

INTERNATIONAL STANDARD

ISO/IEC
8885

Third edition
1993-12-15

Information technology — Telecommunications and information exchange between systems — High-level data link control (HDLC) procedures — General purpose XID frame information field content and format

*Technologies de l'information — Télécommunications et échange
d'informations entre systèmes — Procédures de commande de liaison de
données à haut niveau (HDLC) — Format et contenu du champ
d'information de la trame XID pour application générale*



Reference number
ISO/IEC 8885:1993(5)

AVA Documents
Document Sharing Hub

Contents	Page
Foreword	iii
Introduction	iv
1 Scope	1
2 Normative references	2
3 Definitions	2
4 XID frame information field structure	3
5 XID frame information field encoding	5
6 Definition and encoding of data link layer subfield parameter fields	7
7 Single-frame exchange negotiation process	12
8 Frame check sequence negotiation rules	13
Annex	
A Illustrative examples of FCS negotiation	15

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 8885 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*.

This third edition cancels and replaces the second edition (ISO/IEC 8885:1991), and incorporates ISO/IEC 8885 amendments 3, 4 and 5.

Annex A of this International Standard is for information only.

Introduction

High-level data link control (HDLC) procedures define the exchange identification (XID) command/response frame as an optional function for exchange of data link information. This International Standard defines the content and format for the general purpose XID frame information field.

Information technology — Telecommunications and information exchange between systems — High-level data link control (HDLC) procedures — General purpose XID frame information field content and format

1 Scope

The principal use of the XID frame is to exchange data link information between two or more HDLC stations. For the purpose of this International Standard, data link information shall include any and all essential operational characteristics such as identification, authentication and/or selection of optional functions and facilities concerning each station. This International Standard defines a single-exchange negotiation procedure for establishing operational characteristics when either one or more stations are capable of providing multiple selections.

This International Standard provides a means for interchanging the necessary information to establish, at a minimum, a data link connection between two correspondents wishing to communicate. It describes the general purpose XID frame information field content and format.

This International Standard defines encoding for information related to the basic HDLC standards only. Mechanisms are provided to permit the general-purpose XID frame information field to be used to negotiate private parameters in a single XID exchange simultaneously with negotiation of the defined basic parameters.

This International Standard does not limit or restrict the use of the XID frame information field from defining other standard formats for use in specific applications.

The following are examples of potential uses of the XID command/response frame interchange:

- a) Identification of the calling and called stations when using circuit switched networks (including switched network backup applications).
- b) Identification of stations operating on non-switched networks requiring identification at start-up.
- c) The XID command frame with an individual, group or all-station address may be used to solicit XID response frame(s) from other station(s) on the data link, prior to or following data link establishment.
- d) Negotiation of the Frame Check Sequence (FCS) to be used for subsequent information interchange, by stations that support both 16-bit FCS and 32-bit FCS capabilities.
- e) Convey higher layer information that may be required prior to data link establishment.
- f) Transmission of an XID response frame at any respond opportunity to request an XID exchange to modify some of the operational parameters (for example, window size) following data link establishment.

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 indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2382-9 : 1984, *Data processing — Vocabulary — Part 09 : Data communication*.

ISO/IEC 3309 : 1993, *Information technology — Telecommunications and information exchange between systems — High-level data link control (HDLC) procedures — Frame structure*.

ISO/IEC 4335 : 1993, *Information technology — Telecommunications and information exchange between systems — High-level data link control (HDLC) procedures — Elements of procedures*.

ISO 7478 : 1987, *Information processing systems — Data communication — Multilink procedures*.

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

ISO 8471 : 1987, *Information processing systems — Data communication — High-level data link control balanced classes of procedures — Data link layer address resolution/negotiation in switched environments*.

3 Definitions

For the purpose of this International Standard the definitions given in ISO 7498 : 1984, ISO/IEC 4335 : 1993 and ISO 7478 : 1987 as well as the following definitions apply:

3.1 address resolution/negotiation : Procedure for exchanging/determining the data link layer identity of each data link layer entity.

3.2 basic HDLC standards : ISO/IEC 3309, ISO/IEC 4335, ISO 7478, ISO/IEC 7809, and ISO 8471, defining respectively the frame structure, elements of procedures, multilink procedures, and classes of procedures of HDLC, and the address resolution procedures for switched connections.

3.3 data link connection : See ISO 7498 : 1984.

3.4 format identifier : See ISO/IEC 4335 : 1993.

3.5 group identifier : Classifier of data link layer characteristics or parameters by function (for example, address resolution, parameter negotiation, user data).

3.6 HDLC-based protocol : A protocol which is a subset of the elements and classes of procedure and optional functions defined in the basic HDLC standards, and adopted as a standard by ISO or a recognized international standards body (e.g., CCITT).

3.7 layer parameter : The specification of data link layer characteristics and parameters, and their values, available or chosen.

3.8 private parameter : An implementation-specific data link layer parameter not defined in the basic HDLC standards.

3.9 single-exchange negotiation procedure : The initiating station indicates its "menu" of capabilities in its command frame, and the responding station indicates its choices from the menu in its response frame.

3.10 unique identifier : A unique bit/character sequence (for example, global telephone number, station identification, or equivalent) associated with each station.

3.11 user data : The information obtained from or delivered to the user of the data link layer.

4 XID frame information field structure

The general purpose XID frame information field general structure is shown in figure 1.

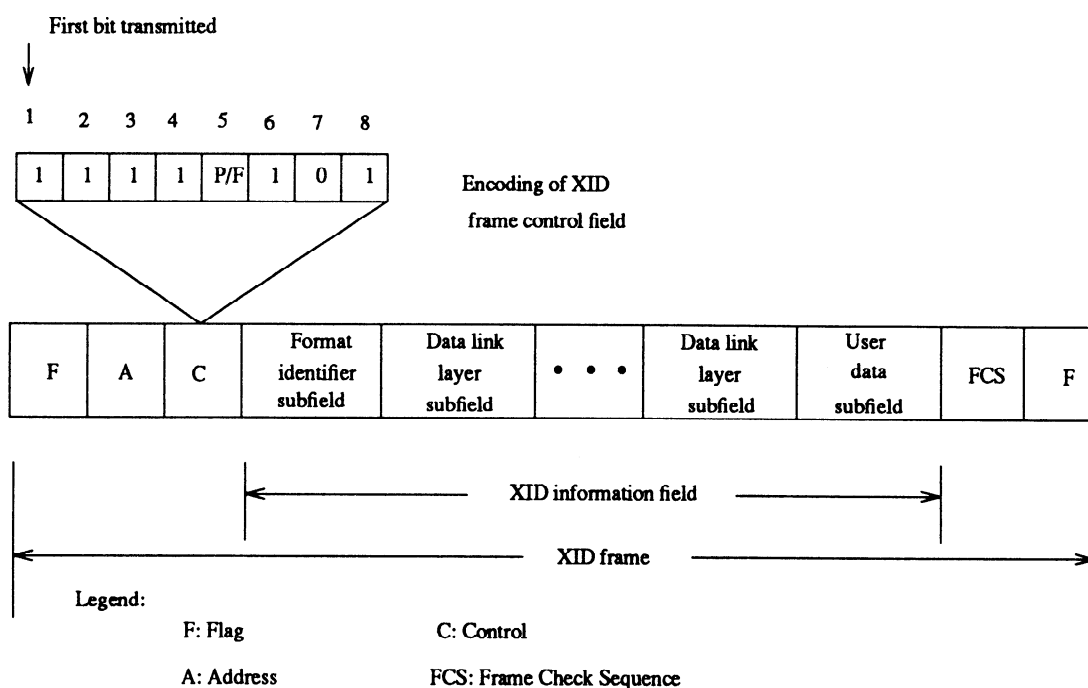


Figure 1 - General structure of the XID frame

The XID frame information field is composed of a number of subfields. These subfields are a Format Identifier (FI) subfield, several data link layer subfields, and a user data subfield. The amount of information (length) that can be accommodated in the XID information field is limited only by the maximum length restrictions on the HDLC frame information field.

4.1 Format identifier subfield

The format identifier (FI) subfield is defined in ISO/IEC 4335 : 1993. The list of standard format identifiers that are registered is given in ISO/IEC TR 10178.

The FI subfield is a fixed length of one octet. It is encoded to have a capability of designating 128 different standardized formats and 128 different user-defined formats.

This International Standard is concerned only with the general purpose format identifier, which defines the XID frame information field content and format used by two correspondents wishing to communicate in an HDLC environment.

4.2 Data link layer subfields

The general structure of a data link layer subfield is illustrated in figure 2.