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Information technology — Open Systems Interconnection — Distributed Transaction Processing —

Part 5:
Application context proforma and guidelines when using OSI TP

Technologies de l'information — Interconnexion de systèmes ouverts (OSI) — Traitement transactionnel réparti —

Partie 5: Proforme de contexte d'application et lignes directrices en utilisation OSI TP

Reference number
ISO/IEC 10026-5:1998(E)

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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. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

International Standard ISO/IEC 10026-5 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 21, *Open systems interconnection, data management and open distributed processing*.

ISO/IEC 10026 consists of the following parts, under the general title *Information technology — Open Systems Interconnection — Distributed Transaction Processing*:

— *Part 1: OSI TP Model*

— *Part 2: OSI TP Service*

— *Part 3: Protocol specification*

— *Part 4: Protocol Implementation Conformance Statement (PICS) proforma*

— *Part 5: Application context proforma and guidelines when using OSI TP*

— *Part 6: Unstructured Data Transfer*

— *Part 7: Message queueing*

Annex A forms an integral part of this part of ISO/IEC 10026. Annex B is for information only.

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Information technology - Open Systems Interconnection - Distributed Transaction Processing -

Part 5:
Application context proforma and guidelines when using OSI TP

ISO/IEC 10026 is one of a set of standards produced to facilitate the interconnection of computer systems. It is related to other International Standards in the set as defined by the Reference Model for Open Systems Interconnection (ISO 7498). The Reference Model subdivides the area of standardisation for interconnection into a series of layers of specification, each of manageable size.

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

a) from different manufacturers;

b) under different management;

c) of different levels of complexity; and,

d) of different technologies.

ISO/IEC 10026 defines a Model, and Service, and specifies a Communication Protocol within the Application Layer of the OSI Reference Model.

1 Scope

This part of ISO/IEC 10026 specifies requirements specific to OSI TP that should be contained in an application context definition, in addition to the general requirements for an application context definition. It does not specify individual implementations or products, nor does it constrain the implementation of entities or interfaces within a computer system.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 10026. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC 10026 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 9545:1993, *Information Processing Systems - Open Systems Interconnection - Application Layer structure.*

ISO/IEC 10026-1:1998, *Information technology - Open Systems Interconnection - Distributed Transaction Processing - Part 1: OSI TP Model.*

3 Definitions

For the purposes of this part of ISO/IEC 10026, the definitions given in ISO/IEC 10026-1 and the following definitions apply.

3.1 Application Layer Structure definitions

This International Standard makes use of the following terms defined in ISO/IEC 9545:

a) application-context-definition; and
c) control-function.

4 Abbreviations

For the purposes of this part of ISO/IEC 10026, the abbreviations given in ISO/IEC 10026-1 and the following abbreviations apply.

FU Functional Unit

5 Overview of the TP application context proforma

This part of ISO/IEC 10026 specifies what must be contained in an application context where use is made of the facilities of OSI TP. Such an application context may define rules for the correct interaction of the various ASEs (ACSE, the TP-ASE, possibly CCR, and one or more User-ASEs) controlled by the TP MACF and SACF, in addition to listing the ASEs which are used. The remainder of this part of ISO/IEC 10026 provides guidelines for the specification of such rules and options.

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6 TP application context contents

This clause contains guidelines for defining an application context which contains OSI TP, together with general guidelines which would apply to any application context. (These general guidelines are included for completeness, and appear in italics.) An application context proforma is contained in annex A; this annex includes information which always appears in the definition of an application context which contains OSI TP. The subclauses in this clause correspond to clauses which would be included in an application context definition (as listed in annex A).

Such an application context definition always includes the information described in 6.1, 6.2, 6.3, 6.5, 6.9 and 6.11 of this clause. Information described in the other subclauses (6.4, 6.6-6.8, 6.10, 6.12) should be included when necessary.

OSI TP does not state where the modules responsible for maintaining the MACF rules for User-ASEs (if there are such rules) are located. The understanding here is that the MACF rules for User-ASEs are implemented inside the TPSUI (which for this purpose is subdivided into a User-MACF and a multiple association service user invocation (MASUI), which is the receiver of the genuine multiple association service).

Application specific control functions which include OSI TP are constrained by the very strict control which OSI TP exercises on the PSAPs (choosing presentation services; closing, opening PSAPs; etc).

6.1 Application context name

A globally unambiguous name of ASN.1 datatype OBJECT IDENTIFIER which identifies the application context definition.

An application context name has to be registered to ensure that the name is unambiguous, in accordance with ISO/IEC 7498-3. This registration may be done by recording the definition and the allocated name in a Standard. Alternatively, a name may be obtained by applying to a Registration Authority that has the authority to assign application context names in accordance with the procedures of ISO/IEC 9834-1.

Note - Obtaining an appropriate object identifier requires using the rules of ISO/IEC 9834-1, Registration Authorities, and ISO 8805, Basic Encoding Rules. If this application context is to be standardised internationally or nationally, then its name should be taken from the registration authority for the international or national name space. If it is to be a private name, it can be taken from a private name space, but still following the basic rules of object identifiers.

6.2 Purpose and scope

A brief outline of the purpose of the application context, together with a brief scope statement.

6.3 Referenced standards

A list of those standards which are referenced by the application context being defined.

6.4 Referenced application contexts

If any other application contexts are referenced as part of this context they shall be listed, along with their Object Identifier names.

This list will include application contexts that will be used on other associations if there are dialogue trees within which this association and one of the other associations are adjacent at either end of this association. Other application contexts need only be included if the semantic exchanges under this application context require the use of the other application contexts.

6.5 Component ASEs

This section lists the ASEs required for the application context being defined. For each ASE in the application context, include subclauses as follows:

6.5.n *name*
6.5.n.1 *reference (eg ISO/IEC standard number)*
6.5.n.2 *version number*
6.5.n.3 *brief description*

with a value 'n' for each specific ASE.

In addition to the two mandatory ASEs (TP-ASE and ACSE), other ASEs (eg CCR), and the User-ASEs incorporated in the application context are to be listed.

Note - At least one User-ASE will always be required, unless the context only applies to a TP Channel.

6.6 Use of other related ASEs

If the application context requires the knowledge of the use of other ASEs on other associations in the AEIs at one or both ends of the association, this clause lists them.

This will include ASEs whose services will be invoked on other associations to support the semantics of the exchanges on the association using this application context.

For an application context which contains OSI TP, these other associations may include those supporting dialogues of a dialogue tree, one of whose dialogues is supported by an association with this application context.

Note - In a particular instance, a real system using this application context may use on other dialogues of the dialogue tree ASEs that are not listed here. ASEs are only listed here if the semantics of exchanges under this application context necessarily require the use of the ASE on another association.

6.7 Persistent application context rules

This section defines any additional rules to be enforced by this application context, that supplement and impose restrictions in addition to those specified in the referenced base standards, concerning information that has a lifetime that is greater than that of an association.

The OSI TP SACF procedures defined in clause 10 of ISO/IEC 10026-3 relating to association establishment and release should be noted.

6.8 Control function (SACF/MACF) rules

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6.8.1 *objectives/summary*
6.8.2 *temporal ordering rules*
6.8.3 *concatenation rules*
6.8.4 *mapping rules*
6.8.5 *references to base standard rules*
6.8.6 *other rules*

This section defines rules to be enforced by the control functions in support of this application context, that supplement and impose restrictions additional to those specified in the base standards. (A reference to the base standards' rules should be included.)

It is important to note that the application context definition specifies, where necessary, how the events of the component ASEs are to be ordered. Any other invocation dependencies between the ASEs are specified. The control function rules may need to specify where a state transition by one ASE requires other ASEs to change state also.

In addition, the use of several ASEs together on an association, or the sequential use of different ASEs on an association should be described in this clause.

For an application context which contains OSI TP, a distinction must be made between rules relating to the SACF and MACF. (SACF and MACF rules for OSI TP are defined in clauses 10 and 11 of ISO/IEC 10026-3.) In particular, this clause must specify which User-ASE services, if any, replace TP-Data for each state in which the invocation or reception of TP-Data is a valid event.

6.9 Optional features

The rules and restrictions on the selection of any optional features of each component ASE should be stated. In particular, for each referenced standard, the required functional units and options must be specified, noting dependencies between individual ASEs; it should be noted whether a particular functional unit or option is mandatory, is not supported, or may optionally be provided. A brief rationale for their selection may be given.

Note - No rules specified in the base standard shall be subject to relaxation.

6.10 Error handling

This section defines what action should be taken (for example, to abort the association) if the rules and constraints of the application context are violated. Unless special error handling facilities are available, the following text may be sufficient:

> *"For this application context, if the rules and constraints of the application context are violated, an A-Abort request shall be issued."*

In an application context which contains OSI TP, consideration should be given to rolling back the transaction, aborting the association, aborting the dialogue, and/or invoking the TP-U-Error service primitive.

6.11 Conformance

This clause specifies all rules which must be followed by an implementation in order to be conformant to this application context. As most standards and ASEs already contain their own conformance requirements, referencing these requirements with the following text will often be sufficient for the application context's conformance clause:

> *"A conformant implementation shall exhibit external behaviour which conforms to the requirements implied by or stated in the other clauses of this application context definition."*

Note - The concept of conformance to an application context definition is somewhat new, and is subject to further work by the JTC1/SC21/WG1 Conformance Rapporteur Group; this standard may therefore change accordingly.

6.12 Collision handling

Any additional rules concerned with the prevention and resolution of the collision of services (eg A-Release and P-Resynchronise) should be specified in this clause. Unless special collision handling is necessary, the following text may be sufficient:

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

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Annex A
(normative)

Application context proforma when using OSI TP

This annex provides a proforma for an application context which contains TP, and includes text which must always be included in the definition of such an application context.

In this annex, text in italics (except for the references in clause A.3) is provided for guidance only, and should not be included in any application context definition.

A.1 Application context name

The OBJECT IDENTIFIER name for this application context is .....

A.2 Purpose and scope

A.3 Referenced standards

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

ISO 8650: 1988, *Information Processing Systems - Open Systems Interconnection - Protocol specification for the Association Control Service Element.*

ISO 8650/Cor.1: 1991, *Information Processing Systems - Open Systems Interconnection - Protocol specification for the Association Control Service Element - Technical Corrigendum 1.*

ISO/IEC 9805: 1990, *Information Processing Systems - Open Systems Interconnection - Protocol specification for the Commitment, Concurrency and Recovery Service Element.*

ISO/IEC 9805/Amd.2, *Information Processing Systems - Open Systems Interconnection - Protocol specification for the Commitment, Concurrency and Recovery Service Element - Amendment 2: Session Mapping Changes.*

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

A.4 Referenced application contexts

A.5 Component ASEs

The following ASEs shall be contained in any OSI TP application context:

ACSE
TP-ASE

Sample text for these two ASEs, and also for CCR, is provided below. Other ASEs should be listed as required.

A.5.1 Association Control Service Element (ACSE)

A.5.1.1 Reference

ISO 8650: 1988 and ISO 8650 Technical Corrigendum 1: 1991.

A.5.1.2 Version number

Version ... of the Association Control protocol shall be used.

A.5.1.3 Brief description

The Association Control protocol is used to establish and release the association.

A.5.2 Distributed Transaction Processing ASE (TP-ASE)

A.5.2.1 Reference

ISO/IEC 10026-3: 1992 clause 9.

A.5.2.2 Version number

Version ... of the OSI TP protocol shall be used.

A.5.2.3 Brief description

A TP-ASE provides for TP APDU generation and reception.

A.5.3 Commitment, Concurrency, and Recovery (CCR) ASE

A.5.3.1 Reference

ISO/IEC 9805: 1990 etc.

A.5.3.2 Version number

Version ... of the CCR protocol shall be used.

A.5.3.3 Brief description

CCR provides two phase commitment facilities for OSI TP.

Note - Clause A.5.3, which provides a reference to the CCR protocol, need only be included if the TP commit FU is to be used.

Additional ASEs must be included, as follows:

A.5.n Additional component ASEs

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A.5.n.1 reference
A.5.n.2 version number
A.5.n.3 brief description

with a value 'n' for each specific ASE.

A.6 Use of other related ASEs

A.7 Persistent application context rules

A.8 Control function rules

A.8.1 SACF rules

A.8.1.1 objectives/summary
A.8.1.2 temporal ordering rules
A.8.1.3 concatenation rules
A.8.1.4 mapping rules
A.8.1.5 references to base rules
A.8.1.6 other rules

A.8.2 MACF rules

A.8.2.1 objectives/summary
A.8.2.2 temporal ordering rules
A.8.2.3 references to base rules
A.8.2.4 other rules

A.9 Optional features

A.10 Error handling

Unless special error handling facilities have been spcified, the following text may be sufficient:

"For this application context, if the rules and constraints of the application context are violated, an A-ABORT request shall be issued."

A.11 Conformance

Unless special conformance requirements are necessary, the following text may be sufficient:

"A conformant implementation shall exhibit external behaviour which conforms to the requirements implied by or stated in the other clauses of this application context definition."

A.12 Collision handling

Unless special collision handling is necessary, the following text may be sufficient:

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

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Annex B
(informative)
Example application context definitions

This annex provides two example application context definitions containing OSI TP and "fictional" ASEs. The two application contexts are related. In the first, "committed file sending", the user ASE is used for sending a file, and combining this with OSI TP allows the sending and receiving of the file to be within the commitment control of an OSI transaction. The second application context, "committed copy order", uses a special-purpose ASE in which the "initiator" asks the "copier" to send identical copies of some file to a number of other systems.

These example application context definitions assume that there are separate specifications for the two user ASEs. In both cases, to keep the example simple, these ASEs have minimum functions.

The File Send ASE used in the first application context definition has a single, confirmed service, F-SEND, whose most important parameter is the content of the file that is sent. The system that issues the F-SEND request is the "sender", the one that receives the F-SEND indication is the "receiver". The F-SEND response/confirm has a result parameter of "success" or "failure". (File Send could be used outside OSI TP. It can be considered to be a grossly simplified version of FTAM - but it is not FTAM.)

The Propagate ASE has two services. The confirmed PG-SETLIST service carries, on the request/indication, a list of the destinations to which the copier is to send the files. The response/confirm has a reply parameter of "ok" or "not-ok". The non-confirmed PG-COPY service has a single parameter, which is the content of the file to be sent. (It is unlikely that the Propagate ASE, as defined, could be useful outside the circumstances given here.)

Examples and methodology have been added where appropriate in each clause. This text is for informative purposes only, and does not take precedence to the definitional text, nor does it imply that a real application context must use the rules mentioned in the examples.

B.1 Committed file sending application context

B.1.1 Application context name

The OBJECT IDENTIFIER name for this application context is

{joint-iso-ccitt tp(10) application-contexts(5)
committed-file-send(1) version1(1) }

B.1.2 Purpose and scope

This application context defines the use of OSI TP with the File Send ASE to support the sending of one or more files as part of an OSI TP transaction.

B.1.3 Referenced standards

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

ISO 8650: 1988, *Information Processing Systems - Open Systems Interconnection - Protocol specification for the Association Control Service Element.*

ISO 8650/Cor.1: 1991, *Information Processing Systems - Open Systems Interconnection - Protocol specification for the Association Control Service Element - Technical Corrigendum 1.*

ISO/IEC 9805: 1990, *Information Processing Systems - Open Systems Interconnection - Protocol specification for the Commitment, Concurrency and Recovery Service Element.*

ISO/IEC 9805/Amd.2: 1992, *Information Processing Systems - Open Systems Interconnection - Protocol specification for the Commitment, Concurrency and Recovery Service Element - Amendment 2: Session Mapping Changes.*

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

ISO/IEC 123456: 2001, *Information Processing Systems - Open Systems Missedconnection - File Sending ASE Service and Protocol.*

B.1.4 Referenced application contexts

None.

B.1.5 Component ASEs

B.1.5.1 ACSE ASE

B.1.5.1.1 Reference

ISO/IEC 8650:1988 and ISO 8650/Cor.1: 1990.

B.1.5.1.2 Version number

Version 1 of the ACSE protocol is used.

B.1.5.1.3 Brief description

--`,,```,,,,````-`-`,,`,,`,`,,`---

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The Association Control protocol is used to establish and release the association.

B.1.5.2 TP ASE

B.1.5.2.1 Reference

ISO/IEC 10026-3: 1992 clause 9.

B.1.5.2.2 Version number

Version 1 of the OSI TP protocol is used.

B.1.5.2.3 Brief description

The OSI TP protocol provides communications mechanisms for the support of transactions.

B.1.5.3 CCR ASE

B.1.5.3.1 Reference

ISO/IEC 9805-1: 1990 and ISO/IEC 9805/Amd.2: 1990.

B.1.5.3.2 Version number

Version 2 of the CCR protocol is used.

B.1.5.3.3 Brief description

CCR provides two-phase commitment facilities.

B.1.5.4 File Send ASE

B.1.5.4.1 Reference

ISO/IEC 123456: 2001.

B.1.5.4.2 Version number

Version 1 of the File Send protocol is used.

B.1.5.4.3 Brief description

The File Send protocol is used to send the contents of a file.

B.1.6 Use of other related ASEs

None.

B.1.7 Persistent application context rules

The content of the file parameter of any F-SEND indication received on a transaction branch shall be treated as (part of) the bound data of the transaction, if the corresponding F-SEND response carries a result value of "success". The receiver shall obey the bound data rules of OSI TP and CCR with respect to file content.

B.1.8 Control function rules

B.1.8.1 SACF rules

B.1.8.1.1 Objectives

The following additional rules allow TP and File Sned are used over the same association.

B.1.8.1.2 Temporal ordering rules

F-Send request and F-Send response primitives shall only be invoked when there is a transaction on the association. Subject to that constraint (and the File Send ASE sequencing rules), they are permitted at any time when the TP SACF (and MACF) rules permit a TP-DATA request.

Only the TP (dialogue) superior shall invoke F-Send request.

Any number of F-Send exchanges may take place within one transaction.

The receiver shall not signal ready for a transaction if responses are due for received F-Send indications on the superior dialogue.

B.1.8.1.3 Concatenation rules

File Send PDUs shall not be concatenated with TP or CCR PDUs.

B.1.8.1.4 Mapping rules

The mapping rules of ACSE, CCR, TP, and File Send specified in the respective protocol specifications shall be used without modification.

B.1.8.1.5 References to base rules

SACF rules for TP are found in clause 9 of ISO/IEC 10026-3. SACF rules for CCR are found in annex A of ISO/IEC 9804.

B.1.8.1.6 Other rules

The File Send ASE shall be reset to the idle (I) state if any *rollback request* or *rollback indication* (as defined as italicised terms in ISO/IEC 10026-3) or abort is issued or received on the association or if the dialogue is terminated for any reason.

B.1.8.2 MACF rules

B.1.8.2.1 Objectives

If a File Send action is part of a transaction with more than one branch, these rules support the preservation of the ACID properties of the transaction.

B.1.8.2.2 Temporal ordering rules

The TP and CCR MACF rules apply. There are no further (application-specific) MACF rules imposed by this application context definition.

B.1.8.2.3 References to base standard rules

MACF rules for TP are found in clause 10 of ISO/IEC 10026. MACF rules for CCR are found in annex A of ISO/IEC 9804.

B.1.8.2.4 Other rules

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The occurance of an F-SEND response/confirm with a result value of "failed" does not constrain the outcome of the transaction branch. The failed File Sending may or may not be followed, in the transaction branch, by other File Sending attempts, and the transaction may (other things being equal) be committed or rolled back.

B.1.9 Optional features

For ACSE, the authentication functional unit is optional.

For TP, the commit functional unit and either the chained or unchained functional unit shall be requested on all dialogues on the assocation. The handshake functional unit shall not be requested on any dialogue. The association may be used for the establishment of channels.

B.1.10 Error handling

For this application context, if the rules and constraints of the application ontext are violated, an A-ABORT request shall be issued.

B.1.11 Conformance

To be considered a conforming implementation, an implementation, shall exhibit external behaviour which conforms to the requirements implied by or stated in the other clauses of this application context definition.

B.1.12 Collision hanlding

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

B.2 Committed copy order application context

Note - Parts of this application context definition include specifications that could usefully be defined in the specification of the Application Service Object (ASO - see ISO/IEC 9545: 1993) at the "copier" The existence of such a specification would make this context definition shorter.

B.2.1 Application context name

The OBJECT IDENTIFIER name for this application context is

{joint-iso-ccitt tp(10) application-contexts(5)
committed-copy-order(2) version1(1) }

B.2.2 Purpose and scope

This application context defines the use of OSI TP with the Propagate ASE to support the requesting, on one association, of the reliable (atomic) replication of a file to several destinations, using the committed file sending application context for the copying of the file.

Dialogues supported by an association using this application context are used for the transmission, in a transaction, of the PG-SETLIST and PG-COPY requests from the dialogue superior to the subordinate. Use of the Propagate Timeout Protocols (PG-TIPS) is not supported. The subordinate uses the File Send service on subordinate branches of the same transaction to send the contents of the file received on the PG-COPY indication to the destinations specified in the previous PG-SETLIST indication.

B.2.3 Referenced standards

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

ISO 8650: 1988, *Information Processing Systems - Open Systems Interconnection - Protocol specification for the Association Control Service Element.*

ISO 8650/Cor.1: 1991, *Information Processing Systems - Open Systems Interconnection - Protocol specification for the Association Control Service Element - Technical Corrigendum 1.*

ISO/IEC 9805: 1990, *Information Processing Systems - Open Systems Interconnection - Protocol specification for the Commitment, Concurrency and Recovery Service Element.*

ISO/IEC 9805/Amd.2: 1992, *Information Processing Systems - Open Systems Interconnection - Protocol specification for the Commitment, Concurrency and Recovery Service Element - Amendment 2: Session Mapping Changes.*

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

Private specification XYZ.1 - *Propagate file protocol.*

B.2.4 Referenced application contexts

Committed file sending:

{joint-iso-ccitt tp(10) application-contexts(5)
committed-file-send(1) version1(1) }

B.2.5 Component ASEs

B.2.5.1 ACSE ASE

B.2.5.1.1 Reference

ISO/IEC 8650:1988 and ISO 8650/Cor.1: 1990.

B.2.5.1.2 Version number

Version 1 of the ACSE protocol is used.

B.2.5.1.3 Brief description

The Association Control protocol is used to establish and release the association.

B.2.5.2 TP ASE

B.2.5.2.1 Reference

ISO/IEC 10026-3: 1992 clause 9.

B.2.5.2.2 Version number

Version 1 of the OSI TP protocol is used.

B.2.5.2.3 Brief description

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The OSI TP protocol provides communications mechanisms for the support of transactions.

B.2.5.3 CCR ASE

B.2.5.3.1 Reference

ISO/IEC 9805-1: 1990 and ISO/IEC 9805/Amd.2: 1990.

B.2.5.3.2 Version number

Version 2 of the CCR protocol is used.

B.2.5.3.3 Brief description

CCR provides two-phase commitment facilities.

B.2.5.4 Propagate ASE

B.2.5.4.1 Reference

Private specification XYZ.1.

B.2.5.4.2 Version number

Version 1 of the Propagate protocol is used.

B.2.5.4.3 Brief description

The Propagate protocol is used to inform the "copier" of the Application-Entities and TPSUs the files are to be send to, and to pass the file to be copied.

B.2.6 Use of other related ASEs

This application context does not constrain other associations of the AEI that is (at a particular time) the dialogue superior.

At the subordinate of a dialogue on an association using this application context, the File Send, OSI TP, and CCR ASEs are used, in the "committed file sending" application context, on other associations supporting subordinate dialogues of the same dialogue tree.

B.2.7 Persistent application context rules

The TP and CCR recovery rules apply (see ISO/IEC 10026-3 clause 10 and ISO/IEC 9804 annex A). There are no further application context specifc rules. (In particular, neither the requestor nor the copier are required to preserve the content of the file(s) copied when in the ready state. If the transaction reaches the ready state, the content of the file will be preserved by the F-SEND receivers.)

B.2.8 Control function rules

B.2.8.1 SACF rules

B.2.8.1.1 Objectives

The following additional rules define how TP and Propagate are used over the same association

B.2.8.1.2 Temporal ordering rules

If a TP-BEGIN-DIALOGUE request will set the coordination level to "commitment", a PG-SETLIST request shall be issued as user data of the TP-BEGIN-DIALOGUE request. If the TP-BEGIN-DIALOGUE request sets the coordination level to "none", the PG-SETLIST request may be issued as user data of the TP-BEGIN-DIALOGUE request or may be sent subsequently, but shall be issued no later than the first TP-BEGIN-TRANSACTION on the dialogue.

If a PG-SETLIST indication is received in the user data of a TP-BEGIN-DIALOGUE indication, the corresponding PG-SETLIST response shall be issued as user data of the TP-BEGIN-DIALOGUE response. If the PG-SETLIST response has a reply value of "not-ok", the dialogue shall be rejected.

PG-COPY request shall only be issued in a transaction and shall only be issued by the dialogue superior.

B.2.8.1.3 Concatenation rules

Propagate PDUs may be concatenated, at senders option, with TP or CCR PDUs in any place that User-ASE PDUs are allowed by the TP and CCR rules, subject to the temporal ordering rules.

B.2.8.1.4 Mapping rules

If a Propagate PDU is not concatenated with TP or CCR PDUs it shall use the (canonical) mapping to P-DATA. If a Propagate PDU is concatenated with a TP or CCR PDU, the mapping specified for the TP or CCR PDU (as a concatenation) shall be used. If a Propagate PDU is concatenated with a CCR PDU that allows mappings to P-DATA or P-TYPED-DATA, the mapping to P-DATA shall be used. Otherwise the mappings specified in the TP, CCR and ACSE protocol specifications shall be used.

B.2.8.1.5 References to base rules

SACF rules for TP are found in clause 9 of ISO/IEC 10026-3. SACF rules for CCR are found in annex A of ISO/IEC 9804.

B.2.8.1.6 Other rules

The Propagate ASE shall be reset to the idle (I) state if any *rollback request* or *rollback indication* (as defined as italicised terms in ISO/IEC 10026-3) or abort is issued or received on the association or if the dialogue is terminated for any reason.

B.2.8.2 MACF rules

B.2.8.2.1 Objectives

These rules ensure that, for a committed transaction, the file sent on the association using this application context, has been sent on to the destinations as part of the transaction.

B.2.8.2.2 Temporal ordering rules

For the subordinate of a dialogue on association using this application context:

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On receiving a PG-SETLIST indication, the AEI shall not issue PG-SETLIST(ok) response until (and unless) it has established TP dialogues on associations using the committed file sending application context to invocations of the TPSUs at the Application Entities identified by the parameters of the PG-SETLIST indication.

When a transaction is initiated on this superior dialogue, the subordinate shall initiate transactions on the dialogues to all the TPSUIs identified by the most recent PG-SETLIST.

On receiving a PG-COPY indication, the AEI shall issue an F-SEND request on the dialogues to all the TPSUIs identified by the most recent PG-SETLIST. The file content parameter of these F-SEND requests shall be taken from the file content parameter of the PG-COPY indication (This content may, or may not, be subject to transfer syntax transformation at the copying system.)

B.2.8.2.3 References to base standard rules

MACF rules for TP are found in clause 10 of ISO/IEC 10026. MACF rules for CCR are found in annex A of ISO/IEC 9804.

B.2.8.2.4 Other rules

If an F-SEND confirm with a result value of "failed" is received on another branch of a transaction that has a branch on an association using this application context, rollback shall be initiated.

B.2.9 Optional features

For ACSE, the authentication functional unit is optional.

For TP, the commit functional unit, and either the chained or unchained functional unit shall be requested on all dialogues on the assocation. The handshake functional unit shall not be requested on any dialogue. The association may be used for the establishment of channels.

B.2.10 Error handling

For this application context, if the rules and constraints of the application ontext are violated, an A-ABORT request shall be issued.

B.2.11 Conformance

To be considered a conforming implementation, an implementation, shall exhibit external behaviour which conforms to the requirements implied by or stated in the other clauses of this application context definition.

B.2.12 Collision hanlding

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

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