
British Standard for

Open Systems Interconnection: connectionless-mode transport protocol specification

Interconnexion de systèmes ouverts: spécification du protocole pour fournir un service de transport en mode sans connexion

Kommunikation Offener Systeme: Protokoll zur Erbringung des verbindungslosen Transportdienstes

Contents

	Page		Page
National foreword	Inside front cover	Annexes	
Committees responsible	Back cover	A State table	11
		B Checksum algorithms	13
Specification		Tables	
0 Introduction	1	1 Transport service primitives	4
1 Scope and field of application	1	2 Connection oriented network service primitives	5
2 References	2	3 Connection less-mode network service primitives	5
Section one: General		4 Predicates	11
3 Definitions	3	5 Actions	11
4 Symbols and abbreviations	3	6 Notes	11
5 Overview of the transport protocol	4	7 State table	12
Section two: Connectionless-mode transport protocol specification		Figures	
6 Protocol mechanisms	7	1 Relationship between the connectionless-mode transport protocol and adjacent services	1
7 Encoding of the unit data (UD) TPDU	9	2 Model of the Transport Layer	6
8 Conformance	10		

National foreword

This British Standard has been prepared under the direction of the Information Systems Technology Standards Policy Committee. It is identical with ISO 8602 : 1987, 'Information processing systems — Open Systems Interconnection — Protocol for providing the connectionless-mode transport service', published by the International Organization for Standardization (ISO). It supersedes DD 137 which is withdrawn.

The UK has actively participated through BSI Technical Committee IST/6 in the development of the international standard.

Up-to-date information on existing and projected British Standards publications for Open Systems Interconnection is included in the 'Basic List', published as part of the BSI Information Technology Service (BITS) initiative. For details contact: Marketing Department, BSI, Linford Wood, Milton Keynes, MK14 6LE.

Cross-references

International standard	Corresponding British Standard
ISO 7498 : 1984 Incorporating Add.1 : 1987	BS 6568 Reference model of Open Systems Interconnection Part 1 : 1988 Basic reference model (incorporating connectionless-mode transmission) (Identical)
ISO 8072 : 1986 Incorporating Add.1 : 1986	BS 7218 : 1990 Open Systems Interconnection : Transport service definition (incorporating connectionless-mode transmission) (Identical)
ISO 8073 : 1988 Incorporating Add.1 : 1988	BS 7223 : 1990 Open Systems Interconnection : Connection oriented transport protocol specification (including network connection management subprotocol) (Identical)
ISO 8348 : 1987 Incorporating Add.1 : 1987	BS 7220 : 1990 Open Systems Interconnection : Network Service Definition (incorporating connectionless-mode transmission) (Identical)

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Information processing systems — Open Systems Interconnection — Protocol for providing the connectionless-mode transport service

0 Introduction

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

This International Standard is positioned with respect to other related International Standards by the layers defined in the Reference Model for Open Systems Interconnection (ISO 7498). In particular, it is a protocol of the Transport Layer. It is most closely related to the transport service definition (ISO 8072) and the addendum to the transport service definition covering connectionless-mode transmission (ISO 8072/Add. 1), the network service definition (ISO 8348), and the addendum to the network service definition covering connectionless-mode transmission (ISO 8348/Add. 1). The interrelationship of these International Standards is illustrated in figure 1.

The structure of this International Standard is similar to the structure of ISO 8073 in order to facilitate cross reference between the two standards.

1 Scope and field of application

This International Standard specifies

- a) procedures for the connectionless-mode transmission of data and protocol control information from one transport entity to one peer transport entity;
- b) the encoding of the transport-protocol-data-units used for the transmission of data and control information;
- c) procedures for the correct interpretation of transport protocol control information; and
- d) the functional requirements for implementations claiming conformance to this International Standard.

The procedures are defined in terms of

- a) the interactions among peer transport entities through the exchange of transport-protocol-data-units;
- b) the interactions between a transport entity and a transport service user through the exchange of transport service primitives; and

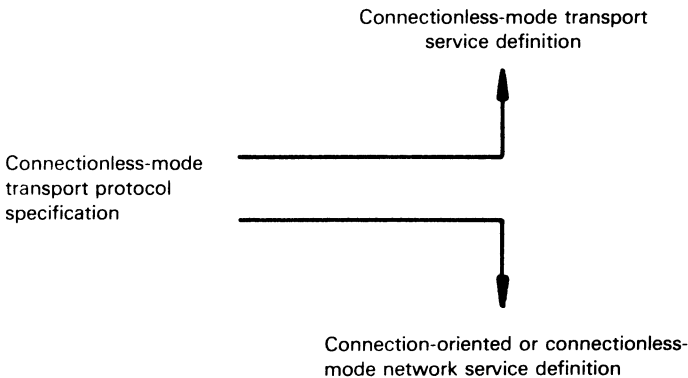


Figure 1 — Relationship between the connectionless-mode transport protocol and adjacent services

- c) the interaction between a transport entity and a network service provider through the exchange of network service primitives.

This International Standard specifies the connectionless-mode transport protocol. The connection oriented transport protocol is specified in ISO 8073.

2 References

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

ISO 7498/Add. 1, *Information processing systems — Open Systems Interconnection — Basic Reference Model — Addendum 1 : Connectionless-mode transmission*.

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

ISO 8072/Add. 1, *Information processing systems — Open Systems Interconnection — Transport service definition — Addendum 1 : Connectionless-mode transmission*.

ISO 8073, *Information processing systems — Open Systems Interconnection — Connection oriented transport protocol specification*.

ISO 8073/Add. 1, *Information processing systems — Open Systems Interconnection — Connection oriented transport protocol specification — Addendum 1 : Network connection management subprotocol*.¹⁾

ISO 8348, *Information processing systems — Data communications - Network service definition*.

ISO 8348/Add. 1, *Information processing systems — Data Communications — Network service definition — Addendum 1 : Connectionless-mode transmission*.

1) At present at the stage of draft; publication anticipated in due course.

Section one : General

3 Definitions

3.1 Reference Model definitions

This International Standard is based on the concepts developed in ISO 7498 and ISO 7498/Add. 1, and makes use of the following terms defined therein :

- a) Transport Layer;
- b) transport service;
- c) transport-service-access-point;
- d) transport-service-access-point-address;
- e) transport-service-data-unit;
- f) Network Layer;
- g) network service;
- h) network connection;
- i) network-service-access-point;
- j) transport protocol;
- k) connectionless-mode transmission.

3.2 Definition from ISO 8073/Add. 1

This International Standard also uses the term below which is defined in ISO 8073/Add. 1. This reference to ISO 8073/Add. 1 does not necessarily imply that the procedures of ISO 8073/Add. 1 are required for the proper operation of the protocol specified in this International Standard.

UN TPDU

3.3 Additional definitions

For the purposes of this International Standard, the following definitions apply.

3.3.1 source-transport-address : Identifies the TSAP through which the transport service user may act as the source of data during a particular instance of transport connectionless-mode transmission.

3.3.2 destination-transport-address : Identifies the TSAP through which the transport service user may act as the sink of data during a particular instance of transport connectionless-mode transmission.

3.3.3 connection oriented transport protocol : See 3.1, "transport protocol".

3.3.4 connection oriented transport service : See 3.1, "transport service".

3.3.5 connection oriented network service : See 3.1, "network service".

3.3.6 connectionless-mode transport protocol : Transport protocol for providing the connectionless-mode transport service.

3.3.7 connectionless-mode transport service : Transport service providing connectionless-mode transmission.

3.3.8 connectionless-mode network service : Network service providing connectionless-mode transmission.

4 Symbols and abbreviations

4.1 Data units

TPDU Transport-protocol-data-unit
TSDU Transport-service-data-unit
NSDU Network-service-data-unit

4.2 Types of transport-protocol-data-units

UD TPDU Unit data TPDU
UN TPDU Use of network connection TPDU

4.3 TPDU fields

LI Length indicator

4.4 Parameters

Source TSAP-ID
Destination TSAP-ID
Checksum

4.5 Miscellaneous

TS-user Transport service user
TSAP Transport-service-access-point
NSAP Network-service-access-point

5 Overview of the transport protocol

5.1 Service provided by the Transport Layer

The service provided by the protocol described herein is a connectionless-mode transport service. The connectionless-mode transport service is described in ISO 8072/Add. 1. The transport service primitives provided are summarized in table 1.

Table 1 — Transport service primitives

Primitives	Parameters
T-UNITDATA request	Source address Destination address Quality of service TS-user-data
T-UNITDATA indication	Source address Destination address Quality of service TS-user-data

5.2 Service assumed from the Network Layer

The transport protocol described in this International Standard can operate over the connection oriented network service defined in ISO 8348 and over the connectionless-mode network service defined in ISO 8348/Add. 1.

When operating over the connection oriented network service, the network service primitives given in table 2 are used.

When operating over the connectionless-mode network service, the network service primitives given in table 3 are used.

5.3 Functions of the Transport Layer

5.3.1 Connectionless-mode transfer functions

The purpose of connectionless-mode transfer is to allow the transfer of data between correspondent TS-users on a connectionless basis. This service provides for single-access data transfer for correspondent TS-users without the overhead of transport connection establishment. This purpose is achieved by using functions specific to the connectionless-mode transport protocol. The connectionless-mode transfer functions are primarily intended to benefit those applications that require a one-time, one-way transfer of data, towards one TS-user, taking advantage of mechanisms more simple than the connection oriented ones.

5.3.2 Overview of functions

The functions in the Transport Layer are at least those necessary to bridge the gap between the service available from the Network Layer and the service to be offered to the transport service users.

The functions in the Transport Layer are concerned with the enhancement of the quality of service, including all aspects of cost optimization.

5.3.2.1 Transmission of TPDU's

5.3.2.2 Network service selection

This function selects the network service that best matches the requirements of the TS-user, taking into account charges for various services.

5.3.2.3 Address mapping

This function determines the network address that will be used as the destination address parameter in an N-UNITDATA request or as the called address parameter in an N-CONNECT request by examining the transport address specified by the destination address parameter of a T-UNITDATA request.

5.3.2.4 TSDU delimiting

This function determines the beginning and end of a TSDU.

5.3.2.5 Error detection

This function provides end-to-end error detection for correspondent TS-users utilizing the connectionless-mode transport service. The error detection mechanism is defined in 6.4.

5.4 Model of the Transport Layer

A transport entity communicates with a TS-user through one or more TSAPs by means of transport service primitives, defined in ISO 8072 and in ISO 8072/Add. 1. These transport service primitives cause or result from the exchange of TPDU's between peer transport entities engaged in connectionless-mode transmission. These protocol exchanges are effected by making use of the services of the Network Layer, as defined in ISO 8348 and ISO 8348/Add. 1.

The model of connectionless-mode transport service is presented in 9.2 of ISO 8072/Add. 1.