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STANDARD

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**Information technology — Open Systems
Interconnection — Systems Management:
Summarization Function**

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



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. 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 10164-13 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.738.

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: Accounting metering function*
- *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*

Annex A forms an integral part of this part of ISO/IEC 10164.

Introduction

ISO/IEC 10164 is a multipart standard developed according to ISO 7498 and ISO/IEC 7498-4. ISO/IEC 10164 is related to the following International Standards:

- ISO/IEC 9595:1991, *Information technology — Open Systems Interconnection — Common management information service definition*;
- ISO/IEC 9596-1:1991, *Information technology — Open Systems Interconnection — Common management information protocol — Part 1: Specification*;
- ISO/IEC 10040:1992, *Information technology — Open Systems Interconnection — Systems management overview*;
- ISO/IEC 10165, *Information technology — Open Systems Interconnection — Structure of management information*.

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INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION – SYSTEMS MANAGEMENT: SUMMARIZATION FUNCTION

1 Scope

This Recommendation | International Standard defines the Summarization Function. The Summarization Function is a Systems Management function which may be used by an application process in a centralised or decentralised management environment to interact for the purpose of systems management, as defined by the OSI Management Framework, CCITT Rec. X.700 | ISO/IEC 7498-4. This Recommendation | International Standard defines a function which consists of generic definitions and services. This function is positioned in the application layer of the OSI reference model (CCITT Rec. X.200 | ISO 7498) and is defined according to the model provided by ISO 9545. The role of systems management functions is described by CCITT Rec. X.701 | ISO/IEC 10040. The Summarization Function specifies methods to observe and report attribute values. It also specifies methods for reporting statistics based on attribute values, all observed at the same time. These attribute values and statistics provide summary information concerning a set of managed objects and their attributes at one or more distinct points in time. The statistics are calculated across managed objects, not over time.

This Recommendation | International Standard

- identifies the set of requirements satisfied by the function;
- provides a model for the behaviour of the summarization objects;
- specifies the management requirements of the function and how these are realised by specification of managed objects and their behaviour;
- specifies the mapping of these services onto the OMIS services; and
- specifies the abstract syntax of the parameters of the MAPDUs that will be used to refer to managed objects and their characteristics.

This Recommendation | International Standard

- does not define the nature of any implementation intended to provide the Summarization function;
- does not specify the manner in which management is to be accomplished by the user of the Summarization function;
- does not define the nature of any interactions which result in the use of the Summarization function;
- does not specify the services necessary for the establishment, normal and abnormal release of a management association;
- does not define the interactions which result by the simultaneous use of several management functions;
- does not define connection establishment or authorisation requirements for the use of these functions or for any associated activity; and
- does not preclude the definition of further metric object classes to provide measurements for inclusion in the function.

2 Normative references

The following Recommendations | 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 | 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 editions of the Recommendation/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

- 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.*
- 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.733 (1992) | ISO/IEC 10164-4:1992, *Information technology – Open Systems Interconnection – Systems Management: Alarm reporting function.*
- CCITT Recommendation X.734 (1992) | ISO/IEC 10164-5:1993, *Information technology – Open Systems Interconnection – Systems Management: Event report management function.*
- CCITT Recommendation X.735 (1992) | ISO/IEC 10164-6:1993, *Information technology – Open Systems Interconnection – System Management: Log control function.*
- ITU-T Recommendation X.738 (1993) | ISO/IEC 10164-11:1994, *Information technology – Open Systems Interconnection – Systems Management: Metric objects and attributes.*

2.2 Paired Recommendations | International Standards equivalent in technical content

- CCITT Recommendation X.200 (1989), *Reference model of Open Systems Interconnection for CCITT Applications.*
ISO 7498:1984, *Information processing systems – Open Systems Interconnection – Basic Reference Model.*
- CCITT Recommendation X.209 (1988), *Specification of Basic Encoding Rules for abstract syntax notation.*
ISO 8825:1990, *Information technology – Open Systems Interconnection – Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1).*
- CCITT Recommendation X.210 (1988), *Open Systems Interconnection layer service definition conventions.*
ISO/TR 8509:1987, *Information processing systems – Open Systems Interconnection – Service conventions.*
- CCITT Recommendation X.700 (1989), *Management framework definition for Open Systems Interconnection (OSI) for CCITT applications.*
ISO 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.*
- CCITT Recommendation 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 Recommendation X.290 (1991), *OSI conformance testing methodology and framework for protocol recommendations for CCITT applications.*
ISO/IEC 9646-1:1991, *Information technology – OSI conformance testing methodology and framework – Part 1: General concepts.*

2.3 Additional references

- ISO/IEC 3534-1:1993, *Statistics – Vocabulary and symbols – Part 1: Probability and general statistical terms.*
- ISO/IEC 9545:1989, *Information processing systems – Open Systems Interconnection – Application Layer structure.*
- CCITT Recommendation M.3100 (1992), *Generic Network Information Model.*

3 Definitions

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

3.1 Basic reference model definitions

This Recommendation | International Standard makes use of the following terms defined in CCITT Rec. X.200 | ISO 7498:

- a) open system;
- b) systems management.

3.2 Management framework definitions

This Recommendation | International Standard makes use of the following terms defined in CCITT Rec. X.700 | ISO/IEC 7498-4:

- a) managed object;
- b) management information.

3.3 Systems management overview definitions

This Recommendation | International Standard makes use of the following terms defined in CCITT Rec. X.701 | ISO/IEC 10040:

- a) agent;
- b) agent role;
- c) dependent conformance;
- d) general conformance;
- e) generic definitions;
- f) managed system;
- g) management operation;
- h) manager;
- i) manager role;
- j) managing system;
- k) notification;
- l) systems management functional unit.

3.4 CMIS definitions

This Recommendation | International Standard makes use of the following terms defined in CCITT Rec. X.710 | ISO/IEC 9595:

- a) attribute;
- b) common management information service.