

INTERNATIONAL STANDARD

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Information technology — Open Systems Interconnection — Service definition for the Association Control Service Element

*Technologies de l'information — Interconnexion de systèmes ouverts
(OSI) — Définition du service pour l'élément de service de contrôle
d'association*



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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. 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 8649 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 21, *Open Systems Interconnection, data management and open distributed processing*, in collaboration with ITU-T. The identical text is published as ITU-T Recommendation X.217.

This second edition cancels and replaces the first edition (ISO 8649:1988), which has been technically revised. It also incorporates Amendment 1:1990, Amendment 2:1991 and Technical Corrigendum 1:1991.

Introduction

This Service Definition is one of a set of Recommendations and International Standards produced to facilitate the interconnection of information processing systems. It is related to other Recommendations and International Standards in the set as defined by the Reference Model for Open Systems Interconnection (see ITU-T Rec. X.200 | ISO/IEC 7498-1). The Reference Model subdivides the area of standardization for interconnection into a series of layers of specification, each of manageable size.

The goal of Open Systems Interconnection is to allow, with a minimum of technical agreement outside the interconnection Recommendations | International Standards, the interconnection of information processing systems:

- from different manufacturers;
- under different managements;
- of different levels of complexity; and
- of different technologies.

This Service Definition recognizes that application-processes may wish to communicate with each other for a wide variety of reasons. However, any communication will require the performance of certain services independent of the reasons for communication. The application-service-element defined herein provides such services.

This Service Definition defines services provided by the application-service-element for application-association control: the Association Control Service Element (ACSE). The ACSE provides basic facilities for the control of an application association between two application-entities. The ACSE includes two optional functional units. One functional unit supports the exchange of information in support of authentication during association establishment. The second functional unit supports the negotiation of application context during association establishment. The ACSE services apply to a wide range of application-process communications.

The ACSE services apply to a wide range of application-process communication requirements.

It is recognized that, with respect to ACSE Quality of Services (QOS) described in clause 9, work is still in progress to provide an integrated treatment of QOS across all layers of the OSI Reference Model, and to ensure that the individual treatments in each layer service satisfy overall QOS objectives in a consistent manner. As a consequence, an addendum may be added to this Service Definition at a later time which reflects further QOS developments and integration.

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INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION – SERVICE DEFINITION FOR THE ASSOCIATION CONTROL SERVICE ELEMENT

1 Scope

This Service Definition defines ACSE services for application-association control in an open systems interconnection environment. ACSE supports two modes of communication service: connection-oriented and connectionless.

The ACSE connection-oriented service is provided by the use of the connection-oriented ACSE protocol (see ITU-T Rec. X.227 | ISO/IEC 8650-1) in conjunction with the connection-oriented presentation-service (see ITU-T Rec. X.216 | ISO/IEC 8822). The ACSE connection-oriented service assumes as a minimum the use of the presentation-service connection-oriented Kernel functional unit.

The ACSE connectionless service (A-UNIT-DATA) is provided by the use of the connectionless ACSE protocol (see ITU-T Rec. X.237 | ISO/IEC 10035-1) in conjunction with the connectionless presentation-service (P-UNIT-DATA).

Three functional units are defined in the ACSE. The mandatory Kernel functional unit is used to establish and release application-associations. The ACSE includes two optional functional units. The optional Authentication functional unit supports the exchange of information in support of authentication during association establishment. It provides additional facilities for exchanging information in support of authentication during association establishment without adding services. The ACSE authentication facilities may be used to support a limited class of authentication methods. The second optional functional unit supports the negotiation of application context during association establishment. The ACSE services apply to a wide range of application-process communications.

This Service Definition does not specify individual implementations or products, nor does it constrain the implementation of entities and interfaces within a computer system.

No requirement is made for conformance to this Service Definition.

2 Normative references

The following Recommendations and International Standards contain provisions which, through reference in this text, constitute provisions of this Recommendation | International Standard. At the time of publication, the editions indicated were valid. All Recommendations and International Standards are subject to revision, and the parties to agreements based on this Recommendation | International Standard are encouraged to investigate the possibility of applying the most recent edition of the Recommendations and Standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards. The Telecommunication Standardization Bureau of the ITU maintains a list of currently valid ITU-T Recommendations.

2.1 Identical Recommendations | International Standards

- ITU-T Recommendation X.200 (1994) | ISO/IEC 7498-1:1994, *Information technology – Open Systems Interconnection – Basic Reference Model: The Basic Model*.
- ITU-T Recommendation X.207 (1993) | ISO/IEC 9545:1994, *Information technology – Open Systems Interconnection – Application Layer structure*.
- ITU-T Recommendation X.210 (1993) | ISO/IEC 10731:1994, *Information technology – Open Systems Interconnection – Basic Reference Model: Conventions for the definition of OSI services*.
- ITU-T Recommendation X.215 (1995) | ISO/IEC 8326:1996, *Information technology – Open Systems Interconnection – Session service definition*.
- ITU-T Recommendation X.216 (1994) | ISO/IEC 8822:1994, *Information technology – Open Systems Interconnection – Presentation service definition*.

- ITU-T Recommendation X.225 (1995) | ISO/IEC 8327-1:1996, *Information technology – Open Systems Interconnection – Connection-oriented Session protocol: Protocol specification.*
- ITU-T Recommendation X.227 (1995) | ISO/IEC 8650-1:1996, *Information technology – Open Systems Interconnection – Connection-oriented protocol for the Association Control Service Element: Protocol specification.*
- ITU-T Recommendation X.237 (1995) | ISO/IEC 10035-1:1995, *Information technology – Open Systems Interconnection – Connectionless protocol for the Association Control Service Element: Protocol specification.*
- CCITT Recommendation X.660 (1992) | ISO/IEC 9834-1:1993, *Information technology – Open Systems Interconnection – Procedures for the operation of OSI Registration Authorities: General procedures.*

2.2 Paired Recommendations | International Standards equivalent in technical content

- CCITT Recommendation X.650 (1992), *Open Systems Interconnection (OSI) – Reference Model for naming and addressing.*
ISO 7498-3:1989, *Information processing systems – Open Systems Interconnection – Basic Reference Model – Part 3: Naming and addressing.*
- CCITT Recommendation X.800 (1991), *Security architecture for Open Systems Interconnection for CCITT applications.*
ISO 7498-2:1989, *Information processing systems – Open Systems Interconnection – Basic Reference Model – Part 2: Security Architecture.*

2.3 Additional references

- CCITT Recommendation X.410 (1984), *Message Handling Systems: Remote operation and reliable transfer server.*
- ISO 6523:1984, *Data interchange – Structures for the identification of organizations.*

3 Definitions

For the purposes of this Recommendation | International Standard, the following definitions apply:

3.1 Reference model definitions

3.1.1 Basic Reference Model definitions

This Service Definition is based on the concepts developed in ITU-T Rec. X.200 | ISO/IEC 7498-1. It makes use of the following terms defined in them:

- a) application-entity;
- b) application-function;
- c) application Layer;
- d) application-process;
- e) application-protocol-control-information;
- f) application-protocol-data-unit;
- g) application-service-element;
- h) connectionless-mode presentation-service;
- i) (N)-connectionless-mode transmission;
- j) (N)-function;
- k) presentation-connection;
- l) presentation-service;
- m) session-connection;
- n) session-protocol; and
- o) session-service.

3.1.2 Security architecture definitions

This Service Definition makes use of the following terms defined in CCITT Rec. X.800 | ISO 7498-2:

- a) credentials;
- b) password; and
- c) peer-entity authentication.

3.1.3 Naming and addressing definitions

This Service Definition makes use of the following terms defined in CCITT Rec. X.650 | ISO 7498-3:

- a) application-process title;
- b) application-entity qualifier;
- c) application-entity title;¹⁾
- d) application-process invocation-identifier;
- e) application-entity invocation-identifier; and
- f) presentation address.

3.2 Service conventions definitions

This Service Definition makes use of the following terms defined in ITU-T Rec. X.210 | ISO/IEC/10731:

- a) service-provider;
- b) service-user;
- c) confirmed service;
- d) non-confirmed service;
- e) provider-initiated service;
- f) primitive;
- g) request (primitive);
- h) indication (primitive);
- i) response (primitive); and
- j) confirm (primitive).

3.3 Presentation service definitions

This Service Definition makes use of the following terms defined in ITU-T Rec. X.216 | ISO/IEC 8822:

- a) abstract syntax;
- b) abstract syntax name;
- c) connectionless-mode (presentation);
- d) default context;
- e) defined context set;
- f) functional unit (presentation);
- g) normal mode (presentation);
- h) presentation context;
- i) presentation data value; and
- j) X.410-1984 mode (presentation).

¹⁾ As defined in CCITT Rec. X.650 | ISO 7498-3, an application-entity title is composed of an application-process title and an application-entity qualifier. The ACSE service provides for the transfer of an application-entity title value by the transfer of its component values.