

INTERNATIONAL  
STANDARDIZED  
PROFILE

**ISO/IEC**  
**ISP**  
**10609-20**

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1995-12-15

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**Information technology — International  
Standardized Profiles TB, TC, TD and  
TE — Connection-mode Transport Service  
over connection-mode Network Service —  
Part 20:**

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

*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 20: Introduction à la structure généralisée ISP multipartite pour les  
profils de groupes TC et TD*



Reference number  
ISO/IEC ISP 10609-20:1995(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 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 of ISO/IEC ISP 10609-20 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*

*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 LAN subnetwork-dependent, media-dependent 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 an 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*

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*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*

*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*

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Annexes A and B of this part of ISO/IEC ISP 10609 are 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 20. This part of ISO/IEC ISP 10609 provides information on the structure and relationship of the ISDN based profile parts to each other and to other parts of ISO/IEC ISP 10609. There are further parts which specify profile requirements that are subnetwork-independent or specific to particular types of subnetwork. 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 parts 2 or 3, and from the subnetwork dependent parts of ISO/IEC ISP 10609.

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<https://standards.iteh.ai/catalog/standards/sist/f9890c9a-3045-4e16-9e53-705ca7b7732c/iso-iec-isp-10609-20-1995>

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

## Part 20:

Overview of the generalized multi-part ISP structure for TC and TD Group profiles for OSI usage of ISDN

### 1 Scope

#### 1.1 General

ISO/IEC ISP 10609 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 provides an overview of the multi-part structure for the ISDN TA profiles (which provide the Connection-mode Transport Service (COTS) using the Connectionless-mode Network Service (CLNS)) and for the ISDN TC and TD profiles (which provide the Connection-mode Transport Service (COTS) using the Connection-mode Network Service (CONS)).

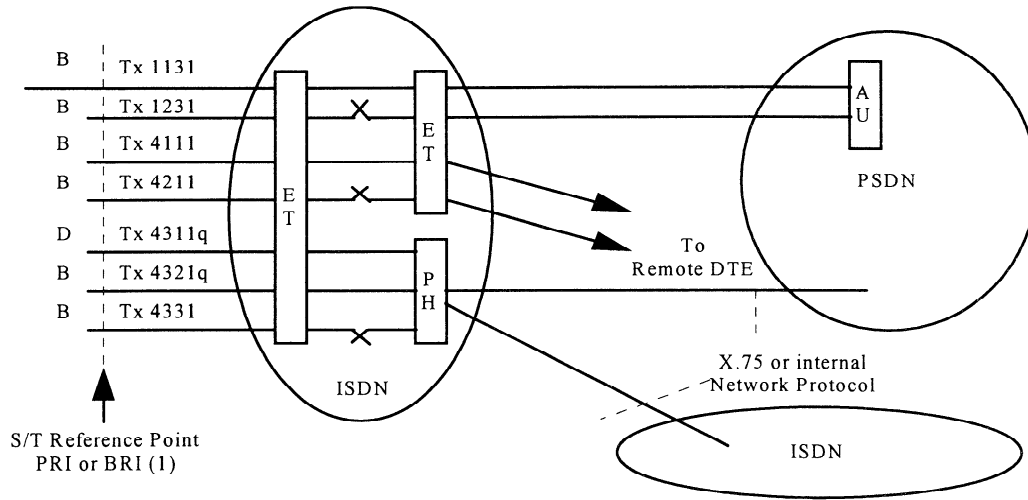
#### 1.2 Position within the taxonomy

This part of ISO/IEC ISP 10609 covers the taxonomy elements using an ISDN subnetwork with Transport Groups TA, TC and TD as described in the ISO/IEC TR 10000-2. In particular, it provides an overview and description of a generalized multi-part structure covering the following ISDN ISPs:

- Tx 1131, Tx 1231, Tx 4111, Tx 4211, Tx 4311q, Tx 4321q and Tx 4331 (Tx=TA, TC and TD and q=1 or 2).
  - TA => COTS over CLNS (to be developed)
  - TC => COTS over CONS with Mandatory Transport Protocol Classes 0 and 2
  - TD => COTS over CONS with Mandatory Transport Protocol Class 0

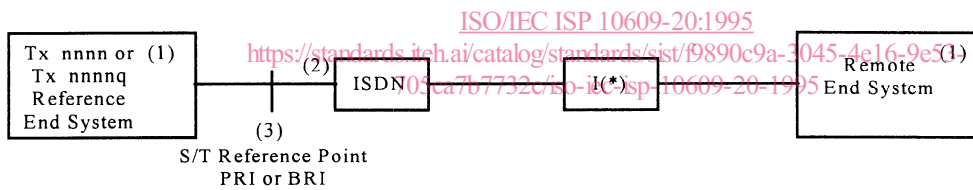
1.3 Scenario

Figure 1 illustrates the seven access scenarios<sup>1</sup> relevant to the ISDN based ISPs, as contained in ISO/IEC TR 10000-2. Figure 2 shows the end system configuration applicable to the seven access scenarios illustrated in figure 1.



(1) => An S/T Reference Point designates a "T reference point", an "S reference point" or a "coincident S and T reference point."

Figure 1 - Illustration of the access scenarios



- nnnn => Any of the profile numbers shown in Figure 1
- x => A, C, or D
- q => Takes the value 1 or 2 in Tx 4311q and Tx 4321q profiles to indicate whether Q.931 is needed
- (1) => The end system supports appropriate stack of protocols
- (2) => Virtual circuit or circuit switched bearer service, permanent\* or demand access channel. X.25 Permanent Virtual Circuits (PVCs) are outside the scope of ISO/IEC ISP 10609.
- (3) => An S/T Reference Point designates a "T reference point", an "S reference point" or a "coincident S and T reference point."
- (\*) => This can be an ISDN or a PSPDN sub-network or other OSI relays or null

\* Permanent and Semi-Permanent accesses are the same from the view of a DTE and as such, the usage "Permanent" is used throughout this part of ISO/IEC ISP 10609.

Figure 2 - Scenario of applicability of the COTS/CONS and COTS/CLNS Tx profiles

<sup>1</sup> Five of these access scenarios (i.e., Tx 1131, Tx 1231, Tx 4311q, Tx 4321q and Tx 4331) are defined in CCITT Recommendations X.31 and X.612, and ISO/IEC 9574. The two remote access to DTE scenarios (i.e., Tx 4111 and Tx 4211) are defined in ISO/IEC 9574/DAM 1 and draft revision of CCITT Recommendation X.612 (but not described in CCITT Recommendations X.31). Profiles Tx 4311q and Tx 4321q are further sub-classified by use of a fifth digit "q" (q = 1 or 2) depending on the need for using the signaling protocol Q.931 (e.g., for Tx 4311q, the fifth digit "1" in Tx 43111 represents no need for the use of Q.931 whereas the fifth digit "2" in Tx 43112 represents the need for the use of the signaling protocol Q.931).



## 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.

ISO/IEC 7776:1995, *Information technology - Telecommunications and information exchange between systems - High-level data link control procedures - Description of the X.25 LAPB-compatible DTE data link procedures.*

ISO/IEC 8073:1992, *Information technology - Telecommunications and information exchange between systems - Open Systems Interconnection - Protocol for providing the connection-mode transport service.*

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

ISO/IEC 8348:1993, *Information technology - Open Systems Interconnection - Network Service Definition.*

ISO/IEC 8473-1:1994, *Information technology - Protocol for providing the connectionless-mode network service: Protocol specification.* [See also ITU-T Recommendation X.233 (1993)]

NOTE - ISO/IEC 7776:1995, ISO/IEC 8073:1992, ISO/IEC 8208:1995, ISO/IEC 8348:1993 and ISO/IEC 8473-1:1994 supersede ISO 7776:1986, ISO 8073:1988, ISO/IEC 8208:1990, ISO 8348:1987 and ISO 8473:1988 respectively. However, when this part of ISO/IEC ISP 10609 was under development, the previous editions were valid and this part of ISO/IEC ISP 10609 is therefore based on these editions. The new editions give extensions and incorporate all of the amendments and corrigenda to the previous editions, which are listed below.

ISO 7776:1986, *Information processing systems - Data communications - High-level data link control procedures - Description of the X.25 LAPB-compatible DTE data link procedures.*

ISO 8073:1988, *Information processing systems - Open Systems Interconnection - Connection-mode transport protocol specification.*

ISO 8073:1988/Add. 2:1989, *Information processing systems - Open Systems Interconnection - Connection-mode transport protocol specification, Addendum 2: Class four operation over connectionless network service.*

ISO/IEC 8208:1990, *Information technology - Data communications - X.25 Packet Layer Protocol for Data Terminal Equipment.*

ISO 8348:1987, *Information processing systems - Data communications - Network service definition.*

ISO 8348:1987/Add. 1:1988, *Information processing systems - Data communications - Network service definition, Addendum 1: Connectionless-mode transmission.*

ISO 8473:1988, *Information processing systems - Data communications - Protocol for providing the connectionless-mode network service.*

ISO/IEC 8878:1992, *Information technology - Telecommunications and information exchange between systems - Use of X.25 to provide the OSI Connection-mode Network Service.*

ISO/IEC 8878:1992/Cor.1:1993, *Information technology - Telecommunications and information exchange between systems - Use of X.25 to provide the OSI Connection-mode Network Service, Technical Corrigendum 1.*

ISO/IEC 8878:1992/Cor.2:1993, *Information technology - Telecommunications and information exchange between systems - Use of X.25 to provide the OSI Connection-mode Network Service, Technical Corrigendum 2.*

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

CCITT Rec. X.612 (1992) | ISO/IEC 9574:1992, *Information technology - Provision of the OSI connection-mode network service by packet mode terminal equipment connected to an integrated services digital network (ISDN).*

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.*

CCITT Rec. I.430 (1988), *Basic User-Network Interface - Layer 1 Specification.*

CCITT Rec. I.431 (1988), *Primary Rate User-Network Interface - Layer 1 Specification.*

CCITT Rec. Q.921 (1988), *ISDN User-Network Interface Data Link Layer Specification.*

CCITT Rec. Q.931 (1988), *ISDN User-Network Interface Layer 3 Specification for Basic Call Control.*

CCITT Rec. X.25 (1988), *Interface between Data Terminal Equipment (DTE) and Data Circuit-Terminating Equipment (DCE) for terminals operating in the Packet Mode and connected to Public Data Networks by dedicated circuit.*

CCITT Rec. X.31 (1992), *Support of Packet Mode Terminal Equipment by an ISDN.*

CCITT Rec. X.32 (1992), *Interface between Data Terminal Equipment (DTE) and Data Circuit-Terminating Equipment (DCE) for terminals operating in a Packet Mode and accessing a Packet Switched Public Data Network through a Public Switched Telephone Network or an Integrated Service Digital Network or a Circuit Switched Public Data Network.*

CCITT Rec. X.213 (1988), *Network Service Definition for Open Systems Interconnection for CCITT Applications.*

CCITT Rec. X.223 (1988), *Use of X.25 to provide the OSI Connection-mode Network Service for CCITT Applications.*

CCITT Rec. X.224 (1988), *Transport protocol specification for Open Systems Interconnection for CCITT applications.*

### 3 Definitions

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

### 4 Abbreviations

The following abbreviations are used in this part of ISO/IEC ISP 10609:

AU	Access Unit
BRI	Basic Rate Interface
CLNP	Connectionless-mode Network Protocol
CLNS	Connectionless-mode Network Service
CM	Circuit Mode
CONS	Connection-mode Network Service

COTS	Connection-mode Transport Service
CS	Circuit Switched
CSPDN	Circuit Switched Public Data Network
DA	Demand Access
DCE	Data Circuit-terminating Equipment
DTE	Data Terminal Equipment
ET	Exchange Termination
ISDN	Integrated Services Digital Network
LAPB	Link Access Protocol - Balanced
LAPD	Link Access Protocol on the D-channel
NL	Network Layer
PH	Packet Handler
PLP	Packet Layer Protocol
PM	Packet Mode
PRI	Primary Rate Interface
PSPDN	Packet Switched Public Data Network
PS	Packet Switched
PVC	Permanent Virtual Circuit
VC	Virtual Circuit

## 5 Overview of multi-part structure for OSI/ISDN T-profiles

The multi-part ISP structure described in this clause for the OSI/ISDN T-profiles, corresponding to the seven access scenarios shown in figure 1, has two purposes.

1. The multi-part ISP structure provides a “roadmap” in terms of the common parts in figure 3-2 to specify an OSI/ISDN T-Profile.
2. The multi-part structure also points out an architectural simplicity, from a DTE view point, for the implementation of multiple profiles.

One of the principal differences among the various access scenarios is the use of the signaling protocol Q.931 for the B-channel setup and its use in channel selection through call offering. The relationship between Q.931 call offering procedures and notification classes is described in annex A.

Subclause 5.1 describes how a roadmap, in terms of the common parts, can be constructed to specify an OSI/ISDN T-profile. Subclause 5.2 describes a general arrangement for the B and D-channel protocol stacks that are applicable to all the access scenarios described in figure 1. Subclause 5.3 illustrates the architectural simplicity of the multi-part OSI/ISDN T-profile structure from a DTE view point.

### 5.1 Description of the multi-part OSI/ISDN T-profile architectural structure

The multi-part OSI/ISDN T-Profile architectural structure for the seven access scenarios in figure 1 is shown in table 1. The rows of table 1 show the access scenarios identified by the ISP # that is specified in ISO/IEC TR 10000-2 (see also figure 1). The three major columns (i.e., Access Attributes Description, D- and B-Channel columns) describe various characteristics associated with the access scenarios. The group of sub-columns under the “Access Attributes Description” column specify the attributes (e.g., type of ISDN bearer service) pertaining to a particular access scenario. The group of sub-columns under the D- and B-channel columns specifies significant components of the protocol stacks for each scenario and, in particular, identifies the significant common part (e.g. 10609-25 for Q.931 Circuit Mode) referenced by each resulting OSI/ISDN T-profile.

The “D-CHANNEL” column is sub-divided into two sub-columns as Q.931 and X.25 PLP representing whether the D-channel is used for Q.931 signaling or X.25 PLP or both. The Q.931 channel setup is further sub-divided into the circuit mode (CM) and packet mode (PM) sub-columns. The need for the use of the Q.931 signaling protocol for setting up a B-channel is indicated by “YES” in the appropriate “CM”, “PM-OUT” or “PM-IN” sub-