INTERNATIONAL STANDARDIZED PROFILE

ISO/IEC ISP 10612-2

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Information technology — International Standardized Profile RD — Relaying the MAC service using transparent bridging —

Part 2:
CSMA/CD LAN subnetwork-dependent, media-dependent requirements

Technologies de l'information — Profil normalisé international RD — Transmission du service MAC utilisant un pontage transparent —

Partie 2: Prescriptions dépendantes du sous-réseau du RLE AMDP-DC, dépendantes des supports

Reference number
ISO/IEC ISP 10612-2:1995(E)

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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. In addition to developing International Standards, ISO/IEC JTC 1 has created a Special Group on Functional Standardization for the processing of International Standardized Profiles.

An International Standardized Profile is an internationally agreed, harmonized document which identifies a standard or group of standards, together with options and parameters, necessary to accomplish a function or a set of functions.

Draft International Standardized Profiles are circulated to national bodies for voting. Publication as an International Standardized Profile requires approval by at least 75 % of the national bodies casting a vote.

International Standardized Profile ISO/IEC ISP 10612-2 was prepared with the collaboration of

- Asia-Oceania Workshop (AOW);
- European Workshop for Open Systems (EWOS);
- Open Systems Environment Implementors' Workshop (OIW).

ISO/IEC ISP 10612 consists of several parts, under the general title *Information technology - International Standardized Profile RD - Relaying the MAC service using transparent bridging:*

- *Part 1: Subnetwork-independent requirements*
- *Part 2: CSMA/CD LAN subnetwork-dependent, media-dependent requirements*
- *Part 3: Token Ring LAN subnetwork-dependent, media-dependent requirements*
- *Part 4: Profile RD51.51 (CSMA/CD LAN - CSMA/CD LAN)*

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- *Part 5: Profile RD51.54 (CSMA/CD LAN - FDDI LAN)*
- *Part 6: Profile RD54.54 (FDDI LAN - FDDI LAN)*
- *Part 7: Profile RD51.53 (CSMA/CD LAN - Token Ring LAN)*
- *Part 8: Profile RD53.53 (Token Ring LAN - Token Ring LAN)*
- *Part 9: Profile RD53.54 (Token Ring LAN - FDDI LAN)*

Annexes A and B form an integral part of this part of ISO/IEC ISP 10612.

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Introduction

ISO/IEC ISP 10612 is defined in accordance with the principles specified by ISO/IEC TR 10000. The context of Functional Standardization is one area in the overall field of Information Technology (IT) standardization activities, covering base standards, profiles, and registration mechanisms. A profile defines a combination of base standards that collectively perform a specific well-defined IT function. Profiles standardize the use of options and other variations in the base standards, and provide a basis for the development of uniform, internationally recognized system tests.

ISPs are produced not simply to 'legitimize' a particular choice of base standards and options, but to promote real system interoperability. One of the most important roles for an ISP is to serve as the basis for the development (by organizations other than ISO and IEC) of internationally recognized test methods. The development and widespread acceptance of tests based on this and other ISPs is crucial to the successful realization of this goal.

ISO/IEC ISP 10612 consists of several parts, of which this is part 2. ISO/IEC ISP 10612-1 specifies the profile requirements which are independent of the subnetwork and media. There are further parts which specify subnetwork-dependent and media-dependent requirements. In addition, for each individual profile, there is a part of ISO/IEC ISP 10612 which identifies the specific requirements of that profile, making reference to appropriate material from part 1 and from the subnetwork-dependent parts.

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Information technology — International Standardized Profile RD — Relaying the MAC service using transparent bridging —

Part 2:
CSMA/CD LAN subnetwork-dependent, media-dependent requirements

1 Scope

ISO/IEC ISP 10612 is applicable to interworking units concerned with operating in the Open Systems Interconnection (OSI) Local Area Network environment. It specifies a combination of OSI standards that collectively provide a MAC relay function.

This part of ISO/IEC ISP 10612 specifies requirements dependent on the type of subnetwork and applicable to an interworking unit which is attached to an ISO/IEC 8802-3 CSMA/CD LAN subnetwork and relaying to another subnetwork not necessarily of the same type.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC ISP 10612. At the time of publication, the editions indicated were valid. All documents are subject to revision and parties to agreements based on this part of ISO/IEC ISP 10612 are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by ISPs to such documents is that they may be specific to a particular edition. Members of IEC and ISO maintain registers of currently valid International Standards and ISPs, and ITU-T maintains published editions of its current Recommendations.

ISO/IEC 8802-3:1993, *Information technology - Local and metropolitan area networks - Part 3: Carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications.*

ISO/IEC TR 10000-1:1992, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 1: Framework.*

ISO/IEC TR 10000-2:1992, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 2: Taxonomy of OSI Profiles.*

ISO/IEC 10038:1993, *Information technology - Telecommunications and information exchange between systems - Local area networks - Media access control (MAC) bridges.*

ISO/IEC ISP 10612-1:1995, *Information technology - International Standardized Profile RD - Relaying the MAC service using transparent bridging - Part 1: Subnetwork-independent requirements.*

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Additional normative references are found in each of the ISP parts listed above. These additional normative references are base standards used for development of the relevant ISP parts.

3 Definitions

The terms used in this part of ISO/IEC ISP 10612 are defined in the documents that are referenced in clause 2.

4 Abbreviations

The abbreviations used in this part of ISO/IEC ISP 10612 as defined in the documents that are referenced in clause 2.

5 Requirements

5.1 Static conformance requirements

5.1.1 Overall requirements

An implementation conforming to this part of ISO/IEC ISP 10612 shall meet the requirements for ISO/IEC 8802-3 in 5.1.2 below. It shall implement all the features identified as requirements for ISO/IEC 10038 and ISO/IEC 8802-3 in the ISPICS Requirements List in Annex A.

5.1.2 ISO/IEC 8802-3

5.1.2.1 General requirements

The implementation shall:

a) meet either the requirements for 10BASE5 specified in 5.1.2.2 below, or the requirements for 10BASE2 specified in 5.1.2.3 below, or both;

b) support the functions of the Media Access Control protocol defined in ISO/IEC 8802-3;

c) meet the Physical layer requirements defined in ISO/IEC 8802-3, clause 7: Physical Signalling (PLS) and Attachment Unit Interface (AUI) Specification;

d) if an AUI cable is supplied, meet the requirements specified in ISO/IEC 8802-3, clause 7;

e) if repeaters are supplied, meet the requirements specified in ISO/IEC 8802-3, clause 9.

5.1.2.2 Requirements for 10BASE5

The implementation shall:

a) if an MAU is supplied, meet the requirements specified in ISO/IEC 8802-3, subclauses 8.1, 8.2, 8.3, 8.5 and 8.7;

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b) if an MAU is not supplied, then an externally accessible AUI shall be supplied;

c) if components of the media are supplied, meet the requirements specified in ISO/IEC 8802-3, subclauses 8.4, 8.5, 8.6, and 8.7.

5.1.2.3 Requirements for 10BASE2

The implementation shall:

a) if an MAU is supplied, meet the requirements specified in ISO/IEC 8802-3, subclauses 10.1, 10.3, 10.4, 10.6 and 10.8;

b) if an MAU is not supplied, then an externally accessible AUI shall be supplied;

c) if components of the media are supplied, meet the requirements specified in ISO/IEC 8802-3, subclauses 10.5, 10.6, 10.7 and 10.8

5.2 Dynamic conformance requirements

An implementation conforming to this part of ISO/IEC ISP 10612 shall carry out the supported ISO/IEC 8802-3 functions in accordance with the procedures specified in ISO/IEC 8802-3. It shall behave in accordance with the requirements of the ISPICS Requirements List in Annex A.

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Annex A
(normative)

ISPICS Requirements List

A.1 Introduction

ISO/IEC TR 10000-1 identifies 3 items to be included in an ISPICS Requirements List (IPRL). These are

- general options of the profile;
- list of base standards selected by the profile;
- constraints on the allowable answers in the PICS proforma of each base standard.

The first two items relate to the profile as a whole and so are included only in those parts of ISO/IEC ISP 10612 which are specific to individual profiles. But each part of ISO/IEC ISP 10612 contains the identification of those PICS proforma constraints which are within its scope.

ISO/IEC TR 10000-1 indicates that an ISPICS proforma may consist either of a simple list of constraints or of amended copies of the base standard PICS proforma. In this part of ISO/IEC ISP 10612, the former method is used.

A.2 Notation and conventions

The notation and conventions used in this IPRL are the same as those defined for the IPRL in part 1 of ISO/IEC ISP 10612.

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A.3 IPRL for ISO/IEC 10038

IPRL item	Base item	Description	Base reference	Constraint
B1		Is configuration for selecting either the Outbound Access Priority or the user_priority for the access_priority parameter possible?	3.7.4	o
B2	2/2o	Is the access_priority set to the Outbound Access Priority?	3.7.4	**B1**:mo.1 ¬**B1**:o.1
B3	2/2p	Is the access_priority set to the user_priority?	3.7.4	**B1**:mo.1 ¬**B1**:o.1

Definition of selectable or mutually exclusive options:

o.1 mutually exclusive option: one and only one instance shall be selected

A.4 IPRL for ISO/IEC 8802-3

Since the base standard does not itself have a stable PICS proforma, interim base standard PICS proforma information is provided in clause B.2. This part of ISO/IEC ISP 10612 imposes the following constraints:

Functions and interfaces

Base item	Description	Constraint
B.2.4/10BASE5	10BASE5	o.1
B.2.4/10BASE2	10BASE2	o.1
B.2.4/MAUs	Is an MAU supplied	**AUIa**:o ¬**AUIa**:m
B.2.4/AUIa	Is an AUI externally accessible	**MAUs**:o ¬**MAUs**:m

Definition of selectable or mutually exclusive options:

o.1 selectable option - at least one shall be selected (at least one of the media options shall be selected)

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Annex B
(normative)

Assumed base standard PICS proforma

B.1 Introduction

This Annex contains the PICS proforma information assumed for those base standards which do not already have an internationally stable PICS proforma.

B.2 ISO/IEC 8802-3

B.2.1 Introduction

Where base standard PICS proformas are not adequate for profile definition purposes, ISO/IEC TR 10000-1 provides for the necessary material to be supplied within the profile definition either by supplying the specific questions needed in addition to whatever may already be available, or by supplying a complete PICS proforma. In the case of ISO/IEC 8802-3, the constraints imposed by ISO/IEC ISP 10612 relate only to a very small portion of the total standard, and therefore, in this clause, the approach of supplying only the relevant questions, rather than the whole proforma, has been adopted.

B.2.2 Notation and conventions

The status of PICS proforma items is indicated by the use of the symbol "O" which has the same significance as the corresponding lower case symbol defined in ISO/IEC ISP 10612-1, subclause A.2.2, but is used in upper case in line with common conventions for base standard PICS information in profile definitions. The symbol "<item>:<status>" is also used with the same meaning as in ISO/IEC ISP 10612-1, subclause A.2.2.

B.2.3 Instructions for completion

The PICS proforma consists of a number of tables of labelled items, with information on the requirements applicable to each item (e.g. whether support is mandatory, what ranges of values are permitted, etc., as appropriate). Where necessary to clarify the meaning of an item, references to the relevant clauses of the base standard are given. Note that some items listed may be applicable in more than one context (for example, the requirements for support of a PDU field may differ according to whether the PDU is transmitted or received). In this case, the requirements for each context are identified separately. The tables also contain columns in which the support for each item provided by the implementation is to be recorded. Again, where items cover more than one context, columns for recording support are provided for each context. These columns are to be completed as follows:

a) In each column headed "Support", an indication is to be given of whether the item is supported or not by marking the answer:

   Yes to mean it is supported
   No to mean it is not supported

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b) Additional information may be attached to the completed proforma to assist in interpretation of the PICS. This should take the form of a numbered list of items of information. Where there is such an item of additional information associated with a PICS proforma item, a reference to it should be included in the columns of the PICS proforma in which support of the item is recorded. This reference should be of the form "An", where "n" is the number of the item of additional information referenced.

c) If for some reason the requirements indicated in the PICS proforma are not met by the implementation (e.g. if a mandatory capability is not implemented), an explanation should be given. Such explanations should be in the form of a numbered list attached to the completed PICS proforma, and referenced from the relevant item in a manner similar to that described above for additional information, but using the notation "Xn" instead of "An".

d) For administrative purposes, a cover page is to be attached to the completed PICS proforma identifying the implementation and the system in which it resides, the supplier of the system, information on whom to contact if there are any queries concerning the content of the PICS, and the relationship of the PICS to the System Conformance Statement for the system.

B.2.4 Functions and interfaces

Item	Function	Status	Reference	Support
10BASE5	10BASE5	O	8	Yes □ No □
10BASE2	10BASE2	O	10	Yes □ No □
MAUs	Is an MAU supplied?	O	8, 10, 14	Yes □ No □
AUIa	Is an AUI externally accessible?	O	7	Yes □ No □

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Descriptors: data processing, information interchange, network interconnection, open systems interconnection, local area networks, data transmission, communication procedure, medium access control.

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