INTERNATIONAL STANDARDIZED PROFILE

ISO/IEC ISP 10609-15

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1996-07-01

Information technology — International Standardized Profiles TB, TC, TD and TE — Connection-mode Transport Service over connection-mode Network Service —

Part 15:

Definition of profile TC54, provision of the OSI connection-mode Transport Service using the OSI connection-mode Network Service in an End System attached to an FDDI LAN

Technologies de l'information — Profils normalisés internationaux TB, TC, TD et TE — Service de transport en mode connexion sur service de réseau en mode connexion —

Partie 15: Définition du profil TC54, fourniture du service de transport en mode connexion OSI utilisant le service de réseau en mode connexion OSI dans un système final attaché à un FDDI RLE

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Reference number
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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 elaboration 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 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 10609-15 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 10609 consists of the following parts, under the general title *Information technology — International Standardized Profiles TB, TC, TD and TE — Connection-mode Transport Service over connection-mode Network Service*:

— *Part 1: Subnetwork-type independent requirements for Group TB*

— *Part 2: Subnetwork-type independent requirements for Group TC*

— *Part 3: Subnetwork-type independent requirements for Group TD*

— *Part 4: Subnetwork-type independent requirements for Group TE*

— *Part 5: Definition of profiles TB1111/TB1121*

— *Part 6: Definition of profiles TC1111/TC1121*

— *Part 7: Definition of profiles TD1111/TD1121*

— *Part 8: Definition of profiles TE1111/TE1121*

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— *Part 9: Subnetwork-type dependent requirements for Network Layer, Data Link Layer and Physical Layer concerning permanent access to a packet switched data network using virtual calls*

— *Part 10: LAN subnetwork-dependent, media-independent requirements*

— *Part 11: CSMA/CD subnetwork-dependent, media-independent requirements*

— *Part 12: Definition of profile TC51, provision of the OSI connection-mode Transport Service using the OSI connection-mode Network Service in an End System attached to a CSMA/CD/LAN*

— *Part 14: Definition of profile TC53, provision of the OSI connection-mode Transport Service using the OSI connection-mode Network Service in an End System attached to a Token Ring LAN*

— *Part 15: Definition of profile TC54, provision of the OSI connection-mode Transport Service using the OSI connection-mode Network Service in an End System attached to a FDDI LAN*

— *Part 20: Overview of the generalized multi-part ISP structure for TC and TD Group profiles for OSI usage of ISDN*

— *Part 21: Subnetwork-type dependent requirements for Network Layer and Data Link Layer for ISDN B-channel X.25 DTE to DTE operation*

— *Part 22: Subnetwork-type dependent requirements for Network Layer and Data Link Layer for ISDN B-channel X.25 DTE to DCE operation*

— *Part 23: Subnetwork-type dependent requirements for Network Layer and Data Link Layer for Data Transfer concerning a packet switched mode Integrated Services Digital Network using virtual calls: B-channel access case*

— *Part 24: Subnetwork-type dependent requirements for Network Layer and Data Link Layer for Data Transfer concerning a packet switched mode Integrated Services Digital Network using virtual calls: D-channel access case*

— *Part 25: Subnetwork-type dependent requirements for Q.931 circuit-switched operation*

— *Part 26: Subnetwork-type dependent requirements for Network Layer for Call Control procedures concerning the outgoing call of a packet switched mode Integrated Services Digital Network in case B using virtual calls*

— *Part 27: Subnetwork-type dependent requirements for Network Layer for Call Control procedures concerning the incoming call of a packet switched mode Integrated Services Digital Network in case B using virtual calls*

— *Part 28: Subnetwork-type dependent requirements for Data Link Layer for end systems attached to an ISDN subnetwork*

— *Part 30: Definition of profile TC1131*

— *Part 31: Definition of profile TC1231*

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— *Part 32: Definition of profile TC4111*

— *Part 33: Definition of profile TC4211*

— *Part 34: Definition of profile TC43111*

— *Part 35: Definition of profile TC43112*

— *Part 36: Definition of profile TC43211*

— *Part 37: Definition of profile TC43212*

— *Part 38: Definition of profile TC4331*

— *Part 40: Definition of profile TD1131*

— *Part 41: Definition of profile TD1231*

— *Part 42: Definition of profile TD4111*

— *Part 43: Definition of profile TD4211*

— *Part 44: Definition of profile TD43111*

— *Part 45: Definition of profile TD43112*

— *Part 46: Definition of profile TD43211*

— *Part 47: Definition of profile TD43212*

— *Part 48: Definition of profile TD4331*

Annex A forms an integral part of this part of ISO/IEC ISP 10609. Annex B is for information only.

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Introduction

This International Standardized Profile (ISP) is defined in accordance with the principles specified by ISO/IEC Technical Report 10000, "Information technology - Framework and taxonomy of International Standardized Profiles".

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 base 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 10609 consists of several parts, of which this is part 15. Parts 1 to 4 of ISO/IEC ISP 10609 specify profile requirements that are subnetwork-independent, for each of the transport groups TB, TC, TD and TE, respectively. 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 10609 which identifies the specific requirements of that profile, making reference to appropriate material from the relevant subnetwork-independent and subnetwork-dependent parts. This part identifies the specific requirements for profile TC54.

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Information technology — International Standardized Profiles TB, TC, TD and TE — Connection-mode Transport Service over connection-mode Network Service —

Part 15:
Definition of profile TC54, provision of the OSI connection-mode Transport Service using the OSI connection-mode Network Service in an End System attached to an FDDI LAN

1 Scope

1.1 General

This International Standardized Profile is applicable to End Systems concerned with operating in the Open Systems Interconnection (OSI) environment. It specifies a combination of OSI standards, which collectively provide the connection-mode Transport Service using the connection-mode Network Service.

This part of ISO/IEC ISP 10609 defines the TC54 profile which is applicable to the provision of the OSI connection-mode Transport Service using the OSI connection-mode Network Service in an End System attached to an FDDI LAN subnetwork.

1.2 Position within the taxonomy

The taxonomy of profiles is defined in ISO/IEC TR 10000-2. This part of ISO/IEC ISP 10609 defines the profile:

TC54 Connection-mode Transport Service over connection-mode Network Service over FDDI LAN subnetworks

1.3 Scenario

Figure 1 illustrates the configurations of systems to which the TC54 profile is applicable.

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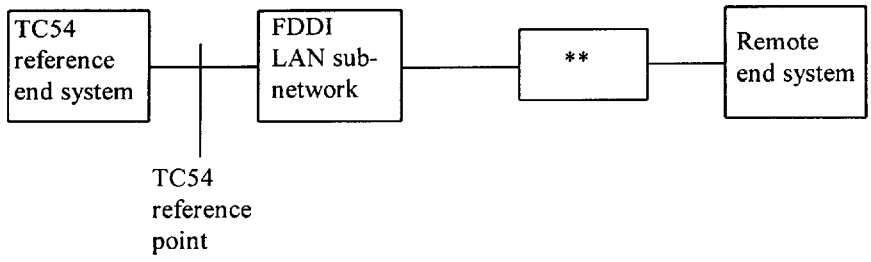

** other compatible network equipment
- none
- OSI relays
- other equipment

Figure 1 - Scenario of applicability of the TC54 profile

This part of ISO/IEC ISP 10609 specifies the required functions from the supporting protocol stack shown in figure 2 below.

<table>
<tr><td rowspan="2">Transport Layer</td><td colspan="3">ISO/IEC 8073</td></tr>
<tr><td colspan="3">ISO/IEC 8878</td></tr>
<tr><td rowspan="2">Network Layer</td><td>ISO/IEC 8208</td><td rowspan="2">ISO/IEC 8881</td><td></td></tr>
<tr><td rowspan="2">Data Link Layer</td><td>ISO/IEC 8802-2 type 2</td><td></td></tr>
<tr><td colspan="2">ISO 9314-2 FDDI MAC</td><td></td></tr>
<tr><td rowspan="2">Physical Layer</td><td colspan="2">ISO 9314-1 FDDI PHY</td><td rowspan="2">FDDI SMT</td></tr>
<tr><td colspan="2">ISO/IEC 9314-3 FDDI PMD</td></tr>
</table>

Figure 2 - Profile protocol stack for a TC54 End System

This part of ISO/IEC ISP 10609 does not specify the required functions for relays.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC ISP 10609. 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 10609 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.

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ISO/IEC 8881 : 1989, *Information processing systems - Data communications - Use of the X.25 packet level protocol in local area networks.*

ISO/IEC 8881 : 1989/Cor.1 : 1991, *Information processing systems - Data communications - Use of the X.25 packet level protocol in local area networks - Technical Corrigendum 1.*

NOTE - This Technical Corrigendum to ISO/IEC 8881 is to apply throughout in this part of ISO/IEC ISP 10609, wherever ISO/IEC 8881 itself is referenced.

ISO/IEC TR 10000-1 : 1995, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 1: General principles and documentation framework.*

ISO/IEC TR 10000-2 : 1995, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 2: Principles and Taxonomy for OSI profiles.*

ISO/IEC ISP 10608-14 : 1995, *Information technology - International Standardized Profile TAnnnn - Connection-mode Transport Service over Connectionless-mode Network Service - Part 14: MAC, PHY and PMD sublayer dependent and Station Management requirements over an FDDI LAN subnetwork.*

ISO/IEC ISP 10609-2 : 1992, *Information technology - International Standardized Profiles TB, TC, TD and TE - Connection-mode Transport Service over connection-mode Network Service - Part 2: Subnetwork-type independent requirements for Group TC.*

ISO/IEC ISP 10609-10 : 1994, *Information technology - International Standardized Profiles TB, TC, TD and TE - Connection-mode Transport Service over connection-mode Network Service - Part 10: LAN subnetwork-dependent, media-independent requirements.*

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 10609 are defined in the referenced base standards (see clause 2).

4 Abbreviations

ISPICS International Standardized Profile Implementation Conformance Statement

NOTE - This term was defined in ISO/IEC TR 10000-1:1992 which was the basis for profile parts that are referenced by this part of ISO/IEC ISP 10609.

Other abbreviations used in this part of ISO/IEC ISP 10609 are defined in the referenced base standards (see clause 2).

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5 Conformance

5.1 Static conformance requirements

An implementation conforming to the profile defined in this part of ISO/IEC ISP 10609 shall support at least one point of attachment to ISO/IEC 9314 FDDI LANs, through which it shall support all the features specified as static conformance requirements of ISO/IEC ISP 10609-2, ISO/IEC ISP 10609-10 and ISO/IEC ISP 10608-14, and shall implement all the features identified as requirements in the profile requirements list in annex A.

5.2 Dynamic conformance requirements

An implementation conforming to the profile defined in this part of ISO/IEC ISP 10609 shall carry out the supported functions according to the applicable dynamic conformance requirements of ISO/IEC ISP 10609-2, ISO/IEC ISP 10609-10, and ISO/IEC ISP 10608-14. It shall behave in accordance with the requirements of the profile requirements list in annex A.

The following requirement is additional to the requirements for the Network Layer specified in clause 5 of ISO/IEC ISP 10609-10:

An implementation shall restrict non-standard default packet sizes to a maximum of 1408 octets whenever system administration or station management indicates that an NPDU will flow, through a MAC sublayer bridge, over an ISO/IEC 8802-3 CSMA/CD LAN.

NOTE - 1408 octets is the largest packet size, according to ISO/IEC 8881, that can be accommodated by a CSMA/CD LAN.

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Annex A
(normative)

Profile Requirements List

A.1 General options of the profile

There are no general options in this profile.

A.2 Standards selected and combined in the profile

This profile makes use of the following base standards:

- ISO/IEC 8073
- ISO/IEC 8878
- ISO/IEC 8208
- ISO/IEC 8881
- ISO/IEC 8802-2
- ISO 9314-1
- ISO 9314-2
- ISO/IEC 9314-3

A.3 Constraints on base standards

A conformant implementation of this profile shall:

- meet all subnetwork-type independent constraints on operation of ISO/IEC 8073 as specified in the ISPICS requirements list in ISO/IEC ISP 10609-2, annex A;
- meet all subnetwork-type dependent, media independent constraints on the operation of ISO/IEC 8881, ISO/IEC 8878, ISO/IEC 8208, and ISO/IEC 8802-2, as specified in the ISPICS requirements list in ISO/IEC ISP 10609-10, annex A;
- meet all the requirements for operation of attachments to FDDI LAN subnetworks which are specified in the ISPICS requirements list in ISO/IEC ISP 10608-14, annex A.

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Annex B
(informative)

Recommendations

B.1 Additional references

The following references are in addition to the normative references given in clause 2 of this part of ISO/IEC ISP 10609.

ISO/IEC 8208 : 1995, *Information technology - Data communications - X.25 Packet Layer Protocol for Data Terminal Equipment.*

ISO/IEC 8802-2 : 1994, *Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Specific requirements - Part 2: Logical link control.*

ISO 9314-2 : 1989, *Information processing systems - Fibre Distributed Data Interface (FDDI) - Part 2: Token Ring Media Access Control (MAC).*

B.2 ISO/IEC 8208 recommendations

An implementation should support all non-standard default packet sizes (maximum user data field length) from 32 octets to 4096 octets.

B.3 ISO/IEC 8802-2 recommendations

The recommendations provided in ISO/IEC ISP 10609-10, annex C, are valid with the following addition:

- N1 values up to 4104 octets should be supported. This is compatible with a Network Layer packet size of 4096 octets.

B.4 ISO/IEC 9314 recommendations

The MAC sublayer information field lengths that are indicated in ISO/IEC ISP 10608-14 provide the potential to operate FDDI LAN End Systems at maximum throughput for specific, high speed applications. However, the actual information field lengths that can be used at the MAC sublayer for a particular instance of communication between two OSI End Systems will depend on a number of additional factors, such as:

- the maximum number of octets specified for an LLC I-PDU (N1);

- the use of various LANs, bridged by one or more MAC sublayer bridges, between the TC54 reference End System and the remote End System (the maximum Service Data Unit size that can be transported by the concatenation of subnetworks is the smaller of those supported by the subnetworks).

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If the TC54 reference End System is communicating, via a MAC sublayer bridge, over an ISO/IEC 8802-3 CSMA/CD LAN subnetwork then the maximum MAC frame size cannot exceed 1518 octets. Also, if the TC54 reference End System is communicating, via a MAC sublayer bridge, over a Token Ring LAN subnetwork which is operating at 4 Mbit/s, the maximum information field length will be 4428 octets.

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