



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

X.723

(11/93)

DATA NETWORKS AND OPEN SYSTEM COMMUNICATIONS OSI MANAGEMENT

INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION – STRUCTURE OF MANAGEMENT INFORMATION: GENERIC MANAGEMENT INFORMATION

ITU-T Recommendation X.723

(Previously “CCITT Recommendation”)

Foreword

ITU (International Telecommunication Union) is the United Nations Specialized Agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the ITU. Some 179 member countries, 84 telecom operating entities, 145 scientific and industrial organizations and 38 international organizations participate in ITU-T which is the body which sets world telecommunications standards (Recommendations).

The approval of Recommendations by the members of ITU-T is covered by the procedure laid down in WTSC Resolution No. 1 (Helsinki, 1993). In addition, the World Telecommunication Standardization Conference (WTSC), which meets every four years, approves Recommendations submitted to it and establishes the study programme for the following period.

In some areas of information technology, which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC. The text of ITU-T Recommendation X.723 was approved on 16th November 1993. The identical text is also published as ISO/IEC International Standard 10165-5.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

© ITU 1994

All rights reserved. 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 ITU.

CONTENTS

	<i>Page</i>
1 Scope	1
2 Normative references	1
3 Definitions	2
4 Abbreviations	3
5 Conventions.....	3
6 Overview	3
7 Generic managed object class definitions	4
8 Name bindings	9
9 Attributes	10
10 Attribute Groups.....	15
11 Actions	16
12 Notifications	17
13 ASN.1 definitions.....	18

Summary

This Recommendation documents management information that is applicable to more than one open system resource by documenting those common structures as generic definitions. These generic definitions may be used in the specification of managed objects for technology specific use such as OSI layers. In general, use of OSI layer specific use will require.

INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION – STRUCTURE OF MANAGEMENT INFORMATION: GENERIC MANAGEMENT INFORMATION

1 Scope

This Recommendation | International Standard provides developers of OSI Recommendations | International Standards that contain managed object definitions with generic definitions of managed object classes that will

- provide common superclass definitions from which layer- or resource- specific object class definitions may be derived;
- assist with the development of common elements of object class definitions across multiple layers or components of layers;
- reduce duplication of effort in other working groups by identifying commonly useful definitions.

To this end, this Recommendation | International Standard defines managed object classes which may be used as superclasses, using the template notation defined in CCITT Rec. X.722 | ISO/IEC 10165-4, including the definition of any packages, attributes, attribute groups, behaviour, actions, notifications and parameters that may be associated with the superclasses. It also defines functional units required by layer- or resource-specific management standards which are not defined in the CCITT Rec. X.73X | ISO/IEC 10164 series of systems management function standards.

This Recommendation | International Standard is applicable to the development of any OSI Recommendation | International Standard which defines managed object classes that may be refined from the managed object classes defined in this Recommendation | International Standard.

This Recommendation | International Standard does not specify or imply any constraints on the development of managed object definitions in terms of their inheritance relationships. Developers of managed object class definitions are encouraged to use the definitions contained in this Recommendation | International Standard to promote consistency between similar managed object classes; however, use of these definitions is not mandated.

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 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 ITU-T maintains a list of the currently valid 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 10165-1:1992, *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*.

ISO/IEC 10165-5 : 1994 (E)

- 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.731 (1992) | ISO/IEC 10164-2:1992, *Information technology – Open Systems Interconnection – Systems Management: State Management Function*.

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.208 (1989), *Specification of abstract syntax notation one (ASN.1)*.
ISO/IEC 8824:1990, *Information technology – Open Systems Interconnection – Specification of Abstract Syntax Notation One (ASN.1)*.
- CCITT Recommendation X.700 (1992), *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*.

3 Definitions

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

3.1 Basic reference model definitions

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

- a) (N)-SAP;
- b) open system;
- c) systems management;
- d) application process.

3.2 Management framework definitions

This Recommendation | International Standard uses the following terms defined in CCITT Rec. X.700 | ISO/IEC 7498-4:
managed object.

3.3 Systems management overview definitions

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

- a) generic definitions;
- b) managed object class;
- c) management information;
- d) notification.

3.4 Management information model definitions

This Recommendation | International Standard uses the following terms defined in CCITT Rec. X.720 | ISO/IEC 10165-1:

- a) allomorhism;
- b) attribute type;
- c) behaviour;
- d) containment;

- e) name binding;
- f) package;
- g) specialization;
- h) subordinate object;
- i) superclass;
- j) superior object.

3.5 CMIS definitions

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

3.6 ASN.1 definitions

This Recommendation | International Standard uses the following terms defined in CCITT Rec. X.208 | ISO/IEC 8824:

- a) object identifier;
- b) sequence-of type;
- c) sequence type;
- d) set-of type;
- e) set type;
- f) type.

3.7 GDMO definitions

This Recommendation | International Standard uses the following terms defined in CCITT Rec. X.722 | ISO/IEC 10165-4:

- a) managed object class definition;
- b) template.

4 Abbreviations

ASN.1	Abstract Syntax Notation One
CL	Connectionless
CMIS	Common Management Information Service
CO	Connection Oriented
GDMO	Guidelines for the Definition of Managed Objects
GMI	Generic Management Information
OSI	Open Systems Interconnection
PDU	Protocol Data Unit
SAP	Service Access Point
SMI	Structure of Management Information

5 Conventions

This Recommendation | International Standard uses the template notation defined in CCITT Rec. X.722 | ISO/IEC 10165-4 as the notation for defining managed object classes and the abstract syntax notation defined in CCITT Rec. X.208 | ISO/IEC 8824 as the means of defining ASN.1 data types associated with the use of the template notation.

Text based on these notational conventions is printed in a distinctive typeface.

6 Overview

The purpose of this Recommendation | International Standard is to document structures for managed object classes and management information types that are common to more than one open system resource, by defining those common structures as generic definitions of management information. Other work items, such as those concerned with the