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

Output from the June 1991 NIST Workshop for Implementors of OSI

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Foreword

This part of the Working 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. References are made to other sections of both the Working and Stable agreements.

Annex A is normative and contains all PDU specifications.

Annex B is normative and contains all notes used in Annex A.

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 strikeout. New and replacement text will be shown as shaded.

> **Editor's Note -** The changes to this Part were not noted with redline and strikeout. If you have any questions regarding the changes to this Part, please call the SIG Chair.

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0   Introduction

The NIST/OIW Transaction Processing (TP) SIG is developing implementation agreements for the TPmodel, service and protocol, ISO 10026 (parts 1,2 and 3).

A transaction, as defined in ISO 10026, is a set of related operations characterized by the ACID properties. The ACID properties are:

a) Atomicity: a property of a set of related operations such that the operations are either all performed, or none of them are performed.

b) Consistency: a property of a set of related operations such that the effect of the operations are performed accurately, correctly, and with validity, with respect to application semantics. Bound data is moved from one consistent state to another consistent state.

c) Isolation: a property of a set of related operations such that the partial results of the operations are not accessible, except by operations of the set.

d) Durability: a property of a completed set of related operations such that all the effects of the operation are not altered by any sort of failure.

1   Scope

This profile will address the following areas:

a) Specification of functional units:

1) Dialogue

2) Polarized Control

3) Shared Control

4) Handshake

5) Commit

6) Recovery

7) Chained Transactions

8) Unchained Transactions

b) Combining functional units into profiles:

1) ATP- 11 Polarized application transaction

    2) ATP- 21 Polarized provider supported unchained transaction

    3) ATP- 31 Polarized provider supported chained transaction

    4) ATP- 12 Shared application transaction

    5) ATP- 22 Shared provider supported unchained transaction

    6) ATP- 32 Shared provider supported chained transaction

c) Agreements covering TP services and generation of TP protocol.

d) Agreements covering the use of the following OSI services by TP:

    1) ACSE for association management

    2) CCR for support of provider supported ACID properties

    3) Presentation services

    4) Directory services

e) Agreements with regard to implementation issues not specified in ISO 10026.

f) Statement of requirements to meet conformance to the agreements.

g) Additionally, the following interoperability issues will be addressed:

    1) TP usage by other OSI standards

    2) Application context

    3) Security

2   Normative References

The following documents contain provisions which, through reference in this text, constitute provisions of this profile. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this profile are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by profiles to such documents, is that they may be specific to a particular edition. ISO and NIST OIW maintain registers of currently valid standards and agreements used in this profile.

[**1**]   ISO/IEC 10026-1: *Information Processing Systems - Open Systems Interconnection - Distributed Transaction Processing - Part 1: Model*

[**2**]   ISO/IEC 10026-2: *Information Processing Systems - Open Systems Interconnection - Distributed Transaction Processing - Part 2: Service*

[**3**]   ISO/IEC 10026-3: *Information Processing Systems - Open Systems Interconnection - Distributed Transaction Processing - Part 3: Protocol*

[**4**]   ISO/IEC 9804:1990 *Information Processing Systems - Open Systems Interconnection - Service Definition of Common Application Service Elements - Concurrency, Commitment and Recovery*

[**5**]   ISO/IEC 9805:1990 *Information Processing Systems - Open Systems Interconnection - Specification of Protocols for Common Application Service Elements - Concurrency, Commitment and Recovery*

[**6**]   ISO 8649:1988 *Information Processing Systems - Open Systems Interconnection - Service Definition for the Association Control Service Element*

[**7**]   ISO 8650:1988 *Information Processing Systems - Open Systems Interconnection - Protocol specification for the Association Control Service Element*

[**8**]   ISO 8822:1989 *Information Processing Systems - Open Systems Interconnection Connection Oriented Presentation Service Definition*

[**9**]   ISO/IEC 9594: *Information Technology - Open Systems Interconnection - The Directory*

3   Definitions

4   Abbreviations

5   Taxonomy

5.1   Functional Units

This subclause specifies the PDUs which comprise each functional unit.

   a) Dialogue

      1) TP-BEGIN-DIALOGUE-RI (excludes channels)

      2) TP-BEGIN-DIALOGUE-RC (excludes channels)

      3) TP-END-DIALOGUE-RI

      4) TP-END-DIALOGUE-RC

      5) TP-U-ERROR-RI

      6) TP-U-ERROR-RC (shared control only)

      7) TP-ABORT-RI

      8) TP-BID-RI

      9) TP-BID-RC

      10) TP-ASSOCIATION-ESTABLISHMENT-RI

      11) TP-ASSOCIATION-ESTABLISHMENT-RC

   b) Polarized Control

      1) TP-GRANT-CONTROL-RI

      2) TP-REQUEST-CONTROL-RI

   c) Shared Control

      1) No PDUs specified

   d) Handshake

       1) TP-HANDSHAKE-RI

       2) TP-HANDSHAKE-RC

       3) TP-HANDSHAKE-AND-GRANT-CONTROL-RI

       4) TP-HANDSHAKE-AND-GRANT-CONTROL-RC

e) Commit

       1) TP-PREPARE-RI

       2) TP-DEFER-RI (Grant-Control/End-Dialogue)

       3) TP-HEURISTIC-REPORT-RI

f) Recovery

       1) TP-BEGIN-DIALOGUE-RI (Channel only)

       2) TP-BEGIN-DIALOGUE-RC (Channel only)

       3) TP-BID-RI

       4) TP-BID-RC

       5) TP-END-DIALOGUE-RI

       6) TP-RECOVER-RI

g) Chained Transactions

       1) No TP PDUs

h) Unchained Transactions

       1) No TP PDUs

5.2   Profiles

This subclause specifies which functional units combine to form each profile. Refer to Annex A 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 warrent. 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 transactions.
> > 2 - Unchained provider supported transactions.
> > 3 - Chained provider supported transactions.
> Level two:
> > 1 - Polarized control.
> > 2 - Shared control.

5.2.1   ATP-11 Polarized application transaction

DIALOGUE + POLARIZED CONTROL + HANDSHAKE

5.2.2   ATP-21 Polarized provider supported unchained transaction

DIALOGUE + POLARIZED CONTROL + COMMIT + RECOVERY + HANDSHAKE + UNCHAINED

5.2.3   ATP-31 Polarized provider supported chained transaction

DIALOGUE + POLARIZED CONTROL + COMMIT + RECOVERY + CHAINED + HANDSHAKE

5.2.4   ATP-12 Shared application transaction

DIALOGUE + HANDSHAKE (Optional)

5.2.5   ATP-22 Shared provider supported unchained transaction1

DIALOGUE + COMMIT + RECOVERY + HANDSHAKE (Optional) + UNCHAINED

5.2.6   ATP-32 Shared provider supported chained transaction

DIALOGUE + COMMIT + RECOVERY + CHAINED + HANDSHAKE (Optional)

5.3   TP Use of OSI Services

5.3.1   ACSE - Association Management

5.3.2   CCR - Provider Supported ACID Properties

5.3.3   Presentation Services

5.3.4   Directory Services

5.4   Interoperability Issues

5.4.1   Application Context

5.4.2   Security

5.4.3   Recovery

5.4.4   Recommended Practices

5.5   Conformance Statement

An implementation conformant to a profile must be able to implement the functional units of that profile; it may additionally implement other functional units without being nonconformant.

An implementation conforming to a given profile may accept a dialogue   whose functional units conform to a different existing profile.

Annex A (normative)

OSI Transaction Processing Protocol PDUs

This annex is normative, and details all the protocol PDUs used in this profile and by OSI Transaction Processing to deliver an interoperable transaction processing environment. The format of the table is for a PDU to be specified once for all profiles and any differences noted in the Type/Length/Value Allowed column. The intent of this approach is to provide the user with a single PDU specification which is: complete, compact, and easily compared between profiles.

Usage of this annex requires the user to:

   a) Identify the necessary PDUs for a profile by consulting the section on profile specification.

   b) Have an understanding of how the PDU tables are constructed:

      1) The Item number uniquely identifies each parameter within the annex.

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

      3) The base standard status column indicates requirements as defined by the referenced standard.

      4) The profile status column indicates requirements for the field:

         a) M   = Mandatory: This is a mandatory or optional feature in the base standard. It shall be supported by all implementations claiming conformance to this profile.

         b) C   = Conditional: This feature shall be supported under the conditions specified in this profile.

         c) O   = Optional: This is an optional feature in the base standard. It is left to the implementation as to whether this feature is implemented or not. If a parameter is optionally supported, then the syntax shall be implemented, but it is left to each implementation as to whether this feature is implemented or not.

         d) NA   = Not applicable: This feature is not defined in the context where it is mentioned.

         e) I   = Out of scope: this an optional feature of a base standard TP uses which is out of scope for this profile.

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When status for sending and receiving values differ, they will be seperated 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

5) The REFERENCE column points to the page within the referenced document where this parameter is defined.

6) The PROFILE ID column, if present, defines how this paramter is used by a specific profile.

7) The T/L/V ALLOWED column specifies the range of type, 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. {} denote on bits in the parameter's value.

8) The NOTES column points to note contained in Annex B. These notes can be editorial or tutorial in nature.

Editor's Note - The tables below contain numerous changes from previous text which were not explicitly identified in submitted material.

A.1   Transaction Processing Protocol PDUs

A.1.1   TP PDU USAGE BY PROFILE

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

Table 0 TP PDU USAGE BY PROFILE

Protocol Data Units	Profiles						
	11	21	31	12	22	32	Notes
TP-BEGIN-DIALOGUE-RI (Begin Dialogue)	M	M	M	M	M	M	
TP-BEGIN-DIALOGUE-RI (Begin TP Channel)	NA	M	M	NA	M	M	
TP-BEGIN-DIALOGUE-RC (Begin Dialogue)	M	M	M	M	M	M	
TP-BEGIN-DIALOGUE-RC (Begin TP Channel)	NA	M	M	NA	M	M	
TP-END-DIALOGUE-RI	M	M	M	M	M	M	
TP-END-DIALOGUE-RC	M	M	M	M	M	M	
TP-BID-RI	M	M	M	M	M	M	
TP-BID-RC	M	M	M	M	M	M	
TP-U-ERROR-RI	M	M	M	M	M	M	
TP-U-ERROR-RC	NA	NA	NA	M	M	M	
TP-HEURISTIC-REPORT-RI	NA	M	M	M	M	M	
TP-ABORT-RI (Provider)	M	M	M	M	M	M	
TP-ABORT-RI (User)	M	M	M	M	M	M	
TP-REQUEST-CONTROL-RI	M	M	M	NA	NA	NA	
TP-GRANT-CONTROL-RI	M	M	M	NA	NA	NA	
TP-HANDSHAKE-RI	M	M	M	C	C	C	23
TP-HANDSHAKE-RC	M	M	M	C	C	C	23
TP-HANDSHAKE-AND -GRANT-CONTROL-RI	M	M	M	NA	NA	NA	

TP-HANDSHAKE-AND -GRANT-CONTROL-RC	M	M	M	NA	NA	NA	
TP-DEFER-RI	NA	M	M	NA	M	M	
TP-PREPARE-RI	NA	M	M	NA	NA	NA	24
TP-RECOVER-RI	NA	M	M	NA	M	M	
TP-ASSOCIATION -ESTABLISHMENT-RI	M	M	M	M	M	M	
TP-ASSOCIATION -ESTABLISHMENT-RC	M	M	M	M	M	M	

A.1.2   TP-Begin-Dialogue-RI

Table 1 - TP-BEGIN-DIALOGUE-RI - to begin a dialogue

		BASE STANDARD ISO 10026-3		PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
101	Initiating-TPSU-Title	U			M		
102	Recipient-TPSU-Title	U			M		
103	Functional-Units	M		11	M	{0,3}	
104				31	M	{0,1,3}	
105				21	M	{0,2,3}	
106				12	M	{} or {3}	
107				32	M	{1} or {1,3}	
108				22	M	{2} or {2,3}	
109	Begin-Transaction	C		11,31,12,32	NA		
				21,22	M		
110	Confirmation	M			M		
111	User-data	U			M		2
112	Dialogue/Channel Correlator	M			M	0..2**31-1	
113	Last-Partner-Identifier	C			M	0..2**31-1	

Table 2 - TP-BEGIN-DIALOGUE-RI - to begin a TP channel

		BASE STANDARD ISO 10026-3			PROFILE		
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
200	Functional-Units	M		11,12	NA		
				31,21,32,22	M	{4}	
201	Dialogue/Channel-Correlator	M		11,12	NA		
				31,21,32,22	M	0..2**31-1	
202	Channel-utilization	M		11,12	NA		
				31,21,32,22	M		14,15

A.1.3   TP-BEGIN-DIALOGUE-RC

Table 3 - TP-BEGIN-DIALOGUE-RC, to begin a dialogue

		BASE STANDARD ISO 10026-3			PROFILE		
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
301	Functional-Units	C			M		
302	Result	M			M		
303	Diagnostic	C			M		
304	User-Data	C			M		2
305	Dialogue/Channel-Correlator	M			M	0..2**31-1	

Table 4 - TP-BEGIN-DIALOGUE-RC, to begin a channel

		BASE STANDARD ISO 10026-3			PROFILE		
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
401	Result	M			M		
402	Diagnostic	C			M		16
403	Dialogue/Channel-Correlator	M			M	0..2**31-1	

A.1.4   TP-BID-RI

Table 5 - TP-BID-RI

	BASE STANDARD ISO 10026-3			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
501	CCR-Token-Requested	M		11,12	M	False	
				31,21,32,22	M		
502	Last-Partner-Identifier	C			M	0..2**31-1	

A.1.5   TP-BID-RC

Table 6 - TP-BID-RC

	BASE STANDARD ISO 10026-3			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
601	Result	M			M		

A.1.6   TP-END-DIALOGUE-RI

Table 7 - TP-DIALOGUE-END-RC

	BASE STANDARD ISO 10026-3			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
701	Confirmation	M			M		19

A.1.7   TP-END-DIALOGUE-RC

No parameters

A.1.8   TP-U-ERROR-RI

No parameters

A.1.9   TP-U-ERROR-RC

No parameters

A.1.10   TP-HEURISTIC-REPORT-RI

Table 8 - TP-HEURISTIC-REPORT-RI

	BASE STANDARD ISO 10026-3			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
801	Heuristic-Report	M		11,12	NA		
				31,21,32,22	M		

A.1.11   TP-ABORT-RI

Table 9 - TP-ABORT-RI, for provider

	BASE STANDARD ISO 10026-3			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
901	Type	M			M		
902	Diagnostics	M			M		17

Table 10 - TP-ABORT-RI, for user

	BASE STANDARD ISO 10026-3			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1001	Type	M			M		
1002	User-Data	U			M		2

A.1.12   TP-REQUEST-CONTROL-RI

No parameters

A.1.13   TP-GRANT-CONTROL-RI

No parameters

A.1.14   TP-HANDSHAKE-RI

Table 11 - TP-HANDSHAKE-RI

	BASE STANDARD ISO 10026-3			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1102	Confirmation-Urgency	C		11,31,21	NA		
				12,32,22	M		18

A.1.15   TP-HANDSHAKE-RC

No parameters

A.1.16   TP-HANDSHAKE-AND-GRANT-CONTROL-RI

Table 12 - TP-HANDSHAKE-AND-GRANT-CONTROL-RI

	BASE STANDARD ISO 10026-3			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1201	Confirmation-Urgency	M		11,31,21	M		16
				12,32,22	NA		

A.1.17   TP-HANDSHAKE-AND-GRANT-CONTROL-RC

No parameters

A.1.18   TP-DEFER-RI

Table 13 - TP-DEFER-RI

	BASE STANDARD ISO 10026-3			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1301	Type	M		31,21	M		
				32,22	M	Defer-End-Dialogue	
				11,12	NA		

A.1.19   TP-PREPARE-RI

Table 14 - TP-PREPARE-RI

	BASE STANDARD ISO 10026-3			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1401	Data-permitted	C		31,21	M		
				11,12,32,22	NA		

A.1.20   TP-RECOVER-RI

Table 15 - TP-RECOVER-RI

	BASE STANDARD ISO 10026-3			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1501	Recovery-Context-Handle	M		31,21,32,22	M		
				11,12	NA		

A.1.21   TP-ASSOCIATION-ESTABLISHMENT-RI

Table 16 - TP-ASSOCIATION-ESTABLISHMENT-RI

		BASE STANDARD ISO 10026-3		PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1601	Protocol-Version	M			M		
1602	Contention-Winner-assignment	M			M		
1603	Recovery-Context-Handle	O		11,12	NA		
				31,21,32,22	M		
1604	Bid-Mandatory	M			M		

Table 17 - TP-ASSOCIATION-ESTABLISHMENT-RC

		BASE STANDARD ISO 10026-3		PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1701	Protocol-Version	M			M		
1702	Recovery-Context-Handle	O		11,12	NA		
				31,21,32,22	M		

A.2 ACSE PROTOCOL PDUs

> **Editor's Note -** The ACSE and Presntation tables are being aligned with the Common Upper Layer ISP and there will be slight changes as these tables are reviewed over the summer. The Session tables should be included in the Septemeber output.

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

A.2.1 ACSE PDU USAGE BY PROFILE

Table 18 ACSE PDU USAGE BY PROFILE

Protocol Data Units	Profiles						
	11	21	31	12	22	32	Notes
A-ASSOCIATE-REQUEST (AARQ)	M	M	M	M	M	M	
A-ASSOCIATE-RESPONSE (AARE)	M	M	M	M	M	M	
A-RELEASE-REQUEST (RLRQ)	M	M	M	M	M	M	
A-RELEASE-RESPONSE (RLRE)	M	M	M	M	M	M	
A-ABORT (ABRT)	M	M	M	M	M	M	

A.2.2   A-ASSOCIATE-REQUEST (AARQ)

Table 19 - A-ASSOCIATE-REQUEST (AARQ)

		BASE STANDARD ISO 8650		PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T/L/V ALLOWED	NOTES
1901	Protocol Version	C/M			M		22
1902	Application Context Name	M			M		
1903	Calling AP Title	O/M		11,12	O/M		21
				21,31,22,32	M		
1904	Calling AE Qualifier	O/M		11,12	O/M		21
				21,31,22,32	M		
1905	Calling AP Invocation Identifier	O/M			O/M		21
1906	Calling AE Invocation Identifier	O/M			O/M		21
1907	Called AP Title	O/M					20
1908	Called AE Qualifier	O/M					20
1909	Called AP Invocation Identifier	O/M					20
1910	Called AE Invocation Identifier	O/M					20
1911	Implementation Information	O			I		
1912	User Information	O/M			M		

A.2.3   A-ASSOCIATE-RESPONSE (AARE)

Table 20 - A-ASSOCIATE-RESPONSE (AARE)

		BASE STANDARD ISO 8650		PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
2001	Protocol Version	C/M			M		22
2002	Application Context Name	M			M		
2003	Responding AP Title	O/M		11,12	O/M		21
					M		
2004	Responding AE Qualifier	O/M		11,12	O/M		21
					M		
2005	Responding AP Invocation Identifier	O/M			O/M		21
2006	Responding AE Invocation Identifier	O/M			O/M		21
2007	Result	M			M		
2008	Result Source - Diagnostic	M			M		
2009	Implementation Information	O/M			I		
2010	User Information	O/M			M		

A.2.4   A-RELEASE-REQUEST (RLRQ)

Table 21 - A-RELEASE-REQUEST (RLRQ)

		BASE STANDARD ISO 8650		PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
2101	Reason	O/M			I		
2102	User information	O/M			I		

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A.2.5   A-RELEASE-RESPONSE (RLRE)

Table 22 - A-RELEASE-RESPONSE (RLRE)

	BASE STANDARD ISO 8650			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
2201	Reason	O/M			I		
2202	User information	O/M			I		

A.2.6   A-ABORT (ABRT)

Table 23 - A-ABORT (ABRT)

	BASE STANDARD ISO 8650			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
2301	Abort Source	M			M		
2302	User Information	O/M			M		

A.3   PRESENTATION SERVICE PARAMETERS

This subclause shows 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 the Transaction Processing ISP.

A.3.1   PRESENTATION PDU USAGE BY PROFILE

Table 24 PRESENTATION PDU USAGE BY PROFILE

PROTOCOL DATA UNITS	PROFILES						
	11	21	31	12	22	32	NOTES
CONNECT PRESENTATION (CP)	C/C	C/C	C/C	C/C	C/C	C/C	22,23
CONNECT PRESENTATION ACCEPT (CPA)	C/C	C/C	C/C	C/C	C/C	C/C	22,23
CONNECT PRESENTATION REJECT (CPR)	C/C	C/C	C/C	C/C	C/C	C/C	22,23
ABNORMAL RELEASE USER (ARU)	M	M	M	M	M	M	
ABNORMAL RELEASE PROVIDER (ARP)	M	M	M	M	M	M	
ALTER CONTEXT (AC)	I	I	I	I	I	I	24
ALTER CONTEXT ACKNOWLEDGE (ACA)	I	I	I	I	I	I	24

PROTOCOL DATA UNITS	PROFILES						NOTES
	11	21	31	12	22	32	
PRESENTATION DATA (TD)	M	M	M	M	M	M	
PRESENTATION TYPED DATA (TTD)	NA	M	M	NA	M	M	
EXPEDITED DATA (TE)	NA	NA	NA	NA	NA	NA	
CAPABILITY DATA (TC)	NA	NA	NA	NA	NA	NA	
CAPABILITY DATA ACKNOWLEDGE (TCC)	NA	NA	NA	NA	NA	NA	
RESYNCHRONISE (RS)	NA	M	M	NA	M	M	
RESYNCHRONISE ACKNOWLEDGE (RSA)	NA	M	M	NA	M	M	

A.3.2　　　INITIATOR/RESPONDER CAPABILITIES

Table 25 -INITIATOR/RESPONDER CAPABILITIES

	BASE STANDARD ISO 8822			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
2501	Initiator	O			C		25
2502	Responder	O			C		25

A.3.3　　　PROTOCOL MECHANISMS

Table 26 -PROTOCOL MECHANISMS

	BASE STANDARD ISO 8822			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
2601	X.410 (1984)	O			X		
2602	Normal	O			M		

A.3.4　　　FUNCTIONAL UNITS

Table 27 - FUNCTIONAL UNITS

| ITEM# | PARAMETER | BASE STANDARD ISO 8822 | | PROFILE | | | |
		STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
2701	Kernel	M			M		
2702	Presentation Context Management	O			I		25
2703	Presentation Context Restoration	C			I		22,25

A.3.5   KERNEL FUNCTIONAL UNIT

Table 28 - KERNEL FUNCTIONAL UNIT

| ITEM# | PARAMETER | BASE STANDARD ISO 8822 | | PROFILE | | | |
		STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
2801	Connect Presentation						
2802	Connect Presentation Accept						
2803	Connect Presentation Reject						
2804	Abnormal Release User						
2805	Abnormal Release Provider						
2806	Presentation Data						

A.3.6   CONNECT PRESENTATION (CP)

Table 29 - CONNECT PRESENTATION (CP)

		BASE STANDARD ISO 8822		PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
2901	Calling Presentation Selector	O/M			O/M		
2902	Called Presentation Selector	O/M			M		
2903	Mode Selector	M			M	Normal	
2904	Presentation Context Definition List	O/M			M		
2905	Default Context Name	O/M			I		
2906	Protocol Version	O/M			O/M		
2907	Presentation Requirments	O/M			I		25
2908	User Session Requirments	O/M			M		
2909	User Data (AARQ APDU)	O/M			M		

A.3.7   CONNECT PRESENTATION ACCEPT (CPA)

Table 30 - CONNECT PRESENTATION ACCEPT (CPA)

		BASE STANDARD ISO 8822		PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
3001	Responding Presentation Selector	O/M			O/M		
3002	Mode Selector	M			M	Normal	
3003	Presentation Context Definition Result List	O/M			M		
3004	Protocol Version	O/M			O/M		
3005	Presentation Requirments	O/M			I		25
3006	User Session Requirments	O/M			M		
3007	User Data (AARE APDU)	M/O			M		

A.3.8   CONNECT PRESENTATION REJECT (CPR)

Table 31 - CONNECT PRESENTATION REJECT (CPR)

		BASE STANDARD ISO 8822		PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
3101	Responding Presentation Selector	O/M			O/M		
3102	Presentation Context Definition Result List	O/M			M		
3103	Protocol Version	O/M			O/M		
3104	Default Context Result	O/M			I		
3105	Provider Reason	O/M			I/M		
3106	User Data (AARE APDU)	O/M			M		

A.3.9   ABNORMAL RELEASE USER (ARU)

Table 32 - ABNORMAL RELEASE USER (ARU)

		BASE STANDARD ISO 8822		PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
3201	Presentation Context Definition Identifier List	O/M			O/M		
3203	User Data (ABRT APDU)	O/M			M		

A.3.10   ABNORMAL RELEASE PROVIDER (ARP)

Table 33 - ABNORMAL RELEASE PROVIDER (ARP)

		BASE STANDARD ISO 8822		PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
3301	Provider Reason	O/M			I/M		
3302	Event Identifier	O/M			I/M		

A.3.11　　PRESENTATION DATA (TD)

Table 34 - PRESENTATION DATA (TD)

	BASE STANDARD ISO 8822			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
3401	User-data	O/M			M		

A.4　　CCR SERVICE PARAMETERS

This subclause shows TP's requirements of the CCR protocol.

A.4.1　　CCR PDU USAGE BY PROFILE

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

Table 35 - CCR PDU USAGE BY PROFILE

Protocol Data Units	Profiles						
	11	21	31	12	22	32	Notes
C-BEGIN-RI	NA	M	M	NA	M	M	
C-BEGIN-RC	NA	M	M	NA	M	M	
C-PREPARE-RI	NA	M	M	NA	NA	NA	
C-READY-RI	NA	M	M	NA	M	M	
C-COMMIT-RI	NA	M	M	NA	M	M	
C-COMMIT-RC	NA	M	M	NA	M	M	
C-ROLLBACK-RI	NA	M	M	NA	M	M	
C-ROLLBACK-RC	NA	M	M	NA	M	M	
C-RECOVER-RI	NA	M	M	NA	M	M	
C-RECOVER-RC	NA	M	M	NA	M	M	

A.4.2   C-BEGIN-RI

Table 36 - C-BEGIN-RI

	BASE STANDARD ISO 9805			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
3601	Atomic Action Id.- Master's Name	M		11,12	NA		
				21,31,22,32	M		
3602	Atomic Action Id.- Suffix	M		11,12	NA		1
				21,31,22,32	M		
3604	Branch Id.-Suffix	M		11,12	NA		1
				21,31,22,32	M		
3605	User Data	U			NA		

A.4.3   C-BEGIN-RC

Table 37 - C-BEGIN-RC

	BASE STANDARD ISO 9805			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
3701	User-data	U			NA		

A.4.4   C-PREPARE-RI

Table 38 - C-PREPARE-RI

	BASE STANDARD ISO 9805			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
3801	User-data	U		21,31	M		
				11,12,22,32	NA		

A.4.5   C-READY-RI

Table 39 - C-READY-RI

	BASE STANDARD ISO 9805			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
3901	User-data	NA			NA		

A.4.6   C-COMMIT-RI

Table 40 - C-COMMIT-RI

	BASE STANDARD ISO 9805			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
4001	User-data	U		11,12	NA		
				21,31,22,32	M		

A.4.7   C-COMMIT-RC

Table 41 - C-COMMIT-RC

	BASE STANDARD ISO 9805			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
4101	User-data	U		11,12	NA		
				21,31,22,32	M		

A.4.8   C-ROLLBACK-RI

Table 42 - C-ROLLBACK-RI

	BASE STANDARD ISO 9805			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	**NOTES**
4201	User-data	C		11,12	NA		
				21,31,22,32	M		

A.4.9   C-ROLLBACK-RC

Table 43 - C-ROLLBACK-RC

	BASE STANDARD ISO 9805			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	**NOTES**
4301	User-data	C		11,12	NA		
				21,31,22,32	M		

A.4.10   C-RECOVER-RI

Table 44 - C-RECOVER-RI

	BASE STANDARD ISO 9805			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
4401	Recovery State	M		11,12	NA		
				21,31,22,32	M		
4402	Atomic Action Identifier	M		11,12	NA		
				21,31,22,32	M		
4403	Branch Identifier	M		11,12	NA		
				21,31,22,32	M		
				11,12	NA		
4404	User-data	U		21,31,22,32	M		

A.4.11   C-RECOVER-RC

Table 45 - C-RECOVER-RC

	BASE STANDARD ISO 9805			PROFILE			
ITEM#	PARAMETER	STATUS	REFERENCE	PROFILE ID	STATUS	T\L\V ALLOWED	NOTES
4501	Recovery State	M		11,12	NA		
				21,31,22,32	M		
4502	Atomic Action Identifier	M		11,12	NA		
				21,31,22,32	M		
4503	Branch Identifier	M		11,12	NA		
				21,31,22,32	M		
				11,12	NA		
4504	User-data	U		21,31,22,32	M		

Annex B (normative)

Notes

NOTES

1 Status reflects the base standard value when PDUs are expressed as seperate PDUs and not as a combined PDU, which is how the base standard expresses them.

2 May need to determine limits on the amount and type of data passed in this manner.

3 User/Provider division of values is unclear in the Standard's ASN.1.

4 Parameter is present on user rejects.

5 Parameter is present on provider rejects.

6 Presently defined values only applicable to profiles 2,3,5 and 6.

7 May want to specify meanings for reason codes, Permanent and Transient failure.

8 Parameter is present on user abort.

9 Parameter is present on provider abort.

10 Parameter is present only on Handshake when the Shared Control functional unit is active.

11 Only if CCR is used, else the parameter is a user option.

12 Parameter becomes mandatory if the association is being established for recovert purposes (TP Channels).

13 Must decide which CCR ASN.1 Choice to use.

14 Support for "one-way-recovery" is mandatory. Support for "two-way-recovery" is optional.

15 The description in the text of the standard is not consistent with the standard's ASN.1, based on the December 1990 San Francisco editting meeting.

16 The status of this parameter in the corresponding mapping table in the protocol specification does not match the service specification.

17 The ASN.1 defintion does not specify the "Transient-failure" value for the "DIAGNOSTIC" parameter.

18 This parameter applies only if the Handshake functional unit is supported.

19 This APDU is used to terminate a "TP Channel" in profiles 31, 21, 32, 22.

20 In the case of recovery, the called AP Title, AE Qualifier, and Invocation Identifiers must be verified by the receiver.

21   There are no procedures defined in the base standard for the receiver of these parameters

22 If A.4.2/1 then M else I.

23 If A.4.2/2 the M else I.

24 TPPM does not use this PDU, but does not prevent U-ASE from using it.

25 TP does not use this capability, however a U-ASE is not prohibited from using it.