Working Implementation Agreements for Open Systems Interconnection Protocols: Part 4 - Transport Layer

Output from the June 1991 NIST Workshop for Implementors of OSI

SIG Chair: **Fred Burg, AT&T**
SIG Editor: **Kristy Brown, NCS** Workshop Editor: **Brenda Gray**

Foreword

This part of the Working Implementation Agreements was prepared by the Lower Layers Special Interest Group (LLSIG) 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 Workshop. This part replaces the previously existing chapter on this subject. There are some significant technical changes to this text as previously given.

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

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Part 4 - Transport Layer

Editor's Note - All references to Stable Agreements in this Section are to Version 4. ~~dated December 1990.~~

0 Introduction

(Refer to Stable Implementation Agreements Document)

1 Scope

(Refer to the Stable Implementation Agreements document).

2 Normative References

3 Status

This material is current as of December 1990.

4 Errata

Errata are reflected in pages of Version 4, Stable Document.~~, dated December 1990.~~

This clause lists the defect reports from ISO which are currently recognized to be valid for the purpose of NIST conformance.

5 Provision of Connection Mode Transport Services

(Refer to the Stable Implementation Agreements document).

5.1 Transport Class 4

5.1.1 Transport Class 4 Overview

(Refer to the Stable Implementation Agreements document).

5.1.2 Protocol Agreements

5.1.2.1 General Rules

(Refer to the Stable Implementation Agreements Document.)

> **Editor's Note -** The following change is made in the Stable Implementation Agreements on page 4:
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> $I_R/N > W \qquad N \geq 2$

5.1.2.2 Transport Class 4 Service Access Points or Selectors

(Refer to the Stable Implementation Agreements Document.)

5.1.2.3 Retransmission Timer

(Refer to Stable Implementation Agreements Document)

5.1.2.4 Keep-Alive Function

(Refer to the Stable Implementation Agreements Document.)

5.1.2.5 Congestion Avoidance Policies

(Refer to the Stable Implementation Agreements Document).

5.1.2.6 Use of Priority[1]

For end systems, the implementation of priority is optional, but if implemented, one of the four values defined in part 3 clause 11 shall always be used in an instance of communications. In other words an explicit priority parameter shall be sent.

Additional requirements of systems implementing priority are defined below:

a) When Transport is implemented over a CLNS Network entity, each data TPDU and corresponding NSDU shall be assigned a priority level derived from the Transport connection priority level, except as excluded in item 5b and 5d below[2];

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[1] Refer to part 3 clause 11 for an overview on the use of priority.

[2] The approach to assigning priority to an NSDU is for further study.

b) A local mechanism shall be provided to convey priority information to the Network service. If appropriate, simultaneous Transport service request can be managed on a priority basis within the Transport Layer;

c) The four abstract values corresponding to the four levels defined in 3.11 shall be encoded as follows:[3]

1) "high reserved" priority will be encoded with value "zero" (0000 0000 0000 0000),

2) "high" priority will be encoded with value 5 (0000 0000 0000 0101),

3) "normal" priority will be encoded with value 10 (0000 0000 0000 1010),

4) "low" priority will be encoded with value 14 (0000 0000 0000 1110)

d) Other values should be interpreted as follows: a value lower than 5 and higher than 0 shall be interpreted as "high", a value lower than 10 and higher that 5 shall be interpreted as "normal", and a value higher than 10 shall be interpreted as "low";

e) The exchange of priority parameters by Transport entities is performed as described below[4]:

1) If priority is implemented in the end system, a priority value corresponding to one of the four abstract levels defined in section 3.11 will be conveyed down to the Transport entity and shall be encoded and sent in the CR TPDU as the priority level "desired" for the Transport connection;

2) A receiving Transport entity supporting priority management shall either accept the priority level proposed in the CR TPDU or select a lower level. The CR shall not be rejected solely because of the "desired" priority level. The selected priority level shall be encoded and returned to the calling Transport entity in the CC TPDU. The TC priority is also passed to the local session entity with the T-Connect indication primitive and is eventually conveyed to the ASE, which can reject the association if the priority is unacceptable. If the receiving Transport entity supports priority but receives a CR TPDU without the priority parameter, it shall associate a default priority level with the Transport connection for the purposes of managing the Transport connections which may be under its control. This default level shall not be encoded and placed in the corresponding CC TPDU and shall not result in any priority information being associated with NSDUs being passed to the Network entity supporting the Transport connection. The default shall be either "low", "normal", or "high" according to the locally configurable parameter;

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3 This encoding has been chosen to be consistent with ISO 8073, The results is a reverse encoding from that for ISO 8473.

4 ISO 8073 does not define or support a sound negotiation mechanism at this time; the following process will serve to allow a priority level to be established for a TC.

3) A receiving Transport entity not supporting priority management shall ignore the parameter in the CR TPDU;

4) When the initiating Transport entity receives the CC TPDU containing the priority parameter, it establishes the priority for the Transport connection based on the level received and conveys this to the session entity with the T-Connect confirm primitive. If the priority parameter does not appear in the CC TPDU, the initiating Transport entity shall assume the remote Transport entity does not support priority and will therefore assign a default priority level to the Transport connection for the purposes of managing the Transport connection with respect to the other simultaneous Transport connections which may be under its control. However, this default shall not result in any priority information being associated with NSDUs being passed to the Network entity supporting the Transport connection. The default shall be either "low", "normal", or "high" according to a locally configurable parameter.

5.2 Transport Class 0

(Refer to Stable Implementation Agreements Document)

5.2.1 Transport Class 0 Overview

(Refer to Stable Implementation Agreements Document)

5.2.2 Protocol Agreements

5.2.2.1 General Rules

(Refer to Stable Implementation Agreements Document)

5.2.2.2 Transport Class 0 Service Access Points

(Refer to Stable Implementation Agreements Document)

5.2.3 Rules for Negotiation

(Refer to Stable Implementation Agreements Document.)

5.3 Transport Class 2

(Refer to Stable Implementation Agreements Document.)

5.3.1 Transport Class 2 Overview

(Refer to Stable Implementation Agreements Document.)

5.3.2 Protocol Agreements

(Refer to Stable Implementation Agreements Document)

6 Provision of Connectionless Transport Service

(Refer to Stable Implementation Agreements Document.)

7 Transport Protocol Identification

(Refer to the Stable Implementation Agreements document.)