INTERNATIONAL STANDARDIZED PROFILE

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

Part 1:
Introduction to the Transaction Processing Profiles

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

Partie 1: Introduction aux profils de traitement transactionnel

Reference number
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Foreword

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

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

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

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

International Standardized Profile ISO/IEC ISP 12061-1 was prepared with the collaboration of

— Asia-Oceania Workshop (AOW);

— European Workshop for Open Systems (EWOS);

— Open Systems Environment Implementors' Workshop (OIW).

ISO/IEC ISP 12061 consists of the following parts, under the general title *Information technology — Open Systems Interconnection — International Standardized Profiles: OSI Distributed Transaction Processing*:

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

— *Part 2: Support of OSI TP APDUs*

— *Part 3: Support of CCR APDUs*

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

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

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

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

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

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

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

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Introduction

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

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

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

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

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

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

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

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

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

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

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

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

Part 1:
Introduction to the Transaction Processing Profiles

1 Scope

This part of ISO/IEC 12061 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 International Standardized Profile;

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 International Standardized Profile.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC ISP 12061. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this part of ISO/IEC ISP 12061 are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by ISPs to such documents, is that they may be specific to a particular edition. Members of IEC and ISO maintain registers of currently valid International Standards and ISPs, and ITU-T maintains published editions of its current Recommendations.

ISO/IEC 8327: 1987[1],	*Information processing systems - Open Systems Interconnection - Basic connection oriented session protocol specification*
ISO/IEC 8327:1987 /Amd 3:1992,	*Information processing systems - Open Systems Interconnection - Basic connection oriented session protocol specification - Amendment 3: Additional synchronization functionality.*
ISO/IEC 8327-2:—[2]	*Information technology - Open Systems Interconnection - Basic connection oriented session PICS Proforma - Part 2: Protocol Implementation Conformance Statement (PICS) Proforma.*
ISO/IEC 8650:1988,	*Information processing systems - Open Systems Interconnection - Protocol specification for the Association Control Service Element.*

[1] Under revision
[2] To be published

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ISO/IEC 8650-2:1995, *Information technology - Open Systems Interconnection - Protocol specification for the Association Control Service Element - Part 2: Protocol Implementation Conformance Statement (PICS) Proforma.*

ISO/IEC 8823:1988, *Information processing systems - Open Systems Interconnection - Connection oriented presentation protocol specification.*

ISO/IEC 8823:1988 /Amd 5:1992, *Information processing systems - Open Systems Interconnection - Connection oriented presentation protocol specification - Amendment 5: Additional synchronisation functionality to the presentation service user.*

ISO/IEC 8823-2:—[2] *Information technology - Open Systems Interconnection - Connection oriented presentation protocol specification - Part 2: Protocol Implementation Conformance Statement (PICS) Proforma.*

ISO/IEC 8825:1990, *Information technology - Open Systems Interconnection - Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1).*

ISO/IEC 9805:1990, *Information technology - Open Systems Interconnection - Protocol Specification for the Commitment, Concurrency and Recovery service element.*

ISO/IEC 9805-2:—[2] *Information technology - Open Systems Interconnection - Commitment, Concurrency and Recovery protocol - Part 2: Protocol Implementation Conformance Statement (PICS) Proforma.*

ISO/IEC 9805:1990 /Amd 2:1992, *Information technology - Open Systems Interconnection - Protocol Specification for the Commitment, Concurrency and Recovery service element - Amendment 2: Session mapping changes.*

ISO/IEC 10026-1:1992, *Information technology - Open Systems Interconnection - Distributed Transaction Processing - Part 1: OSI TP Model.*

ISO/IEC 10026-2:1992, *Information technology - Open Systems Interconnection - Distributed Transaction Processing - Part 2: OSI TP Service.*

ISO/IEC 10026-3:1992, *Information technology - Open Systems Interconnection - Distributed Transaction Processing - Part 3: OSI TP Protocol specification.*

ISO/IEC 10026-4:1995, *Information technology - Open Systems Interconnection - Distributed Transaction Processing - Part 4: Protocol Implementation Conformance Statement (PICS) Proforma.*

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

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3 Definitions and abbreviations

The definitions and abbreviations in this International Standardized Profile not given below 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
T/L/V	Type/Length/Value

4 Notation

The following notations are used in the tables contained in parts 2 to 4 of this International Standardized Profile:

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

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profile. For instance, the notation NA used for some feature does not preclude an implementation from supporting more than one profile.

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 and earlier table in the same part of ISO/IEC ISP 12061.

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. 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 ISO/IEC ISP 12061.

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 part of ISO/IEC ISP 12061.

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 part of ISO/IEC ISP 12061.

* = 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).

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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.

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

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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 International Standardized Profile 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 ISO/IEC ISP 12061-1,2,3 and 4 state the relationship between these requirements and those of the base standard.

There is no conformance requirement from this International Standardized Profile on features marked "*" in the annexes of parts two and four.

Each of parts ISO/IEC ISP 12061-5 to ISO/IEC ISP 12061-10 contain specific conformance requirements for that part.

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