

INTERNATIONAL
STANDARD

**ISO/IEC
10164-17**

First edition
1996-09-15

**Information technology — Open Systems
Interconnection — Systems Management:
Change over function**

*Technologies de l'information — Interconnexion de systèmes ouverts
(OSI) — Gestion-systèmes: Fonction de changement*



Reference number
ISO/IEC 10164-17:1996(E)

Contents

| | <i>Page</i> |
|---|-------------|
| 1 Scope | 1 |
| 2 Normative references | 1 |
| 2.1 Identical Recommendations International Standards | 2 |
| 2.2 Paired Recommendations International Standards | 2 |
| 3 Definitions..... | 3 |
| 3.1 Basic reference model definitions | 3 |
| 3.2 Service convention definitions | 3 |
| 3.3 Management framework definitions | 3 |
| 3.4 Systems management overview definitions | 3 |
| 3.5 Common management information service definitions | 3 |
| 3.6 Management information model definitions | 4 |
| 3.7 OSI conformance testing definitions..... | 4 |
| 3.8 Implementation conformance statement proforma definitions | 4 |
| 3.9 Attributes for representing relationships definitions | 4 |
| 3.10 General relationship model definitions | 4 |
| 3.11 Additional definitions | 5 |
| 4 Symbols and abbreviations..... | 5 |
| 5 Conventions..... | 5 |
| 6 Requirements..... | 6 |
| 7 Model | 6 |
| 7.1 Change over relationship | 6 |
| 7.2 Conditions over the change over relationship | 8 |
| 7.3 Change over operations..... | 9 |
| 8 Generic definitions | 11 |
| 8.1 Management information required for change over function | 11 |
| 8.2 Managed relationship classes..... | 11 |
| 8.3 Managed object classes | 13 |
| 8.4 Packages..... | 14 |
| 8.5 Attributes..... | 16 |
| 8.6 Action definitions..... | 16 |
| 8.7 Parameter definitions | 19 |
| 9 Service definition | 20 |
| 9.1 Change over request service | 20 |
| 9.2 Change back request service | 20 |

© ISO/IEC 1996

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

ISO/IEC Copyright Office • Case postale 56 • CH-1211 Genève 20 • Switzerland
Printed in Switzerland

| | | |
|------|--|----|
| 10 | Functional units | 22 |
| 11 | Protocol | 22 |
| 11.1 | Elements of procedure | 22 |
| 11.2 | Negotiation of the functional unit | 22 |
| 12 | Relationship with other functions | 23 |
| 13 | Conformance | 23 |
| 13.1 | Static conformance | 23 |
| 13.2 | Dynamic conformance | 23 |
| 13.3 | Management implementation conformance statement requirements | 23 |
| | Annex A – Management information definitions | 24 |
| | Annex B – Abstract syntax definitions | 29 |
| | Annex C – MCS proforma | 31 |
| | Annex D – MIS proforma | 37 |
| | Annex E – MOCS proforma | 41 |
| | Annex F – MRCS proforma for relationship model | 49 |
| | Annex G – MIDS(action) proforma | 51 |
| | Annex H – Introduction of change over relationship | 52 |

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 10164-17 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.751.

ISO/IEC 10164 consists of the following parts, under the general title *Information technology — Open Systems Interconnection — Systems Management*:

- *Part 1: Object management function*
- *Part 2: State Management function*
- *Part 3: Attributes for representing relationships*
- *Part 4: Alarm reporting function*
- *Part 5: Event report management function*
- *Part 6: Log control function*
- *Part 7: Security alarm reporting function*
- *Part 8: Security audit trail function*
- *Part 9: Objects and attributes for access control*
- *Part 10: Usage metering function for accounting purposes*
- *Part 11: Metric objects and attributes*
- *Part 12: Test management function*
- *Part 13: Summarization function*
- *Part 14: Confidence and diagnostic test categories*
- *Part 15: Scheduling function*
- *Part 16: Management knowledge management function*
- *Part 17: Change over function*
- *Part 18: Software management function*
- *Part 19: Management domain and Management policy management functions*

Annexes A to G form an integral part of this part of ISO/IEC 10164. Annex H is for information only.

Introduction

This Recommendation | International Standard is developed according to ITU-T Rec. X.200 | ISO/IEC 7498-1 and ITU-T Rec. X.700 | ISO/IEC 7498-4. This Recommendation | International Standard is related to the following Recommendations | International Standards:

- CCITT Rec. X.710 (1991), *Common management information service definition for CCITT applications*.
ISO/IEC 9595:1991, *Information technology – Open Systems Interconnection – Common management information service definition*.
- CCITT Rec. X.711 (1991), *Common management information protocol specification for CCITT applications*.
ISO/IEC 9596-1:1991, *Information technology – Open Systems Interconnection – Common management information protocol – Part 1: Specification*.
- CCITT Rec. X.701 (1992) | ISO/IEC 10040:1992, *Information technology – Open Systems Interconnection – Systems management overview*.
- CCITT Rec. X.720-Series | ISO/IEC 10165, *Information technology – Open Systems Interconnection – Structure of management information*.

OSI management standardization inevitably involves coordinated work by a number of standards bodies. ITU-T SG 7 and ISO/IEC JTC1/SC21/WG4 are jointly responsible for the development of Recommendations | International Standards that describe the architecture for OSI management, the services, protocols and functions that are used for systems management, and the structure of management information. Other groups, in ITU-T, ISO/IEC JTC1/SC21, ISO/IEC JTC1/SC6 and elsewhere, are responsible for the development of Recommendations | International Standards that describe the management aspects of particular layers of the OSI Basic Reference Model; these may describe (N)-layer management protocols, management aspects of (N)-layer operation, and managed objects that provide a “management view” of aspects of the layer operation and are visible to systems management.

INTERNATIONAL STANDARD**ITU-T RECOMMENDATION****INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION –
SYSTEMS MANAGEMENT: CHANGE OVER FUNCTION****1 Scope**

This Recommendation | International Standard defines a systems management function which may be used by an application in a centralized or decentralized management environment to interact for the purpose of systems management as defined by CCITT Rec. X.700 | ISO/IEC 7498-4. This Recommendation | International Standard defines services for managing one to one back-up relationships and specifies a set of generic definitions. It is positioned in the application layer of ITU-T Rec. X.200 | ISO/IEC 7498-1 and is defined according to the model provided by ITU-T Rec. X.207 | ISO/IEC 9545. The role of systems management functions are described by CCITT Rec. X.701 | ISO/IEC 10040.

This Recommendation | International Standard:

- establishes user requirements for the service definition needed to support the change over function;
- establishes models that relate the service provided by the function to the user requirements;
- defines the services provided by the function;
- defines a managed relationship class documented in accordance with ITU-T Rec. X.725 | ISO/IEC 10165-7;
- defines managed object classes and associated management information in accordance with CCITT Rec. X.722 | ISO/IEC 10165-4;
- specifies the protocol that is necessary in order to provide the services;
- defines the relationship between the service and management operations;
- specifies the conformance requirements;
- specifies the ICS proforma for this function documented in accordance with ITU-T Rec. X.724 | ISO/IEC 10165-6 and ITU-T Rec. X.725 | ISO/IEC 10165-7.

This Recommendation | International Standard does not:

- define the nature of any implementation intended to provide this function;
- specify the manner in which management is accomplished by the user of this function;
- define the nature of any interactions that result in the use of this function;
- specify the services necessary for the establishment, normal and abnormal release of a management association;
- define relationship mappings that are dependent on the implementation of this function.

2 Normative references

The following Recommendations and International Standards contain provisions which, through reference in this text, constitute provisions of this Recommendation and International Standard. At the time of publication, the editions indicated were valid. All Recommendations and International Standards are subject to revision, and 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 International Standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards. The Telecommunications Standardization Bureau of the ITU maintains a list of currently valid CCITT and 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*.
- CCITT Recommendation X.701 (1992) | ISO/IEC 10040:1992, *Information technology – Open Systems Interconnection – Systems management overview*.
- CCITT Recommendation X.720 (1992) | ISO/IEC 10165-1:1993, *Information technology – Open Systems Interconnection – Structure of management information: Management Information Model*.
- CCITT Recommendation X.721 (1992) | ISO/IEC 10165-2:1992, *Information technology – Open Systems Interconnection – Structure of management information: Definition of management information*.
- CCITT Recommendation X.722 (1992) | ISO/IEC 10165-4:1992, *Information technology – Open Systems Interconnection – Structure of management information: Guidelines for the definition of managed objects*.
- ITU-T Recommendation X.724 (1993) | ISO/IEC 10165-6:1994, *Information technology – Open Systems Interconnection – Structure of management information: Requirements and guidelines for implementation conformance statement proformas associated with OSI management*.
- ITU-T Recommendation X.725 (1995) | ISO/IEC 10165-7...¹⁾, *Information technology – Open Systems Interconnection – Structure of management information: General Relationship Model*.
- CCITT Recommendation X.730 (1992) | ISO/IEC 10164-1:1993, *Information technology – Open Systems Interconnection – Systems management: Object management function*.
- CCITT Recommendation X.731 (1992) | ISO/IEC 10164-2:1993, *Information technology – Open Systems Interconnection – Systems management: State management function*.
- CCITT Recommendation X.732 (1992) | ISO/IEC 10164-3:1993 *Information technology – Open Systems Interconnection – Systems management: Attributes for representing relationships*.
- CCITT Recommendation X.734 (1992) | ISO/IEC 10164-5:1993, *Information technology – Open Systems Interconnection – Systems management: Event report management function*.

2.2 Paired Recommendations | International Standards

- CCITT Recommendation X.209 (1988), *Specification of basic encoding rules for Abstract Syntax Notation One (ASN.1)*.
ISO/IEC 8825:1990, *Information technology – Open Systems Interconnection – Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1)*.
- ITU-T Recommendation X.290 (1995), *OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – General concepts*.
ISO/IEC 9646-1:1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 1: General concepts*.
- ITU-T Recommendation X.291 (1995), *OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – Abstract test suite specification*.
ISO/IEC 9646-2:1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 2: Abstract Test Suite specification*.
- ITU-T Recommendation X.296 (1995), *OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – Implementation conformance statements*.
ISO/IEC 9646-7:1995, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 7: Implementation Conformance Statements*.

¹⁾ To be published.

- CCITT Recommendation X.700 (1992), *Management framework for Open Systems Interconnection (OSI) for CCITT applications*.
- ISO/IEC 7498-4:1989, *Information processing systems – Open Systems Interconnection – Basic Reference Model – Part 4: Management framework*.
- CCITT Recommendation X.710 (1991), *Common management information service definition for CCITT applications*.
- ISO/IEC 9595:1991, *Information technology – Open Systems Interconnection – Common management information service definition*.