

INTERNATIONAL  
STANDARD

**ISO/IEC**  
**10164-5**

First edition  
1993-06-15

---

---

**Information technology — Open Systems  
Interconnection — Systems Management:  
Event Report Management Function**

**iTeh STANDARD PREVIEW**

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

ISO/IEC 10164-5:1993

<https://standards.iteh.ai/catalog/standards/sist/9dad7a6-3dbc-440e-9c10-e5cea7ddc3cc/iso-iec-10164-5-1993>



Reference number  
ISO/IEC 10164-5:1993(E)

<b>Contents</b>	<b>Page</b>
1 Scope .....	1
2 Normative references .....	1
2.1 Identical Recommendations   International Standards .....	1
2.2 Paired Recommendations   International Standards equivalent in technical content .....	2
2.3 Additional references .....	2
3 Definitions .....	2
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 OSI conformance testing definitions .....	3
3.7 Additional definitions .....	3
4 Abbreviations .....	4
5 Conventions .....	4
6 Requirements .....	4
7 Model for the event report management function .....	5
7.1 General .....	5
7.2 Event report management model .....	5
8 Generic definitions .....	6
8.1 Managed objects .....	6
8.2 Imported generic definitions .....	11
9 Service definitions .....	11
9.1 Introduction .....	11
9.2 Initiation of event report forwarding .....	11
9.3 Termination of event report forwarding .....	12
9.4 Event forwarding discriminator modification, suspension and resumption .....	12
9.5 Retrieval of event forwarding discriminator attributes .....	12

© ISO/IEC 1993

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 publisher.

ISO/IEC Copyright Office • Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

10	Functional units .....	12
11	Protocol .....	13
11.1	Elements of procedure .....	13
11.2	Abstract syntax .....	13
11.3	Negotiation of functional units .....	14
12	Relationship with other functions .....	14
13	Conformance .....	14
13.1	General conformance class requirements .....	15
13.2	Dependent conformance class requirements .....	15
13.3	Conformance to support managed object definitions .....	15
Annex A	Example value notation for the discriminator construct .....	16
Annex B	Event forwarding using local mechanism .....	17
Annex C	Considerations for system implementation conformance statement .....	18

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[ISO/IEC 10164-5:1993](https://standards.iteh.ai/catalog/standards/sist/9dad7a6-3dbc-440e-9c10-e5cea7ddc3cc/iso-iec-10164-5-1993)

<https://standards.iteh.ai/catalog/standards/sist/9dad7a6-3dbc-440e-9c10-e5cea7ddc3cc/iso-iec-10164-5-1993>

## 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 10164-5 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in collaboration with the CCITT. The identical text is published as CCITT Recommendation X.734. <https://standards.iteh.ai/catalog/standards/sist/9dad7a6-3dbc-440e-9c10-e57a7ddc3cc/iso-iec-10164-5-1993>

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 meter function*
- *Part 11 : Workload monitoring function*
- *Part 12 : Test management function*
- *Part 13 : Summarization function*
- *Part 14 : Confidence and diagnostic test categories*

## 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 9595:1990, *Information technology – Open Systems Interconnection – Common management information service definition*;

ISO/IEC 9596:1990, *Information technology – Open Systems Interconnection – Common management information protocol*;

ISO/IEC 10040:1992, *Information technology – Open Systems Interconnection – Systems management overview*;

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

ISO/IEC 10165:1992, *Information technology – Open Systems Interconnection – Structure of management information*.

[ISO/IEC 10164-5:1993](https://standards.iteh.ai/catalog/standards/sist/9dad7a6-3dbc-440e-9c10-e5cea7ddc3cc/iso-iec-10164-5-1993)

<https://standards.iteh.ai/catalog/standards/sist/9dad7a6-3dbc-440e-9c10-e5cea7ddc3cc/iso-iec-10164-5-1993>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

This page intentionally left blank

[ISO/IEC 10164-5:1993](#)

<https://standards.iteh.ai/catalog/standards/sist/9dadb7a6-3dbc-440e-9c10-e5cea7ddc3cc/iso-iec-10164-5-1993>

## INTERNATIONAL STANDARD

## CCITT RECOMMENDATION

**INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION –  
SYSTEMS MANAGEMENT: EVENT REPORT MANAGEMENT FUNCTION**

**1 Scope**

This Recommendation | International Standard defines a Systems Management Function which may be used by an application process 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 the Event report management function and consists of services and two functional units. This function is positioned in the application layer of CCITT Rec. X.200 | ISO 7498 and is defined according to the model provided by ISO/IEC 9545. The role of systems management functions is described in CCITT Rec. X.701 | ISO/IEC 10040.

This Recommendation | International Standard

- establishes user requirements for the event report management function;
- establishes models that relate the services provided by the function to user requirements;
- defines the services provided by the function;
- specifies the protocol that is necessary in order to provide the services;
- defines the relationship between the services and SMI operations and notifications;
- defines relationships with other systems management functions;
- specifies conformance requirements.

This Recommendation | International Standard does not

- define the nature of any implementation intended to provide the event report management function;
- specify the manner in which management is accomplished by the user of the event report management function;
- define the nature of any interactions which result in the use of the event report management function;
- specify the services necessary for the establishment, normal and abnormal release of a management association;
- specify the authorization requirements for the use of the event report management function or for any associated activity;
- define the managed objects related to the management of particular protocol machines.

**2 Normative references**

The following CCITT 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 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 Standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards. The CCITT Secretariat maintains a list of the currently valid CCITT 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.721 (1992) | ISO/IEC 10165-2:1992, *Information technology – Open Systems Interconnection – Structure of management information – Part 2: Definition of management Information.*
- CCITT Recommendation X.730 (1992) | ISO/IEC 10164-1:1993, *Information technology – Open Systems Interconnection – Systems Management – Part 1: Object management function.*
- CCITT Recommendation X.731 (1992) | ISO/IEC 10164-2:1993, *Information technology – Open Systems Interconnection – Systems Management – Part 2: State management function.*

## 2.2 Paired Recommendations | International Standards equivalent in technical content

- CCITT Recommendation X.200 (1988), *Reference Model of Open Systems Interconnection for CCITT Applications.*  
  
ISO 7498:1984, *Information processing systems – Open Systems Interconnection – Basic Reference Model.*
- 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 (1988), *Management Framework Definition 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.208 (1988), *Specification of Abstract Syntax Notation One (ASN.1).* X.208, ITU, Geneva 1989.  
  
ISO/IEC 8824:1990, *Information technology – Open Systems Interconnection – Specification of Abstract Syntax Notation One (ASN.1).*  
  
– 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).*
- CCITT Recommendation X.710 (1992), *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.290 (1992), *OSI Conformance Testing Methodology and Framework for protocol Recommendations for CCITT applications – General Concepts.*  
  
ISO/IEC 9646-1:1991, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 1: General concepts.*

## 2.3 Additional references

- ISO/IEC 9545:1989, *Information technology – Open Systems Interconnection – Application Layer structure.*

## 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 Service convention definitions

This Recommendation | International Standard makes use of the following term defined in CCITT Rec. X.210 | ISO/TR 8509.

primitive

### 3.3 Management framework definitions

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

- a) Management information;
- b) Managed object;
- c) systems-management-application-entity.

### 3.4 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 role;
- b) dependent conformance; ([standards.iteh.ai](https://standards.iteh.ai/catalog/standards/sist/9dad7a6-3dbc-440e-9c10-e5cea7ddc3cc/iso-iec-10164-5-1993))
- c) general conformance;
- d) management support object; [ISO/IEC 10164-5:1993](https://standards.iteh.ai/catalog/standards/sist/9dad7a6-3dbc-440e-9c10-e5cea7ddc3cc/iso-iec-10164-5-1993)
- e) manager role; <https://standards.iteh.ai/catalog/standards/sist/9dad7a6-3dbc-440e-9c10-e5cea7ddc3cc/iso-iec-10164-5-1993>
- f) notification;
- g) systems management functional unit;
- h) systems management operation.

### 3.5 Common management information service 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 services;
- c) common management Information service element.

### 3.6 OSI conformance testing definitions

This Recommendation | International Standard makes use of the following term defined in CCITT Rec. X.290 | ISO/IEC 9646-1.

system conformance statement

### 3.7 Additional definitions

The following terms are defined in this Recommendation | International Standard.

**3.7.1 discriminator:** A management support object that allows a system to select management operations and event reports relating to other managed objects.

**3.7.2 discriminator input object:** A conceptual object whose attributes are parameters of either an operation or a notification.

Discriminator input objects are defined for the purpose of discrimination and instances of discriminator input objects exist only for the duration of discrimination. Discriminator input object attributes can be used for discrimination, if and only if they have an object identifier. Attributes that have no matching rules defined for them can only be checked for presence.

**3.7.3 event forwarding discriminator:** A discriminator that acts on potential event reports.

**3.7.4 event report management function:** A function, including the definition of a management support object class, that allows a manager to control the transmission of event reports from managed objects independent of the definition of the managed objects.

**3.7.5 potential event report:** A type of discriminator input object that is defined for the purpose of event forwarding discrimination.

A potential event report consists of all the information required to be forwarded in the event report. The information is derived from the information contained in the notification and information derived from local processing of the notification, if any.

## 4 Abbreviations

ASN.1 Abstract Syntax Notation One

CMIS Common management information service

CMISE Common management information service element

EFD Event forwarding discriminator

ERF Event reporting function

Id Identifier

MAPDU Management application protocol data unit

PDU Protocol data unit

SMAE Systems management application entity

SMFU Systems management functional unit

SMI Structure of management information

## 5 Conventions

This Recommendation | International Standard defines services for the event report management function following the descriptive conventions defined in CCITT Rec. X.210 | ISO/TR 8509.

## 6 Requirements

The requirements to be satisfied are

- a) the definition of a flexible event report control service which will allow systems to select which event reports are to be sent to particular managing systems;
- b) the specification of the destinations (e.g. the identities of managing systems) to which event reports are to be sent;
- c) the specification of a mechanism to control the forwarding of event reports, for example, by suspending and resuming their forwarding;
- d) the ability for an external managing system to modify the conditions used in the reporting of events;
- e) the ability to designate a backup location to which event reports can be sent if the primary location is not available.

## 7 Model for the event report management function

### 7.1 General

The functional requirements noted above, relating to the behaviour of systems, can be reduced to a basic requirement on the behaviour of a system. This is the ability to specify conditions to be satisfied by a potential event report emitted by a particular managed object in order to be sent to specified destinations.

### 7.2 Event report management model

The event report management model describes the conceptual components that provide for remote event reporting and local processing of potential event reports. The model also describes the control messages, event reporting messages and retrieval messages.

The conceptual event pre-processing function receives local notifications and forms the potential event reports. Conceptually, these potential event reports are distributed to all event forwarding discriminators that are contained within the local open system. A potential event report is perceived as a discriminator input object for the purposes of discrimination by the event forwarding discriminators only and is not visible from outside the local system.

The event forwarding discriminator is used to determine which event reports are to be forwarded to a particular destination during specified time periods. It may also be used to specify the mode (confirmed or non-confirmed) for forwarding events. Each event forwarding discriminator may contain a scheduling capability determining the intervals during which event reports will be selected for forwarding. Each event forwarding discriminator contains a discriminator construct which specifies the characteristics a potential event report must satisfy in order to be forwarded. Event reports that have been selected are forwarded to the destination as soon as possible.

The event forwarding discriminator is itself a managed object and can therefore emit notifications. These notifications are processed as potential event reports by all event forwarding discriminators including the one that generated the notification.

ISO/IEC 10164-5:1993

Figure 1 is a schematic representation of the components involved in generating, processing and reporting events.

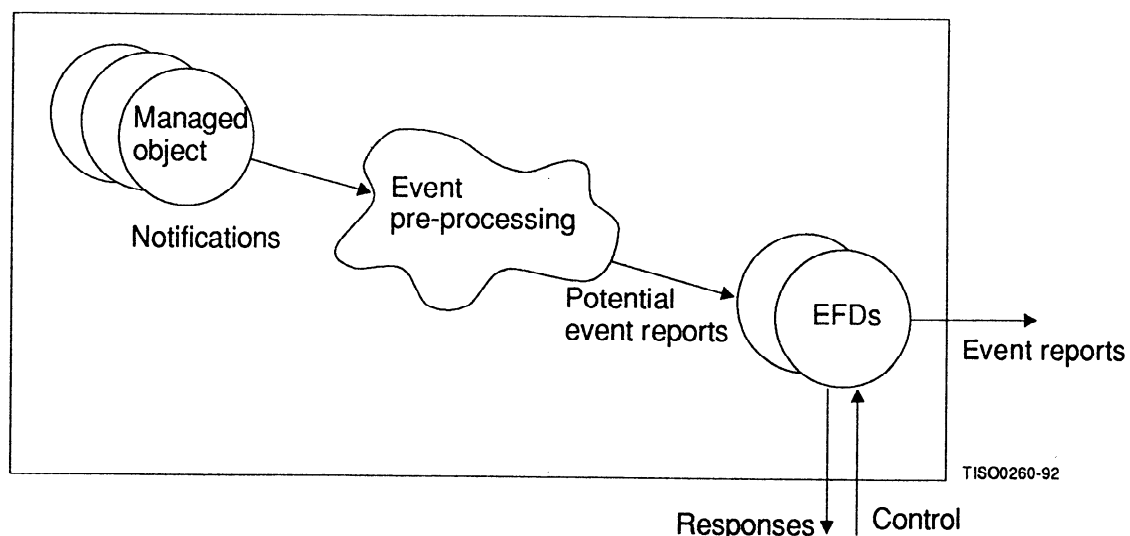


Figure 1 – Event report management model