ISO/IEC 11570:1992 (E)
Edition 1

Editor's Copy

Date: ??

FOR REVIEW ONLY

Please provide your comments before
10 September 1992

Direct all comments to:

Hsi-ming Lee
COMSAT Laboratories
22300 Comsat Drive
Clarksburg, MD 20871

+1 301 428-4260
+1 301 428-7747 fax
lee%comlabs@uunet.uu.net

[ITTF to provide the final title page]

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 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 8073 was prepared by Joint Technical Committee ISO/IEC JTC 1, Information Technology.

Annex A forms part of this International Standard.

Introduction

This International Standard is one of a set of International Standards produced to facilitate the interconnection of information processing systems. The set of International Standards covers the services and protocols required to achieve such interconnection.

The identification mechanism of transport protocols is positioned with respect to other related International Standards by the layer defined in the reference model for open system interconnection (ISO 7498). It allows identification of protocols (both OSI and non-OSI) used on a given network connection. The initiating transport entity of a network connection may indicate to the accepting transport entity, what transport protocol is to be used on that network connection.

Table of Contents

Information technology – Telecommunications and information exchange between systems – Open Systems Interconnection – Transport protocol identification mechanism

1 Scope

The procedures specified in this International Standard do not prevent communication between transport entities conforming to ISO/IEC 8073 only and those conforming to ISO/IEC 8073 as well as to this International Standard.

The use of a protocol identification procedure allows transport entities to be implemented which can support both the OSI transport protocols and non-OSI protocols above the OSI network layer.

NOTE – The use of NSAP addresses as it is defined in ISO/IEC 7498-3 provides another possibility in distinguishing between OSI and non-OSI users of the network service. If however the use of NSAPs incurs unacceptable penalties, for example where each NSAP is charged for by the network provider, then the transport protocol identification mechanism is available.

2 Normative references

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

ISO 7498:1984, Information processing systems — Open Systems Interconnection — Basic Reference Model.

ISO 7498-3:1989, Information processing systems – Open Systems Interconnection – Basic Reference Model – Part 3: Naming and addressing.

ISO 8072:1986, Information processing systems — Open Systems Interconnection — Transport service definition.

ISO/IEC 8073:1992, Information technology – Telecommunications and information exchange between systems – Open Systems Interconnection – Protocol for providing the connection-mode transport service.

ISO/IEC 8348:1992, Information processing systems — Data communications — Network service definition.

ISO 8602:1986, Information processing systems – Open Systems Interconnection – Protocol for providing the connectionless-mode transport service.

ISO/IEC 10736:1992, Information technology – Telecommunications and information exchange between systems – Transport layer security protocol.

CCITT Recommendation X.25, Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for terminals operating in the packet mode and connected to public data networks by dedicated circuit.

CCITT Recommendation X.244, Procedure for the exchange of protocol identification during virtual call establishment on packet switched public data networks.

3 Definitions

The following terms are used by this International Standard and are defined by ISO 7498:

Open Systems Interconnection (OSI);

network connection;

transport entity.

4 Symbols and abbreviations

4.1 Transport protocol data unit

UN TPDU	Use of network connection TPDU

4.2 TPDU fields

LI	Length indicator (field)
SHARE	Sharing option (field)
PRT-ID	Protocol identifier (field)

5 Use of the network service

Transport protocol identification makes use of the network service defined in ISO 8348. It uses the NS-user data parameter of the N-CONNECT request and indication primitive only.

6 Protocol functions

6.1 Default identification

When using default identification, no NS-user data parameter shall be placed in the N-CONNECT request primitive. ISO/IEC 8073 is then identified and therefore the procedures described in ISO/IEC 8073 shall be used by entities at both ends of the network connection.

6.2 Explicit identification

When using explicit identification, an UN TPDU shall be placed in the NS-user data parameter of the N-CONNECT request primitive. This UN TPDU may be followed by other PDU, which is recognizable by the identified protocol, in the NS-user data parameter of the N-CONNECT request primitive.

a) the sending transport entity shall

1) set the PRT-ID field of the UN TPDU to the value assigned in 7.3 for OSI protocols to the protocol used;

2) set the SHARE field of the UN TPDU to the value 0000 0000 (no sharing);

3) not use the variable part of the UN TPDU;

NOTE – This International Standard does not include procedures for sharing a network connection between different protocols. The following strategies could be used in the future:

i) sequential reuse of a network connection by several protocols (i.e. consecutive sharing);

ii) concurrent use of a network connection by several protocols (i.e. concurrent sharing).

Inclusion of these strategies will use other values of the SHARE field and may make use of the variable part of the UN TPDU.

b) the receiving transport entity shall operate the protocol specified in the PRT-ID field of the UN TPDU if it is claimed that the identified protocol is supported. Otherwise, the network connection shall be refused.

7 Structure and encoding of the UN TPDU

The length of the UN TPDU shall not exceed 32 octets.

NOTE – This is a restriction imposed on future enhancements to this TPDU by constraints within the Network Layer. This restriction on the length of the parameter is due to the desire not to conflict with the protocol identifier field carried by X.25 CALL requests. This is a single octet located at the same position as the length indicator of the UN TPDU when the latter is carried in an X.25 CALL request. CCITT have already chosen value for this parameter and thus it is important not to use those values (see CCITT Recommendation X.244).

7.1 Structure

The structure of the UN TPDU shall be as follows:

1	2	3	4	5 to p
LI	UN 0000 0001	PRT-ID	SHARE	Variable part

7.2 Length indicator (LI) field

The field is contained in the first octet of the TPDUs. The length is indicated by a binary number, with a maximum value of 254 (1111 1110). The length indicated shall be the header length in octets including parameters, but excluding the length indicator field and user data, if any. The value 255 (1111 1111) is reserved for possible extensions.

If the length indicated exceeds or is equal to the size of the NS-user data which is present, this is a protocol error.

7.3 Fixed part

The fixed part shall be as follows:

a) UN: UN TPDU code: 0000 0001;

b) PRT-ID: protocol identifier;

Values:

0000 0000	Reserved
0000 0001	ISO/IEC 8073
0000 0010	ISO 8602
0000 0011	ISO/IEC 10736 in conjunction with ISO/IEC 8073
0000 0100	ISO/IEC 10736 in conjunction with ISO 8602
0000 0101 through 0111 1111	Reserved for other OSI protocols
1000 0000 through 1111 1111	Reserved for private use

c) SHARE: sharing strategy.

Values:

0000 0000	No sharing

7.4 Variable part

The variable part consists of one optional parameter. This parameter is only present when SHARE is different from 0000 0000.

1	2	3 to p
PRT-ID LIST 1101 1111	LENGTH 1 to 26	VALUES

TYPE = PRT-ID LIST (1101 1111),

Length = number of PRT-IDs,

Value = list of PRT-IDs, one per octet.

8 Conformance

A system claiming to conform to this International Standard shall comply with the requirements of 8.1 and 8.2.

8.1 When initiating a network connection a transport entity shall either

a) not use the NS-user data parameter of N-CONNECT request primitive and operate using the protocol of ISO/IEC 8073 on this network connection; or

b) include a UN TPDU in the NS-user data parameter of the N-CONNECT request primitive and operate using the transport protocol specified in the PRT-ID parameter of the UN TPDU.

8.2 When processing a N-CONNECT indication, a transport entity shall either

a) operate using the protocol of ISO/IEC 8073 if no user data is present; or

b) operate using the protocol specified in the PRT-ID field of the UN TPDU if the UN TPDU is present and it is claimed that the identified protocol is supported, or reject the network connection.

Annex A[1]
(normative)

Protocol Implementation Conformance Statement (PICS) Proforma

A.1 General

The main part of the PICS proforma is a fixed-format questionnaire divided into two clauses. Answers to the questionnaire are to be provided in the rightmost column by entering a value or a range of values.

A.2 Supported parameters of issued UN TPDU

Index	Supported parameters	References	Allowed values	Supported values
IU1	Protocol identifier	7.3 b)	ISO/IEC 8073; ISO 8602; ISO/IEC 10736 in conjunction with ISO/IEC 8073; ISO/IEC 10736 in conjunction with ISO 8602; Private: 1000 0000, ..., 1111 1111	
IU2	Sharing strategy	7.3 c)	No sharing	

A.3 Supported parameters for received UN TPDU

Index	Supported parameters	References	Allowed values	Supported values
RU1	Protocol identifier	7.3 b)	ISO/IEC 8073; ISO 8602; ISO/IEC 10736 in conjunction with ISO/IEC 8073; ISO/IEC 10736 in conjunction with ISO 8602; Private: 1000 0000, ..., 1111 1111	
RU2	Sharing strategy	7.3 c)	No sharing	

[1] **Copyright release for PICS proforma**

Users of this International Standard may freely reproduce the PICS proforma in this annex so that it can be used for its intended purpose and may further published the completed PICS.