INTERNATIONAL STANDARDIZED PROFILE

ISO/IEC ISP 10612-3

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

Part 3:
Token Ring LAN subnetwork-dependent, media-dependent requirements

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

Partie 3: Prescriptions dépendantes du sous-réseau du RLE en anneau à jeton, dépendantes des supports

Reference number
ISO/IEC ISP 10612-3:1995(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 10612-3 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)*

Annex A forms an integral part of this part of ISO/IEC ISP 10612. Annex B is for information only.

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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 3. 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 3:
Token Ring 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 that are dependent on the type of subnetwork. It is applicable to an interworking unit which is attached to an ISO/IEC 8802-5 Token Ring LAN subnetwork and is relaying to another LAN 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 8802-5:1992, *Information technology - Local and metropolitan area networks - Part 5: Token ring 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 10000-2:1994, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 2: Principles and Taxonomy for OSI Profiles.*

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

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ISO/IEC ISP 10608-13:1994, *Information technology - International Standardized Profile TAnnnn - Connection-mode Transport Service over Connectionless-mode Network Service - Part 13: MAC sublayer and physical layer dependent requirements for a Token Ring LAN subnetwork.*

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

ISO/IEC TR 10735:1993, *Information technology - Telecommunications and information exchange between systems - Standard Group MAC Addresses.*

3 Definitions

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

4 Abbreviations

Abbreviations, including acronyms, are used in this part of ISO/IEC ISP 10612 as defined in the documents that are referenced in clause 2. In addition, the following abbreviations are used:

FA: Token Ring LAN Functional Address

GA: Group MAC Address

5 Requirements

5.1 General requirements

An implementation conforming to this part of ISO/IEC ISP 10612 shall meet all static and dynamic requirements for Token Ring LAN subnetworks which are specified in ISO/IEC ISP 10608-13.

The destination MAC address to be used for BPDUs shall be as defined in ISO/IEC 10038, table 3-5.

5.2 Requirements for MAC address mapping

In addition to the general requirements that are stated in 5.1 above, an implementation conforming to this part of ISO/IEC ISP 10612 shall contain a GA-FA address mapping function as illustrated architecturally by figure 1.

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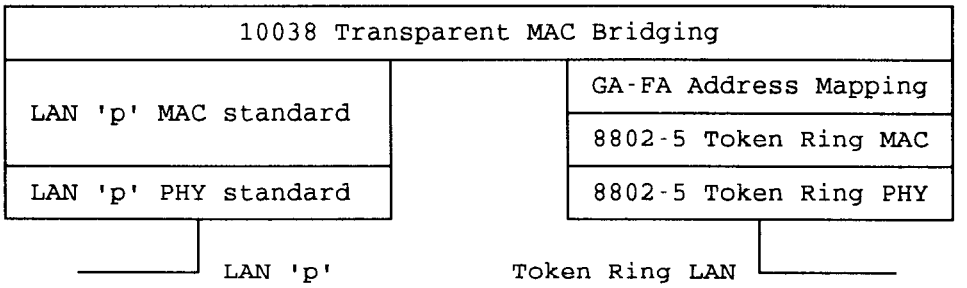

Note - LAN 'p' denotes an CSMA/CD, Token Bus, Token Ring, or FDDI LAN

Figure 1 - Model of multicast MAC address mapping in an RD5p.53 MAC bridge

The GA-FA address mapping function shall convert between Functional Addresses (FAs) used as multicast MAC destination addresses on Token Ring LANs and the corresponding Group MAC Addresses (GAs) defined in ISO/IEC TR 10735. The GA-FA address mapping shall be applied only for the MAC addresses shown in table 1 and only in conjunction with the LLC DSAP value shown in table 1. All other destination MAC addresses are passed unchanged. Also, the MAC addresses below shall be passed unchanged when they appear in conjunction with DSAP values other than those listed in the table.

Table 1 - GA-FA address mapping

Group MAC Address (GA)	Functional Address (FA)	DSAP	Use
09-00-2B-00-00-04	03-00-00-00-02-00	FE	ISO 9542 All ESs
09-00-2B-00-00-05	03-00-00-00-01-00	FE	ISO 9542 All ISs
01-80-C2-00-00-11	03-00-00-00-40-00	02	ISO/IEC 15802-4 Load Server
01-80-C2-00-00-12	03-00-00-00-20-00	02	ISO/IEC 15802-4 Loadable Device
01-80-C2-00-00-16	03-00-00-00-10-00	FE	ISO/IEC 10030 All CONS ES
01-80-C2-00-00-17	03-00-00-00-08-00	FE	ISO/IEC 10030 All CONS SNAREs
01-80-C2-00-00-18	03-00-00-00-04-00	02	ISO/IEC 15802-2 Manager Stations
01-80-C2-00-00-1A	03-00-00-40-00-00	02	ISO/IEC 15802-2 Agent Stations

When a frame is received by the MAC relay from a Token Ring LAN, and the destination MAC address and DSAP value is one of above FA-DSAP pairs, the GA-FA mapping function shall change the FA to the corresponding GA before the frame is passed to the bridge function. The DSAP value shall not be changed.

When a frame is passed from the bridge function to the Token Ring port, and the destination MAC address and DSAP value is one of above GA-DSAP pairs, the GA-FA mapping function shall change the GA to the corresponding FA before the frame is forwarded on the Token Ring LAN. The DSAP value shall not be changed.

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It shall be possible to disable the GA-FA address mapping function. This will allow migration of Token Ring LANs to use the same Group MAC Addresses as other types of LAN.

For those MAC addresses listed in table 1, all Token Ring stations that are attached to a particular ring shall use either GAs or FAs (but not both). It is the responsibility of the system administrator to ensure that mixing of Token Ring stations using different types of multicast addresses on a particular ring does not occur.

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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. 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 IPRL 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. Additional questions have also been included in this IPRL as permitted by ISO/IEC TR 10000-1.

A.2 Notation and conventions

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

A.3 IPRL for ISO/IEC 10038

The following additional constraints apply to the operation of ISO/IEC 10038 when used in conjunction with a Token Ring MAC bridge port:

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Profile item	Base item	Description	Base reference	Constraint
C1		Is configuration for selecting either the Outbound Access Priority or the user_priority for the access_priority possible?	3.7.4	o
C2	2/2o	Is the access_priority set to Outbound Access Priority?	3.7.4	**C1**:mo.1 ¬**C1**:o.2
C3	2/2p	Is the access_priority set to user_priority?	3.7.4	**C1**:mo.1 ¬**C1**:o.2

Definition of selectable or mutually exclusive options:

o.<*n*> mutually exclusive option: one and only one instance with the same numeral <*n*> shall be selected.

A.4 IPRL for ISO/IEC 8802-5

Item	Description	Clause reference	Constraint
MAP	Is the GA-FA address mapping function implemented?	5.2	m
DIS	Can the GA-FA address mapping function be disabled?	5.2	m

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Annex B
(informative)

Additional references

B.1 Introduction

Informative reference is made to the International and Standards listed below.

The Group MAC Addresses needed for operation of the protocols described in the standards listed below may need special consideration. The necessary address mapping function is described in subclause 5.2 of this part of ISO/IEC ISP 10612. However, the use of the actual protocols using these addresses is not constrained by this ISP.

B.2 Informative references

ISO 9542:1988, *Information processing systems - Telecommunications and information exchange between systems - End system to intermediate system routeing exchange protocol for use in conjunction with the protocol for providing the connectionless-mode network service (ISO 8473).*

ISO/IEC 10030:1995, *Information technology - Telecommunications and information exchange between systems - End System Routeing Information Exchange Protocol for use in conjunction with ISO/IEC 8878.*

ISO/IEC 15802-2:1995, *Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Common specifications - Part 2: LAN/MAN management.*

ISO/IEC 15802-4:1994, *Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Common specifications - Part 4: System load protocol.*

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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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