

Information technology — Open Systems Interconnection — Network Fast Byte Protocol

ICS 35.100.30

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW



Document Sharing Hub

National foreword

This British Standard reproduces verbatim ISO/IEC 14700:1997 and implements it as the UK national standard.

The UK participation in its preparation was entrusted to Technical Committee IST/6, Data communications, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related in international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

From 1 January 1997, all IEC publications have the number 60000 added to the old number. For instance, IEC 27-1 has been renumbered as IEC 60027-1. For a period of time during the change over from one numbering system to the other, publications may contain identifiers from both systems.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the ISO/IEC title page, pages ii to iv, pages 1 to 23 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Amendments issued since publication

Amd. No.	Date	Comments

This British Standard, having been prepared under the direction of the DISC Board, was published under the authority of the Standards Board and comes into effect on 15 December 1997

© BSI 06-1999

ISBN 0 580 28855 2

Contents

	Page
National foreword	Inside front cover
Foreword	iv
Text of ISO/IEC 14700	1

INTERNATIONAL
STANDARD

ISO/IEC
14700

First edition
1997-06-15

**Information technology — Open Systems
Interconnection — Network Fast Byte
Protocol**

*Technologies de l'information — Interconnexion de systèmes
ouverts (OSI) — Protocole de byte rapide de réseau*



Contents

	Page
Foreword	iv
Introduction	1
1 Scope	2
2 Normative references	2
2.1 Identical Recommendations International Standards	2
2.2 Paired Recommendations International Standards equivalent in technical contents	3
3 Definitions	3
3.1 This Recommendation International Standard is based on the concepts developed in ITU-T Rec. X.200 ISO/IEC 7498-1 and makes use of the following terms defined in it:	3
3.2 For the purposes of this Recommendation International Standard, the following definitions apply:	3
3.3 This Recommendation International Standard uses the following terms defined in ITU-T Rec. X.290 and ISO/IEC 9646-1:	4
3.4 This Recommendation International Standard uses the following terms defined in ITU-T Rec. X.210 ISO/IEC 10731:	4
4 Symbols and abbreviations	4
4.1 Data units	4
4.2 NPDU types	4
4.3 NPDU fields	4
4.4 Miscellaneous	5
5 Overview of the Network Fast Byte Protocol	5
5.1 Service provided by the Network Layer	5
5.2 Service assumed from the Data Link Layer	5
5.3 Functions of the Network Layer	5
5.4 Operation over CODLS	7
5.5 Model of the Network Layer	8
6 Network Fast Byte Protocol specification	8
6.1 Network Protocol Data Unit (NPDU) transfer	9
6.2 Connection establishment	9
6.3 Connection refusal	10
6.4 Normal release	11
6.5 Error Indication	11
6.6 Abnormal release	12
6.7 Data transfer	12
6.8 Segmenting and reassembling	12
6.9 Qualifier-bit	13
6.10 Invalid NPDU	13
6.11 NS-user initiated reset	13
7 FB-NPDU Structure and encoding	14
7.1 Header part	14
7.2 Control part	15
7.3 Data part	17
8 Conformance	17
Annex A Protocol Implementation Conformance Statement (PICS) proforma	18
A.1 General	18
A.2 Identification	18
A.3 Indices used in this annex	19
A.4 Initiator/responder capability to establish connection	19

	Page
A.5 Supported functions	19
A.6 Supported NPDUs	19
A.7 Supported FB NPDU fields and parameters	20
A.8 Negotiation and selection	20
A.9 Error handling	21
Annex B Subnetwork Dependent Convergence Function for subnetworks employing out-of-band signalling	21
B.1 Applicable subnetworks	21
B.2 Fast Byte Protocol specification	21
Figure Intro. 1 — Relationship between the Network Fast Byte Protocol and adjacent services	1
Figure 1 — Model of the network layer	1
Table 1 — Network Service primitives	6
Table 2 — Connection-Oriented Data link service primitives	7

Descriptors: Data processing, information interchange, telecommunications, network
interconnection, open systems interconnection, network layer, protocols.



Documents

Document Sharing Hub

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.

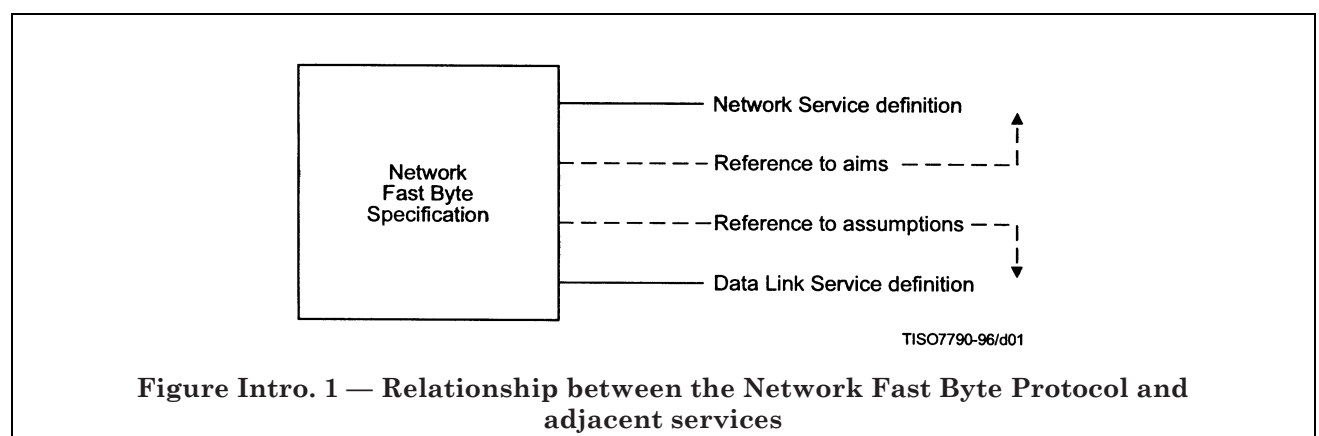
International Standard ISO/IEC 14700 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*, in collaboration with ITU-T. The identical text is published as ITU-T Recommendation X.633.

Annex A forms an integral part of this International Standard. Annex B is for information only.

Introduction

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

The Network Fast Byte Protocol Recommendation | International Standard is positioned with respect to other related Recommendations | International Standards by the layers defined in the Reference Model for Open Systems Interconnection (see ITU-T Rec. X.200 | ISO/IEC 7498-1). It is most closely related to, and lies within the field of application of the Network Service definition (ITU-T Rec. X.213 | ISO/IEC 8348). It also uses and makes reference to the Data Link Service definition (see ITU-T Rec. X.212 | ISO/IEC 8886), whose provisions it assumes in order to accomplish Network Fast Byte's aims. The interrelationship of these Recommendations | International Standards is illustrated in Figure Intro. 1.



This Recommendation | International Standard specifies a common encoding and protocol procedures. It is intended that the Network Fast Byte should be simple and cater for a specific range of Data Link Service qualities possible. This Recommendation | International Standard does not define mechanisms that can be used to optimize or enhance the quality of the Data Link Service.

The primary aim of this Recommendation | International Standard is to provide a set of rules for communication expressed in terms of the procedures to be carried out by peer entities at the time of communication. These rules for communication are intended to provide a sound basis for development in order to serve a variety of purposes:

- a) as a guide for implementors and designers;
- b) for use in the testing and procurement of equipment;
- c) as part of an agreement for the admittance of systems into the open systems environment;
- d) as a refinement of the understanding of OSI.

As it is expected that the initial users of this Recommendation | International Standard will be designers and implementors of equipment, this contains, in notes or in annexes, guidance on the implementation of the procedures defined herein.

This Recommendation | International Standard contains a clause on conformance of equipment claiming to implement the procedures in this Recommendation | International Standard (see clause 8). To evaluate conformance of a particular implementation, it is necessary to have a statement of which capabilities and options have been implemented for a given OSI protocol. Such a statement is called a Protocol Implementation Conformance Statement (PICS). A PICS proforma is provided in Annex A. Attention is drawn to the fact that this Recommendation | International Standard does not contain any tests to demonstrate this conformance.

It should be noted that it may not be possible with current technology to verify that an implementation will operate the protocol defined in this Recommendation | International Standard correctly under all circumstances. It is possible by means of testing to establish confidence that an implementation correctly operates the protocol in a representative sample of circumstances. It is, however, intended that this Recommendation | International Standard can be used in circumstances where two implementations fail to communicate in order to determine whether one or both have failed to operate the protocol correctly.

1 Scope

This Recommendation | International Standard specifies:

- a) procedures when operating over the connection-mode data link service for the connection-mode transfer of data and control information from one network entity to a peer network entity;
- b) the structure and encoding of the NPDUs used for the transfer of data and control information.

The procedures are defined in terms of:

- a) the interactions between peer network entities through the exchange of NPDUs;
- b) the interactions between a network entity and the network service user in the same system through the exchange of network service primitives;
- c) the interactions between a network entity and the data link service provider through the exchange of data link service primitives.

These procedures are applicable to instances of communication between systems which support the Network Layer of the OSI Reference Model and wish to interconnect in the open systems environment using the Network Fast Byte Protocol.

This Recommendation | International Standard specifies, in clause 8, conformance requirements for systems implementing these procedures and provides the PICS proforma in compliance with the relevant requirements, and in accordance with the relevant guidance, given in ITU-T Rec. X.296 and ISO/IEC 9646-7. It does not contain tests which can be used to demonstrate this conformance.

2 Normative references

The following Recommendations and International Standards contain provisions which, through reference in this text, constitute provisions of this Recommendation | International Standard. At the time of publication, the editions indicated were valid. All Recommendations and International Standards are subject to revision and parties to agreements based on this Recommendation | International Standard are encouraged to investigate the possibility of applying the most recent edition of the Recommendations and International Standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards. The Telecommunication Standardization Bureau of the ITU maintains a list of currently valid ITU-T Recommendations.

2.1 Identical Recommendations | International Standards

- ITU-T Recommendation X.200 (1994) | ISO/IEC 7498-1:1994, *Information technology — Open Systems Interconnection — Basic Reference Model: The Basic Model*.
- ITU-T Recommendation X.210 (1993) | ISO/IEC 10731:1994, *Information technology — Open Systems Interconnection — Basic Reference Model: Conventions for the definition of OSI services*.
- ITU-T Recommendation X.212 (1995) | ISO/IEC 8886:1996, *Information technology — Open Systems Interconnection — Data link service definition*.
- ITU-T Recommendation X.213 (1995) | ISO/IEC 8348:1996, *Information technology — Open Systems Interconnection — Network Service Definition*.
- ITU-T Recommendation X.233 (1993) | ISO/IEC 8473-1:1994, *Information technology — Protocol for providing the connectionless-mode network service: Protocol specification*.
- ITU-T Recommendation X.263 (1995) | ISO/IEC TR 9577..., *Information technology — Protocol identification in the Network layer*¹⁾.

¹⁾ To be published.