INTERNATIONAL STANDARDIZED PROFILE

ISO/IEC ISP 12061-4

First edition
1995-06-15

Information technology — Open Systems Interconnection — International Standardized Profiles: OSI Distributed Transaction Processing —

Part 4:
Support of Session, Presentation and ACSE PDUs

Technologies de l'information — Interconnexion de systèmes ouverts (OSI) — Profils normalisés internationaux: Traitement transactionnel réparti —

Partie 4: Prise en charge des PDU de session, de présentation et d'ACSE

ISO IEC

Reference number
ISO/IEC ISP 12061-4:1995(E)

Contents

Page

Foreword

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

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. In addition to developing International Standards, ISO/IEC JTC 1 has created a Special Group on Functional Standardization for the elaboration of International Standardized Profiles.

An International Standardized Profile is an internationally agreed, harmon-ized 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/IEC ISP 12061-4 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 12061 consists of the following parts, under the general title *Information technology — Open Systems Interconnection — International Standardized Profiles: OSI Distributed Transaction Processing*:

— *Part 1: Introduction to the Transaction Processing Profiles*

— *Part 2: Support of OSI TP APDUs*

— *Part 3: Support of CCR APDUs*

— *Part 4: Support of Session, Presentation and ACSE PDUs*

— *Part 5: Application supported transactions — Polarized control (ATP11)*

— *Part 6: Application supported transactions — Shared control (ATP12)*

— *Part 7: Provider supported unchained transactions — Polarized control (ATP21)*

— *Part 8: Provider supported unchained transactions — Shared control (ATP22)*

— *Part 9: Provider supported chained transactions — Polarized control (ATP31)*

— *Part 10: Provider supported chained transactions — Shared control (ATP32)*

Annexes A to C form an integral part of this part of ISO/IEC ISP 12061.

Introduction

The aim of Open Systems Interconnection is to allow, with a minimum of technical agreement outside the interconnection standards, the interconnection of computer systems:

- from different manufacturers,
- under different management,
- of different levels of complexity,
- of different technologies.

Transaction Processing is concerned with identifiable information which can be related as transactions, which may involve two or more Open Systems. In the framework of Open Systems Interconnection (OSI) a transaction is defined as "a set of related operations characterized by four properties: atomicity, consistency, isolation and durability."

The definition highlights that a distributed transaction is more than a simple exchange of messages, but that the exchanges form a protected indivisible set.

This multi-part International Standardized Profile contains the complete specification of the six profiles identified in ISO/IEC TR 10000-2.[1]

Part 1 Introduces the overall structure of the specification of the OSI TP Profiles, including the definitions and abbreviations used through out the various parts of ISO/IEC 12061.

Part 2 contains the specification of the support of OSI TP APDUs for each of the profiles specified in parts 5 to 10.

Part 3 contains the specification of the support of the CCR APDUs for each of the profiles specified in parts 5 to 10.

Part 4 contains the specification of the support of ACSE, Presentation and Session APDUs for each of the profiles specified in parts 5 to 10.

Parts 5 to 10 specify the six profiles which are defined, based on the OSI TP standard. These six parts make reference to parts 2 to 4.

[1]ISO/IEC TR 10000-2: 1992, Information Technology - Framework and Taxonomy of International Standardized Profiles - Part2: Taxonomy of OSI Profiles

Information technology — Open Systems Interconnection — International Standardized Profiles: OSI Distributed Transaction Processing —

Part 4:
Support of Session, Presentation and ACSE PDUs

1 Scope

This part of this ISO/IEC ISP 12061 specifies the status for the support of the Session, Presentation and ACSE protocols for the profiles identified in ISO/IEC ISP 12061-1[1].

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC ISP 12061. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this part of ISO/IEC ISP 12061 are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by ISPs to such 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.

ISO/IEC 8327: 1987[2],	*Information processing systems - Open Systems Interconnection - Basic connection oriented session protocol specification*
ISO/IEC 8327:1987 /Amd 3:1992,	*Information processing systems - Open Systems Interconnection - Basic connection oriented session protocol specification - Amendment 3: Additional synchronization functionality.*
ISO/IEC 8327-2:—[3]	*Information technology - Open Systems Interconnection - Basic connection oriented session PICS Proforma - Part 2: Protocol Implementation Conformance Statement (PICS) Proforma.*
ISO/IEC 8650:1988,	*Information processing systems - Open Systems Interconnection - Protocol specification for the Association Control Service Element.*

[1]There are places where this International Standardized Profile marks a mandatory parameter as out of scope. This may a first appear to be contrary to the rules for referencing an International Standardized Profile. When an International Standardized Profile references another International Standardized Profile it is to specifiy how the referencing International Standardized Profile will use the services of the referenced International Standardized Profile, and not how a conformant implementation of the referenced International Standardized Profile would be constructed. When a mandatory parameter is marked out of scope, it means that within a TP context that parameter would never be used.

[2]Under revision

[3]To be published

ISO/IEC 8650-2:1995,	*Information technology - Open Systems Interconnection - Protocol specification for the Association Control Service Element - Part 2: Protocol Implementation Conformance Statement (PICS) Proforma.*
ISO/IEC 8823:1988,	*Information processing systems - Open Systems Interconnection - Connection oriented presentation protocol specification.*
ISO/IEC 8823:1988 /Amd 5:1992,	*Information processing systems - Open Systems Interconnection - Connection oriented presentation protocol specification - Amendment 5: Additional synchronisation functionality to the presentation service user.*
ISO/IEC 8823-2:—[3]	*Information technology - Open Systems Interconnection - Connection oriented presentation protocol specification - Part 2: Protocol Implementation Conformance Statement (PICS) Proforma.*
ISO/IEC 8825:1990,	*Information technology - Open Systems Interconnection - Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1).*
ISO/IEC 9805:1990,	*Information technology - Open Systems Interconnection - Protocol Specification for the Commitment, Concurrency and Recovery service element.*
ISO/IEC 9805-2:—[3]	*Information technology - Open Systems Interconnection - Commitment, Concurrency and Recovery protocol - Part 2: Protocol Implementation Conformance Statement (PICS) Proforma.*
ISO/IEC 9805:1990 /Amd 2:1992,	*Information technology - Open Systems Interconnection - Protocol Specification for the Commitment, Concurrency and Recovery service element - Amendment 2: Session mapping changes.*
ISO/IEC 10026-1:1992,	*Information technology - Open Systems Interconnection - Distributed Transaction Processing - Part 1: OSI TP Model.*
ISO/IEC 10026-2:1992,	*Information technology - Open Systems Interconnection - Distributed Transaction Processing - Part 2: OSI TP Service.*
ISO/IEC 10026-3:1992,	*Information technology - Open Systems Interconnection - Distributed Transaction Processing - Part 3: OSI TP Protocol specification.*
ISO/IEC 10026-4:1995,	*Information technology - Open Systems Interconnection - Distributed Transaction Processing - Part 4: Protocol Implementation Conformance Statement (PICS) Proforma.*
ISO/IEC ISP 11188-1:1995,	*Information technology - International Standardized Profile - Common upper layer requirements - Part 1: Basic connection oriented requirements.*

3 Definitions and abbreviations

The definitions and abbreviations listed in ISO/IEC 12061-1 apply.

4 Notation

The notation introduced in ISO/IEC ISP 12061-1 applies.

5 Support of Session spdus

Annex A specifies the support of Session protocol.

6 Support of Presentation ppdus

Annex B specifies the support of Presentation protocol.

7 Support of ACSE apdus

Annex C specifies the support of ACSE protocol.

8 Conformance

To conform to the OSI ACSE protocol used in any of the profiles defined in this ISP, an implementation shall implement, according to the specifications given in ISO/IEC 8650:

- All mandatory features identified in annex C.
- All selected optional features, as identified in the completed ACSE PICS.
- All restrictions as specified in the Common Upper Layer Requirements ISO/IEC ISP 11188-1.

To conform to the OSI Presentation protocol used in any of the profiles defined in this part of ISO/IEC ISP 12061, an implementation shall implement, according to the specifications given in ISO/IEC 8823:

- All mandatory features identified in annex B.
- All selected optional features, as identified in the completed Presentation PICS.
- All restrictions as specified in the Common Upper Layer Requirements ISO/IEC ISP 11188-1.

To conform to the OSI Session protocol used in any of the profiles defined in this ISP, an implementation shall implement, according to the specifications given in ISO/IEC 8327:

- All mandatory features identified in annex A.
- All selected optional features, as identified in the completed Session PICS.
- All restrictions as specified in the Common Upper Layer Requirements ISO/IEC ISP 11188-1.

Annex A
(normative)

Session PDU support

This subclause details TP's requirements on the Session protocol. The reader should consult the Upper Layer agreements for a detailed discussion of these services. This part of ISO/IEC ISP 12061 only specifies PDU parameters necessary for this International Standardized Profile.

A.1 Supported functions

Table 1 - SUPPORTED FUNCTIONS

	BASE STANDARD ISO/IEC 8327-2		PROFILE		
ITEM#	CAPABILITY	STATUS	PROFILE ID	STATUS	NOTES
1	Kernel	M		M	
2	Negotiated Release	O		*(I)	
3	Half Duplex	O.n		NA	3
4	Duplex	O.n		M	
5	Expedited Data	O		*(I)	
6	Typed Data	O	11,12	*(I)	
			21,22,31,32	M	
7	Capability Data Exchange	C	11,12	*(I)	
			21,22,31,32	NA	3
8	Minor Synchronize	O	11,12	*(I)	
			21,22,31,32	M	
9	Symmetric Synchronize	O	11,12	*(I)	
			21,22,31,32	NA	3
10	Major Synchronize	O		*(I)	
11	Resyncronize	O	11,12	*(I)	
			21,22,31,32	M	
12	Exceptions	C		NA	1,3
13	Activity Management	O	11,12	*(I)	
			21,22,31,32	NA	2,3,
14	Data Separation	C	11,12	*(I)	
			21,22,31,32	M	

NOTES

1. Exceptions FU cannot be negotiated because Half Duplex is not allowed.

2. Activity Management FU cannot be negotiated for these profiles because the Data Separation FU does not allow the Activity Management FU to also be selected.

3. Succesfully accepting these functional units is a protocol error. If any of the following Functional Units is proposed on a CN SPDU the Functional Unit shall not be accepted and the corresponding bit shall be set to zero on the Accept SPDU.

A.2 ISO 8327 protocol versions implemented

Table 2 -ISO 8327 PROTOCOL VERSIONS IMPLEMENTED

	BASE STANDARD ISO/IEC 8327 -2		PROFILE		
ITEM#	CAPABILITY	STATUS	PROFILE ID	STATUS	NOTES
1	Version 1	O		I	
2	Version 2	O		M	

A.3 Protocol mechanisms

Table 3- PROTOCOL MECHANISMS

	ISO/IEC 8327-2		PROFILE		
ITEM#	CAPABILITY	STATUS	PROFILE ID	STATUS	NOTES
1	Use of Transport Expedited Data	O		O	
2	Reuse of Transport Connection	O		*(I)	
3	Basic Concatenation	M		M	
4	Extended Concatenation	O		I	
5	Segmentation	O		*(I)	
6	Segmentation of Unlimited User Data	O		*(I)	

A.4 Initiator/responder capabilities

Table 4 - INITIATOR/RESPONDER CAPABILITIES

	ISO/IEC 8327-2		PROFILE		
ITEM#	CAPABILITY	STATUS	PROFILE ID	STATUS	NOTES
1	Initiator	O		C101	
2	Responder	O		M	

101. If capable of initiating an Association then M, else I.

A.5 Session procedures usage by profile

This table specifies the supported level of each Session PDU with respect to each profile.

Table 5 - KERNEL FUNCTIONAL UNIT PROCEDURES USAGE BY PROFILE

ITEM #	Protocol Data Units	ISO/IEC 8327-2	Profiles						
			11	21	31	12	22	32	Notes
1	Connect (CN)	C/C	C103 /M	C103 /M	C103 /M	C103 /M	C103 /M	C103 /M	
2	Overflow Accept(OA)	C	I	I	I	I	I	I	
3	Connect Data Overflow(CDO)	C	I	I	I	I	I	I	
4	Accept(AC)	C/C	C104 /C103	C104 /C103	C104 /C103	C104 /C103	C104 /C103	C104 /C103	
5	Refuse(RF)	C/C	M /C103	M /C103	M /C103	M /C103	M /C103	M /C103	
6	Finish(FN)	O/C	O/M	O/M	O/M	O/M	O/M	O/M	
7	Disconnect(DN)	O	M /C105	M /C105	M /C105	M /C105	M /C105	M /C105	
8	Abort(AB)	M	M	M	M	M	M	M	
9	Abort Accept(AA)	O	C106	C106	C106	C106	C106	C106	
10	Data Transfer(DT)	O/C	M	M	M	M	M	M	
11	Prepare(PR)	C/C	C107	C107	C107	C107	C107	C107	

103. If capable of initiating an Association then M, else I.

104. If capable of responding to a AARQ APDU then M, else I.

105. If capable of initiating a FINISH then M, else NA.

106. If reusing T-Connection then M, else I.

107. If transport expedited available then M, else NA.

Table 6 - NEGOTIATED RELEASE FUNCTIONAL UNIT PROCEDURES USAGE BY PROFILE

ITEM #	Protocol Data Units	ISO/IEC 8327-2	Profiles						
			11	21	31	12	22	32	Notes
1	Not Finished(NF)	O/M	*	*	*	*	*	*	
2	Give Tokens(GT)	O	*	*	*	*	*	*	1
3	Please Tokens(PT)	O/M	*	*	*	*	*	*	1

NOTES

1. These PDUs are marked * in this table because the Negotiated Release FU is marked * in Table 1. These PDUs may be used else where in different ways.

Table 7 - HALF DUPLEX FUNCTIONAL UNIT PROCEDURES USAGE BY PROFILE

ITEM #	Protocol Data Units	ISO/IEC 8327-2	Profiles						
			11	21	31	12	22	32	Notes
1	Give Tokens(GT)	O	NA	NA	NA	NA	NA	NA	1
2	Please Tokens(PT)	O/M	NA	NA	NA	NA	NA	NA	1

NOTES

1. These PDUs are marke NA in this table because the Half Duplex FU is marked NA in Table 1. These PDUs may be used else where in different ways.

DUPLEX FUNCTIONAL UNIT PROCEDURES

No additional SPDUs (this clause is present for completeness).

Table 8 - EXPEDITED DATA FUNCTIONAL UNIT PROCEDURES USAGE BY PROFILE

ITEM #	Protocol Data Units	ISO/IEC 8327-2	Profiles						
			11	21	31	12	22	32	Notes
1	Expedited Data(EX)	O/M	*	*	*	*	*	*	

Table 9 - TYPED DATA FUNCTIONAL UNIT PROCEDURES USAGE BY PROFILE

ITEM #	Protocol Data Units	ISO/IEC 8327-2	Profiles						
			11	21	31	12	22	32	Notes
1	Typed Data(TD)	O/M	*	M	M	*	M	M	

Table 10 - CAPABILITY DATA FUNCTIONAL UNIT PROCEDURES USAGE BY PROFILE

ITEM #	Protocol Data Units	ISO/IEC 8327-2	Profiles						
			11	21	31	12	22	32	Notes
1	Capability Data(CD))	O/M	*	NA	NA	*	NA	NA	1
2	Capability Data Ack(CDA)	M/C	*	NA	NA	*	NA	NA	1

NOTES

1. Because the Capability Data FU shall never be selected on a Session Connection for Profiles 21, 22, 31, and 32, the Session Protocol Machine will generate a protocol error when a CD or CDA SPDU is received in these profiles.

Table 11 -MINOR SYNCHRONIZE FUNCTIONAL UNIT PROCEDURES USAGE BY PROFILE

ITEM #	Protocol Data Units	ISO/IEC 8327-2	Profiles						
			11	21	31	12	22	32	Notes
1	Minor Sync Point(MIP)	O	*	M	M	*	M	M	
2	Minor Sync Point Ack(MIA)	O/C	*	M	M	*	M	M	
3	Give Tokens(GT)	O	*	M	M	*	M	M	
4	Please Tokens(PT)	O/M	*	M	M	*	M	M	

Table 12 -SYMMETRIC SYNCHRONIZE FUNCTIONAL UNIT PROCEDURES USAGE BY PROFILE

ITEM #	Protocol Data Units	ISO/IEC 8327-2	Profiles						
			11	21	31	12	22	32	Notes
1	Minor Sync Point(MIP)	O	*	NA	NA	*	NA	NA	1
2	Minor Sync Point Ack(MIA)	O/C	*	NA	NA	*	NA	NA	1

NOTES

1. Because the Symmetric Synchronize FU shall never be selected on a Session Connection for Profiles 21, 22, 31, and 32, the MIP and MIA SPDUs have been marked NA. They may be used differently elsewhere.

Table 13 -MAJOR SYNCHRONIZE FUNCTIONAL UNIT PROCEDURES USAGE BY PROFILE

ITEM #	Protocol Data Units	ISO/IEC 8327-2	Profiles						
			11	21	31	12	22	32	Notes
1	Major Sync Point(MAP)	O/M	*	*	*	*	*	*	
2	Major Sync Point Ack(MAA)	M/C	*	*	*	*	*	*	
3	Give Tokens(GT)	O	*	*	*	*	*	*	1
4	Please Tokens(PT)	O/M	*	*	*	*	*	*	1
5	Prepare(PR)	C/C	*	*	*	*	*	*	1

NOTES

1. Because the Major Synchronize FU has been marked * in Table 1, these PDUs have been marked *. They may be used differently elsewhere.

Table 14 -RESYNCHRONIZE FUNCTIONAL UNIT PROCEDURES USAGE BY PROFILE

ITEM #	Protocol Data Units	ISO/IEC 8327-2	Profiles						
			11	21	31	12	22	32	Notes
1	RESYNCHRONIZE(RS)	O/M	*	M	M	*	M	M	1
2	RESYNCHRONIZE Ack(RA)	M/C	*	M	M	*	M	M	1
3	Prepare(PR)	C/C	*	C107	C107	*	C107	C107	1

NOTES

1. Because the ReSynchronize FU has been marked in Table 1 with * for Profiles 11 and 12 these PDUs have been marked with * in this table. They may be used differently elsewhere.

Table 15 -EXCEPTIONS FUNCTIONAL UNIT PROCEDURES USAGE BY PROFILE

ITEM #	Protocol Data Units	ISO/IEC 8327-2	Profiles						
			11	21	31	12	22	32	Notes
1	Exception Report(ER)	O/M	NA	NA	NA	NA	NA	NA	1
2	Exception Data(ED)	O/M	NA	NA	NA	NA	NA	NA	1

NOTES

1. Because the ExceptionFU shall never be selected for a Session Connection, the Session Protocol Machine will generate a protocol error when an ER or ED SPDU is received.

Table 16 -ACTIVITY MANAGEMENT FUNCTIONAL UNIT PROCEDURES USAGE BY PROFILE

ITEM #	Protocol Data Units	ISO/IEC 8327-2	Profiles						
			11	21	31	12	22	32	Notes
1	Activity Start(AS)	O/M	*	NA	NA	*	NA	NA	2
2	Activity Resume(AR)	O/M	*	NA	NA	*	NA	NA	2
3	Activity Interrupt(AI)	O/M	*	NA	NA	*	NA	NA	2
4	Activity Interrupt Ack(AIA)	M/C	*	NA	NA	*	NA	NA	2
5	Activity Discard(AD)	O/M	*	NA	NA	*	NA	NA	2
6	Activity Discard Ack(ADA)	M/C	*	NA	NA	*	NA	NA	2
7	Activity End(AE)	O/M	*	NA	NA	*	NA	NA	2
8	Activity End Ack(AEA)	M/C	*	NA	NA	*	NA	NA	2
9	Prepare(PR)	C/C	*	NA	NA	*	NA	NA	2,3
10	Give Tokens(GT)	O	*	NA	NA	*	NA	NA	2,3
11	Please Tokens(PT)	O/M	*	NA	NA	*	NA	NA	2,3
12	Give Tokens Confirm(GTC)	O/M	*	NA	NA	*	NA	NA	1,2