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

Output from the June 1991 NIST Workshop for Implementors of OSI

SIG Chair: **Jeff Hildebrand, Boeing Computer Services**
SIG Editor: **Jeff Hildebrand, Boeing Computer Services**

# 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.

# Table of Contents

# List of Tables

# Part 15 - Transaction Processing

## 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.

.

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 | | |

## 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 | | | | | | |
|---|---|---|---|---|---|---|---|
| | 11 | 21 | 31 | 12 | 22 | 32 | NOTES |
| 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**

| | BASE STANDARD ISO 8822 | | | PROFILE | | | |
|---|---|---|---|---|---|---|---|
| ITEM# | PARAMETER | 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**

| | BASE STANDARD ISO 8822 | | | PROFILE | | | |
|---|---|---|---|---|---|---|---|
| ITEM# | PARAMETER | 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.