A.7.1.1.2/2 | |

[1] The value of *Release-requestor*.

[2] The value of *Release-acceptor*.

##### C.4.1.1.3 Normal data transfer – [PICS Proforma A.7.1.1.3]

| | Role | Profile | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|
| 1 | Requestor | c[1] | A.7.1.1.3/1 | |
| 2 | Acceptor | c[2] | A.7.1.1.3/2 | |

[1] The value of *Normal-data-requestor*.

[2] The value of *Normal-data-acceptor*.



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### C.4.1.2 Support for the SPDUs associated with the Kernel services – [PICS Proforma A.7.1.2]

| | SPDU | Profile: Sender | Profile: Receiver | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Connect (CN) | c[1] | c[2] | A.7.1.2/1 | |
| 2 | Overflow accept (OA) | i | i | A.7.1.2/2 | Not used by BCA |
| 3 | Connect Data Overflow (CDO) | i | i | A.7.1.2/3 | Not used by BCA. This provides a maximum of 10K of Session user data. |
| 4 | Accept (AC) | c[2] | c[1] | A.7.1.2/4 | |
| 5 | Refuse (RF) | c[3] | c[1] | A.7.1.2/5 | |
| 6 | Finish (FN) | c[4] | c[5] | A.7.1.2/6 | |
| 7 | Disconnect (DN) | c[5] | c[4] | A.7.1.2/7 | |
| 8 | Abort (AB) | m | m | A.7.1.2/8 | |
| 9 | Abort Accept (AA) | i | m | A.7.1.2/9 | This profile recommends that the response to receiving an Abort (AB) SPDU is to issue a T-DISCONNECT request. The acceptor may not follow this recommendation, so an AA may be received. If received, the requestor shall issue a T-DISCONNECT request. |
| 10 | Data Transfer (DT) | c[6] | c[7] | A.7.1.2/10 | |
| 11 | Prepare (PR) | c[8] | c[8] | A.7.1.2/11 | Only sent/received if transport expedited is negotiated for the supporting T-connection. |

[1] The value of *Establishment-initiator*.

[2] The value of *Establishment-responder*.

[3] The value of *Establishment-responder-reject*.

[4] The value of *Release-requestor*.

[5] The value of *Release-acceptor*.

[6] The value of Normal-data-requestor.

[7] The value of *Normal-data-acceptor*.

[8] The value of *Transport-expedited*.

### C.4.1.3 Support for the SPDUs associated with Token Exchange – [PICS Proforma A.7.1.3]

| | | Profile: Sender | Profile: Receiver | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Give Token (GT) | c[1][3] | c[2][3] | A.7.1.3/1 | For the Duplex functional unit, these SPDUs are only used as a null category 0 SPDU in conjunction with the Data (DT) SPDU. |
| 2 | Please Token (PT) | i[3] | i[3] | A.7.1.3/2 | This Profile recommends only sending GT as the null category 0 SPDU. |

[1] The value of *Normal-data-requestor*.

[2] The value of *Normal-data-acceptor*.

[3] The status value for this item is not in accord with the current version of ISO/IEC 8327-2 due to a known defect. A defect report has been raised on this item to resolve this difference.

NOTE—The remainder of the subclauses in A.7 is out of the scope (i) of this part of ISO/IEC ISP 11188.



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## C.5 Supported SPDU parameters – [PICS Proforma clause A.8]

### C.5.1 Connect (CN) SPDU – [PICS Proforma A.8.1]

#### C.5.1.1 Connection Identifier – [PICS Proforma A.8.1.1]

| | PGI "Connection Identifier" | Profile: Sender | Profile: Receiver | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Calling SS-user Reference | i | i[1] | A.8.1.1/1 | Not used by BCA |
| 2 | Common Reference | i | i[1] | A.8.1.1/2 | Not used by BCA |
| 3 | Additional Reference Information | i | i[1] | A.8.1.1/3 | Not used by BCA |

[1] The status value for this item is not in accord with the current version of ISO/IEC 8327-2 due to a known defect. A defect report has been raised on this item to resolve this difference.

#### C.5.1.2 Connect/Accept Item – [PICS Proforma A.8.1.2]

##### C.5.1.2.1 Connect/Accept Item parameters – [PICS Proforma A.8.1.2.1]

| | PGI "Connect/Accept Item" | Profile: Sender [a] | Profile: Receiver [b] | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Protocol Options | m | m | A.8.1.2.1/1 | For BCA, extended concatenation is out of scope |
| 2 | TSDU maximum size | i | i | A.8.1.2.1/2 | |
| 3 | Version Number | m | m | A.8.1.2.1/3 | Value shall include "version 2" |
| 4 | Initial Serial Number | i | i | A.8.1.2.1/4 | Not used by BCA |
| 5 | Token Setting Item | i | i | A.8.1.2.1/5 | Not used by BCA |
| 6 | Second Initial Serial Number | i | i | A.8.1.2.1/6 | Not used by BCA |

[a] if NOT [A-CON-initiator] then the entire column has the value of "–" ; otherwise the value is as marked.

[b] if NOT [A-CON-responder] then the entire column has the value of "–" ; otherwise the value is as marked.

##### C.5.1.2.2 Presence of Connect/Accept Item – [PICS Proforma A.8.1.2.2]

| | | Profile: Sender [a] | Profile: Receiver [b] | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Sending | m | – | A.8.1.2.2/1 | |
| 2 | Receiving | – | m | A.8.1.2.2/2 | |

[a] if NOT [A-CON-initiator] then the entire column has the value of "–" ; otherwise the value is as marked.

[b] if NOT [A-CON-responder] then the entire column has the value of "–" ; otherwise the value is as marked.



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### C.5.1.3 Single Items – [PICS Proforma A.8.1.3]

| | Single Items | Profile: Sender [a] | Profile: Receiver [b] | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Session User Requirements | m | m | A.8.1.3/1 | Value shall be "duplex". If other requirements (functional units) are received in the CN SPDU, they shall not be included on the AC SPDU. |
| 2 | Calling Session Selector | o | m | A.8.1.3/2 | Implementation option; only needed if session selector is part of the presentation address for the implementation. |
| 3 | Called Session Selector | m | o[1] | A.8.1.3/3 | |
| 4 | Data Overflow | i | i | A.8.1.3/4 | Not used by BCA |
| 5 | User Data | m | m | A.8.1.3/5 | Contains a CP PPDU |
| 6 | Extended User Data | m | m | A.8.1.3/6 | |

[a] if NOT [A-CON-initiator] then the entire column has the value of "–" ; otherwise the value is as marked.

[b] if NOT [A-CON-responder] then the entire column has the value of "–" ; otherwise the value is as marked.

[1] The status value for this item is not in accord with the current version of ISO/IEC 8327-2 due to a known defect. A defect report has been raised on this item to resolve this difference.

### C.5.2 Accept (AC) SPDU – [PICS Proforma A.8.4]

### C.5.2.1 Connection Identifier – [PICS Proforma A.8.4.1]

| | PGI "Connection Identifier" | Profile: Sender | Profile: Receiver | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Called SS-user Reference | i | i[1] | A.8.4.1/1 | Not used by BCA |
| 2 | Common Reference | i | i[1] | A.8.4.1/2 | Not used by BCA |
| 3 | Additional Reference Information | i | i[1] | A.8.4.1/3 | Not used by BCA |

[1] The status value for this item is not in accord with the current version of ISO/IEC 8327-2 due to a known defect. A defect report has been raised on this item to resolve this difference.



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### C.5.2.2 Connect/Accept Item – [PICS Proforma A.8.4.2]

#### C.5.2.2.1 Connect/Accept Item parameters – [PICS Proforma A.8.4.2.1]

| | PGI "Connect/Accept Item" | Profile: Sender [a] | Profile: Receiver [b] | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Protocol Options | m | m | A.8.4.2.1/1 | For BCA, extended concatenation is out of scope. |
| 2 | TSDU maximum size | i | i | A.8.4.2.1/2 | |
| 3 | Version Number | m | m | A.8.4.2.1/3 | Value shall include version 2 |
| 4 | Initial Serial Number | i | i | A.8.4.2.1/4 | Not used by BCA |
| 5 | Token Setting Item | i | i | A.8.4.2.1/5 | Not used by BCA |
| 6 | Second Initial Serial Number | i | i | A.8.4.2.1/6 | Not used by BCA |

[a] if NOT [A-CON-responder] then the entire column has the value of "–" ; otherwise the value is as marked.

[b] if NOT [A-CON-initiator] then the entire column has the value of "–" ; otherwise the value is as marked.

#### C.5.2.2.2 Presence of Connect/Accept Item – [PICS Proforma A.8.4.2.2]

| | | Profile: Sender [a] | Profile: Receiver [b] | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Sending | m | – | A.8.4.2.2/1 | |
| 2 | Receiving | – | m | A.8.4.2.2/2 | |

[a] if NOT [A-CON-responder] then the entire column has the value of "–" ; otherwise the value is as marked.

[b] if NOT [A-CON-initiator] then the entire column has the value of "–" ; otherwise the value is as marked.

### C.5.2.3 Single Items – [PICS Proforma A.8.4.3]

| | Single Items | Profile: Sender [a] | Profile: Receiver [b] | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Token Item | i | i[1] | A.8.4.3/1 | |
| 2 | Session User Requirements | m | m | A.8.4.3/2 | Value shall be "duplex" |
| 3 | Enclosure Item | i | i[1] | A.8.4.3/3 | |
| 4 | Calling Session Selector | m[2] | o | A.8.4.3/4 | It is recommended that this parameter not be sent; if sent, it shall be identical to the Calling Session Selector on the CN. |
| 5 | Responding Session Selector | o | m | A.8.4.3/5 | Implementation option; only needed if session selector is part of the presentation address for the implementation. |
| 6 | User Data | m | m | A.8.4.3/6 | Contains a CPA PPDU |

[a] if NOT [A-CON-responder] then the entire column has the value of "–" ; otherwise the value is as marked.

[b] if NOT [A-CON-initiator] then the entire column has the value of "–" ; otherwise the value is as marked.



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[1] The status value for this item is not in accord with the current version of ISO/IEC 8327-2 due to a known defect. A defect report has been raised on this item to resolve this difference.

[2] Omission of this parameter, i.e. using the default value, is regarded as support for this parameter.

### C.5.3 Refuse (RF) SPDU – [PICS Proforma A.8.5]

#### C.5.3.1 Connection Identifier – [PICS Proforma A.8.5.1]

| | PGI "Connection Identifier" | Profile: Sender | Profile: Receiver | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Called SS-user Reference | i | i[1] | A.8.5.1/1 | Not used by BCA |
| 2 | Common Reference | i | i[1] | A.8.5.1/2 | Not used by BCA |
| 3 | Additional Reference Information | i | i[1] | A.8.5.1/3 | Not used by BCA |

[1] The status value for this item is not in accord with the current version of ISO/IEC 8327-2 due to a known defect. A defect report has been raised on this item to resolve this difference.

#### C.5.3.2 Single Items – [PICS Proforma A.8.5.2]

| | Single Items | Profile: Sender [a] | Profile: Receiver [b] | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Transport Disconnect | i | i | A.8.5.2/1 | |
| 2 | Session User Requirements | m | m | A.8.5.2/2 | This parameter indicates the functional units supported by the sender. |
| 3 | Version Number | m | m | A.8.5.2/3 | This parameter indicates the version(s) supported by the sender. |
| 4 | Enclosure Item | i | i[1] | A.8.5.2/4 | |
| 5 | Reason Code | m | m | A.8.5.2/5 | |

[a] if NOT [P-REFUSE] then the entire column has the value of "–" ; otherwise the value is as marked.

[b] if NOT [A-CON-initiator] then the entire column has the value of "–" ; otherwise the value is as marked.

[1] The status value for this item is not in accord with the current version of ISO/IEC 8327-2 due to a known defect. A defect report has been raised on this item to resolve this difference.

### C.5.4 Finish (FN) SPDU – [PICS Proforma A.8.6]

| | Single Items | Profile: Sender [a] | Profile: Receiver [b] | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Transport Disconnect | i | i | A.8.6/1 | |
| 2 | Enclosure Item | i | i[1] | A.8.6/2 | |
| 3 | User Data | m | m | A.8.6/3 | Contains an RLRQ APDU |

[a] if NOT [A-REL-requestor] then the entire column has the value of "–" ; otherwise the value is as marked.

[b] if NOT [A-REL-acceptor] then the entire column has the value of "–" ; otherwise the value is as marked.

[1] The status value for this item is not in accord with the current version of ISO/IEC 8327-2 due to a known defect. A defect report has been raised on this item to resolve this difference.



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### C.5.5 Disconnect (DN) SPDU – [PICS Proforma A.8.7]

| | Single Items | Profile: Sender [a] | Profile: Receiver [b] | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Enclosure Item | i | i[1] | A.8.7/1 | |
| 2 | User Data | m | m | A.8.7/2 | Contains an RLRE APDU |

[a] if NOT [A-REL-acceptor] then the entire column has the value of "–" ; otherwise the value is as marked.

[b] if NOT [A-REL-requestor] then the entire column has the value of "–" ; otherwise the value is as marked.

[1] The status value for this item is not in accord with the current version of ISO/IEC 8327-2 due to a known defect. A defect report has been raised on this item to resolve this difference.

NOTE— PICS Proforma subclause A.8.8 is out of scope (i) of this part of ISO/IEC ISP 11188.

### C.5.6 Abort (AB) SPDU – [PICS Proforma A.8.9]

| | Single Items | Profile: Sender | Profile: Receiver | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Transport Disconnect | i | i | A.8.9/1 | |
| 2 | Enclosure Item | i | i[1] | A.8.9/2 | |
| 3 | Reflect Parameter Values | o | o[1] | A.8.9/3 | If protocol error, contains sender defined value. Processing by receiver is a local matter. |
| 4 | User Data | m | m | A.8.9/4 | If user abort, contains an ARP or an ARU PPDU |

[1] The status value for this item is not in accord with the current version of ISO/IEC 8327-2 due to a known defect. A defect report has been raised on this item to resolve this difference.

### C.5.7 Data Transfer (DT) SPDU – [PICS Proforma A.8.11]

| | Single Items | Profile: Sender [a] | Profile: Receiver [b] | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Enclosure Item | i | i[1] | A.8.11/1 | |
| 2 | User Information Field | m | m | A.8.11/2 | |

[a] if NOT [P-DATA-requestor] then the entire column has the value of "–" ; otherwise the value is as marked.

[b] if NOT [P-DATA-acceptor] then the entire column has the value of "–" ; otherwise the value is as marked.

[1] The status value for this item is not in accord with the current version of ISO/IEC 8327-2 due to a known defect. A defect report has been raised on this item to resolve this difference.

NOTE—Subclauses A.8.12 through A.8.15 are out of the scope (i) of this part of ISO/IEC ISP 11188.



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### C.5.8 Give Tokens (GT) SPDU – [PICS Proforma A.8.16]

| | Single Items | Profile: Sender | Profile: Receiver | PICS Proforma reference | Constraint / [mnemonic] |
|---|---|---|---|---|---|
| 1 | Token Item | i | i | A.8.16/1 | |
| 2 | Enclosure Item | i | i[1] | A.8.16/2 | |
| 3 | User Data | i | i[1] | A.8.16/3 | |

[1] The status value for this item is not in accord with the current version of ISO/IEC 8327-2 due to a known defect. A defect report has been raised on this item to resolve this difference.

NOTE—The remainder of the clauses in the Session PICS Proforma are out of the scope (i) of this part of ISO/IEC ISP 11188.



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# Annex D
(normative)

# Profile requirements list proforma

## D.1 Use of tables D.1 and D.2 by a referencing specification

The tables in annexes A, B, and C define the requirements for the mOSI Profile as a function of a set of variables and a set of open parameters (see 2.3). The list of the mOSI variables and their allowed (compliant) values may be found in table D.1, rows 1–10. The list of the open (*) parameters and their allowed (compliant) values may be found in table D.2.

When "Specification's choice" status values are selected for tables D.1 and D.2, "Profile status" values are determined for features in the tables of annex A (ACSE requirements), annex B (Presentation requirements), and annex C (Session requirements). For example, in annex A the mOSI variable *Establishment-initiator* is used in table A.2.1. In line 1 of table A.2.1, the [ACSE] Initiator role will be assigned the Profile status value ("m", "o", or "i") of the variable *Establishment-initiator*. This variable is used several other places in Annexes A, B, and C.

A referencing specification may use Tables D.1 and D.2 as a basis of its upper layer Profile Requirements List (PRL). Tables D.1 and D.2 provide a proforma for specifying the mOSI variables and open parameters. A referencing specification can use these tables and any supplemental information (see clause D.2) to define concisely its upper layer requirements based on the mOSI profile. It may do this by completing the "Specification's choice" columns in tables D.1 and D.2.

If the upper layer requirements of the referencing specification are defined by completing tables D.1 and D.2 and if the values selected are compliant, the referencing specification may claim mOSI compliance. Such a claim indicates that upper layer requirements of the referencing specification are identified by the features specified in this Profile as indicated by tables D.1 and D.2 plus any supplemental information mentioned in clause D.2.

Table D.2 may be used by a referencing specification to specify the open (*) parameters in annexes A, B, and C. If the open parameters are either all "m" (and "–" for non-supported roles) or all "o" (and "–" for non-supported roles) or all "i" (and "–" for non-supported roles) , this table need not be completed. In this case, line 13 of table D.1 would have the answer "m", or "o", or "i", respectively.

## D.2 Completing a PRL based on tables D.1 and D.2

Several additional pieces of information are needed to complete the definition of the PRL of a referencing specification after completing tables D.1 and D.2:

a) List of transfer syntaxes supported;

b) Abstract syntaxes supported; and

c) Use of ASN.1 encoding.

Each is discussed below.



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**Table D.1 – Profile requirements list proforma**

| | Item / variable | Compliant choice | Specification's choice | Constraint / value |
|---|---|---|---|---|
| 1 | *Establishment-initiator* | m; o; i | | Both shall not be "i". |
| 2 | *Establishment-responder* | m; o; i | | |
| 3 | *Establishment-responder-reject* | m; o; i | | The value shall be "i" if *Establishment-responder* has the value "i" |
| 4 | *Normal-data-requestor* | m; o; i | | Both shall not be "i". |
| 5 | *Normal-data-acceptor* | m; o; i | | |
| 6 | *Release-requestor* | m; o; i | | |
| 7 | *Release-acceptor* | m; o; i | | |
| 8 | *Authentication* | m; o; i | | |
| 9 | *Application-context-negotiation* | m; o; i | | |
| 10 | *Transport-expedited* | m; o; i | | |
| 11 | Number of presentation-contexts required | 2 or more | | One of these shall be the presentation-context used for ACSE PDUs. |
| 12 | ISO/IEC ISP 11188-1 compliance?[12] | yes | | If the answer is not "yes", the referencing specification may not claim mOSI compliance |
| 13 | Status values for all open (*) parameters (see table D.2) | all "m"; all "o"; all "i"; or "mixed" | | If the answer is "mixed" (i.e. not all "m" and "–", or not all "o" and "–", or not all "i" and "–"), details shall be given in table D.2 |
| 14 | Maximum number of PDVs required | 1 or more | | |

[12] See clause 2 and Annex B in ISO/IEC ISP 11188-1.



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**Table D.2 – Open parameters (*)**

| | Referenced table (in annexes A, B and C) | Parameter | Specification's statement — Sender [a] | Specification's statement — Receiver [a] | Constraint / value |
|---|---|---|---|---|---|
| 1 | A.6.1 | Calling AE title | | | Includes both the AP title and AE qualifier for each |
| 2 | [AARQ] | Called AE title | | | |
| 3 | | Calling invocation ids | | | Includes both the AP invocation identifier and the AE invocation identifier for each |
| 4 | | Called invocation ids | | | |
| 5 | | User Information | | | |
| 6 | A.6.2 | Responding AE title | | | Includes both the AP title and AE qualifier |
| 7 | [AARE] | Responding Invocation Identifiers | | | Includes both the AP invocation identifier and the AE invocation identifier |
| 8 | | User Information | | | |
| 9 | A.6.3 | Reason | | | |
| 10 | [RLRQ] | User Information | | | |
| 11 | A.6.4 | Reason | | | |
| 12 | [RLRE] | User Information | | | |
| 13 | A.6.5 | Abort Source | m | | |
| 14 | [ABRT] | User Information | | | |
| 15 | A.7.1 [AARQ and | Form 1 (Directory name) | | | For Receiver, compliant answer is "m" or "–". That is, if AE titles are supported for receiving, both forms are mandatory. |
| 16 | AARE] | Form 2 (Object id+integer) | | | |
| 17 | A.7.2 | Graphic string | | | |
| 18 | Authentica- | BIT STRING | | | |
| 19 | tion value | EXTERNAL | | | |
| 20 | form | Other | | | |
| 21 | B.4.1 [CP] | CPC Type | | | |
| 22 | B.4.5 [ARP] | Event Identifier | | | |
| 23 | B.5.1 Object identifier | {joint-iso-ccitt standard(0) culr(11188) mosi(3) default-transfer-syntax(2) version(1)} | | | |
| 24 | B.5.2 Object identifier | {joint-iso-ccitt standard(0) culr(11188) mosi(3) default-abstract-syntax(1) version(1)} | | | |



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| | | | | | |
|---|---|---|---|---|---|
| 25 | B.5.3 | Only definite encoding | | | |
| 26 | ASN.1 | Indefinite encoding for all constructed types | | | |
| 27 | encoding forms | Only minimal number of octets for definite form length encoding | | | |
| 28 | | Only primitive form encoding for OCTET STRING | | | |
| 29 | | Only primitive form encoding for BITSTRING | | | |
| 30 | B.5.4 | Max. # of PDVs in User Data supported | | | |
| 31 | PDV structure | Max # of PDVs in a single PDV-list value supported | | | |

[a] Compliant answer for each row is "m", "o", "i", "x" or "–", unless indicated otherwise.



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### D.2.1 List of transfer syntaxes supported

Table B.5.1 (Presentation layer PICS Proforma table A.10.1) lists the object identifiers for the ASN.1 Basic Encoding Rules (BER) and for the Default Abstract Syntax for Minimal OSI defined in F.1.

It is suggested that a referencing specification make a list (based on table B.5.1) of the transfer syntaxes required for its application. This list shall include the object identifier for BER that is used for Presentation and ACSE PCI.

### D.2.2 Abstract syntaxes supported

Table B.5.2 (Presentation layer PICS Proforma table A.10.2) lists the object identifiers for ASN.1 and for the Default Transfer Syntax for Minimal OSI defined in F.2.

It is suggested that a referencing specification make a list (based on table B.5.2) of the abstract syntaxes required for its application. This list shall include the object identifier for ASN.1 that is used for ACSE PCI.

### D.2.3 Use of ASN.1 encoding.

Table B.5.3 (Presentation layer PICS Proforma table A.10.3) contains a list of questions used to indicate any coding restrictions for sending **all** ACSE APDUs, PPDUs and User Information on ACSE APDUs.

It is suggested that a referencing specification make a table based on table B.5.3 and add their status values.

## D.3 A referencing specification's upper layer PRL

As discussed in 2.3, this mOSI Profile defines its upper layer requirements in terms of facilities, roles and options. It does this by defining variables and open parameters whose values are assigned by a referencing specification.

The referencing specification, itself, may elect to define its upper layer requirements in terms of its own facilities, roles and options. It could do this by defining its own variables and open parameters that map to mOSI variables and open parameters. A specification that references it (in a recursive sense) would then select values for the referencing specification's variables and open parameters. These, in turn, would define values for mOSI variables and open parameters producing a completed upper layer requirements list as defined by this part of ISO/IEC ISP 11188.

For example, consider a referencing specification that defined roles for *Client* and *Server* to be selected by its referencing specification. The mOSI variables for *Establishment-initiator* and *Release-initiator* would map to the referencing specification's *Client* variable (role); the mOSI variables *Establishment-responder* and *Release-acceptor* would map to the referencing specification's *Server* variable (role). The appropriate answer in table D.1 would be "*" for *Establishment-initiator* under the "Specification's statement" column.



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# Annex E
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# Implementation conformance statement proforma

## E.1 Use of tables E.1 and E.2 by a referencing implementation

The tables in annexes A, B, and C define the requirements for the mOSI Profile as a function of a set of variables and a set of open parameters (see 2.3). A summary of the mOSI variables and their allowed (conformant) support answers may be found in table E.1, rows 1–9. A summary of the open (*) parameters and their allowed (conformant) support answers may be found in table E.2.

An implementation can answer yes to a particular entry in table E.1 or E.2 only if it supports the corresponding items defined in the tables in annexes A, B and C. An answer of "yes" to an entry in E.1 or E.2 means the implementor would fill in the tables of A, B and C as if the associated mOSI variable had the value "m" (and the implementation was conformant).

When Implementation support answers are selected for tables E.1 and E.2, values for the associated mOSI variables and open parameters are determined as described above. These values, in turn, determine Profile status values for all the tables in annex A (ACSE requirements), annex B (Presentation requirements), and annex C (Session requirements). For example, the mOSI variable *Establishment-initiator* is used in table A.2.1. In line 1 of table A.2.1, the [ACSE] Initiator role is assigned the value ("m", "o", or "i") of the variable *Establishment-initiator*. This variable is used several other places in Annexes A, B, and C. In this example the *Establishment-initiator* variable (and the [ACSE] Initiator role) has the value:

"m" — if the implementation's statement is "yes";

"i" — if the implementation's statement is "no".

An implementation of the upper layers may use tables E.1 and E.2 as a basis to summarize the upper layer facilities it supports. It may do this by completing the "Implementation's statement" columns in tables E.1 and E.2.

If the upper layer facilities (or a subset thereof) of the implementation are defined by completing tables E.1 and E.2 and if the choices made are conformant, the referencing implementation may claim mOSI conformance. Such a claim indicates that the implementation supports some or all of the features specified in this Profile. The implementation may in fact support more of the upper layer facilities of this Profile—without violating any of the features of this Profile.

Table E.2 may be used by a referencing implementation to specify its support answers for the open (*) parameters in annexes A, B, and C. If the open parameters are either all "yes" (and "–" for non-supported roles) or all "no" (and "–" for non-supported roles), this table need not be completed. In this case, line 11 of table E.1 would have the answer "yes" or "no", respectively.



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**Table E.1 – Implementation support questionnaire**

| | Item / variable | Conformant answer | Implementation's answer | Constraint / value |
|---|---|---|---|---|
| 1 | *Establishment-initiator* | yes; no | | Both shall not be "no". |
| 2 | *Establishment-responder* | yes; no | | If "yes", the associated variable is implicitly assigned the value of "m"; otherwise the variable is "i" |
| 3 | *Establishment-responder-reject* | yes; no; – | | Answer shall be "–" if *Establishment-responder* is "no". If "yes", *Establishment-responder-reject* is implicitly assigned the value of "m"; otherwise the value is "i" |
| 4 | *Normal-data-requestor* | yes; no | | Both may be "no". |
| 5 | *Normal-data-acceptor* | yes; no | | If "yes", the associated variable is implicitly assigned the value of "m"; otherwise the value is "i" |
| 6 | *Release-requestor* | yes; no | | Both may be "no". |
| 7 | *Release-acceptor* | yes; no | | If "yes", the associated variable is implicitly assigned the value of "m"; otherwise the value is "i" |
| 8 | *Authentication* | yes; no | | If "yes", the *Authentication* is implicitly assigned the value of "m"; otherwise the value is "i" |
| 9 | *Application-context-negotiation* | yes; no | | If "yes", the *Application-context-negotiation* is implicitly assigned the value of "m"; otherwise the value is "i" |
| 10 | *Transport-expedited* | yes; no | | |
| 11 | Number of presentation-contexts supported per association | 2 or more | | One of these shall be the presentation-context used for ACSE PDUs. |
| 12 | ISO/IEC ISP 11188-1 conformance?[13] | yes | | If the answer is not "yes", the referencing implementation may not claim mOSI conformance |
| 13 | Support for all "*" parameters | yes; no; mixed | | If the answer is "mixed" (i.e., not all "yes" and "–", or not all "no" and "–"), details shall be given in table E.2 |
| 14 | Maximum number of PDVs supported | 1 or more | | |

[13] See clause 2 and ISO/IEC ISP 11188-1, annex B.



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**Table E.2 – Open parameters**

| | Referenced table (in annexes A, B and C) | Parameter | Implementation's statement — Sender [a] | Implementation's statement — Receiver [a] | Constraint / value |
|---|---|---|---|---|---|
| 1 | A.6.1 | Calling AE title | | | Includes both AP title and AE |
| 2 | [AARQ] | Called AE title | | | qualifier for each |
| 3 | | Calling invocation identifiers | | | Includes both AP invocation identifier and AE invocation |
| 4 | | Called invocation identifiers | | | identifier for each |
| 5 | | User Information | | | |
| 6 | A.6.2 | Responding AE title | | | Includes both AP title and AE qualifier |
| 7 | [AARE] | Responding Invocation Identifiers | | | Includes both AP invocation identifier and AE invocation identifier |
| 8 | | User Information | | | |
| 9 | A.6.3 | Reason | | | |
| 10 | [RLRQ] | User Information | | | |
| 11 | A.6.4 | Reason | | | |
| 12 | [RLRE] | User Information | | | |
| 13 | A.6.5 | Abort Source | yes | | |
| 14 | [ABRT] | User Information | | | |
| 15 | A.7.1 [AARQ and | Form 1 (Directory name) | | | For Receiver, conformant answer is "yes" or "–" |
| 16 | AARE] | Form 2 (Object id+integer) | | | |
| 17 | A.7.2 | Graphic string | | | |
| 18 | Authentica- | BIT STRING | | | |
| 19 | tion value | EXTERNAL | | | |
| 20 | form | Other | | | |
| 21 | B.4.1 [CP] | CPC Type | | | |
| 22 | B.4.5 [ARP] | Event Identifier | | | |
| 23 | B.5.1 Object identifier | {joint-iso-ccitt standard(0) culr(11188) mosi(3) default-transfer-syntax(2) version(1)} | | | |
| 24 | B.5.2 Object identifier | {joint-iso-ccitt standard(0) culr(11188) mosi(3) default-abstract-syntax(1) version(1)} | | | |



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| | | | | | |
|---|---|---|---|---|---|
| 25 | B.5.3 | Only definite encoding | | | |
| 26 | ASN.1 encoding | Indefinite encoding for all constructed types | | | |
| 27 | forms | Only minimal number of octets for definite form length encoding | | | |
| 28 | | Only primitive form encoding for OCTET STRING | | | |
| 29 | | Only primitive form encoding for BITSTRING | | | |
| 30 | B.5.4 | Limit on # PDVs in User Data | | | |
| 31 | PDV structure | Limit on # PDVs in a single PDV-list value | | | |

[a] Conformant answer for each row is "yes", "no" or "–".

**Table E.3 – Presentation and Session selectors**

| | Referenced table(in annexes A, B and C) | Parameter | Conformant support answer— Sender | Conformant support answer— Receiver | Implementation's statement— Sender | Implementation's statement— Receiver |
|---|---|---|---|---|---|---|
| 1 | B.4.1/1 [CP] | Calling presentation selector | yes; no; — | yes; — | | |
| 2 | | Called presentation selector | yes; — | yes; no; — | | |
| 3 | B.4.2 [CPA] | Responding presentation selector | yes; no; — | yes; — | | |
| 4 | B.4.3 [CPR] | Responding presentation selector | yes; no; — | yes; — | | |
| 5 | C.4.1.3 [CN] | Calling session selector | yes; no; — | yes; — | | |
| 6 | | Called session selector | yes; — | yes; no; — | | |
| 7 | C.4.2.3 [AC] | Calling session selector | yes; no; — | yes | | |
| 8 | | Responding session selector | yes; no; — | yes; — | | |



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## E.2 Completing a PICS based on tables E.1 and E.2

Several additional pieces of information are needed to complete the PICs of an implementation after completing tables E.1 and E.2:

a) List of transfer syntaxes supported;

b) Abstract syntaxes supported;

c) Use of ASN.1 encoding; and

d) Presentation and Session selectors supported.

Each is discussed below.

### E.2.1 List of transfer syntaxes supported

Table B.5.1 (Presentation layer PICS Proforma table A.10.1) lists the object identifiers for the ASN.1 Basic Encoding Rules (BER) and for the Default Abstract Syntax for Minimal OSI defined in F.1.

A referencing implementation should make a list (based on table B.5.1) of the supported transfer syntaxes. This list shall include the object identifier for BER that is used for Presentation and ACSE PCI.

### E.2.2 Abstract syntaxes supported

Table B.5.2 (Presentation layer PICS Proforma table A.10.2) lists the object identifiers for ASN.1 and for the Default Transfer Syntax for Minimal OSI defined in F.2.

A referencing implementation should make a list (based on table B.5.2) of the supported abstract syntaxes. This list shall include the object identifier for ASN.1 that is used for ACSE PCI.

### E.2.3 Use of ASN.1 encoding.

Table B.5.3 (Presentation layer PICS Proforma table A.10.3) contains a list of questions used to indicate any coding restrictions for sending **all** ACSE APDUs, PPDUs and User Information on ACSE APDUs.

A referencing implementation should make a table based on table B.5.3 and add their status values.

### E.2.4 Presentation and Session selectors supported

The approach taken by the mOSI Profile concerning presentation and session selectors is as follows. The implementation may decide whether it sends presentation and session selectors that identify itself. However, it shall be capable of receiving selectors from its peer.

Table E.3 list the selector parameters. It is suggested that a referencing implementation make a table based on table E.3 and add its statements for the support answers.



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# Annex F
(normative)

# Minimal OSI object identifiers

The following are the object identifiers for the default abstract syntax, default transfer syntax and default application context for use with Minimal OSI. These object identifiers are registered with this Profile.

## F.1 Default abstract syntax for minimal OSI

This object identifier can be used as the abstract syntax name when the application protocol (above ACSE) can be treated as single presentation data values (PDVs). Each PDV is a sequence of consecutive octets without regard for semantic or other boundaries. The object identifier may also be used when, for pragmatic reasons, the actual abstract syntax of the application is not identified in Presentation layer negotiation.

The OBJECT IDENTIFIER for the default abstract syntax is:

{ joint-iso-ccitt standard(0) culr(11188) mosi(3) default-abstract-syntax(1) version(1)}

NOTES

1. Applications specified using ASN.1 should not use the default abstract syntax.

2. As this OBJECT IDENTIFIER is used by all applications using the default abstract syntax for mOSI, it cannot be used to differentiate between applications. One of the ACSE parameters, e.g., AE-Title, may be used to differentiate between applications.

## F.2 Default transfer syntax for minimal OSI

A transfer syntax is the representation of the abstract syntax during data transfer. If an application doesn't make a distinction between the abstract and transfer syntax, the same object identifier should be used to denote both syntaxes.

In the case where:

a) the abstract and transfer syntax are not the same; and

b) the default abstract syntax object identifier has been used (see F.1 above)

the following default transfer syntax object identifier may be used:

{ joint-iso-ccitt standard(0) culr(11188) mosi(3) default-transfer-syntax(2) version(1)}

## F.3 Default application context for minimal OSI

The default application context for mOSI is the application context used to denote the application's universe of discourse.

The OBJECT IDENTIFIER for the mOSI default application context is

{ joint-iso-ccitt standard(0) culr(11188) mosi(3) default-application-context(3)}

This application context supports the execution of any application using the default abstract syntax defined in F.1.



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# Annex G
(informative)

# Minimal OSI concepts

This annex defines concepts used in the Minimal OSI upper layer facilities.

## G.1 Definitions of minimal OSI upper layer facilities

The minimal OSI Profile (**mOSI**) specifies a minimal set of OSI upper layer facilities that support basic communications applications. A **basic communications application (BCA)** simply requires the ability to open and close communications with a peer and to send and receive messages with the peer. The OSI upper layer facilities are defined by the ACSE, Presentation and Session protocol specifications. When these facilities are specified as a set of interrelated standards for the purpose of providing a common service that functional specification is a **Stack specification**. An implementation of an identified stack specification is a **Stack** or a **stack implementation.** The specification that defines the minimal facilities of the Session layer, Presentation layer, and ACSE is the **mOSI specification** or the **mOSI stack specification** – this Profile.

A functional specification of a formal programmatic interface and a set of supporting local services for an identified stack specification is a **Platform specification**. A **Platform** is an implementation of an identified platform specification. The functional specification of a formal programmatic interface and a set of supporting local services for the mOSI stack specification is the **mOSI platform specification** and an implementation of the mOSI platform specification is a **mOSI platform**.

A functional specification of the formal programmatic interface to an identified stack specification is an **API specification.** An **API** is an implementation of an identified API specification. Likewise, a **mOSI API specification** is a functional specification of the formal programmatic interface to the mOSI stack specification.



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## G.2 Use of the mOSI stack specification

The mOSI stack specification is intended for connection-oriented applications that do not require all of the services of the upper layers, but only the basic communications services. Figure G.1 is a Venn Diagram which represents a classification of the universe of all possible connection-oriented applications. Each subset of the universe applicable to this discussion is supplied below.

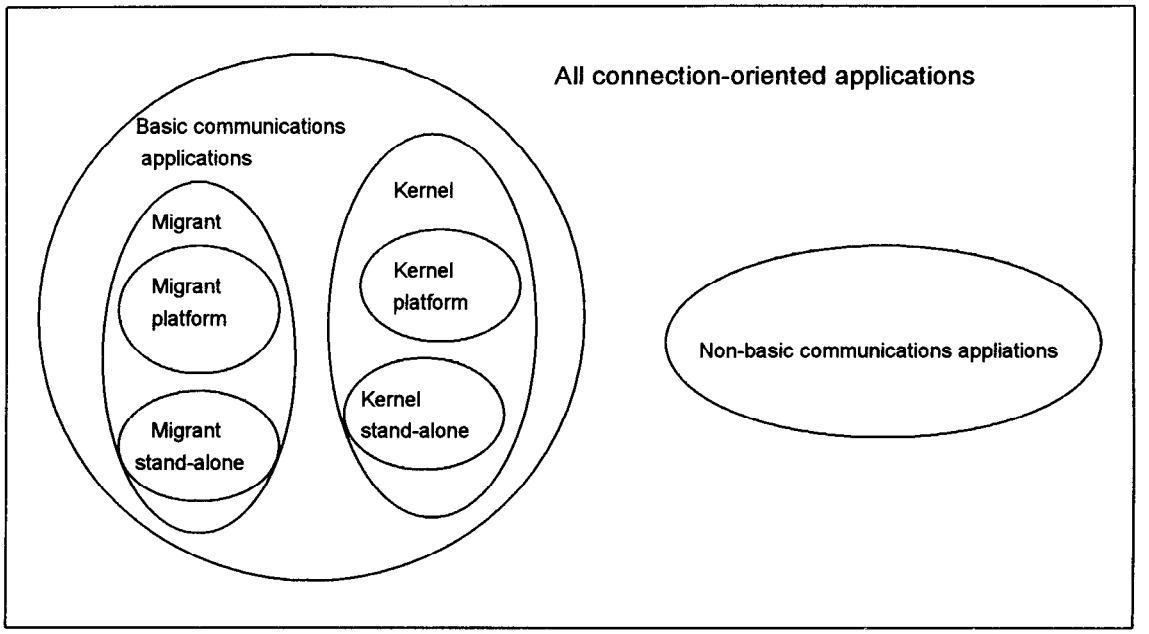



**Figure G.1 – Universe of all OSI-based connection-oriented applications**

### G.2.1 Connection-oriented applications

The set of connection-oriented applications consists of

a) applications needing only basic communications services. A basic communications application requires the ability to open and close communications and to send and receive messages.

b) applications needing more that basic communications services

### G.2.2 Non-basic connection-oriented applications needing more than basic services

The set of connection-oriented applications needing more than basic communications facilities, from an OSI perspective, includes those applications which use one or more of the following facilities: Session major or minor synchronize; resynchronize; activity management. Some examples are

a) RTSE-based applications, e.g., MTA-MTA transfer of X.400

b) FTAM with optional recovery

c) TP with optional two-phase commitment (i.e., CCR)

d) some optional aspects of VTP

### G.2.3 Connection-oriented applications needing only basic services

The set of connection-oriented applications needing only basic communications services include those applications which require the ability to open and close communications and to send and receive messages. Some examples are

a) Kernel applications, which are written specifically for OSI services.

b) Migrant applications, which are "non-OSI applications" such as those currently supported by TCP programmatic interfaces. The X Window system (X) and IPS applications are examples of potential migrant applications.



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#### G.2.3.1 Kernel applications

The set of all possible Kernel applications include those which are written specifically for OSI services that only require basic communications services. Some examples are:

a) ISO and ITU-T defined applications which do not use the RTSE, e.g., UA-MS transfer of X.400;

b) FTAM implementations which do not use recovery or restart data transfer;

c) TP implementations which do not use two-phase commitment;

d) VTP without destructive interrupt facility; and

e) all ROSE based applications.

These applications may access the mOSI stack by using either an API or by mapping directly onto mOSI. Applications using an API are considered to be platform applications. Those applications mapping directly onto mOSI are considered to be **stand-alone applications**.

#### G.2.3.2 Migrant applications

The set of all possible Migrant applications include those that are either to be migrated from TCP to OSI or they are applications that require the least common denominator communication facility – because they must operate over several "transport" mechanisms. Some examples are:

a) TCP/IP applications;

b) Connection-Oriented "user written" applications; and

c) X-windows and IPS applications.

These applications may access the mOSI stack by using either a migrant API or by mapping directly onto mOSI. A migrant API is considered to be a platform for accessing the mOSI stack. Therefore those applications which use a migrant API are considered to be platform applications. Those applications mapping directly onto mOSI are considered to be stand-alone applications.

### G.3 Users of the mOSI stack specification

Out of the set of all connection-oriented applications, those applications using only basic communications services are possible users of the mOSI stack specification. This specification is intended to address implementors of migrant and kernel applications using either a platform or accessing the mOSI stack directly (stand-alone users). This specification is also intended to be referenced by ISP designers.

## G.4 OSI upper layer efficiency

A full function upper layer stack and its API are intended for those applications that need more than the basic communications services; i.e., applications such as the MTA-to-MTA transfer of X.400 messages, distributed Transaction Processing with 2-phase commit, et cetera. The facilities of the full upper layers simplify the design of sophisticated distributed applications that require check pointing with recovery - applications such as RTSE and CCR.

However, migrant and kernel applications, which represent the overwhelming majority of potential OSI applications, require scarcely more than 5% of the overall functionality that a full upper layer stack can provide.

Having an API which only provides mapping onto these required 5% of the overall functionality would make such OSI applications easier to implement and far more efficient to operate. Any perception that OSI is bound to be complex and inefficient is based entirely on the erroneous assumption that every OSI application must be mapped on to a full-function upper layer stack.

Another misconception about OSI deals with the use of ASN.1 Some believe that the use of OSI predicates the use of ASN.1 for application semantics. This is not the case. ASN.1 abstract definitions and the use of ASN.1 Basic Encoding Rules is just one of the options available to an applications designer.



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# Annex H
(informative)

# Implementation considerations

This Internationally Standardized Profile is not an implementation specification. However, the size and efficiency of an implementation of OSI (any OSI implementation, not just of mOSI) is significantly affected by the implementation design. The OSI 7-layer model is a protocol specification model and in many cases may not be the best way to implement OSI.

This informative annex is concerned only with the implementation of the upper three layers of OSI. In particular, this annex is concerned with an implementation of the mOSI specified subset of the OSI upper layers facilities. This annex makes several implementation suggestions. Experience has shown that these implementation approaches yield small and fast implementations—especially when compared to some of the well known OSI proof-of-concept implementations.

## H.1 Layering for mOSI implementations

The services and protocols for the upper three layers of OSI are specified separately. However, considerable efficiency can be gained if all three protocol machines are combined as one module and not as three separate modules requiring the definition of formal interfaces between them. This is especially true if operating system context switches occur when transferring between different modules.

NOTE—Currently no formally defined interfaces exist for Session and Presentation.

Combining layer protocol machines applies not only to mOSI implementations, but also to all OSI upper layer implementations. However, combining layers precludes testing them individually. Individual layer testing is not recommended. The three upper layer protocols provide an integrated set of services; these services are not useful individually.

## H.2 PDU generation for mOSI implementations

mOSI supports uncomplicated application protocols, i.e., byte stream or simple record oriented data transfer (which probably constitutes 95 to 99% of user application protocols). Therefore, the encoding of embedded PDU headers (PCI) for all three protocols is uniform. Using pre-defined protocol headers allows significant gains in protocol machine efficiency. This is especially true for data PDUs— the PDUs that generally constitute the majority of PDUs exchanged.

The Internet RFC 1698 on "Octet Sequences for Upper-Layer OSI to support Basic Communications Applications"[14] is an example of explicit pre-defined PDU encodings for mOSI implementations. The RFC contains a full description of this technique including BER encodings for all upper layer PDUs.

## H.3 Parsing incoming protocol for mOSI

An upper layer protocol machine that only supports the facilities defined in mOSI need only recognize a very limited subset of all potential OSI PDU sequences. In particular, they need not recognize any non-mOSI protocol sequences.

---

[14] Internet RFC 1698, "Octet Sequences for Upper-Layer OSI to support Basic Communications Applications": P.Furniss: London & IETF, October 1994.



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A direct consequence of implementing only the mOSI defined facilities is that non-mOSI sequences are treated as unrecognized PDUs. The receipt of an unrecognized PDU results in a protocol error and in the release of the association. This does not lessen the utility of the implementation but it does reduce the amount of code needed for error handling.

NOTE—It is always legal for an OSI protocol machine to abort an association.

## H.4 Interfaces for mOSI implementations

ISPs currently do not include the selection APIs. However, portability for a mOSI implementation can be significantly enhanced by the use of X/Open's XTI interface. XTI provides a generic interface for connect/disconnect and send/receive. The XTI interface is explicitly for basic communications applications. Appendix H of X/Open's XTI CAE[15] defines the mapping of the generic procedure call interface to OSI upper layer service primitives. The use of XTI provides a common interface for networked applications. It simplifies migration of networked applications from one open networking environment to another.

a mOSI implementation can also use the XTI interface to access transport services. This makes a mOSI implementation easily portable to any network transport supporting XTI, e.g., Internet, NetBIOS, and a number of proprietary networks. Thus, XTI can be used both to interface mOSI to a network transport service and to provide mOSI services to networked applications. The following diagram illustrates the use of the XTI interfaces for mOSI implemented as a single module.

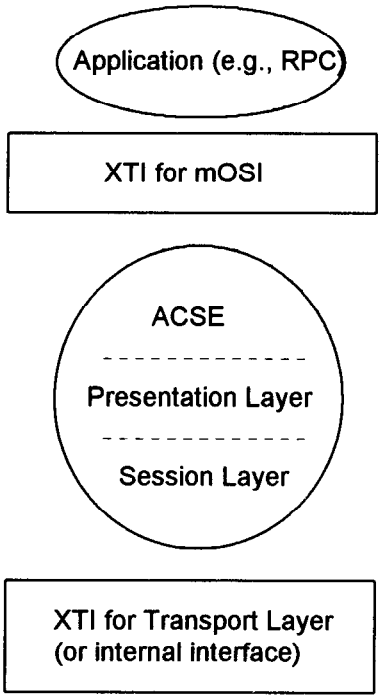



**Figure H-1—XTI interface for mOSI**

[15] XTI: "X/Open Transport Interface (XTI) version 2 X/Open CAE specification C410 (Appendix H, Minimum OSI Functionality)", X/Open Company Limited, Apex Plaza, Sorbury Road, Reading Berkshire, RG1 1AX, UK, 1994.



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