Stable Implementation Agreements for Open Systems Interconnection Protocols: Part 15 - Transaction Processing

Output from the December 1993 NIST Workshop for Implementors of OSI

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Foreword

This part of the Stable Agreements was prepared by the Transaction Processing Special Interest Group (TPSIG) of the National Institute of Standards and Technology (NIST) Workshop for Implementors of Open Systems Interconnection (OSI). See Procedures Manual for Workshop charter.

Text in this part has been approved by the Plenary of the above-mentioned Workshop. This part replaces the previously existing chapter on this subject. There is some change from this text as previously given.

Future changes and additions to this version of these Implementor Agreements will be published as a new part. Deleted and replaced text will be shown as . New and replacement text will be shown as shaded.

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List of Tables

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TITLE: Information Technology - Open Systems Interconnection - International Standardized Profile 12061-1: OSI TP
Part 1 : Introduction to the Transaction Processing Profiles
SOURCE: Joint AOW / EWOS / OIW on Transaction Processing
DATE: December 9, 1993
STATUS: International Standardized Profile.

CONTENTS

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:

a. from different manufacturers,
b. under different management,
c. of different levels of complexity,
d. 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 document contains the complete specification of the six profiles identified in M-IT-02 and TR 10000.

Part 1 of this document introduces the overall structure of the specification of the OSI TP Profiles, including the definitions and abbreviations used through out the various parts of this document.

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 Part 5 to 10.

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

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Information Technology - Open Systems Interconnection - International Standardized Profiles 12061-1: OSI Distributed Transaction Processing. Part 1: Introduction to the Transaction Processing Profiles

1. SCOPE

Part I of this document introduces the overall structure of the specification of the OSI TP profiles. This includes:

a) the identification of the Transaction Processing profiles defined in this document, together with the Transaction Processing Profiles Tree;

b) the identification of the various Parts which constitute this document;

c) the list of the references to other standards relevant to the definition of the OSI TP profiles;

d) the definitions and abbreviations used through the various parts of this document.

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 CCITT maintains published editions of its current Recommendations.
The following ISO standards contain provisions for the definition of Transaction Processing profiles and are referenced in this document:

ISO/IEC 8327[1]	Information Processing Systems - Open Systems Interconnection - Basic connection oriented session protocol specification
ISO/IEC DIS 8327-2	Information Processing Systems - Open Systems Interconnection - Basic connection oriented session PICS Proforma.
ISO/IEC 8327 AM3	Information Processing Systems- Open Systems Interconnection - Session. Additional resynchronisation functionality.
ISO/IEC 8650	Information Processing Systems - Open Systems Interconnection Protocol Specification for the Association Control Service Element.
ISO/IEC DIS 8650-2	Information Processing Systems - Open Systems Interconnection - PICS Proforma for the Association Control Service Element.
ISO/IEC 8823:1988	Information Processing Systems - Open Systems Interconnection - Connection Oriented Presentation Protocol Specification.
ISO/IEC DIS 8823-2	Information Processing Systems - Open Systems Interconnection - Connection Oriented Presentation PICS Proforma.
ISO/IEC 8823 AM5	Information Technology - Open Systems Interconnection - Presentation. Additional resynchronisation functionality.

[1] Second edition to be published

ISO/IEC 8825:1990	Information Processing Systems - Open Systems Interconnection - Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1).
ISO/IEC 9805-1:1990	Information Technology - Open Systems Interconnection - Protocol Specification for the Commitment, Concurrency and Recovery service element.
ISO/IEC DIS 9805-2	Information Technology - Open Systems Interconnection - CCR PICS Proforma.
ISO/IEC 9805 AM2	Information Technology - Open Systems Interconnection - CCR. Session mapping changes.
ISO/IEC 10026-1:1992	Information Technology - Open Systems Interconnection - Distributed Transaction Processing: Model.
ISO/IEC 10026-2:1992	Information Technology - Open Systems Interconnection - Distributed Transaction Processing: Service Definition.
ISO/IEC 10026-3:1992	Information Technology - Open Systems Interconnection - Distributed Transaction Processing: Protocol Specification.
ISO/IEC DIS 10026-4	Information Technology - Open Systems Interconnection - Distributed Transaction Processing: PICS Proforma
ISO/IEC ISP 11188-1	Information Technology - International Standardized Profile- Common Upper Layer Requirements

3. DEFINITIONS AND ABBREVIATIONS

The definitions and abbreviations in this document not listed in this section are found in the TP model document (ISO/IEC 10026-1).

AS - Conformance class for Application Supported Transaction
CP - Conformance class for Chained Provider Supported Transaction Branches
UP - Conformance class for Unchained Provider Supported Transaction Branches
FU - Functional Unit
ISP - International Standardized Profile
PDU - Protocol Data Unit
PPDU - Presentation Protocol Data Unit
SPDU - Session Protocol Data Unit

4. NOTATION

The following notations are used in the tables contained in Parts 2 to 4 of this ISP:

1) The Item Number uniquely identifies each capability, parameter or field within the tables.

2) The Parameter column provides the name of each PDU parameter.

3) The Base Standard Status column indicates static requirements as defined by the base standard PICS Proforma.
The notation used in this column is as defined:
- in the OSI TP and CCR PICS proforma documents for the OSI TP and CCR related tables;
- in the "Common Upper Layer Requirement" document for ACSE, Presentation and Session related tables.

However, as the ISP is not intended to duplicate the information contained in the documents listed above, the notation has been simplified as follows:
- "C" is used instead of any "Cxxx", where xxx is an integer.
- "O.n" is used instead of any "O.xxx", where xxx is an integer.

The exact definition of conditions and options will be found in the referenced documents.
Note that the "M" and "O" notations have not been changed.
Note that the "D" (default) notation may be used in this column, whilst it is not used in the PROFILE Status column (included within the M notation).

4) The Profile ID column, if present, defines how this parameter is used by a specific profile.
When this column is empty, the feature applies to all profiles to which the PDU applies.

5) The Profile Status column indicates the requirements for the feature.

These requirements are valid only within the scope of a specific profile, i.e., they apply to an instance of an implementation operating within the limits specified by that profile. For instance, the notation NA used for some feature does not preclude an implementation from supporting more than one profile.

M = Mandatory. The feature shall be supported, i.e. its syntax and procedures shall be implemented as specified in the base standard or restricted by this ISP, by all implementations claiming conformance to this profile. It is not necessary that a mandatory parameter appears in all instances of communication when either a default value has been specified, or this parameter is not used at the service level.

C = Conditional. Any feature so marked must be implemented under the conditions specified in the profile (e.g. Mandatory, Not Applicable, etc., for a certain instance of communication). The requirements for the feature then follow the rules of M, NA, etc.

O = Optional. This is an optional feature in the base standard. It is left to the implementor as to whether this feature is implemented. Optional features for a sender need not be implemented. Optional features for a receiver must be recognized and may be processed in a manner consistent with the base standard, or these profiles. If implemented, a feature will be subject to conformance testing.

NA = Not Applicable. This feature is not defined in the context where it is mentioned because it is either logically or physically impossible for the feature to occur. The occurrence of this feature is a protocol error. It will be handled as specified in the base standard or this ISP.

I = Out of Scope. This is an optional feature of a base standard. However, this feature is not used by the profile nor by a referencing specification. If such a feature is received it is processed according to local procedures. Local procedures are procedures that are not defined by any base standards or profiles. It will not generate a protocol error.

There are presently some instances where features marked 'M' in the base standard are marked 'I' in this profile. This has been done only because the base standard PICS are not yet at full international standard status and it is believed that the markings of the feature will change during progression to full international standard status. It is intended to remove all such inconsistencies with the base standard before publication of this ISP.

* = U-ASE defined. This is an optional feature of a base standard. This feature may or may not be used by a referencing specification. How it is used is specified by the referencing specification. When a default value is given in this profile, the referencing specification may choose not to specify any value in which case, the default value applies. A default value is specified in parentheses following the *, e.g., *(I).

O.N= The notation O.N, where N is an integer, is used in some Status Columns. This notation indicates a reference to a unique group of capabilities. A note (as indicated in the Notes Column) will explain the exact requirement using one of the following forms:

O.N = Support of exactly one of these items is required.
O.N = Support of at least one of these items is required.

It is always necessary to consult the corresponding note to determine which situation applies.

When status for sending and receiving values differ, they will be separated by a slash, with the sender on the left and receiver on the right. If they are the same there will only be one status in the cell. The integer suffix to a status refers to a condition that will be found either immediately following that table, or following an earlier table in the same part of this ISP.

6) The T/L/V Allowed column specifies the range of types, length, or values this parameter can assume or contain. This column can have multiple definitions based on which profile is being described. When multiple definitions are possible this column will be defined in conjunction with the Profile ID column. The notation {} denote no bits in the parameter's value.

7) The Notes column points to notes following the table.

5. TAXONOMY STRUCTURE

5.1. GUIDELINES FOR SPLITTING UP THE PROFILES

This subclause specifies which functional units combine to form each profile. Refer to the appropriate part of this ISP for the specification of how a specific profile uses a PDU and its parameters. Profiles are identified by a coding method which consists of two levels, but which can easily be expanded as future needs warrant. The first level indicates the conformance class. The second level indicates whether polarized or shared control is used. The levels are defined as:

Level one:

1.- Application Supported transactions.
2.- Provider supported unchained transactions.
3.- Provider supported chained transactions.

Level two:

1.- Polarized control.
2.- Shared control.

5.2 TRANSACTION PROCESSING PROFILES TREE

The figure hereafter gives the Transaction Processing Profiles tree:

Transaction Processing	ATP
Application Supported Transactions	ATP1
Polarized Control	ATP11
Shared Control	ATP12
Provider Supported Unchained Transactions	ATP2
Polarized Control	ATP21
Shared Control	ATP22
Provider Supported Chained Transactions	ATP3
Polarized Control	ATP31
Shared Control	ATP32

The first level of this decomposition (ATPx) corresponds to the definition of the three conformance classes defined in the OSI TP standard. The second level (ATPxy) corresponds to the selection between Polarized Control and Shared Control for each of the conformance classes. The conformance classes and the functional units that compose them are summarized in the following list:

1. ATP-11 Application Supported Transactions - Polarized Control:
   DIALOGUE + HANDSHAKE + POLARIZED CONTROL

2. ATP-21 Provider Supported Unchained Transactions - Polarized Control:
   DIALOGUE + HANDSHAKE + POLARIZED CONTROL + COMMIT + RECOVERY + UNCHAINED TRANSACTION

3. ATP-31 Provider Supported Chained Transactions - Polarized Control:
   DIALOGUE + HANDSHAKE + POLARIZED CONTROL + COMMIT + RECOVERY + CHAINED TRANSACTION

4. ATP-12 Application Supported Transactions - Shared Control:
   DIALOGUE + HANDSHAKE (Optional) + SHARED CONTROL

5. ATP-22 Provider Supported Unchained Transaction - Shared Control:
   DIALOGUE + HANDSHAKE (Optional) + SHARED CONTROL + COMMIT + RECOVERY + UNCHAINED TRANSACTION

6. ATP-32 Provider Supported Chained Transactions - Shared Control:
   DIALOGUE + HANDSHAKE (Optional) + SHARED CONTROL + COMMIT + RECOVERY + CHAINED TRANSACTION

Since the Profile ID is not carried as a protocol parameter, implementations may determine the profile governing a particular instance of communication by the TP Functional Units selected for that dialogue.

6. CONFORMANCE

This part of ISO/IEC ISP 12061 states requirements upon implementors to achieve inter networking. A claim of conformance to one of parts five to ten of this ISP is a claim that all requirements in the relevant base standards are satisfied, and that all requirements in the relevant parts are satisfied.
Annexes to parts two, three and four state the relationship between these requirements and those of the base standard.
There is no conformance requirement from this ISP on features marked "*" in the annexes of parts two and four.
Each of parts five to ten contain specific conformance requirements for that part.

TITLE: Information Technology - Open Systems Interconnection - International Standardized Profile 12061-2: OSI TP
Part 2: Support of OSI TP APDUs.
SOURCE: Joint AOW / EWOS / OIW on Transaction Processing
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CONTENTS

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

a. from different manufacturers,
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This multi-part document contains the complete specification of the six profiles identified in M-IT-02 and TR 10000.

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Information Technology - Open Systems Interconnection - International Standardized Profiles 12061-2: OSI Distributed Transaction Processing.
Part 2: SUPPORT OF OSI TP APDUs

1. SCOPE

This part of this ISP specifies the status for the support of the OSI TP protocol for the profiles identified in Part 1 of this ISP.

2. NORMATIVE REFERENCES

The references listed in Part 1 of this ISP apply.

3. DEFINITIONS AND ABBREVIATIONS

The definitions and abbreviations contained in Part 1 of this ISP apply to this Part.

4. NOTATION

The notation introduced in Part 1 of this ISP applies to this Part.

5. SUPPORT OF OSI TP PROTOCOL

The support of the OSI TP protocol is as described in Annex A (normative).
The structure of Annex A is based on the structure of Annex A of ISO/IEC 10026-4, in particular in the numbering of the clauses.
When a clause of Annex A of ISO/IEC 10026-4 is not relevant to the profiles, this is stated.

6. Conformance

To conform to the OSI TP Protocol used in any of the profiles in this ISP, an implementation shall implement, according to the specifications given in ISO/IEC 10026-3:

1. All the mandatory features identified in Annex A.

2. All the selected optional features, as identified in the completed TP PICS.

ANNEX A: SUPPORT OF THE OSI TP PROTOCOL (Normative)

A.1. IDENTIFICATION

No restriction is applied to clause A.1 of ISO/IEC 10026-4 by this part of ISO/IEC ISP 12061.

A.2. CLAIMED CONFORMANCE TO STANDARDS

A.2.1. ISO/IEC 10026-3

A.2.1.1. VERSION NUMBER(S)

Answer shall be "NONE".

A.2.1.2. GLOBAL CONFORMANCE CLAIM

Answer shall be "YES".

A.2.2. ISO/IEC 10026 AMENDMENTS

Both answers shall be "NONE".

A.2.3. ISO/IEC 10026 TECHNICAL CORRIGENDA

Both answers shall be "NONE".
Note: At the time of the approval of the final text of this ISP, no Technical Corrigenda was approved for ISO/IEC 10026. When this will become false, the present ISP will be corrected accordingly.

A.2.4. CONFORMANCE CLASS(ES) SUPPORTED

Table 1 - CONFORMANCE CLASSES SUPPORTED

ITEM #	CONFORMANCE CLASSES	ISO/IEC 10026-4	PROFILES						
			11	21	31	12	22	32	NOTES
1	Application Transaction Branches	O	M	NA	NA	M	NA	NA	
2	Chained Provider Supported Transaction Branches	O	NA	NA	M	NA	NA	M	
3	Unchained Provider Supported Transaction Branches	O	NA	M	NA	NA	M	NA	

NOTES

Conformance to more than one profile may be claimed for an implementation. For example, an implementation that conforms to profile 21 will often be capable of conforming to the corresponding Profile 11.

A.3. FUNCTIONAL UNITS, LIMITS AND PROTOCOL MECHANISMS

A.3.1. SUPPORT OF FUNCTIONAL UNITS

Table 2 - SUPPORT OF FUNCTIONAL UNITS

ITEM #	FUNCTIONAL UNITS	ISO/IEC 10026-4			PROFILES						
					11	21	31	12	22	32	NOTES
		AS	CP	UP							
1	Dialogue	M	M	M	M	M	M	M	M	M	
2	Shared Control	O.n	O.n	O.n	NA	NA	NA	M	M	M	
3	Polarized Control	O.n	O.n	O.n	M	M	M	NA	NA	NA	
4	Handshake	O	O	O	M	M	M	O	O	O	
5	Commit	NA	M	M	NA	M	M	NA	M	M	
6	Chained Transactions	NA	M	NA	NA	NA	M	NA	NA	M	
7	Unchained Transactions	NA	NA	M	NA	M	NA	NA	M	NA	
8	Recovery	NA	M	M	NA	M	M	NA	M	M	

A.3.2. PROTOCOL MECHANISMS IMPLEMENTED

A.3.2.1. CONCATENATION/SEPARATION

Table 3 - SUPPORT FOR CONCATENATION/SEPARATION

ITEM #	ROLE	ISO/IEC 10026-4	PROFILES						
			11	21	31	12	22	32	NOTES
1	Concatenation	O	O	O	O	O	O	O	1
2	Separation	M	M	M	M	M	M	M	

NOTES

1. Concatenated TP APDUs shall consist of :

   A. a sequence of PDV-list, where each PDV contains a single-ASN.1-Type, when the concatenated TP APDUs are embedded in a Presentation PDU such as P-DATA, or

   B. a sequence of EXTERNAL, where each encoding consist of a Single-ASN.1-Type, when the concatenated TP APDUs are embedded in a CCR APDU such as C-COMMIT-RC.

A.3.2.2. ASSOCIATION ESTABLISHMENT

Table 4 - ASSOCIATION ESTABLISHMENT

ITEM #	ROLE	ISO/IEC 10026-4	PROFILES						
			11	21	31	12	22	32	NOTES
1	Initiator	C	O	M	M	O	M	M	1,2,4
2	Acceptor	C	O	M	M	O	M	M	1,3,4
3	Rejector	O	M	M	M	M	M	M	5,6

NOTES

1 When the commitment is supported, then the implementation must be able to support both the association initiator and acceptor role in order to be able to perform recovery adequately.

2 The initiator role here implies being capable of issuing an A-ASSOCIATE request and being capable of receiving an A-ASSOCIATE confirm.

3 The Acceptor role here implies being capable of receiving an A-ASSOCIATE indication and being capable of issuing an A-ASSOCIATE response with a positive answer.

4. For Profiles 11 and 12, at a minimum, the association establishment initiator role or the association establishment acceptor role shall be supported.

5. The Rejector role here implies being capable of receiving an A-ASSOCIATE indication and being capable of issuing an A-ASSOCIATE response with a negative answer.

6. Although it is mandatory to be able to reject an association, note that in some particular environments it could occur that the reject is always performed by some lower protocol machine (e.g. ACSE).

A.3.2.3. SUPPORT FOR MANDATORY AND OPTIONAL BIDDING

Table 5 - SUPPORT FOR MANDATORY AND OPTIONAL BIDDING

ITEM #	ROLE	ISO/IEC 10026-4	PROFILES						
			11	21	31	12	22	32	NOTES
1	Initiator with Bid mandatory	C	C100	M	M	C100	M	M	
2	Initiator with Bid optional	C	C101	O	O	C101	O	O	
3	Responder with Bid mandatory	C	C102	M	M	C102	M	M	
4	Responder with Bid optional	C	C103	M	M	C103	M	M	

100 If the Initator of an association role is supported(A.3.2.2/1) then O else NA.

101 If the initiator of the association role is supported (A.3.2.2/1) then M else NA.

102 If the Acceptor of an Association role is supported(A.3.2.2/2) then O else NA.

103 If the Acceptor of an Association role is supported(A.3.2.2/2) then M else NA.

A.3.2.4. CONTENTION

Table 6 - SUPPORT FOR CONTENTION MANAGEMENT

ITEM #	ROLE	ISO/IEC 10026-4	PROFILES						
			11	21	31	12	22	32	NOTES
1	Contention Winner	O.n	O	M	M	O	M	M	1,2
2	Contention Loser	O.n	O	M	M	O	M	M	1,2

NOTES

1. When the commitment is supported, in order to enable channel establishment (initiator or acceptor) to be accepted, it is required to be able to support both the contention winner and contention loser roles.

2. For profiles 11 and 12, at least one of the contention winner and contention loser roles shall be supported.

A.3.2.5. BID MECHANISM

Table 7 - SUPPORT FOR THE BID MECHANISM

ITEM #	ROLE	ISO/IEC 10026-4	PROFILES						
			11	21	31	12	22	32	NOTES
1	Initiator	C	C105	M	M	C105	M	M	1,3
2	Responder	C	C106	M	M	C106	M	M	2,3

NOTES

1. The initiator role here implies being capable of sending a TP-BID-RI APDU and being capable of receiving a TP-BID-RC APDU.

2. The responder role here implies being capable of receiving a TP-BID-RI APDU and being capable of sending a TP-BID-RC APDU with a positive answer.

3. When the commitment is supported, in order to enable channel establishment (initiator and acceptor) to be accepted, it is required to be able to support both the bid initiator and bid responder roles.

105 If the Contention Loser role is supported (A.3.2.4/2) then
If Associations with Bid Mandatory are supported (A.3.2.3/1 or A.3.2.3/3) then M else O
else NA

106 If the Contention Winner role is supported (A.3.2.4/1) then M else NA

A.3.2.6. DIALOGUE ESTABLISHMENT

Table 8 - TP DIALOGUE ESTABLISHMENT

ITEM #	ROLE	ISO/IEC 10026-4	PROFILES						
			11	21	31	12	22	32	NOTES
1	Initiator	O.n	O	O	O	O	O	O	1,3
2	Acceptor	O.n	O	O	O	O	O	O	2,3
3	Rejector	M	M	M	M	M	M	M	

NOTES

1. The initiator role here implies being capable of sending a TP-BEGIN-DIALOGUE-RI APDU and being capable of receiving a TP-BEGIN-DIALOGUE-RC APDU.

2. The Acceptor role here implies being capable of receiving a TP-BEGIN-DIALOGUE-RI APDU and being capable of sending a TP-BEGIN-DIALOGUE-RC APDU with a positive answer.

3. For each of the profiles,at least one of the Acceptor or initiator roles shall be implemented.

A.3.2.7. TRANSACTION BRANCH ESTABLISHMENT

Table 9 - TRANSACTION BRANCH ESTABLISHMENT

ITEM #	ROLE	ISO/IEC 10026-4	PROFILES						
			11	21	31	12	22	32	NOTES
1	Initiator	C	NA	C107	C107	NA	C107	C107	
2	Acceptorr	C	NA	C108	C108	NA	C108	C108	

107 If the implementation is capable of initiating a dialogue (A.3.2.6/1) then M else NA.

108 If the implementaion is capable of accepting a dialogue (A.3.2.6/2) then M else NA.

A.3.2.8. ROLES IN A TRANSACTION TREE SUPPORTED

Table 10 - ROLES IN A TRANSACTION TREE SUPPORTED

ITEM #	ROLE	ISO/IEC 10026-4	PROFILES						
			11	21	31	12	22	32	NOTES
1	Root Node	C	NA	O	O	NA	O	O	1
2	Intermediate Node	C	NA	O	O	NA	O	O	1
3	Leaf Node	C	NA	C109	C109	NA	C109	C109	1

NOTES

1. An implementation must be capable of acting as either a root, an intermediate or a leaf node.

109 If capable of acting as an intermediate node then M else O.

A.3.2.9. SUPPORT FOR RECOVERY

This clause does not apply to profiles 11 and 12.

Table 11 - SUPPORT FOR RECOVERY

ITEM #	ROLE	ISO/IEC 10026-4	PROFILES						
			11	21	31	12	22	32	NOTES
1	One-Way recovery	M	NA	M	M	NA	M	M	
2	Two-Way Recovery	O	NA	O	O	NA	O	O	

A.4. TP PROTOCOL - GENERAL

The clause A.4 in ISO/IEC 10026-4 is not relevant.

A.5. TP PROTOCOL - SUPPORT OF THE DIALOGUE FUNCTIONAL UNIT

A.5.1. DIALOGUE FU APDUS

Table 12 - TP APDUS FOR THE DIALOGUE FU

ITEM #	PROTOCOL DATA UNIT	ISO/IEC 10026-4	PROFILES						
			11	21	31	12	22	32	NOTES
1	TP-BEGIN-DIALOGUE-RI	C	C107/ M	C107/ M	C107/ M	C107/ M	C107/ M	C107/ M	1
2	TP-BEGIN-DIALOGUE-RC	C	M/ C107	M/ C107	M/ C107	M/ C107	M/ C107	M/ C107	2
3	TP-END-DIALOGUE-RI	C	M	M	NA	M	M	NA	
4	TP-END-DIALOGUE-RC	C	M	M	NA	M	M	NA	
5	TP-U-ERROR-RI	M	M	M	M	M	M	M	
6	TP-ABORT-RI	M	M	M	M	M	M	M	
7	TP-BID-RI	C	C111/ C110	M	M	C111/ C110	M	M	
8	TP-BID-RC	C	C110/ C111	M	M	C110/ C111	M	M	
9	TP-INITIALIZE-RI	C	C112/ M	M	M	C112/ M	M	M	3
10	TP-INITIALIZE-RC	C	M/ C112	M	M	M/ C112	M	M	4

Table 12 - continued

NOTES

1. It is mandatory for every implementation to receive and recognize the TP-BEGIN-DIALOGUE-RI APDU (ref ISO/IEC 10026-3 13.1.2.1.c and 13.1.2.1.f).

2. It is mandatory for every implementation to be capable of rejecting a TP-BEGIN-DIALOGUE-RI (ref ISO/IEC 10026-3 13.1.2.1f)

3. It is mandatory for every implementation to receive and recognize the TP-INITIALIZE-RI APDU (ref ISO/IEC 10026-3 13.1.2.1.a).

4. It is mandatory for every implementation to be capable of rejecting a TP-INITIALIZE-RI APDU

110 If the implementation is capable of receiving a Bid (A.3.2.5/2) then M else NA

111 If the implementation is capable of initiating a Bid (A.3.2.5/1) then M else NA

112 If the implementation is capable of initiating an association (A.3.2.2/1) then M else NA

A.5.2. TP-BEGIN-DIALOGUE-RI APDU

A.5.2.1. DETAIL OF THE DIALOGUE FIELD OF TP-BEGIN-DIALOGUE-RI APDU

Table 13 - TP-BEGIN-DIALOGUE-RI for Dialogue

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	**STATUS**	**PROFILE ID**	**STATUS**	**T/L/V ALLOWED**	**NOTES**
1	Initiating-TPSU-Title	O/M		M	See Table 14	
2	Recipient-TPSU-Title	O/M		M	See Table 14	
3	Functional-Units	D	11	M	{0,4}	
			12	M	{1} OR {1,4}	
			21	M	{0,3,4}	
			22	M	{1,3} or {1,3,4}	
			31	M	{0,2,4}	
			32	M	{1,2} or {1,2,4}	
4	Begin-Transaction	C	11,12,31,32	NA		
			21,22	M		
5	Confirmation	D		M		
6	Correlator	M		M	0..2**31-1	
7	Last-Partner-Identifier	O/M		M	0..2**31-1	1
8	User-Data	O/M		M	0..10K octets+	2

NOTES

1. The Last-Partner-Identifier is marked M because an implementation shall be able to support more than one dialogue or channel on an association.

2. The receiver shall be capable of receiving at least 10K octets of user-data.

A.5.2.1.1. DETAIL OF TPSU-TITLE FIELDS FOR THE DIALOGUE FIELD OF TP-BEGIN-DIALOGUE-RI APDU

Table 14 - Detail of TPSU-TITLE fields for the dialogue field of TP-BEGIN-DIALOGUE-RI APDU

ITEM #	ISO/IEC 10026-4		PROFILE			
	TYPE	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	T61String	O.n/M		C113/M	1..64 octets	1
2	PrintableString	O.n/M		C113/M	1..64 octets	1
3	INTEGER	O.n/M		C113/M	0..2**31-1	1

NOTES

1. At least one of the three types shall be supported for the INITIATING-TPSU-TITLE.

113 If the TPSU-TITLE is used to carry a RECIPIENT-TPSU-TITLE value then M else O

A.5.3. TP-BEGIN-DIALOGUE-RC APDU

A.5.3.1. DETAIL OF THE DIALOGUE FIELD OF TP-BEGIN-DIALOGUE-RC APDU

Table 15 - TP-BEGIN-DIALOGUE-RC for Dialogue

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Functional-Units	O/M		M		
2	Result	D		M		
3	Diagnostic	M		M		
4	Correlator	M		M	0..2**31-1	
5	User-Data	O/M		M	0..10K octets+	1

NOTES

1. The receiver shall be capable of receiving at least 10K octets of user-data

A.5.4. TP-END-DIALOGUE-RI APDU

This APDU does not apply to profiles 31 and 32.

Table 16 - TP-END-DIALOGUE-RI for Dialogue

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Confirmation	D	11,12,21,22	M		

A.5.5. TP-ABORT-RI APDU

A.5.5.1. DETAIL OF THE USER FIELD OF TP-ABORT-RI APDU

Table 17 - TP-ABORT-RI, for user

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	User-Data	O/M		M	0..10K octets +	1

NOTE

1. The receiver shall be capable of receiving at least 10K octets of user-data

A.5.5.2. DETAIL OF THE PROVIDER FIELD OF TP-ABORT-RI APDU

Table 18 - TP-ABORT-RI, for provider

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Provider-diagnostic	M		M		

A.5.5.3. TP-BID-RI APDU

Table 19 - TP-BID-RI

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	CCR-Token-Requested	D	11,12	M	False	
			21,22,31,32	M		
2	Last-Partner-Identifier	O/M		M	0..2**31-1	

A.5.6. TP-BID-RC APDU

Table 20 - TP-BID-RC

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Result	D		M		

A.5.7. TP-INITIALIZE-RI APDU

Table 21 - TP-INITIALIZE-RI

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Protocol-Version	D		M	{version 1}	
2	Contention-Winner-Assignment	D		M		
3	Bid-Mandatory	D		M		
4	Recovery-Context-Handle	C	11,12	I		
			21,22,31,32	O/M	1..64 octets	1

NOTES

1 It is optional to send a RECOVERY-CONTEXT-HANDLE (RCH) as the sender may have no use for it. It is mandatory to receive an RCH and be able to send it on the TP-RECOVER-RI APDU.

A.5.8. TP-INITiALIZE-RC APDU

Table 22 - TP-INITIALIZE-RC

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Protocol-Version	D		M	{version 1}	
2	Recovery-Context-Handle	O/M	11,12	I		
			21,22,31,32	O/M	1..64 octets	1
3	Diagnostic	O/M		M		

NOTES

1 It is optional to send a Recovery-Context-Handle (RCH) as the sender may have no use for it. It is mandatory to receive an RCH and be able to send it on the TP-RECOVER-RI APDU.

A.6. SUPPORT OF THE SHARED CONTROL FUNCTIONAL UNIT

A.6.1. SHARED CONTROL FUNCTIONAL UNIT APDUS

This clause does not apply to profiles 11, 21 and 31.

Table 23 - TP APDUs for the SHARED Control FU

ITEM #	PROTOCOL DATA UNITS	ISO/IEC 10026-4	PROFILES						
			11	21	31	12	22	32	NOTES
1	TP-U-ERROR-RC	M	NA	NA	NA	M	M	M	

A.7. SUPPORT OF THE POLARIZED CONTROL FUNCTIONAL UNIT

This clause does not apply to profiles 12, 22 and 32..

A.7.1. POLARIZED CONTROL FUNCTIONAL UNIT APDUS

Table 24 - TP APDUs for the Polarized Control FU

ITEM #	PROTOCOL DATA UNITS	ISO/IEC 10026-4	PROFILES						
			11	21	31	12	22	32	NOTES
1	TP-GRANT-CONTROL-RI	M	M	M	M	NA	NA	NA	
2	TP-REQUEST-CONTROL-RI	M	M	M	M	NA	NA	NA	

A.8. SUPPORT OF THE HANDSHAKE FUNCTIONAL UNIT

This clause applies to all profiles.

A.8.1. HANDSHAKE FUNCTIONAL UNIT APDUS

Table 25 - TP APDUs for the Handshake FU

ITEM #	PROTOCOL DATA UNITS	ISO/IEC 10026-4	PROFILES						
			11	21	31	12	22	32	NOTES
1	TP-HANDSHAKE-RI	M	M	M	M	C114	C114	C114	
2	TP-HANDSHAKE-RC	M	M	M	M	C114	C114	C114	
3	TP-HANDSHAKE-AND-GRANT-CONTROL-RI	C	M	M	M	NA	NA	NA	
4	TP-HANDSHAKE-AND-GRANT-CONTROL-RC	C	M	M	M	NA	NA	NA	

114 If the Handshake FU is implemented (A.3.1/4) then M else NA

A.8.2. TP-HANDSHAKE-RI APDU

This APDU is not applicable for profiles 12, 22 and 32 when the handshake FU is not implemented.

Table 26 - TP-HANDSHAKE-RI

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Confirmation-Urgency	C	11,21,31	NA		
			12,22,32	M		

A.8.3. TP-HANDSHAKE-AND-GRANT-CONTROL-RI APDU

This APDU does not apply to profiles 12, 22 and 32.

Table 27 - TP-HANDSHAKE-AND-GRANT-CONTROL-RI

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Confirmation-Urgency	D	11,21,31	M		

A.9. TP PROTOCOL - SUPPORT OF THE COMMIT FUNCTIONAL UNIT

This clause applies only to profiles 21, 22, 31 and 32.

A.9.1. COMMIT FUNCTIONAL UNIT APDUS

Table 28 - TP APDUs for Commit FU

ITEM #	PROTOCOL DATA UNITS	ISO/IEC 10026-4	PROFILES						
			11	21	31	12	22	32	NOTES
1	TP-PREPARE-RI	C	NA	C115 /C116	C115 /C116	NA	C115 /C116	C115 /C116	
2	TP-DEFER-RI	C	NA	C115 /C116	C115 /C116	NA	C115 /C116	C115 /C116	
3	TP-HEURISTIC-REPORT-RI	C	NA	C116 /C115	C116 /C115	NA	C116 /C115	C116 /C115	
4	TP-TOKEN-GIVE-RI	M	NA	M	M	NA	M	M	

115 If the implementation is capable of initiating a dialogue (A.3.2.6/1) then M else NA

116 If the implementation is capable of accepting a dialogue (A.3.2.6/2) then M else NA

A.9.1.1. TP-PREPARE-RI APDU

This APDU does not apply to profiles 11 and 12.

Table 29 - TP-PREPARE-RI

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Data-Permitted	C	21,31	M		
			22,32	NA		

A.9.2. TP-DEFER-RI APDU

This APDU does not apply to profiles 11 and 12.

Table 30 - TP-DEFER-RI

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Type	D	22,32	M	End-Dialogue	
			21,31	M		

A.9.3. TP-HEURISTIC-REPORT-RI APDU

This APDU does not apply to profiles 11 and 12.

Table 31 - TP-HEURISTIC-REPORT-RI

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Heuristic-Report	D		M		

A.9.4. TP-TOKEN-GIVE-RI APDU

This APDU does not apply to profiles 11 and 12.

Table 32 - TP-TOKEN-GIVE-RI

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Reason	D		M	Regular, Keep	
2	Correlator	M		M		

A.10. TP PROTOCOL - SUPPORT OF THE RECOVERY FUNCTIONAL UNIT

This clause applies only to profiles 21, 22, 31 and 32.

A.10.1. RECOVERY FUNCTIONAL UNIT APDUS

Table 33 - TP APDUs for Recovery FU

ITEM #	PROTOCOL DATA UNITS	ISO/IEC 10026-4	ATP11	ATP21	ATP31	ATP12	ATP22	ATP32	NOTES
1	TP-BEGIN-DIALOGUE-RI	M	NA	M	M	NA	M	M	1
2	TP-BEGIN-DIALOGUE-RC	M	NA	M	M	NA	M	M	1
3	TP-BID-RI	C	NA	M	M	NA	M	M	1
4	TP-BID-RC	C	NA	M	M	NA	M	M	1,3
5	TP-RECOVER-RI	M/C	NA	M /C117	M /C117	NA	M /C117	M /C117	
6	TP-END-DIALOGUE-RI	M	NA	M	M	NA	M	M	
7	TP-TOKEN-PLEASE-RI	C	NA	C118	C118	NA	C118	C118	3
8	TP-INITIALIZE-RI	M	NA	M	M	NA	M	M	3
9	TP-INITIALIZE-RC	M	NA	M	M	NA	M	M	3
10	TP-TOKEN-GIVE-RI		NA	O	O	NA	O	O	2

NOTES

1 When the commitment is supported, in order to enable channel establishment (initiator or acceptor) to be accepted, it is required to be able to support both the bid initiator and the bid responder roles.

2 This PDU is not in the Recovery FU in ISO/IEC 10026-4. However it has been added to this ISP as required for support of Two-Way recovery.

3 This APDU is specified in clause A.5.

117 If the recovery-context-handle field (A.5.7/4, A.5.8/2) is supported in the TP-INITIALIZE-RC and TP-INITIALIZE-RI APDUs then M else NA

118 If Two-Way recovery (A.3.2.9) is supported then M, else NA

A.10.2. TP-BEGIN-DIALOGUE-RI APDU

A.10.2.1. DETAIL OF THE CHANNEL FIELD OF TP-BEGIN-DIALOGUE-RI APDU

This table does not apply to profiles 11 and 12.

Table 34 - TP-BEGIN-DIALOGUE-RI (Recovery FU)

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Functional-Units	D		M	{5}	
2	Correlator	M		M	0..2**31-1	
3	Channel-Utilization	D		M	one-way-recovery	
				O	two-way-recovery	
4	Last-Partner-Identifier	O/M		M		

A.10.3. TP-BEGIN-DIALOGUE-RC APDU

A.10.3.1. DETAIL OF THE CHANNEL FIELD OF TP-BEGIN-DIALOGUE-RC APDU

This table does not apply to profiles 11 and 12.

Table 35 - TP-BEGIN-DIALOGUE-RC (Recovery FU)

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Result	D		M		
2	Diagnostic	M		M		
3	Correlator	M		M	0..2**31-1	

A.10.4. TP-END-DIALOGUE-RI APDU

This table does not apply to profiles 11 and 12.

Table 36 - TP-END-DIALOGUE-RI (Recovery FU)

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Confirmation	D		M	False	

A.10.5. TP-BID-RI APDU

This table does not apply to profiles 11 and 12.

Table 37 - TP-BID-RI (Recovery FU)

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	CCR-Tokens-Requested	M		M		
2	Last-Partner-Identifier	O/M		M	0..2**31-1	

A.10.6. TP-RECOVER-RI APDU

This APDU does not apply to profiles 11 and 12.

Table 38 - TP-RECOVER-RI APDU

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Recovery-Context-Handle	M		M	1..64 octets	

A.10.7. TP-TOKEN-GIVE-RI APDU

Table 39 - TP-TOKEN-GIVE-RI

ITEM #	ISO/IEC 10026-4		PROFILE			
	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Reason	D		M	Two-Way-recovery	
2	Correlator	C		M		

NOTES

This table is not in ISO/IEC 10026-4. However it has been added to this ISP as required for support of Two-Way recovery.

TITLE: Information Technology - Open Systems Interconnection - International Standardized Profile 12061-3: OSI TP
Part 3: Support of the CCR Protocol.
SOURCE: Joint AOW / EWOS / OIW on Transaction Processing .
DATE: December 9, 1993
STATUS: International Standardized Profile.

CONTENTS

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

a. from different manufacturers,
b. under different management,
c. of different levels of complexity,
d. 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 document contains the complete specification of the six profiles identified in M-IT-02 and TR 10000.

Part 1 of this document introduces the overall structure of the specification of the OSI TP Profiles, including the definitions and abbreviations used through out the various parts of this document.

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 Part 5 to 10.

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

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Information Technology - Open Systems Interconnection - International Standardized Profile 12061-3: OSI Distributed Transaction Processing.
Part 3: Support of CCR APDUs

1. SCOPE

This part of this ISP specifies the status for the support of the CCR protocol for the profiles identified in Part 1 of this ISP.

2. NORMATIVE REFERENCES

The references listed in Part 1 of this ISP applies.

3. DEFINITIONS AND ABBREVIATIONS

The Definitions and Abbreviations listed in Part 1 of this ISP applies.

4. NOTATION

The notation described in PART 1 of this ISP Applies.

5. SUPPORT OF CCR APDUs

Annex A specifies the support of CCR protocol.
It applies to profiles 21, 22, 31 and 32. It does not apply to profiles 11 and 12.

6. CONFORMANCE

To conform to the OSI CCR protocol used in any of the profiles defined in this ISP, an implementation shall implement, according to the specifications given in ISO/IEC 9805:

- All mandatory features identified in Annex A.
- All selected optional features, as identified in the completed CCR PICS.

ANNEX A: CCR PDU Supports (Normative)

Temporary Editor's Note: This curent Annex A is based on a version of the CCR PICS Proforma which is based on Version 1 of the CCR protocol. It is expected that the CCR PICS Proforma will be aligned to Version 2. This part of the OSI TP ISP will be updated accordinly during the DISP ballot period. Would the CCR PICS Proforma not be aligned on time, the necessary material will be inserted in the OSI TP ISP.

A.1 DATE OF STATEMENT

No restrictions applied to clause A.1 of ISO/IEC 9805-2 by this ISP.

A.2 IMPLEMENTATION DETAILS

No restrictions applied to clause A.2 of ISO/IEC 9805-2 by this ISP.

A.3 ISO/IEC 9805-1

The answer shall be "Version 2".

A.4 AMENDMENTS IMPLEMENTED

Table 1 - AMENDMENTS IMPLEMENTED

ITEM #	Amendment	Profiles						
		11	21	31	12	22	32	Notes
1	ISO/IEC 9805-1 Amendment 1	NA	NA	NA	NA	NA	NA	
2	ISO/IEC 9805-1Amendment 2	NA	M	M	NA	M	M	

A.5 TECHNICAL CORRIGENDA IMPLEMENTED

The answer shall be "None".
At the time of approval of the final text of this ISP no technical corrigenda was approved for ISO/IEC 9805. When this condition changes, the present ISP will be amended.

A.6 GLOBAL STATEMENT OF CONFORMANCE

A.6.1 MANDATORY FEATURES IMPLEMENTED

The answer shall be "Yes".

A.7 INITIATOR/RESPONDER CAPABILITIES

A.7.1 ATOMIC-ACTION-BRANCH ESTABLISHMENT

Table 2 - ATOMIC-ACTION-BRANCH ESTABLISHMENT BY PROFILE

ITEM #	Roles	ISO/IEC 9805-2	Profiles						
			11	21	31	12	22	32	Notes
1	SUPERIOR	O	NA	C101	C101	NA	C101	C101	1
2	SUBORDINATE	O	NA	C102	C102	NA	C102	C102	1
3	MASTER	O	NA	C103	C103	NA	C103	C103	

NOTES

1. At least one of the superior or subordinate roles must be implemented.

101 If capable of acting as a root node or intermediate node then M else I.

102 If capable of acting as a leaf node or intermediate node then M else I.

103 If capable of acting as a root node then M else I.

A.7.2 SUPPORT FOR THE CONCATENATION MECHANISM

Table 3 - SUPPORT FOR THE CONCATENATION MECHANISM

ITEM #	Roles	ISO/IEC 9805-2	Profiles						
			11	21	31	12	22	32	Notes
1	SENDER	O	NA	O	M	NA	O	M	
2	RECEIVER	M	NA	M	M	NA	M	M	

A.7.3 OTHER IMPLEMENTATION CAPABILITIES

No restriction is applied to clause A.7.3 of ISO/IEC 9805-2 by this ISP.

A.8 CCR PROTOCOL - GENERAL

This subclause details TP's requirements of the CCR protocol. The protocol tables described below, except for the CCR PDU Usage by Profile, **do not apply** to TP profiles 11 and 12.

A.9 CCR PROTOCOL

A.9.1 CCR PDUs

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

Table 4 - CCR PDU USAGE BY PROFILE

ITEM #	Protocol Data Units	ISO/IEC 9805-2	Profiles						
			11	21	31	12	22	32	Notes
1	C-BEGIN-RI	C	NA	C104 /C105	C104 /C105	NA	C104 /C105	C104 /C105	
2	C-BEGIN-RC	O/C	NA	C105 /C104	C105 /C104	NA	C105 /C104	C105 /C104	
3	C-PREPARE-RI	O/C	NA	C104 /C105	C104 /C105	NA	C104 /C105	C104 /C105	
4	C-READY-RI	C	NA	C105 /C104	C105 /C104	NA	C105 /C104	C105 /C104	
5	C-COMMIT-RI	C	NA	C104 /C105	C104 /C105	NA	C104 /C105	C104 /C105	
6	C-COMMIT-RC	C	NA	C105 /C104	C105 /C104	NA	C105 /C104	C105 /C104	
7	C-ROLLBACK-RI	M	NA	M	M	NA	M	M	
8	C-ROLLBACK-RC	M	NA	M	M	NA	M	M	
9	C-RECOVER-RI	M	NA	M	M	NA	M	M	
10	C-RECOVER-RC	M	NA	M	M	NA	M	M	

104. If capable of acting in the role of superior then M, else NA.

105. If capable of acting in the role of subordinate then M, else NA.

A.9.2 C-BEGIN-RI

Table 5 - C-BEGIN-RI

	BASE STANDARD ISO/IEC 9805-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Atomic Action Identifier	M		M	See Table 6	
2	Branchd-Suffix - Octet String	O/M		O/M	1 .. 64 octets	1
	Branch-Suffix - Integer	O/M		O/M	0..2**31-1	1
3	User Data	O/M		NA		

NOTES

1. At least one of these forms must be supported.

9.2.1. ATOMIC-ACTION IDENTIFIER

This clause provides detail about the Atomic-Action Identifier field of the C-BEGIN APDU.

Table 6 - ATOMIC-ACTION IDENTIFIER DETAIL

	Atomic-Action Identifier of the C-BEGIN APDU		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Master's Name AE-Title-Form 1 (Directory name)	C/M		O/M	1 .. 1024 octets	1,2
	Master's Name AE-Title-Form 2 (Object Id)	C/M		M	1 .. 64 octets	2
2	Atomic Action Id.-Suffix - Octet String	C/M		C106/M	1 .. 64 octets	2
	Atomic Action Id.-Suffix - Integer	C/M		C106/M	0..2**31-1	

NOTES

1. It is optional to be able to generate a Master's name AE-TITLE-FORM-1 (RDN), but it is mandatory to be able to propogate it when received from a superior by an intermediate node

2. The maximum length of the Atomic-Action Identifer shall be 1024 octets for Form 1 (Directory Name) and 64 octets for Form 2 (object ID). This length includes both Master's Name and suffix.

106 If only the Master role is supported then at least one form shall be supported, otherwise both forms shall be supported.

A.9.3 C-BEGIN-RC

Table 7 - C-BEGIN-RC

	ISO/IEC 9805-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	User-data	O/M		NA		

A.9.4 C-PREPARE-RI

Table 8 - C-PREPARE-RI

	ISO/IEC 9805-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	User-data	O/M		M		

A.9.5 C-READY-RI

Table 9 - C-READY-RI

	ISO/IEC 9805-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	User-data	O/M		NA		

A.9.6 C-COMMIT-RI

Table 10 - C-COMMIT-RI

	ISO/IEC 9805-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	User-Data	O/M		M		

A.9.7 C-COMMIT-RC

Table 11 - C-COMMIT-RC

	BASE STANDARD ISO/IEC 9805-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	User-data	O/M		M		

A.9.8 C-ROLLBACK-RI

Table 12 - C-ROLLBACK-RI

	ISO/IEC 9805-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	User-data	O/M		M		

A.9.9 C-ROLLBACK-RC

Table 13 - C-ROLLBACK-RC

	ISO/IEC 9805-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	User-data	O/M		M		

A.9.10 C-RECOVER-RI

Table 14 - C-RECOVER-RI

	BASE STANDARD ISO/IEC 9805-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Atomic Action Identifier	M		M	See Table 15	
2	Branch Identifier	M		M	See Table 16	
3	Recovery State	M		M	See Table 17	
4	User Data	O/M		M		

A.9.10.1. ATOMIC-ACTION IDENTIFIER

This clause provides detail about the Atomic-Action Identifier field of the C-RECOVER RI APDU.

Table 15 - ATOMIC-ACTION IDENTIFIER DETAIL

	Atomic-Action Identifier of the C-RECOVER-RI APDU		PROFILE			
ITEM#	**PARAMETER**	**STATUS**	**PROFILE ID**	**STATUS**	**T/L/V ALLOWED**	**NOTES**
1	Master's Name AE-Title-Form 1 (Directory name)	C		O/M	1 .. 1024 octets	1
	Master's Name AE-Title-Form 2 (Object Id)	C		M	1 .. 64 octets	1
2	Atomic Action Id.-Suffix - Octet String	C		M	1 .. 64 octets	1
	Atomic Action Id.-Suffix - Integer	C		M	0..2**31-1	

NOTES

1. The maximum length of the Atomic-Action Identifer shall be 1024 octets for Form 1 (Directory Name) and 64 octets for Form 2 (object ID). This length includes both Master's Name and suffix.

A.9.10.2. BRANCH IDENTIFIER

This clause provides detail about the Branch Identifier field of the C-RECOVER RI APDU.

Table 16 - BRANCH IDENTIFIER DETAIL

	Branch Identifier of the C-RECOVER-RI APDU		PROFILE			
ITEM#	**PARAMETER**	**STATUS**	**PROFILE ID**	**STATUS**	**T/L/V ALLOWED**	**NOTES**
1	Superior's-Name AE-Title-Form 1 (Directory name)	C		O/M	1 .. 1024 octets	1
	Superior's-Name AE-Title-Form 2 (Object Id)	C		M	1 .. 64 octets	1
2	Branch-- Suffix - Octet String	C		M	1 .. 64 octets	1
	Branch-- Suffix - Integer	C		M	0 ..2**31-1	

NOTES

1. The maximum length of the Branch Identifer shall be 1024 octets for Form 1 (Directory Name) and 64 octets for Form 2 (object ID). This length includes both Superior's Name and suffix.

A.9.10.3. RECOVERY STATE

This clause provides detail about the RECOVERY-STATE field of the C-RECOVER RI APDU.

Table 17 - RECOVERY-STATE

	Recovery-State of the C-RECOVER-RI APDU		PROFILE			
ITEM#	**STATE**	**STATUS**	**PROFILE ID**	**STATUS**	**T/L/V ALLOWED**	**NOTES**
1	Commit	C		C101/C102		
2	Ready	C		C102/C101		

A.9.11 C-RECOVER-RC

Table 18 - C-RECOVER-RC

	BASE STANDARD ISO/IEC 9805-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Atomic Action Identifier	M		M	See Table 19	
2	Branch Identifier	M		M	See Table 20	
3	Recovery State	M		M	See Table 21	
4	User Data	O/M		M		

A.9.11.1. ATOMIC-ACTION IDENTIFIER

This clause provides detail about the Atomic-Action Identifier field of the C-RECOVER RC APDU.

Table 19 - ATOMIC-ACTION IDENTIFIER DETAIL

	Atomic-Action Identifier of the C-RECOVER-RC APDU		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Master's Name AE-Title-Form 1 (Directory name)	C		O/M	1 .. 1024 octets	1
	Master's Name AE-Title-Form 2 (Object Id)	C		M	1 .. 64 octets	1
2	Atomic Action Id.-Suffix - Octet String	C		M	1 .. 64 octets	1
	Atomic Action Id.-Suffix - Integer	C		M	0 .. 2**31-1	

NOTES

1. The maximum length of the Atomic Action Identifer shall be 1024 octets for Form 1 (Directory Name) and 64 octets for Form 2 (object ID). This length includes both Master's Name and suffix.

A.9.11.2. BRANCH IDENTIFIER

This clause provides detail about the Branch Identifier field of the C-RECOVER RC APDU.

Table 20 - BRANCH IDENTIFIER DETAIL

	Branch Identifier of the C-RECOVER-RC APDU		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Superior's-Name AE-Title-Form 1 (Directory name)	C		O/M	1 .. 1024 octets	1
	Superior's-Name AE-Title-Form 2 (Object Id)	C		M	1 .. 64 octets	1
2	Branch-- Suffix - Octet String	C		M	1 .. 64 octets	1
	Branch-- Suffix - Integer	C		M	0 .. 2**31-1	

NOTES

1. The maximum length of the Branch Identifer shall be 1024 octets for Form 1 (Directory Name) and 64 octets for Form 2 (object ID). This length includes both Superior's Name and suffix.

A.9.11.3. RECOVERY STATE

This clause provides detail about the RECOVERY-STATE field of the C-RECOVER RC APDU.

Table 21 - RECOVERY-STATE

	Recovery-State of the C-RECOVER-RC APDU		PROFILE			
ITEM#	STATE	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Done	C		C102 /C101		
2	Unknown	C		C101 /C102		
3	Retry-later	M		M		

TITLE: Information Technology - Open Systems Interconnection - International Standardized Profile 12061-4: OSI TP
Part 4: Support of Session, Presentation and ACSE Protocols.
SOURCE: Joint AOW / EWOS / OIW on Transaction Processing
DATE: December 9, 1993
STATUS: International Standardized Profile

CONTENTS

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

a. from different manufacturers,
b. under different management,
c. of different levels of complexity,
d. 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 document contains the complete specification of the six profiles identified in M-IT-02 and TR 10000.

Part 1 of this document introduces the overall structure of the specification of the OSI TP Profiles, including the definitions and abbreviations used through out the various parts of this document.

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 Part 5 to 10.

Part 4 contains the specification of the support of Session , Presentation and ACSEAPDUs for each of the profiles specified in Part 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.

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Information Technology - Open Systems Interconnection - International Standardized Profile 12061-4: OSI Distributed Transaction Processing.
Part 4: Support of SESSION, PRESENTATION AND ACSE PDUs

1. SCOPE

This part of this ISP specifies the status for the support of the Session, Presentation and ACSE protocols for the profiles identified in Part 1 of this ISP[2].

2. NORMATIVE REFERENCES

The references listed in Part 1 of this ISP.

3. DEFINITIONS AND ABBREVIATIONS

The definitions and abbreviations contained in Part 1 of this ISP apply to this part.

4. NOTATION

The notation described in PART 1 of this ISP 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 ISP - ISO 11188-1.

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

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[2]There are places where this ISP marks a mandatory parameter as out of scope. This may at first appear to be contrary to the rules for referencing an ISP. When an ISP references another ISP it is to specify how the referencing ISP will use the services of the referenced ISP, and not how a conformant implementation of the referenced ISP 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.

- 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 ISP - ISO 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 ISP - ISO 11188-1.

ANNEX A: Session PROTOCOL PDUs (Normative)

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 ISP only specifies PDU parameters necessary for this ISP.

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

Table 16 - continued

ITEM #	Protocol Data Units	ISO/IEC 8327-2	Profiles						
			11	21	31	12	22	32	Notes
13	Give Tokens Confirm Ack(GTA)	O/M	*	NA	NA	*	NA	NA	1,2

NOTES

1. The Give tokens confirm and Ack are a result of the control give service and require the activity management FU.

2. Because the Activity Management 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 the SPDU is received in these Profiles.

3. Because the Activity Management FU has been marked in Table 1 with * or NA the PDUs have been marked with * or NA in this table. They may be used differently elsewhere.

A.6 SUPPORTED PARAMETERS OF SESSION PDUs.

A.6.1 CONNECT (CN) SPDU

Table 17 - CONNECT (CN) SPDU

	ISO/IEC 8327-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
	PGI Connection Identifier					
1	PGI default (absent)	O/M		I		
2	PGI default (empty)	O/M		I		
3	Calling SS-User Reference	O/M		I		
4	Common Reference	O/M		I		
5	Additional Reference Info	O/M		I		
	PGI Connect/Accept Item					
6	PGI default (absent)	O/M		I		
7	PGI default (empty)	O/M		I		
8	PGI default (not empty)	O/M		M		
9	Protocol Options	C/M		I/M		
10	TSDU-Maximum-size	O/M		I/M		
11	Version Number	O/M		M	Version 2	
12	Initial Serial Number	O/M	11,12	*		
			21,22,31,32	M		
13	Token Setting Item	O/M	11,12	*		
			21,22,31,32	M		
14	Second Initial Serial Number	C/C	11,12	C108		
			21,22,31,32	I		1

Table 17 - continued

	ISO/IEC 8327-2		PROFILE			
ITEM#	**PARAMETER**	**STATUS**	**PROFILE ID**	**STATUS**	**T/L/V ALLOWED**	**NOTES**
	Single Items					
15	Session User Requirements	O/M		M		
16	Calling Session Selector	O/M		M		
17	Called Session Selector	O/M		M		
18	PGI "User Data"	O/M		M		
19	Data Overflow	C/C		I		
20	PGI "Extended User Data"	C/C		M		

NOTES

1. Because the Symmetric Synchronize FU shall never be selected for a Session connection for Profiles 21, 22, 31 and 32, the Session Protocol machine will ignore the Second Initial Serial Number parameter if it is present on a CN SPDU in Profiles 21, 22, 31, and 32.

108. If Symmetric-Sync supported then O else I.

A.6.2 OVERFLOW ACCEPT (OA) SPDU

This SPDU is not used by TP. Its use by a U-ASE is not specified by this ISP.

A.6.3 CONNECT DATA OVERFLOW (CDO) SPDU

This SPDU is not used by TP. Its use by a U-ASE is not specified by this ISP.

A.6.4 ACCEPT (AC) SPDU

Table 18 - ACCEPT(AC) SPDU

	ISO/IEC 8327-2		PROFILE			
ITEM#	**PARAMETER**	**STATUS**	**PROFILE ID**	**STATUS**	**T/L/V ALLOWED**	**NOTES**
	PGI Connection Identifier					
1	PGI default (absent)	O/M		I		
2	PGI default (empty)	O/M		I		
3	Calling SS-User Reference	O/M		I		
4	Common Reference	O/M		I		
5	Additional Reference Info	O/M		I		
	PGI Connect/Accept Item					
6	PGI default (absent)	O/M		NA		1
7	PGI default (empty)	O/M		NA		1
8	PGI default (not empty)	O/M		M		
9	Protocol Options	C/M		I		
10	TSDU-Maximum-size	O/M		I/M		
11	Version Number	C/M		M	Version 2	
12	Initial Serial Number	O/M	11,12	*		
			21,22,31,32	M		
13	Token Setting Item	O/M	11,12	*		
			21,22,31,32	M		
14	Second Initial Serial Number	C/C	11,12	C108		
			21,22,31,32	I		2
	Single Items					
15	Token Item	O/M		O/M		
16	Session User Requirements	O/M		M		
17	Calling Session Selector	O/M		M		
18	Called Session Selector	O/M		M		
19	PGI "User Data"	O/M		M		
20	Enclosure Item	C		*		

NOTES

1. Because Session Version 2 shall be selected, the Session Protocol Machine will generate a protocol error when the PGI Connect/Accept item is absent or empty.

2. Because the Symmetric Synchronize FU shall never be selected for a Session connection for Profiles 21, 22, 31 and 32, the Session Protocol Machine will ignored the Second Initial Serial Number parameter if it is present on an AC SPDU in Profiles 21, 22, 31, and 32.

A.6.5 REFUSE (RF) SPDU

Table 19 - REFUSE (RF) SPDU

	ISO\IEC 8327-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	PGI default (empty)	O/M		I		
2	PGI default (not empty)	O/M		I		
3	Called SS-User Reference	O/M		I		
4	Common Reference	O/M		I		
5	Additional Reference Info	O/M		I		
	Single Items					
6	Transport Disconnect	O/M		O/M		
9	Session User Requirements	O/M		M		
10	Version Number	O/M		M		
11	Reason Code	O/M		M		
12	Enclosure Item	C		*		

A.6.6 FINISH (FN) SPDU

Table 20 - FINISH (FN) SPDU

	ISO/IEC 8327-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Transport Disconnect	O/M		O/M		
2	PGI "User Data"	O/M		M		
3	Enclosure Item	C/C		*		

A.6.7 DISCONNECT (DN) SPDU

Table 21 - DISCONNECT (DN) SPDU

	ISO/IEC 8327-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	PGI "User Data"	O/M		M		
2	Enclosure Item	C/C		*		

A.6.8 NOT FINISHED (NF) SPDU

This SPDU is not used by TP. Its use by a U-ASE is not specified by this ISP.

A.6.9 ABORT (AB) SPDU

Table 22 - ABORT (AB) SPDU

	ISO/IEC 8327-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Transport Disconnect	M		M		
2	Reflect Parameter Values	O/M		I		
3	PGI "User Data"	O/M		M		
4	Enclosure Item	C/C		*		

A.6.10 ABORT ACCEPT (AA) SPDU

This SPDU is not used by TP. Its use by a U-ASE is not specified by this ISP.

A.6.11 DATA TRANSFER (DT) SPDU

Table 23 - DATA TRANSFER (DT) SPDU

	ISO/IEC 8327-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	User Information Field	O/M		M		
2	Enclosure Item	C/C		*		

A.6.12 EXPEDITED DATA (EX) SPDU

This SPDU is not used by TP. Its use by a U-ASE is not specified by this ISP.

A.6.13 TYPED DATA (TD) SPDU

Table 24 - TYPED DATA (TD) SPDU

	ISO/IEC 8327-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Enclosure Item	C/C		*		
2	User Information Field	O/M		M		

A.6.14 CAPABILITY DATA (CD) SPDU

This SPDU is not used by TP. Its use by a U-ASE in profiles 11 and 12 is not specified by this ISP; however, its use by a U-ASE in profiles 21,22,31 and 32 is prohibited

A.6.15 CAPABILITY DATA ACK (CDA) SPDU

This SPDU is not used by TP. Its use by a U-ASE in profiles 11 and 12 is not specified by this ISP; however, its use by a U-ASE in profiles 21,22,31 and 32 is prohibited

A.6.16 GIVE TOKENS (GT) SPDU

This PDU is not used by Profiles 11 and 12.

Table 25 - GIVE TOKENS (GT) SPDU

	ISO/IEC 8327-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Token Item	O/M		M	Minor Sync	
				*	Other Tokens	
2	PGI "User Data"	C/C		M		
3	Enclosure Item	C/C		*		

A.6.17 PLEASE TOKENS (PT) SPDU

This PDU is not used by Profiles 11 and 12.

Table 26 - PLEASE TOKENS (PT) SPDU

	ISO/IEC 8327-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Token Item	O/M		M	Minor Sync	
				*	Other Tokens	
2	PGI "User Data"	O/M		M		
3	Enclosure Item	C/C		*		

A.6.18 MINOR SYNC POINT (MIP) SPDU

This PDU is not used by Profiles 11 and 12.

Table 27 - MINOR SYNC POINT (MIP) SPDU

	ISO/IEC 8327-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Sync Type Item	O/M		M		
2	Serial Number	M		M		
3	PGI "User Data"	O/M		M		
4	Enclosure Item	C		M		

A.6.19 MINOR SYNC POINT ACK (MIA) SPDU

This PDU is not used by Profiles 11 and 12.

Table 28 - MINOR SYNC POINT ACK (MIA) SPDU

	ISO/IEC 8327-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Serial Number	M		M		
2	PGI "User Data"	O/M		M		
3	Enclosure Item	C/C		*		

A.6.20 MAJOR SYNC POINT (MAP) SPDU

This SPDU is not used by TP. Its use by a U-ASE is not specified by this ISP.

A.6.21 MAJOR SYNC POINT ACK (MAA) SPDU

This SPDU is not used by TP. Its use by a U-ASE is not specified by this ISP.

A.6.22 RESYNCHRONIZE (RS) SPDU

This PDU is not used by TP for profiles 11 and 12.

Table 29 - RESYNCHRONIZE (RS) SPDU

	ISO/IEC 8327-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Enclosure Item	C		*		
2	Token Setting Item	O/M		M	Minor Sync	
				*	Other Tokens	
3	Resync Type	O/M		M		
4	Serial Number	O/M		M		
5	Second Resync Type	C		I		
6	Second Serial Number	C		I		
7	PGI "User Data"	O/M		M		

A.6.23 RESYNCHRONIZE ACK (RA) SPDU

Table 30 RESYNCHRONIZE ACK (RA) SPDU

This PDU is not used by TP for profiles 11 and 12.

	ISO/IEC 8327-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Enclosure Item	C		*		
2	Token Setting Item	O/M	32	M	Minor Sync	
				*	Other Tokens	
3	Resync Type	O/M		I		
4	Serial Number	O/M		M		
5	Second Resync Type	C/C		I		
6	Second Initial Serial Number	C/C		I		
7	PGI "User Data"	O/M		M		

A.6.24 PREPARE (PR) SPDU

Table 31 - PREPARE (PR) SPDU

This PDU is not used by TP for profiles 11 and 12.

	ISO/IEC 8327-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Prepare Type	M		M		
2	Resync Type	C		I		
3	Second Resync Type	C		I		

A.6.25 EXCEPTION REPORT (ER) SPDU

This SPDU is not used by TP. Its use by a U-ASE is prohibited

A.6.26 EXCEPTION DATA (ED) SPDU

This SPDU is not used by TP. Its use by a U-ASE is prohibited

A.6.27 GIVE TOKENS CONFIRM (GTC) SPDU

This SPDU is not used by TP. Its use by a U-ASE in profiles 11 and 12 is not specified by this ISP; however, its use by a U-ASE in profiles 21,22,31 and 32 is prohibited

A.6.28 GIVE TOKENS CONFIRM ACK (GTA) SPDU

This SPDU is not used by TP. Its use by a U-ASE in profiles 11 and 12 is not specified by this ISP; however, its use by a U-ASE in profiles 21,22,31 and 32 is prohibited

A.6.29 ACTIVITY START (AS) SPDU

This SPDU is not used by TP. Its use by a U-ASE in profiles 11 and 12 is not specified by this ISP; however, its use by a U-ASE in profiles 21,22,31 and 32 is prohibited

A.6.30 ACTIVITY RESUME (AR) SPDU

This SPDU is not used by TP. Its use by a U-ASE in profiles 11 and 12 is not specified by this ISP; however, its use by a U-ASE in profiles 21,22,31 and 32 is prohibited

A.6.31 ACTIVITY INTERRUPT (AI) SPDU

This SPDU is not used by TP. Its use by a U-ASE in profiles 11 and 12 is not specified by this ISP; however, its use by a U-ASE in profiles 21,22,31 and 32 is prohibited

A.6.32 ACTIVITY INTERRUPT ACK (AIA) SPDU

This SPDU is not used by TP. Its use by a U-ASE in profiles 11 and 12 is not specified by this ISP; however, its use by a U-ASE in profiles 21,22,31 and 32 is prohibited

A.6.33 ACTIVITY DISCARD (AD) SPDU

This SPDU is not used by TP. Its use by a U-ASE in profiles 11 and 12 is not specified by this ISP; however, its use by a U-ASE in profiles 21,22,31 and 32 is prohibited

A.6.34 ACTIVITY DISCARD ACK (ADA) SPDU

This SPDU is not used by TP. Its use by a U-ASE in profiles 11 and 12 is not specified by this ISP; however, its use by a U-ASE in profiles 21,22,31 and 32 is prohibited

A.6.35 ACTIVITY END (AE) SPDU

This SPDU is not used by TP. Its use by a U-ASE in profiles 11 and 12 is not specified by this ISP; however, its use by a U-ASE in profiles 21,22,31 and 32 is prohibited

A.6.36 ACTIVITY END ACK (AEA) SPDU

This SPDU is not used by TP. Its use by a U-ASE in profiles 11 and 12 is not specified by this ISP; however, its use by a U-ASE in profiles 21,22,31 and 32 is prohibited

ANNEX B: Presentation PROTOCOL PDUs (Normative)

B.1. PRESENTATION SERVICE PARAMETERS

This subclause details TP's requirements on the presentation protocol. The reader should consult the Upper Layer agreements for a detailed discussion of these services. This ISP only specifies PDU parameters necessary for this ISP.

B.1.2. CONNECTION INITIATOR or RESPONDER CAPABILITIES

Table 1 - CONNECTION INITIATOR OR RESPONDER CAPABILITIES

	ISO/IEC 8823-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Initiator	O		C101		
2	Responder	O		M		

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

B.1.3. PROTOCOL MECHANISMS

Table 2 -PROTOCOL MECHANISMS

	ISO/IEC 8823-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	X.410 (1984)	O		NA		1
2	Normal	O		M		

NOTES

1. Implementations that support X.410 mode shall respond to a CP PPDU proposing X.410-1984 mode with an S-U-ABRT; where the user data contains an AbortInformation data element (defined in X.410), which contains an AbortReason (type INTEGER) of value 4 (protocol error). Implementations that do not support X.410-1984 mode shall respond with either a Presentation-Provider abort or a Presentation-Provider Reject.

B.1.4. FUNCTIONAL UNITS

Table 3 - FUNCTIONAL UNITS

	ISO/IEC 8823-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Kernel	M		M		
2	Presentation Context Management	O		*		
3	Presentation Context Restoration	C		*		

B.1.5. PRESENTATION PDU USAGE BY PROFILE

Table 4 KERNEL PDU USAGE BY PROFILE

ITEM #	PROTOCOL DATA UNITS	ISO/IEC 8823-2	PROFILES						
			11	21	31	12	22	32	NOTES
1	CONNECT PRESENTATION (CP)	C/C	C101 /M	C101 /M	C101 /M	C101 /M	C101 /M	C101 /M	
2	CONNECT PRESENTATION ACCEPT (CPA)	C/C	C102 /C101	C102 /C101	C102 /C101	C102 /C101	C102 /C101	C102 /C101	
3	CONNECT PRESENTATION REJECT (CPR)	C/C	M /C101	M /C101	M /C101	M /C101	M /C101	M /C101	
4	ABNORMAL RELEASE PROVIDER (ARP)	M	M	M	M	M	M	M	
5	ABNORMAL RELEASE USER (ARU)	M	M	M	M	M	M	M	
6	PRESENTATION DATA (TD)	M	M	M	M	M	M	M	

102. If capable of accepting an AARQ APDU then M, else NA.

B.1.6. PRESENTATION CONTEXT MANAGEMENT PDU USAGE BY PROFILE

Table 5 PRESENTATION CONTEXT MANAGEMENT PDU USAGE BY PROFILE

ITEM #	PROTOCOL DATA UNITS	ISO/IEC 8823-2	PROFILES						
			11	21	31	12	22	32	NOTES
1	ALTER CONTEXT (AC)	O/M	*	*	*	*	*	*	
2	ALTER CONTEXT ACKNOWLEDGE (ACA)	M	*	*	*	*	*	*	

B.1.7. OTHER PRESENTATION PDU USAGE BY PROFILE

Table 6 OTHER PRESENTATION PDU USAGE BY PROFILE

ITEM #	PROTOCOL DATA UNITS	ISO/IEC 8823-2	PROFILES						
			11	21	31	12	22	32	NOTES
1	PRESENTATION TYPED DATA (TTD)	M	*	M	M	*	M	M	
2	EXPEDITED DATA (TE)	O/M	*	*	*	*	*	*	
3	CAPABILITY DATA (TC)	O/M	*	NA	NA	*	NA	NA	
4	CAPABILITY DATA ACKNOWLEDGE (TCC)	O/M	*	NA	NA	*	NA	NA	
5	RESYNCHRONIZE (RS)	O/M	*	M	M	*	M	M	
6	RESYNCHRONIZE ACKNOWLEDGE (RSA)	O/M	*	M	M	*	M	M	

B.1.8. PRESENTATION CONTEXT RESTORATION FUNCTIONAL UNIT

No additional PPDUs.

B.2. SUPPORTED PARAMETERS

B.2.1. CONNECT PRESENTATION (CP) PPDU

Table 7 - CONNECT PRESENTATION (CP) PPDU

	ISO/IEC 8823-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Calling Presentation Selector	O/M		M		
2	Called Presentation Selector	O/M		M		
3	Mode Selector	M		M	Normal	
4	Presentation Context Definition List	O/M		M		
5	Default Context Name	O/M		C103		
6	Protocol Version	O/M		M		
7	Presentation Requirements	O/M		*		1
8	User Session Requirements	O/M		C104		1
9	User Data	O/M		M		

NOTES

1. TP does not use this parameter, however a U-ASE is not prohibited from using it, subject to the restrictions imposed by TP on the use of Session Functional Units.

103. If the Expedited Data FU is supported then M, else I.

104. If the Context Management FU is supported then M, else I.

B.2.2. CONNECT PRESENTATION ACCEPT (CPA) PPDU

Table 8 - CONNECT PRESENTATION ACCEPT (CPA) PPDU

	ISO/IEC 8823-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Responding Presentation Selector	O/M		M		
2	Mode Selector	M		M	Normal	
3	Presentation Context Definition Result List	O/M		M		
4	Protocol Version	O/M		M		
5	Presentation Requirements	O/M		*		1
6	User Session Requirements	O/M		C104		1
7	User Data	O/M		M		

NOTES

1. TP does not use this parameter, however a U-ASE is not prohibited from using it, subject to restrictions imposed by TP on the use of Sesison Functional Units.

B.2.3. CONNECT PRESENTATION REJECT (CPR) PPDU

Table 9 - CONNECT PRESENTATION REJECT (CPR) PPDU

	ISO/IEC 8823-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Responding Presentation Selector	O/M		M		
2	Presentation Context Definition Result List	O/M		M		
3	Protocol Version	O/M		M		
4	Default Context Result	O/M		C105		
5	Provider Reason	O/M		M		1
6	User Data	O/M		M		

NOTES

1. For enhanced interoperability it is recommended that appropriate provider reason values be sent with all CPR PPDUs.

105. If capable of proposing Default Context then M, else I.

B.2.4. ABNORMAL RELEASE USER (ARU) PPDU

Table 10 - ABNORMAL RELEASE USER (ARU) PPDU

	ISO/IEC 8823-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Presentation Context Identifier List	O/M		M		
2	User Data	O/M		M		

B.2.5. ABNORMAL RELEASE PROVIDER (ARP) PPDU

Table 11 - ABNORMAL RELEASE PROVIDER (ARP) PPDU

	ISO/IEC 8823-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Abort Reason	O/M		M		1
2	Event Identifier	O/M		M		2

NOTES

1. For enhanced interoperability it is recommended that appropriate provider reason values be sent with all ARP PPDUs.

2. For enhanced interoperability it is recommended that appropriate event identifier values be sent with all ARP PPDUs.

B.2.6. ALTER CONTEXT (AC) PPDU

This PPDU is not used by TP. Its use by a U-ASE is not specified by this ISP.

B.2.7. ALTER CONTEXT ACKNOWLEDGE (ACA) PPDU

This PPDU is not used by TP. Its use by a U-ASE is not specified by this ISP.

B.2.8. PRESENTATION DATA (TD) PPDU

Table 12 - PRESENTATION DATA (TD) PPDU

	ISO/IEC 8823-2		PROFILE			
ITEM#	**PARAMETER**	**STATUS**	**PROFILE ID**	**STATUS**	**T/L/V ALLOWED**	**NOTES**
1	User-data	O/M		M		

B.2.9. PRESENTATION TYPED DATA (TTD) PPDU

Table 13 - PRESENTATION TYPED DATA (TTD) PPDU

This PPDU is not applicable to profiles 11 and 12.

	BASE STANDARD ISO 8823		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	User-data	O/M		M		

B.2.10. EXPEDITED DATA (TE) PPDU

This PPDU is not used by TP. Its use by a U-ASE is not specified by this ISP.

B.2.11. CAPABILITY DATA (TC) PPDU

This PPDU is not used by TP. Its use by a U-ASE is not specified by this ISP. It can be used by Profiles 11 and 12 However its use by a U-ASE in profiles 21,22,31 and 32 is prohibited.

B.2.12. CAPABILITY DATA ACKNOWLEDGE (TCC) PPDU

This PPDU is not used by TP. Its use by a U-ASE is not specified by this ISP. It can be used by Profiles 11 and 12 However its use by a U-ASE in profiles 21,22,31 and 32 is prohibited.

B.2.13. RESYNCHRONIZE (RS) PPDU

Table 14- RESYNCHRONIZE (RS) PPDU

This PPDU is not applicable to profiles 11 and 12.

	BASE STANDARD ISO 8823		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Presentation Context Identifier List	C/C		C104		
2	User-data	O/M		M		

B.2.14. RESYNCHRONIZE ACKNOWLEDGE (RSA) PPDU

Table 15 - RESYNCHRONIZE ACKNOWLEDGE (RSA) PPDU

This PPDU is not applicable to profiles 11 and 12.

	BASE STANDARD ISO 8823		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTE
1	Presentation Context Identifier List	O/M		C104		
2	User-data	O/M		M		

B.2.15. SESSION SERVICE PRIMITIVES NOT CARRYING PRESENTATION PCI

Table 16 SESSION SERVICE PRIMITIVES NOT CARRYING PRESENTATION PCI

ITEM #	PRIMITIVES	ISO/IEC 8823-2	PROFILES						
			11	21	31	12	22	32	NOTES
1	S-REL req/ind	C	O/M	O/M	O/M	O/M	O/M	O/M	
2	S-REL rsp/cnf	C	*(M) /C106	*(M) /C106	*(M) /C106	*(M) /C106	*(M) /C106	*(M) /C106	
3	S-PT req/ind	C	*	M	M	*	M	M	
4	S-SYNm req/ind	C	*	M	M	*	M	M	
5	S-SYNm rsp/cnf	C	*	M	M	*	M	M	
6	S-SYNM req/ind	C	*	*	*	*	*	*	
7	S-SYNM rsp/cnf	O/M	*	*	*	*	*	*	
8	S-UER req/ind	C	NA	NA	NA	NA	NA	NA	
9	S-ACTS req/ind	C	*	NA	NA	*	NA	NA	
10	S-ACTR req/ind	C	*	NA	NA	*	NA	NA	
11	S-ACTE req/ind	C	*	NA	NA	*	NA	NA	
12	S-ACTE rsp/cnf	C	*	NA	NA	*	NA	NA	

106. If capable of initiating an S-REL req M then else I.

B.3. SUPPORT OF SYNTAXES

B.3.1. TRANSFER SYNTAXES SUPPORTED

Table 17 - TRANSFER SYNTAXES SUPPORTED

			SUPPORT	
ITEM#	**TYPE**	**DETAIL**	**BASE**	**P**
1	Object Identifier	joint-iso-ccitt asn1(1) basic-encoding(1)	M	M

B.3.2. ABSTRACT SYNTAXES SUPPORTED

Table 18 - ABSTRACT SYNTAXES

				SUPPORT		NOTES
ITEM#	**TYPE**	**DETAIL**	**PROFILE ID**	**BASE**	**P**	
1	Object Identifier	joint-iso-ccitt association-control(2) abstract-syntax(1) apdus(0) version1(1)		O	M	
2	Object Identifier	joint-iso-ccitt ccr(7) abstract-syntax(2) apdus(1) version2(2)	11,12	O	I	1
			21,22,31,32	O	M	
3	Object Identifier	joint-iso-ccitt transaction-processing(10) abstract-syntax(2) tp-apdus(1)		O	M	

NOTES

1. This ISP specifies that a referencing specification shall not use CCR when operating with profile 11 or profile 12 (in particular, refer to Parts 5 and 6 clause 7). However, when the abstract syntaxes are negotiated at the Presentation level, it is not possible to identify whether a protocol error shall be detected or not (this can be detected at the OSI TP level).

ANNEX C: ACSE PROTOCOL PDUs (Normative)

This subclause details TP's use of ACSE services and parameters. The reader should consult the upper layer agreements for a detailed discussion of these services. This ISP only specifies PDU parameters necessary for this ISP.

C.1. SUPPORTED FUNCTIONS

Table 1 - SUPPORTED FUNCTIONS

	ISO/IEC 8650-2		PROFILE			
ITEM#	**PARAMETER**	**STATUS**	**PROFILE ID**	**STATUS**	**T/L/V ALLOWED**	**NOTES**
1	Normal Mode	O		M		
2	X.410 - 1984 mode	O		NA		1
3	Rules for Extensibility	M		M		
4	Supports Operation of Session Vers. 2	O		M		

NOTES

1. Implementations that support X.410 mode shall respond to a CP PPDU proposing X.410-1984 mode with an S-U-ABRT; where the user data contains an AbortInformation data element (defined in X.410), which contains an AbortReason (type INTEGER) of value 4 (protocol error). Implementations that do not support X.410-1984 mode shall respond with either a Presentation-Provider abort or a Presentation-Provider Reject.

C.2. INITIATOR/RESPONDER CAPABILITIES

Table 2 -INITIATOR/RESPONDER CAPABILITIES

	ISO/IEC 8650-2		PROFILE			
ITEM#	**PARAMETER**	**STATUS**	**PROFILE ID**	**STATUS**	**T/L/V ALLOWED**	**NOTES**
1	Association Initiator	O	11,12	O		
			21,22,31,32	M		
2	Association Responder	O	11,12	M		1
			21,22,31,32	M		

NOTES

1. An implementation shall be capable of rejecting an AARQ APDU, acceptance of an AARQ APDU is optional.

C.3. FUNCTIONAL UNITS

Table 3 -FUNCTIONAL UNITS

	ISO/IEC 8650-2		PROFILE			
ITEM#	**PARAMETER**	**STATUS**	**PROFILE ID**	**STATUS**	**T/L/V ALLOWED**	**NOTES**
1	Kernel	M		M		
2	Authentication	O		*		

C.4. ACSE PDU USAGE BY PROFILE

Table 4 ACSE PDU USAGE BY PROFILE

ITEM #	Protocol Data Units	ISO/IEC 8650-2	Profiles						
			11	**21**	**31**	**12**	**22**	**32**	**Notes**
1	A-ASSOCIATE-REQUEST (AARQ)	C/C	C101/M	M	M	C101/M	M	M	1
2	A-ASSOCIATE-RESPONSE (AARE)	C/C	M/C101	M	M	M/C101	M	M	1
3	A-RELEASE-REQUEST (RLRQ)	O/M	O/M	O/M	O/M	O/M	O/M	O/M	
4	A-RELEASE-RESPONSE (RLRE)	M/C	M/C102	M/C102	M/C102	M/C102	M/C102	M/C102	
5	A-ABORT (ABRT)	C/C	M	M	M	M	M	M	

NOTES

1. All implementations, including initiator only ones, shall have the capability to receive an AARQ APDU and rejecting it with an AARE APDU.

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

102. If capable of initiating A-RELEASE then M, else I.

C.5. A-ASSOCIATE-REQUEST (AARQ)

Table 5 - A-ASSOCIATE-REQUEST (AARQ)

	ISO/IEC 8650-2		PROFILE			
ITEM#	**PARAMETER**	**STATUS**	**PROFILE ID**	**STATUS**	**T/L/V ALLOWED**	**NOTES**
1	Protocol Version	C/M		M		
2	Application Context Name	M		M		
3	Calling AP Title	O/M	11,12	O/M	See Table 10	1
			21,31,22,32	M	See Table 10	1
4	Calling AE Qualifier	O/M	11,12	O/M	See Table 10	1
			21,31,22,32	M	See Table 10	1
5	Calling AP Invocation Identifier	O/M	11,12	O/M		1
			21,31,22,32	O/M		1, 2
6	Calling AE Invocation Identifier	O/M	11,12	O/M		1
			21,31,22,32	O/M		1,2
7	Called AP Title	O/M		O/M	See Table 10	
8	Called AE Qualifier	O/M		O/M	See Table 10	
9	Called AP Invocation Identifier	O/M	11,12	O/M		1,3
			21,31,22,32	O/M		1,3
10	Called AE Invocation Identifier	O/M	11,12	O/M		1,3
			21,31,22,32	O/M		1,3
11	Implementattion Information	C/M		I		
12	Requester ACSE Requirements	C/M		*		
13	Mechanism Name	C/M		*		
14	Calling Authentication Value	C/M		*		
15	User Information	O/M		M		

NOTES

1. For implementations using association pools, these parameters are recommended in order to re-use associations.

2. If this parameter is received, then it is recommended to be logged and used for the reestablishment of the association during transaction recovery.

3. If this parameter is sent, then it is recommended to be logged and used for the reestablishment of the association during transaction recovery.

C.6. A-ASSOCIATE-RESPONSE (AARE)

Table 6 - A-ASSOCIATE-RESPONSE (AARE)

	ISO/IEC 8650-2		PROFILE			
ITEM#	**PARAMETER**	**STATUS**	**PROFILE ID**	**STATUS**	**T/L/V ALLOWED**	**NOTES**
1	Protocol Version	C/M		M		
2	Application Context Name	M		M		
3	Responding AP Title	O/M	11,12	O/M	See Table 10	1
			21,31,22,32	M	See Table 10	1
4	Responding AE Qualifier	O/M	11,12	O/M	See Table 10	1
			21,31,22,32	M	See Table 10	1
5	Responding AP Invocation Identifier	O/M	11,12	O/M		
			21,31,22,32	O/M		2
6	Responding AE Invocation Identifier	O/M	11,12	O/M		
			21,31,22,32	O/M		2
7	Result	M		M		
8	Result Source - Diagnostic	M		M	1 - 10	
		C		*	11 - 14	
9	Implementation Information	O/M		I		
10	Requester ACSE Requirements	C/M		*		
11	Mechanism Name	C/M		*		
12	Calling Authentication Value	C/M		*		
13	User Information	O/M		M		

NOTES

1. This parameter shall be present on an AARE APDU if the called parameter was present in the AARQ APDU and the responding parameter is different from the called parameter.

2. If this parameter is received, then it is recommended to be logged and used for re-establishment of the association during transaction recovery.

C.7 A-RELEASE-REQUEST (RLRQ)

Table 7 - A-RELEASE-REQUEST (RLRQ)

	ISO/IEC 8650-2		PROFILE			
ITEM#	**PARAMETER**	**STATUS**	**PROFILE ID**	**STATUS**	**T/L/V ALLOWED**	**NOTES**
1	Reason	O/M		I		
2	User information	O/M		I		

C.8. A-RELEASE-RESPONSE (RLRE)

Table 8 - A-RELEASE-RESPONSE (RLRE)

	ISO/IEC 8650-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Reason	O/M		I		
2	User information	O/M		I		

C.9. A-ABORT (ABRT)

Table 9 - A-ABORT (ABRT)

	ISO/IEC 8650-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Abort Source	M		M		
2	Abort Diagnostic	C		*		
3	User Information	O/M		M		

C.10. AE TITLE NAME FORMS

Table 10 - AE TITLE NAME FORMS

	ISO/IEC 8650-2		PROFILE			
ITEM#	SYNTAX FORM	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Form 1 (Directory Name)	O/M		O/M	1 .. 1024 octets	1
2	Form 2 (Object ID)	O/M		M	1 .. 64 octets	1

NOTES

1. The limits specified apply to the AE-Title which is the combination of the AP-Title and AE-Qualifier. They are specified in line with the limits given in Part 3 on the Atomic-Action Identifier and the Branch Identifier.

C.11. AUTHENTICATION VALUE FORM

Table 11 - AUTHENTICATION VALUE FORM

	ISO/IEC 8650-2		PROFILE			
ITEM#	PARAMETER	STATUS	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1	Graphic String	C/C		*		
2	Bit String	C/C		*		
3	External	C/C		*		
4	Any Defined By	C/C		*		

TITLE: Information Technology - Open Systems Interconnection - International Standardized Profile 12061-5: OSI TP
Part 5: Application Supported Transaction - Polarized Control (ATP11)
SOURCE: Joint AOW / EWOS / OIW on Transaction Processing
DATE: December 9, 1993
STATUS: International Standardized Profile

CONTENTS

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

a. from different manufacturers,
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c. of different levels of complexity,
d. 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 document contains the complete specification of the six profiles identified in M-IT-02 and TR 10000.
Part 1 of this document introduces the overall structure of the specification of the OSI TP Profiles, including the definitions and abbreviations used through out the various parts of this document.
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Part 4 contains the specification of the support of ACSE, Presentation and Session APDUs for each of the profiles specified in Part 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.

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Information Technology - Open Systems Interconnection - International Standardized Profiles 12061-5: OSI Distributed Transaction Processing. Part 5: APPLICATION SUPPORTED TRANSACTIONS - POLARIZED CONTROL (ATP11)

1. SCOPE

This Part of this ISP defines the OSI TP profile used for Application Supported Transaction while the application is using the Polarized Control paradigm for communications.

2. NORMATIVE REFERENCES

ISO/IEC ISP 12061-1 Introduction to the Transaction Processing Profiles
ISO/IEC ISP 12061-2 Support of OSI TP APDUs
ISO/IEC ISP 12061-4 Support of Session, Presentation, and ACSE PDUs
The references listed in Part 1 of this ISP apply to this Part.

3. DEFINITIONS AND ABBREVIATIONS

The definitions and abbreviations listed in Part 1 of this ISP apply to this Part.

4. OVERVIEW

Profile ATP11 is applicable to end systems concerned with operating in the Open Systems Interconnection (OSI) environment. This profile specifies a combination of OSI standards, which collectively provide support for Application Supported Distributed Transactions, where the applications take responsibility for ensuring that transaction semantics are maintained, and for restoring consistency after any failure. The dialogue between the applications is subject to strict turn control. The handshake facility is available.

5. USE OF FUNCTIONAL UNITS

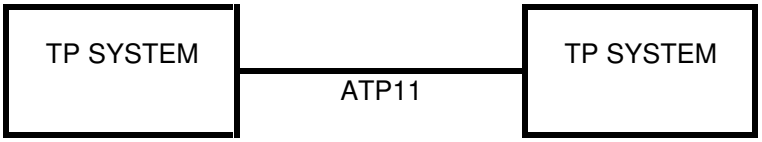
An implementation of this profile supports the OSI TP functional units identified in the table hereafter:

DIALOGUE	mandatory
POLARIZED CONTROL	mandatory
HANDSHAKE	mandatory

It conforms to the Application Transactions conformance class defined in ISO 10026-3.

6. SCENARIO

The applicability of the ATP11 profile is illustrated by the figure hereafter:



7. Usage of underlying standards

This profile specifies the required functions from the supporting protocol stacks shown below. The use of ISO/IEC 9804/9805 (CCR) by a referencing specification is forbidden and is a protocol error.

Application Layer	ISO 10026-3:1992 (OSI TP) ISO 8650 [3] (ACSE)
Presentation Layer	ISO 8825:1990 (BER ASN.1) ISO 8823:1988(Presentation)
Session Layer	ISO 8327[3]

8. DETAILED DESCRIPTION

The support of the OSI TP, ACSE, Presentation and Session PDUs for ATP11 is as described in Parts 1,2 and 4 of this standard.

9. CONFORMANCE

Conformance requirements specified in ISO/IEC ISP 12061-1, ISO/IEC ISP 12061-2, ISO/IEC ISP 12061-4 apply to this part.
For each implementation claiming conformance to this part of ISO/IEC ISP 12061, the following PICS Proformas shall be completed and made available :

- ISO/IEC 10026-4 (OSI TP)
- ISO/IEC 8650-2 (ACSE)
- ISO/IEC 8823-2 (Presentation)
- ISO/IEC 8327-2 (Session)

[3]Second edition to be published

TITLE: Information Technology - Open Systems Interconnection - International Standardized Profile 12061-6: OSI TP
Part 6: Application Supported Transactions- Shared Control (ATP12)
SOURCE: Joint AOW / EWOS / OIW on Transaction Processing
DATE: December 9, 1993
STATUS: International Standardized Profile

CONTENTS

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

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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 document contains the complete specification of the six profiles identified in M-IT-02 and TR 10000.
Part 1 of this document introduces the overall structure of the specification of the OSI TP Profiles, including the definitions and abbreviations used through out the various parts of this document.
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Part 3 contains the specification of the support of the CCR APDUs for each of the profiles specified in Part 5 to 10.
Part 4 contains the specification of the support of ACSE, Presentation and Session APDUs for each of the profiles specified in Part 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.

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Information Technology - Open Systems Interconnection - International Standardized Profiles 12061-6: OSI Distributed Transaction Processing.

Part 6: APPLICATION SUPPORTED TRANSACTIONS - SHARED CONTROL (ATP12)

1. SCOPE

This Part of this ISP defines the OSI TP profile used for Application Supported Transaction while the application is using the Shared Control paradigm for communications.

2. NORMATIVE REFERENCES

The references listed in Part 1 of this ISP apply to this Part.

3. DEFINITIONS AND ABBREVIATIONS

ISO/IEC ISP 12061-1 Introduction to the Transaction Processing Profiles
ISO/IEC ISP 12061-2 Support of OSI TP APDUs
ISO/IEC ISP 12061-4 Support of Session, Presentation, and ACSE PDUs
The definitions and abbreviations listed in Part 1 of this ISP apply to this Part.

4. OVERVIEW

Profile ATP12 is applicable to end systems concerned with operating in the Open Systems Interconnection (OSI) environment. This profile specifies a combination of OSI standards, which collectively provide support for Application Supported Distributed Transactions, where the applications take responsibility for ensuring that transaction semantics are maintained, and for restoring consistency after any failure. The dialogue between the applications is not subject to turn control. The support of the handshake facility is optional.

5. USE OF FUNCTIONAL UNITS

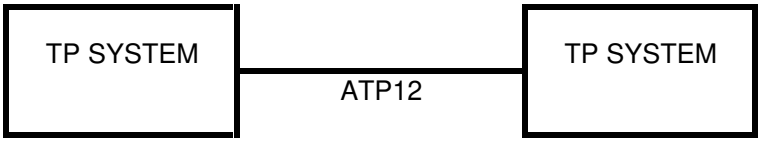
An implementation of this profile supports the OSI TP functional units as shown hereafter:

DIALOGUE	mandatory
SHARED CONTROL	mandatory
HANDSHAKE	optional

It conforms to the Application Transactions conformance class defined in ISO 10026-3.

6. SCENARIO

The applicability of the ATP12 profile is illustrated by the figure hereafter:



7. USAGE OF UNDERLYING STANDARDS

This profile specifies the required functions from the supporting protocol stacks shown below. The use of ISO/IEC 9804/9805 (CCR) by a referencing specification is forbidden and is a protocol error.

8. DETAILED DESCRIPTION

Application Layer	ISO 10026-3:1992 (OSI TP) ISO 8650 [4](ACSE)
Presentation Layer	ISO 8825:1990 (BER ASN.1) ISO 8823:1988(Presentation)
Session Layer	ISO 8327[4]

The support of the OSI TP, ACSE, Presentation and Session PDUs for ATP12 is as described in Parts 1,2 and 4 of this standard.

9. CONFORMANCE

Conformance requirements specified in ISO/IEC ISP 12061-1, ISO/IEC ISP 12061-2, ISO/IEC ISP 12061-4 apply to this part.
For each implementation claiming conformance to this part of ISO/IEC ISP 12061, the following PICS Proformas shall be completed and made available :

- ISO/IEC 10026-4 (OSI TP)
- ISO/IEC 8650-2 (ACSE)
- ISO/IEC 8823-2 (Presentation)
- ISO/IEC 8327-2 (Session)

[4]Second edition to be published

TITLE: Information Technology - Open Systems Interconnection - International Standardized Profile 12061-7: OSI TP

Part 7: Provider Supported Unchained Transactions - Polarized Control (ATP21)
SOURCE: Joint AOW / EWOS / OIW on Transaction Processing
DATE: December 9, 1993
STATUS: International Standardized Profile

CONTENTS

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

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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."
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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.

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Information Technology - Open Systems Interconnection - International Standardized Profiles 12061-7: OSI Distributed TRANSACTION PROCESSING.

Part 7: PROVIDER SUPPORTED UNCHAINED TRANSACTIONS - POLARIZED CONTROL (ATP21)

1. SCOPE

This Part of this ISP defines the OSI TP profile used for unchained sequences of Provider Supported Transaction branches while the application is using the Polarized Control paradigm for communications.

2. NORMATIVE REFERENCES

ISO/IEC ISP 12061-1 Introduction to the Transaction Processing Profiles
ISO/IEC ISP 12061-2 Support of OSI TP APDUs
ISO/IEC ISP 12061-3 Support of CCR APDUs
ISO/IEC ISP 12061-4 Support of Session, Presentation, and ACSE PDUs
The references listed in Part 1 of this ISP apply to this Part.

3. DEFINITIONS AND ABBREVIATIONS

The definitions and abbreviations listed in Part 1 of this ISP apply to this Part.

4. OVERVIEW

Profile ATP21 is applicable to end systems concerned with operating in the Open Systems Interconnection (OSI) environment. This profile specifies a combination of OSI standards, which collectively provide support for Provider Supported Distributed Transactions, where the provider of the OSI TP service takes responsibility for ensuring transaction ACID properties and for restoring consistency after any failure. Two applications operate on a dialogue in an Unchained sequence of Provider Supported Transaction Branches. The dialogue between the applications is subject to strict turn control. The handshake facility is available.

5. USE OF FUNCTIONAL UNITS

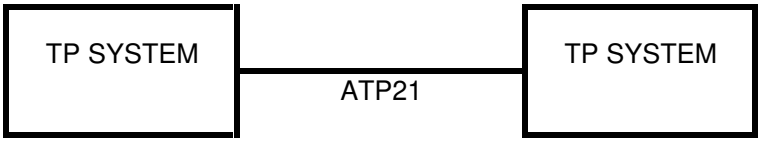
An implementation of this profile supports the OSI TP functional units as shown hereafter:

DIALOGUE	mandatory
POLARIZED CONTROL	mandatory
HANDSHAKE	mandatory
COMMIT	mandatory
UNCHAINED TRANSACTIONS	mandatory
RECOVERY	mandatory

It conforms to the Unchained Provider Supported Transaction Branches conformance class defined in ISO 10026-3.

6. SCENARIO

The applicability of the ATP21 profile is illustrated by the figure hereafter:



7. USAGE OF UNDERLYING STANDARDS

This profile specifies the required functions from the supporting protocol stacks shown below.

Application Layer	ISO 10026-3:1992 (OSI TP) ISO 8650 [5] (ACSE) ISO 9805:1990(CCR) ISO 9805 AM2
Presentation Layer	ISO 8825:1990 (BER ASN.1) ISO 8823:1988(Presentation) ISO 8823 AM5
Session Layer	ISO 8327[5] ISO 8327 AM3

8. DETAILED DESCRIPTION

The support of the OSI TP, CCR, ACSE, Presentation and Session PDUs for ATP21 is as described in Parts 1 - 4 of this standard.

9. CONFORMANCE

Conformance requirements specified in ISO/IEC ISP 12061-1, ISO/IEC ISP 12061-2, ISO/IEC ISP 12061-3, ISO/IEC ISP 12061-4 apply to this part.
For each implementation claiming conformance to this part of ISO/IEC ISP 12061, the following PICS Proformas shall be completed and made available :

- ISO/IEC 10026-4 (OSI TP)
- ISO/IEC 9805-2 (CCR)
- ISO/IEC 8650-2 (ACSE)
- ISO/IEC 8823-2 (Presentation)
- ISO/IEC 8327-2 (Session)

[5]Second edition to be published

TITLE: Information Technology - Open Systems Interconnection - International Standardized Profile 12061-8: OSI TP

Part 8: Provider Supported Unchained Transactions - Shared Control (ATP22)
SOURCE: Joint AOW / EWOS / OIW on Transaction Processing
DATE: December 9, 1993
STATUS: International Standardized Profile

CONTENTS

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Information Technology - Open Systems Interconnection - International Standardized Profiles 12061-8: OSI Distributed Transaction Processing.

Part 8: PROVIDER SUPPORTED UNCHAINED TRANSACTIONS - SHARED CONTROL (ATP22)

1. SCOPE

This Part of this ISP defines the OSI TP profile used for Unchained sequences of Provider Supported Transaction branches while the application is using the Shared Control paradigm for communications.

2. NORMATIVE REFERENCES

ISO/IEC ISP 12061-1 Introduction to the Transaction Processing Profiles
ISO/IEC ISP 12061-2 Support of OSI TP APDUs
ISO/IEC ISP 12061-3 Support of CCR APDUs
ISO/IEC ISP 12061-4 Support of Session, Presentation, and ACSE PDUs
The references listed in Part 1 of this ISP apply to this Part.

3. DEFINITIONS AND ABBREVIATIONS

The definitions and abbreviations listed in Part 1 of this ISP apply to this Part.

4. OVERVIEW

Profile ATP22 is applicable to end systems concerned with operating in the Open Systems Interconnection (OSI) environment. This profile specifies a combination of OSI standards, which collectively provide support for Provider Supported Distributed Transactions, where the provider of the OSI TP service takes responsibility for ensuring transaction ACID properties and for restoring consistency after any failure. Two applications operate on a dialogue in an Unchained sequence of Provider Supported Transaction Branches. The dialogue between the applications is not subject to turn control. The support of the handshake facility is optional.

5. USE OF FUNCTIONAL UNITS

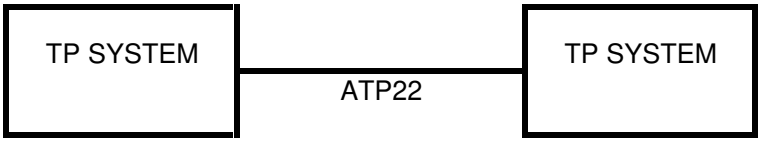
An implementation of this profile supports the OSI TP functional units as shown hereafter:

DIALOGUE	mandatory
SHARED CONTROL	mandatory
HANDSHAKE	optional
COMMIT	mandatory
UNCHAINED TRANSACTION	mandatory
RECOVERY	mandatory

It conforms to the Unchained Provider Supported Transactions Branches conformance class defined in ISO 10026-3.

6. SCENARIO

The applicability of the ATP22 profile is illustrated by the figure hereafter:



7. USAGE OF UNDERLYING STANDARDS

This profile specifies the required functions from the supporting protocol stacks shown below.

Application Layer	ISO 10026-3:1992 (OSI TP) ISO 8650 [6] (ACSE) ISO 9805:1990(CCR) ISO 9805 AM2
Presentation Layer	ISO 8825:1990 (BER ASN.1) ISO 8823:1988(Presentation) ISO 8823 AM5
Session Layer	ISO 8327[6] ISO 8327 AM3

8. DETAILED DESCRIPTION

The support of the OSI TP, CCR, ACSE, Presentation and Session PDUs for ATP22 is as described in Parts 1 - 4 of this standard.

9. CONFORMANCE

Conformance requirements specified in ISO/IEC ISP 12061-1, ISO/IEC ISP 12061-2, ISO/IEC ISO/IEC ISP 12061-3, ISP 12061-4 apply to this part.
For each implementation claiming conformance to this part of ISO/IEC ISP 12061, the following PICS Proformas shall be completed and made available :

- ISO/IEC 10026-4 (OSI TP)
- ISO/IEC 9805-2 (CCR)
- ISO/IEC 8650-2 (ACSE)
- ISO/IEC 8823-2 (Presentation)
- ISO/IEC 8327-2 (Session)

[6]Second edition to be published

TITLE: Information Technology - Open Systems Interconnection - International Standardized Profile 12061-9: OSI TP

Part 9: Provider Supported Chained Transactions - Polarized Control (ATP31)
SOURCE: Joint AOW / EWOS / OIW on Transaction Processing
DATE: December 9, 1993
STATUS: International Standardized Profile

CONTENTS

INTRODUCTION

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Information Technology - Open Systems Interconnection - International Standardized Profiles 12061-9: OSI Distributed Transaction Processing.

Part 9: PROVIDER SUPPORTED CHAINED TRANSACTIONS - POLARIZED CONTROL (ATP31)

1. SCOPE

This Part of this ISP defines the OSI TP profile used for chained sequences of Provider Supported Transaction branches while the application is using the Polarized Control paradigm for communications.

2. NORMATIVE REFERENCES

ISO/IEC ISP 12061-1 Introduction to the Transaction Processing Profiles
ISO/IEC ISP 12061-2 Support of OSI TP APDUs
ISO/IEC ISP 12061-3 Support of CCR APDUs
ISO/IEC ISP 12061-4 Support of Session, Presentation, and ACSE PDUs
The references listed in Part 1 of this ISP apply to this Part.

3. DEFINITIONS AND ABBREVIATIONS

The definitions listed in Part 1 of this ISP apply to this Part.

4. OVERVIEW

Profile ATP31 is applicable to end systems concerned with operating in the Open Systems Interconnection (OSI) environment. This profile specifies a combination of OSI standards, which collectively provide support for Provider Supported Distributed Transactions, where the provider of the OSI TP service takes responsibility for ensuring transaction ACID properties and for restoring consistency after any failure. Two applications operate on a dialogue in an Chained Sequence of Provider Supported Transaction Branches. The dialogue between the applications is subject to strict turn control. The handshake facility is available.

5. USE OF FUNCTIONAL UNITS

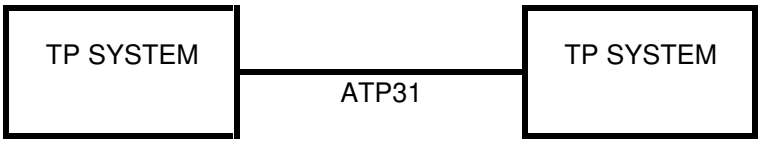
An implementation of this profile supports the OSI TP functional units as shown hereafter:

DIALOGUE	mandatory
POLARIZED CONTROL	mandatory
HANDSHAKE	mandatory
COMMIT	mandatory
CHAINED TRANSACTION	mandatory
RECOVERY	mandatory

It conforms to the Chained Provider Supported Transaction Branches conformance class defined in ISO 10026-3.

6. SCENARIO

The applicability of the ATP31 profile is illustrated by the figure hereafter:



7. USAGE OF UNDERLYING STANDARDS

This profile specifies the required functions from the supporting protocol stacks shown below.

Application Layer	ISO 10026-3:1992 (OSI TP) ISO 8650 [7] (ACSE) ISO 9805:1990(CCR) ISO 9805 AM2
Presentation Layer	ISO 8825:1990 (BER ASN.1) ISO 8823:1988(Presentation) ISO 8823 AM5
Session Layer	ISO 8327[7] ISO 8327 AM3

8. DETAILED DESCRIPTION

The support of the OSI TP, CCR, ACSE, Presentation and Session PDUs for ATP31 is as described in Parts 1 -4 of this standard.

9. CONFORMANCE

Conformance requirements specified in ISO/IEC ISP 12061-1, ISO/IEC ISP 12061-2, ISO/IEC ISO/IEC ISP 12061-3, ISP 12061-4 apply to this part.
For each implementation claiming conformance to this part of ISO/IEC ISP 12061, the following PICS Proformas shall be completed and made available :

- ISO/IEC 10026-4 (OSI TP)
- ISO/IEC 9805-2 (CCR)
- ISO/IEC 8650-2 (ACSE)
- ISO/IEC 8823-2 (Presentation)
- ISO/IEC 8327-2 (Session)

[7]Second edition to be published

TITLE: Information Technology - Open Systems Interconnection - International Standardized Profile 12061-10: OSI TP

Part 10: Provider Supported Chained Transactions - Shared Control (ATP32)
SOURCE: Joint AOW / EWOS / OIW on Transaction Processing
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CONTENTS

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

a. from different manufacturers,
b. under different management,
c. of different levels of complexity,
d. 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 document contains the complete specification of the six profiles identified in M-IT-02 and TR 10000.
Part 1 of this document introduces the overall structure of the specification of the OSI TP Profiles, including the definitions and abbreviations used through out the various parts of this document.
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 Part 5 to 10.
Part 4 contains the specification of the support of ACSE, Presentation and Session APDUs for each of the profiles specified in Part 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.

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Information Technology - Open Systems Interconnection - International Standardized Profiles 12061-10: OSI Distributed Transaction Processing.

Part 10: PROVIDER SUPPORTED CHAINED TRANSACTIONS - SHARED CONTROL (ATP32)

1. SCOPE

This Part of this ISP defines the OSI TP profile used for chained sequences of Provider Supported Transaction branches while the application is using the Shared Control paradigm for communications.

2. NORMATIVE REFERENCES

ISO/IEC ISP 12061-1 Introduction to the Transaction Processing Profiles
ISO/IEC ISP 12061-2 Support of OSI TP APDUs
ISO/IEC ISP 12061-3 Support of CCR APDUs
ISO/IEC ISP 12061-4 Support of Session, Presentation, and ACSE PDUs
The references listed in Part 1 of this ISP apply to this Part.

3. DEFINITIONS AND ABBREVIATIONS

The definitions and abbreviations listed in Part 1 of this ISP apply to this Part.

4. OVERVIEW

Profile ATP32 is applicable to end systems concerned with operating in the Open Systems Interconnection (OSI) environment. This profile specifies a combination of OSI standards, which collectively provide support for Provider Supported Distributed Transactions, where the provider of the OSI TP service takes responsibility for ensuring transaction ACID properties and for restoring consistency after any failure. Two applications operate on a dialogue in an Chained sequence of Provider Supported Transaction Branches. The dialogue between the applications is not subject to turn control. The support of the handshake facility is optional.

5. USE OF FUNCTIONAL UNITS

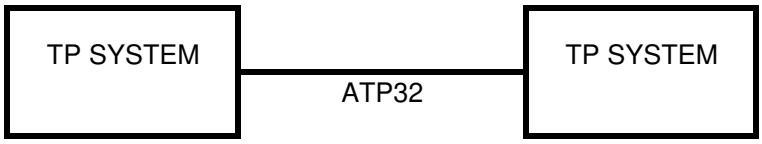
An implementation of this profile supports the OSI TP functional units as shown hereafter:

DIALOGUE	mandatory
SHARED CONTROL	mandatory
HANDSHAKE	optional
COMMIT	mandatory
CHAINED TRANSACTION	mandatory
RECOVERY	mandatory

It conforms to the Chained Provider Supported Transaction Branches conformance class defined in ISO 10026-3.

6. SCENARIO

The applicability of the ATP32 profile is illustrated by the figure hereafter:



7. USAGE OF UNDERLYING STANDARDS

This profile specifies the required functions from the supporting protocol stacks shown below.

Application Layer	ISO 10026-3:1992 (OSI TP) ISO 8650 [8] (ACSE) ISO 9805:1990(CCR) ISO 9805 AM2
Presentation Layer	ISO 8825:1990 (BER ASN.1) ISO 8823:1988(Presentation) ISO 8823 AM5
Session Layer	ISO 8327[8] ISO 8327 AM3

8. DETAILED DESCRIPTION

The support of the OSI TP, CCR, ACSE, Presentation and Session PDUs for ATP32 is as described in Parts 1 - 4 of this standard.

9. CONFORMANCE

Conformance requirements specified in ISO/IEC ISP 12061-1, ISO/IEC ISP 12061-2, ISO/IEC ISO/IEC ISP 12061-3, ISP 12061-4 apply to this part.
For each implementation claiming conformance to this part of ISO/IEC ISP 12061, the following PICS Proformas shall be completed and made available :

- ISO/IEC 10026-4 (OSI TP)
- ISO/IEC 9805-2 (CCR)
- ISO/IEC 8650-2 (ACSE)
- ISO/IEC 8823-2 (Presentation)
- ISO/IEC 8327-2 (Session)

[8]Second edition to be published

15.11. Directory Constructs

15.11.1. tpApplicationEntity

This object defines the application entities that may exist under an application process. The member attribute links the application entity with all the TPSUs that can use it. An example of this object would be a an application entity which supports chained transactions, the unstructured data U-ASE and is used by thirty TPSUs.

```
tpApplicationEntity OBJECT CLASS
        SUBCLASS OF applicationEntity
        must contain {
                member}
        := {iso(1) identified-organization(3) oiw(14) tpsig(15) directoryObject (3)
                tpApplicationEntity(1)
```

15.11.2. tpsu

This object catalogs the TPSUs that an application process controls. The owner attribute links the TPSU with the tpApplicationEntity directory object that supports the TPSU's required communications capabilities. The supportedApplicationContext attribute may be used to search the tpApplicationEntities to find one or more tpApplicationEntities which support the required commications capabilities. The description attribute allows a user to describe important characteristics of a TPSU.

Attribute tpsuTitleString is used for naming.

applicationProcess is the immediate superior of entries of object class tpsu.

```
tpsu OBJECT CLASS
        SUBCLASS OF top
        must contain {
                tpsuTitleString,
                owner}
        may contain {
                description,
                supportedApplicationContext}
        := {iso(1) identified-organization(3) oiw(14) tpsig(15) directoryObject (3)
                tpsu (2)}
```

15.11.3. applicationProcess

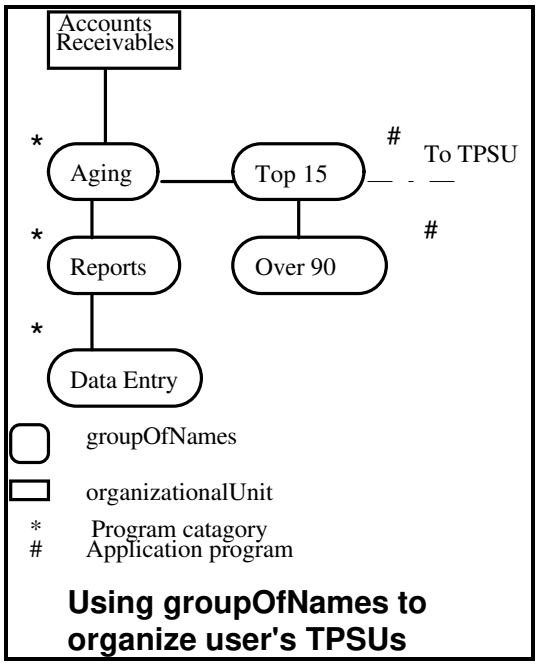
This object represents the addressable network entitiy in which a TPSU executes. A single computing system may have more than one active application process. Application processes are typically seen as being transaction processing monitors.

```
applicationProcess objectclass
        subclass of top
        must contain {
                commonName}
        may contain {
                description,
                localityName,
                organizationalUnitName,
                seeAlso}
```

15.11.4. groupOfNames

A TP environment potentially contains thousands of programs. It can be very easy for users and administrators to be overwhelmed. Users can get lost trying to know which programs they should use for their work. Administrators can be prevented from doing their job by not being able to maintain systems because the task of communicating to users the information necessary to update or move programs becomes oppressive. The other directory objects in this section are designed to organize the 'machine' side of the TP environment. groupOfNames can be used to organize the 'user' side of the TP environment so that users can easily find the programs they need and administrators can update and move programs without disrupting users.

The figure portrays an accounts receivable organization which has three major program categories; aging, reports, and data entry. Each of these program categories has a set of application programs connected to it, though only the set for aging is shown. The application programs connected to aging are described and named using the user's vocabulary, for example the user might refer to a program to report the top 15 accounts as Top 15 rather than by its computerese distinguished name.



Using groupOfNames to organize user's TPSUs

The groupOfNames' member attribute is a distinguished name that contains the name of the appropriate TPSU. This allows users to structure a DIT that matches their business environment, the computer technicians to structure a DIT that matches their platform environment, and allow administrators to link the environments.

Adding programs to a user's repertoire requires the proper groupOfNames entries that create the necessary categories and/or application programs, and linking the application program entry via the member attribute to the proper TPSU. Adding a program to the platform side requires the proper applicationEntity and tpsu entries be made. Changing a program is simple. The administrator changes the appropriate member attribute distinguished name. Except for expected program enhancements, the user never even 'sees' the change.

```
groupOfNames OBJECT CLASS
        SUBCLASS OF top
        must contain {
                commonName,
                member}
        may contain {
                description,
                organizationName,
                organizationalUnitName,
                owner
                seeAlso,
                businessCatagory}
```

15.11.5. Component Definitions

tpsuTitleString attribute with ATTRIBUTE-SYNTAX CaseIgnoreStringSyntax (size 1..64))

15.11.6. Conformance

Conformance to this clause is optional in a Directory implementation. However, if a Directory implementation claims it supports TP as defined by this ISP, it must conform to this clause.

15.12. OIW Application Contexts

15.12.1. Application context name

Title: UDT with Commit Profiles
Object identifier:{iso(1) identified-organization(3) oiw(14) tpsig(15)
application-context(5) udt-with-CCR(1) version1(0)}

15.12.1.1. Purpose and Scope

The purpose of this application context is to provide the TPSUs participating in a TP dialogue with a mechanism for exchanging unstructured data by mapping it onto an APDU consisting of a simple octet string. A bilateral agreement will be required between two cooperating TPSUIs using this context since the syntax and semantics of the application protocol are not defined here.

This application context supports both application and provider supported transactions executed serially over the same association.

The use of the base standards identified here is restricted by the specification of the OSI TP profiles.

15.12.1.2. Referenced Standards

This application context definition references in whole or in part the following specifications:

ISO/IEC 10026-3:1992, Information Technology - Open Systems Interconnection - Distributed Transaction Processing - Part 3: Protocol specification

ISO/IEC 10026-5:1992, Information Technology - Open Systems Interconnection - Distributed Transaction Processing Protocol - Part 5: Application Context Proforma and Guidelines When using OSI TP

ISO/IEC 10026-6:1992, Information Technology - Open Systems Interconnection - Distributed Transaction Processing Protocol - Part 6: Unstructured Data Transfer

ISO/IEC 8650 Second edition, Information Technology - Open Systems Interconnection - Association Control Service Element

ISO/IEC 9805-1:1990, Information Technology - Open Systems Interconnection - Protocol Specification for Commitment, Concurrency and Recovery Service Elements

ISO/IEC 9805-1 AM2:1992, Information Technology - Open Systems Interconnection - Protocol Specification for Commitment, Concurrency and Recovery Service Elements, Amendment 2.

ISO/IEC PDISP 12061, Information Technology - Open Systems Interconnection - Distributed Transaction Processing ISP

15.12.1.2.1. Referenced application contexts

None

15.12.1.3. Components ASEs and ASOs

The following ASEs are contained in this application context:

ACSE

TP-ASE

CCR

UDT

15.12.1.3.1. Association Control Service Element (ACSE)

15.12.1.3.1.1. References

ISO/IEC 12061 part 4
ISO/IEC 8650 Second Edition

15.12.1.3.1.2. Version Number

Version 1 of the ACSE protocol is used.

15.12.1.3.1.3. Brief description

ACSE is used to establish and terminate associations. The ACSE functions are not exercised directly by UDT or through the TP service, but are exercised by association management facilities within the TP service provider.

15.12.1.3.2. Distributed Transaction Processing ASE (TP-ASE)

15.12.1.3.2.1. References

ISO/IEC 12061-2 and 12061-3
ISO/IEC 10026-3

15.12.1.3.2.2. Version Number

Version 1 of the OSI TP protocol is used.

15.12.1.3.2.3. Brief description

OSI TP provides communications mechanisms for the support of processing transactions across two or more separate systems.

15.12.1.3.3. Commitment, Concurrency and Recovery (CCR)

15.12.1.3.3.1. References

ISO/IEC 12061-3,
ISO/IEC 9805-1 and
ISO/IEC 9805-1 AM2

15.12.1.3.3.2. Version Number

Version 2 of the CCR protocol is used.

15.12.1.3.3.3. Brief description

CCR is used in support of the commitment, rollback and recovery functions. Only, TP makes use of the CCR ASE services.

15.12.1.3.4. Unstructured Data Transfer ASE (UDT)

15.12.1.3.4.1. References

ISO/IEC 10026-6.

15.12.1.3.4.2. Version Number

Version 1 of the UDT protocol is used.

15.12.1.3.4.3. Brief description

This ASE transfers unstructured (i.e. structure unknown to the TPPM) data between cooperating TPSUIs.

15.12.1.3.4.4. Use of other ASEs or ASOs

None

15.12.1.4. Persistent application context rules

None

15.12.1.5. Control function rules

15.12.1.5.1. SACF rules

15.12.1.5.1.1. Objective/summary

There are no SACF rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.1.5.1.2. Temporal ordering rules

There are no SACF temporal ordering rules beyond those specified in the base standard, ISO/IEC 10026-3 for the TP-DATA generic service.

15.12.1.5.1.3. Concatenation rules

There are no SACF concatenation rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.1.5.1.4. Mapping rules

The UDT-TRANSFER-RI APDU may be mapped onto P-DATA, the User-Data parameter of the TP-BEGIN-DIALOGUE service, or the User-Data parameter of TP-U-ABORT service. There are no state transitions beyond those specified in the base standard, ISO/IEC 10026-3 for the TP-DATA generic service.

15.12.1.5.1.5. References to base rules

ISO/IEC 10026-3

15.12.1.5.1.6. Other rules

None

15.12.1.5.2. MACF rules

15.12.1.5.2.1. Objective/summary

There are no MACF rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.1.5.2.2. Temporal ordering rules

There are no MACF sequencing rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.1.5.2.3. Concatenation rules

There are no MACF concatenation rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.1.5.2.4. Mapping rules

There are no MACF mapping rules.

15.12.1.5.2.5. References to base rules

ISO/IEC 10026-3

15.12.1.5.2.5.1. Other rules

None

15.12.1.5.3. Optional features

None

15.12.1.5.4. Error handling

For this application context, if the rules and constraints of the application context are violated and the commit functional unit has been selected, the transaction should be rolled back. If the commit functional unit is not selected, the TP-U-ERROR service may be used or the dialogue may be aborted depending on the severity of the error.

15.12.1.5.5. Conformance

Conformance to this application context consists of conformance to ISO/IEC PDISP 12061 and ISO/IEC 10026-6.

15.12.1.5.6. Collision handling

No collision handling rules beyond those of ISO/IEC 10026-3 are required.

15.12.2. Application context name

Title: Application Supported Transactions using UDT
Object identifier:{iso(1) identified-organization(3) oiw(14) tpsig(15)
application-context(5) udt-without-CCR(2) version1(0)}

15.12.2.1. Purpose and Scope

The purpose of this application context is to provide the TPSUs participating in a TP dialogue with a mechanism for exchanging unstructured data by mapping it onto an APDU consisting of a simple octet string. A bilateral agreement will be required between two cooperating TPSUIs using this context since the syntax and semantics of the application protocol are not defined here.

This application context supports application supported transactions executed serially over the same association.

The use of the base standards identified here is restricted by the specification of the OSI TP profiles.

15.12.2.2. Referenced Standards

This application context definition references in whole or in part the following specifications:

ISO/IEC 10026-3:1992, Information Technology - Open Systems Interconnection - Distributed Transaction Processing - Part 3: Protocol specification

ISO/IEC 10026-5:1992, Information Technology - Open Systems Interconnection - Distributed Transaction Processing Protocol - Part 5: Application Context Proforma and Guidelines When using OSI TP

ISO/IEC 10026-6:1992, Information Technology - Open Systems Interconnection - Distributed Transaction Processing Protocol - Part 6: Unstructured Data Transfer

ISO/IEC 8650 Second edition, Information Technology - Open Systems Interconnection - Association Control Service Element

ISO/IEC PDISP 12061, Information Technology - Open Systems Interconnection - Distributed Transaction Processing ISP

15.12.2.3. Referenced application contexts

None

15.12.2.4. Components ASEs and ASOs

The following ASEs are contained in this application context:

ACSE

TP-ASE

UDT

15.12.2.4.1. Association Control Service Element (ACSE)

15.12.2.4.1.1. References

ISO/IEC 12061 part 4
ISO/IEC 8650 Second Edition

15.12.2.4.1.2. Version Number

Version 1 of the ACSE protocol is used.

15.12.2.4.1.3. Brief description

ACSE is used to establish and terminate associations. The ACSE functions are not exercised directly by UDT or through the TP service, but are exercised by association management facilities within the TP service provider.

15.12.2.4.2. Distributed Transaction Processing ASE (TP-ASE)

15.12.2.4.2.1. References

ISO/IEC 12061-2 and 12061-3
ISO/IEC 10026-3

15.12.2.4.2.2. Version Number

Version 1 of the OSI TP protocol is used.

15.12.2.4.2.3. Brief description

OSI TP provides communications mechanisms for the support of processing transactions across two or more separate systems.

15.12.2.4.3. Unstructured Data Transfer ASE (UDT)

15.12.2.4.3.1. References

ISO/IEC 10026-6.

15.12.2.4.3.2. Version Number

Version 1 of the UDT protocol is used.

15.12.2.4.3.3. Brief description

This ASE transfers unstructured (i.e. structure unknown to the TPPM) data between cooperating TPSUIs.

15.12.2.4.4. Use of other ASEs or ASOs

None

15.12.2.5. Persistent application context rules

None

15.12.2.6. Control function rules

15.12.2.6.1. SACF rules

15.12.2.6.1.1. Objective/summary

There are no SACF rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.2.6.1.2. Temporal ordering rules

There are no SACF temporal ordering rules beyond those specified in the base standard, ISO/IEC 10026-3 for the TP-DATA generic service.

15.12.2.6.1.3. Concatenation rules

There are no SACF concatenation rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.2.6.1.4. Mapping rules

The UDT-TRANSFER-RI APDU may be mapped onto P-DATA, the User-Data parameter of the TP-BEGIN-DIALOGUE service, or the User-Data parameter of TP-U-ABORT service. There are no state transitions beyond those specified in the base standard, ISO/IEC 10026-3 for the TP-DATA generic service.

15.12.2.6.1.5. References to base rules

ISO/IEC 10026-3

15.12.2.6.1.6. Other rules

None

15.12.2.6.2. MACF rules

15.12.2.6.2.1. Objective/summary

There are no MACF rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.2.6.2.2. Temporal ordering rules

There are no MACF sequencing rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.2.6.2.3. Concatenation rules

There are no MACF concatenation rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.2.6.2.4. Mapping rules

There are no MACF mapping rules.

15.12.2.6.2.5. References to base rules

ISO/IEC 10026-3

15.12.2.6.2.6. Other rules

None

15.12.2.6.3. Optional features

None

15.12.2.6.4. Error handling

For this application context, if the rules and constraints of the application context are violated the TP-U-ERROR service may be used or the dialogue may be aborted depending on the severity of the error.

15.12.2.6.5. Conformance

Conformance to this application context consists of conformance to ISO/IEC PDISP 12061 and ISO/IEC 10026-6.

15.12.2.6.6. Collision handling

No collision handling rules beyond those of ISO/IEC 10026-3 are required.

15.12.3. Application context name

Title: UDT with Commit Profiles and Generic Upper layer Security (GULS)
Object identifier:{iso(1) identified-organization(3) oiw(14) tpsig(15)
application-context(5) udt-with-CCR-and GULS(3)
version1(0)}

15.12.3.1. Purpose and Scope

The purpose of this application context is to provide the TPSUs participating in a TP dialogue with mechanisms to exchange unstructured data by mapping it onto an APDU consisting of a simple octet string, and authenticate the dialogue by using GULS. A bilateral agreement will be required between two cooperating TPSUIs using this context since the syntax and semantics of the application protocol are not defined here.

This application context supports both application and provider supported transactions executed serially over the same association.

The use of the base standards identified here is restricted by the specification of the OSI TP profiles.

15.12.3.2. Referenced Standards

This application context definition references in whole or in part the following specifications:

ISO/IEC 10026-3:1992, Information Technology - Open Systems Interconnection - Distributed Transaction Processing - Part 3: Protocol specification

ISO/IEC 10026-5:1992, Information Technology - Open Systems Interconnection - Distributed Transaction Processing Protocol - Part 5: Application Context Proforma and Guidelines When using OSI TP

ISO/IEC 10026-6:1992, Information Technology - Open Systems Interconnection - Distributed Transaction Processing Protocol - Part 6: Unstructured Data Transfer

ISO/IEC 8650 Second edition, Information Technology - Open Systems Interconnection - Association Control Service Element

ISO/IEC 9805-1:1990, Information Technology - Open Systems Interconnection - Protocol Specification for Commitment, Concurrency and Recovery Service Elements

ISO/IEC 9805-1 AM2:1992, Information Technology - Open Systems Interconnection - Protocol Specification for Commitment, Concurrency and Recovery Service Elements, Amendment 2.

ISO/IEC PDISP 12061, Information Technology - Open Systems Interconnection - Distributed Transaction Processing

ISO/IEC DIS 11586, Information Technology - Open Systems Interconnection - Generic Upper Layer Security

15.12.3.2.1. Referenced application contexts

None

15.12.3.3. Components ASEs and ASOs

The following ASEs are contained in this application context:

ACSE

TP-ASE

CCR

UDT

SESE

15.12.3.3.1. Association Control Service Element (ACSE)

15.12.3.3.1.1. References

ISO/IEC 12061 part 4
ISO/IEC 8650 Second Edition

15.12.3.3.1.2. Version Number

Version 1 of the ACSE protocol is used.

15.12.3.3.1.3. Brief description

ACSE is used to establish and terminate associations. The ACSE functions are not exercised directly by UDT or through the TP service, but are exercised by association management facilities within the TP service provider.

15.12.3.3.2. Distributed Transaction Processing ASE (TP-ASE)

15.12.3.3.2.1. References

ISO/IEC 12061-2 and 12061-3
ISO/IEC 10026-3

15.12.3.3.2.2. Version Number

Version 1 of the OSI TP protocol is used.

15.12.3.3.2.3. Brief description

OSI TP provides communications mechanisms for the support of processing transactions across two or more separate systems. The user may place SESE APDUs in the user data field of the TP-BEGIN-DIALOGUE APDU to authenticate the dialogue. One way SESE exchange is done via an unconfimed BEGIN-DIALOGUE. Two way SESE exchange is done via a confirmed BEGIN-DIALOGUE. The user may reauthenticate the dialogue any time the TP-DATA service is available.

15.12.3.3.3. Commitment, Concurrency and Recovery (CCR)

15.12.3.3.3.1. References

ISO/IEC 12061-3,
ISO/IEC 9805-1 and

ISO/IEC 9805-1 AM2

15.12.3.3.3.2. Version Number

Version 2 of the CCR protocol is used.

15.12.3.3.3.3. Brief description

CCR is used in support of the commitment, rollback and recovery functions. Only, TP makes use of the CCR ASE services.

15.12.3.3.4. Unstructured Data Transfer ASE (UDT)

15.12.3.3.4.1. References

ISO/IEC 10026-6.

15.12.3.3.4.2. Version Number

Version 1 of the UDT protocol is used.

15.12.3.3.4.3. Brief description

This ASE transfers unstructured (i.e. structure unknown to the TPPM) data between cooperating TPSUIs.

15.12.3.3.4.4. Use of other ASEs or ASOs

None

15.12.3.3.5. Security Exchange Service Element (SESE)

15.12.3.3.5.1. References

ISO/IEC DIS 11586.

15.12.3.3.5.2. Version Number

Version 1 of the GULS protocol is used.

15.12.3.3.5.3. Brief description

This ASE performs peer authentication.

15.12.3.3.5.4. Use of other ASEs or ASOs

None

15.12.3.4. Persistent application context rules

None

15.12.3.5. Control function rules

15.12.3.5.1. SACF rules

15.12.3.5.1.1. Objective/summary

There are no SACF rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.3.5.1.2. Temporal ordering rules

There are no SACF temporal ordering rules beyond those specified in the base standard, ISO/IEC 10026-3 for the TP-DATA generic service.

15.12.3.5.1.3. Concatenation rules

There are no SACF concatenation rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.3.5.1.4. Mapping rules

The UDT-TRANSFER-RI APDU may be mapped onto P-DATA, the User-Data parameter of the TP-BEGIN-DIALOGUE service, or the User-Data parameter of TP-U-ABORT service. There are no state transitions beyond those specified in the base standard, ISO/IEC 10026-3 for the TP-DATA generic service.

The SESEapdus are mapped to either the user data paramter of the TP-BEGIN-DIALOGUE service user data when a dialogue is established, or to P-DATA whenever the TP-DATA req/ind service is permitted.

15.12.3.5.1.5. References to base rules

ISO/IEC 10026-3

15.12.3.5.1.6. Other rules

None

15.12.3.5.2. MACF rules

15.12.3.5.2.1. Objective/summary

There are no MACF rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.3.5.2.2. Temporal ordering rules

There are no MACF sequencing rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.3.5.2.3. Concatenation rules

There are no MACF concatenation rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.3.5.2.4. Mapping rules

There are no MACF mapping rules.

15.12.3.5.2.5. References to base rules

ISO/IEC 10026-3

15.12.3.5.2.5.1. Other rules

None

15.12.3.5.3. Optional features

None

15.12.3.5.4. Error handling

For this application context, if the rules and constraints of the application context are violated and the commit functional unit has been selected, the transaction should be rolled back. If the commit functional unit is not selected, the TP-U-ERROR service may be used or the dialogue may be aborted depending on the severity of the error.

15.12.3.5.5. Conformance

Conformance to this application context consists of conformance to ISO/IEC DISP 12061, ISO/IEC 10026-6, and ISO/IEC DIS 11586.

15.12.3.5.6. Collision handling

No collision handling rules beyond those of ISO/IEC 10026-3 are required.

15.12.4. Application context name

Title: Application Supported Transactions using UDT and GULS
Object identifier:{iso(1) identified-organization(3) oiw(14) tpsig(15)
application-context(5) udt-and-GULS -without-CCR(4)
version1(0)}

15.12.4.1. Purpose and Scope

The purpose of this application context is to provide the TPSUs participating in a TP dialogue with mechanisms to exchange unstructured data by mapping it onto an APDU consisting of a simple octet string, and authenticate the dialogue by using GULS. A bilateral agreement will be required between two cooperating TPSUIs using this context since the syntax and semantics of the application protocol are not defined here.

This application context supports application supported transactions executed serially over the same association.

The use of the base standards identified here is restricted by the specification of the OSI TP profiles.

15.12.4.2. Referenced Standards

This application context definition references in whole or in part the following specifications:

ISO/IEC 10026-3:1992, Information Technology - Open Systems Interconnection - Distributed Transaction Processing - Part 3: Protocol specification

ISO/IEC 10026-5:1992, Information Technology - Open Systems Interconnection - Distributed Transaction Processing Protocol - Part 5: Application Context Proforma and Guidelines When using OSI TP

ISO/IEC 10026-6:1992, Information Technology - Open Systems Interconnection - Distributed Transaction Processing Protocol - Part 6: Unstructured Data Transfer

ISO/IEC 8650 Second edition, Information Technology - Open Systems Interconnection - Association Control Service Element

ISO/IEC PDISP 12061, Information Technology - Open Systems Interconnection - Distributed Transaction Processing ISP

ISO/IEC DIS 11586, Information Technology - Open Systems Interconnection - Generic Upper Layer Security

15.12.4.3. Referenced application contexts

None

15.12.4.4. Components ASEs and ASOs

The following ASEs are contained in this application context:

ACSE

TP-ASE

UDT

SESE

15.12.4.4.1. Association Control Service Element (ACSE)

15.12.4.4.1.1. References

ISO/IEC 12061 part 4
ISO/IEC 8650 Second Edition

15.12.4.4.1.2. Version Number

Version 1 of the ACSE protocol is used.

15.12.4.4.1.3. Brief description

ACSE is used to establish and terminate associations. The ACSE functions are not exercised directly by UDT or through the TP service, but are exercised by association management facilities within the TP service provider.

15.12.4.4.2. Distributed Transaction Processing ASE (TP-ASE)

15.12.4.4.2.1. References

ISO/IEC 12061-2 and 12061-3
ISO/IEC 10026-3

15.12.4.4.2.2. Version Number

Version 1 of the OSI TP protocol is used.

15.12.4.4.2.3. Brief description

OSI TP provides communications mechanisms for the support of processing transactions across two or more separate systems.

15.12.4.4.3. Unstructured Data Transfer ASE (UDT)

15.12.4.4.3.1. References

ISO/IEC 10026-6.

15.12.4.4.3.2. Version Number

Version 1 of the UDT protocol is used.

15.12.4.4.3.3. Brief description

This ASE transfers unstructured (i.e. structure unknown to the TPPM) data between cooperating TPSUIs.

15.12.4.4.4. Use of other ASEs or ASOs

None

15.12.4.4.5. Security Exchange Service Element (SESE)

15.12.4.4.5.1. References

ISO/IEC DIS 11586.

15.12.4.4.5.2. Version Number

Version 1 of the GULS protocol is used.

15.12.4.4.5.3. Brief description

This ASE performs peer authentication.

15.12.4.4.5.4. Use of other ASEs or ASOs

None

15.12.4.5. Persistent application context rules

None

15.12.4.6. Control function rules

15.12.4.6.1. SACF rules

15.12.4.6.1.1. Objective/summary

There are no SACF rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.4.6.1.2. Temporal ordering rules

There are no SACF temporal ordering rules beyond those specified in the base standard, ISO/IEC 10026-3 for the TP-DATA generic service.

15.12.4.6.1.3. Concatenation rules

There are no SACF concatenation rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.4.6.1.4. Mapping rules

The UDT-TRANSFER-RI APDU may be mapped onto P-DATA, the User-Data parameter of the TP-BEGIN-DIALOGUE service, or the User-Data parameter of TP-U-ABORT service. There are no state transitions beyond those specified in the base standard, ISO/IEC 10026-3 for the TP-DATA generic service.

The SESEapdus are mapped to either the user data paramter of the TP-BEGIN-DIALOGUE service user data when a dialogue is established, or to P-DATA whenever the TP-DATA req/ind service is permitted.

15.12.4.6.1.5. References to base rules

ISO/IEC 10026-3

15.12.4.6.1.6. Other rules

None

15.12.4.6.2. MACF rules

15.12.4.6.2.1. Objective/summary

There are no MACF rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.4.6.2.2. Temporal ordering rules

There are no MACF sequencing rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.4.6.2.3. Concatenation rules

There are no MACF concatenation rules beyond those specified in the base standard, ISO/IEC 10026-3.

15.12.4.6.2.4. Mapping rules

There are no MACF mapping rules.

15.12.4.6.2.5. References to base rules

ISO/IEC 10026-3

15.12.4.6.2.6. Other rules

None

15.12.4.6.3. Optional features

None

15.12.4.6.4. Error handling

For this application context, if the rules and constraints of the application context are violated the TP-U-ERROR service may be used or the dialogue may be aborted depending on the severity of the error.

15.12.4.6.5. Conformance

Conformance to this application context consists of conformance to ISO/IEC DISP 12061, ISO/IEC 10026-6, and ISO/IEC DIS 11586.

15.12.4.6.6. Collision handling

No collision handling rules beyond those of ISO/IEC 10026-3 are required.

15.13. Association Pools by Inference

15.13.1. Introduction

The performance of a TP system is directly affected by how fast a dialogue can obtain an association. Two ways exist for a dialogue to acquire an association: (1) create a new association, and (2) reuse an existing available association. This section describes a method which allows two systems to share a pool of reusable associations and control that pool through behavior rather than through explicit protocol.

How two systems decide there should be a pool or how big it should be is a local matter, though network management is an obvious solution. When a system that supports this method communicates with systems that do not support this method the pool size is determined by the system not using this method. Attempts to increase pool size with systems that do not use this method may cause thrashing.

15.13.2. Definitions

An Association Pool consists of a fixed number of associations and a variable number of associations in one or more application contexts.

A fixed association is one which the Application Entity agrees to support at all times. The association may or may not exist at any point in time, but the AE agrees to accept its establishment whenever it is needed, and the AE agrees not to release it when associations are required for other AEs or other Application Contexts. Fixed associations are not distinguishable from variable associations by the peer except by their long-lived nature.

A variable association is one which the Application Entity allows to be established when all of the fixed associations are busy, but which the AE can release (after a locally-specified period of time) if associations are required for other AEs or other Application Contexts.

15.13.3. Rules

1 Each implementation shall support either fixed associations, variable associations or a combination of both.
2. For each pool the following locally-configured values determine the fixed and variable portions:

f=max_fixed_assoc, where $f \geq 0$, represents the fixed portion of the pool

m=max_assoc, where $0 \leq m$, represents the maximum size of the association pool. This value may change over time depending on availability of resources, so m at time t is referred to as m_t.

v=max_variable_assoc, where v=m-f, represents the variable portion of the pool. This value may also change over time due to m_t changing, so v at time t is referred to as v_t.

3. For each pool the following locally-configured timers prevent thrashing between the AEs:

r=release_timer, where r>0, represents the amount of time which a variable association must be idle (not involved in a dialogue branch) before it can be released. The r timer may be different for each pool to cause variable associations for one pool to be released before variable associations in another pool.

e=establishment_timer, where e>0, represents the amount of time which must elapse after receiving a negative Association confirmation from an AE before attempting to establish an association with that AE

4. Fixed associations are pre-configured for each pool and the resources to support these associations are always available. Fixed associations are established before variable associations.

5. Variable associations are established as needed (when all fixed associations are busy).

6. Variable associations in one pool may be released when variable associations are needed by other pools. Variable associations should not be released until the r timer has expired for the association. This allows some guarantee of ongoing use of the association, so long as the rate of use of the association is sufficiently high.

7. Resources for variable associations are allocated dynamically from a common set for all pools. If resources are not available for a variable association it will not be established. This is true for both the initiating and the responding AE. In the event that a high priority association is required, a lower-priority association which is actively involved in a dialogue branch may be aborted, based on a local decision to do so.

8. Fixed and variable associations are released by A-Release. A-Release indications are always accepted.

9. If resources are not available to support an incoming Association indication that constitutes a variable association (indicates that m_t is exceeded), then a negative Association response (diagnostic=no_reason_given) is issued.

10. If a negative Association confirmation (diagnostic=no_reason_given) is received, this indicates that the peers "m_t" level has been exceeded, so no additional Association requests should be issued for a locally defined period (e) of time, to prevent thrashing.

15.13.4. Guidelines

TP Protocol Machines, specifically Association Pool Managers, which follow the above rules will minimize thrashing of association establishment requests caused by differences in the sizes of paired association pools. This permits pools to be locally configured with minimal coordination. The result is that the minimum configuration of two paired pools is adopted with room allowed for temporary expansion of the pool when needed.

The various timers which are described prevent the Association Pool Managers from releasing associations which have a high rate of use, and from attempting to establish low-priority associations when higher-priority associations are needed by the peer. The r timer ensures that associations have at least a short life-span which can be extended indefinitely by a sufficiently high rate of use. The e timer prevents an AE from persistently attempting to establish low-priority associations when higher-priority associations are desperately needed.

Implementations which do not follow these guidelines for association pools will interoperate with implementations that do, however, the local configuration of pools must be closely coordinated. If not, significant network overhead may be introduced by persistent attempts to establish associations which cannot be supported.

15.13.5. System Management Objects:

- Number of outbound Associations successfully established
- Number of incoming Associations successfully established
- Number of outbound Associations which failed
- Number of incoming Associations which failed
- Number of Associations released by peer
- Number of Associations released locally
- Number of Dialogue requests which failed locally because an association could not be established

15.13.6. Alarms

If the number of association release requests and association establishment indications is high, then the value of "f" and/or "m" for the pool may need to be increased.

If the number of association release indications and association establishment requests is high, then the peer's value of "f" and/or "m" for the pool may need to be increased.

If the number of association indications which failed is high, then the value of "f" and/or "m" should be increased for the pool.

If the number of association requests which failed is high, then the peer's value of "f" and/or "m" should be increased for the pool.