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TECHNICAL CORRIGENDUM 2

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

TECHNICAL CORRIGENDUM 2

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

RECTIFICATIF TECHNIQUE 2

Technical Corrigendum 2 to International Standard ISO/IEC 10164-5:1993 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.

ICS 35.100.70 **Ref. No. ISO/IEC 10164-5:1993/Cor.2:1999(E)**

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INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

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

TECHNICAL CORRIGENDUM 2

1) Subclause 8.1.1.1

Replace the 9th paragraph:

Changes to values of attributes other than administrative state, operational state and, if present, availability status, shall be reported using the attribute value change notification.

by

When changes to attribute values are to be reported, the attribute value change notification shall be used.

2) Subclause 8.1.1.3.2

Add to the end:

A change in the discriminatorConstruct attribute results in an attribute value change notification.

3) Subclause 8.1.1.5.3

Add to the end:

A change in the intervalsofDay attribute results in an attribute value change notification.

4) Subclause 8.1.1.5.4

Add to the end:

A change in the weekMask attribute results in an attribute value change notification.

5) Subclause 8.1.1.5.5

Add to the end:

A change in the schedulerName attribute results in an attribute value change notification.

6) Subclause 8.1.2.1

Add to the end:

A change in the destination attribute results in an attribute value change notification.

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7) Subclause 8.1.2.2.1

Add to the end:

A change in the backupDestinationList attribute results in an attribute value change notification.

8) Subclause 8.1.2.2.2

Add to the end:

A change in the activeDestination attribute results in an attribute value change notification.

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INTERNATIONAL STANDARD ISO/IEC 10164-5:1993/Amd.1:1995
TECHNICAL CORRIGENDUM 1

Published 1996-12-15

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

AMENDMENT 1: Implementation conformance statement proformas

TECHNICAL CORRIGENDUM 1

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

AMENDEMENT 1: Proformes de déclaration de conformité de mise en œuvre

RECTIFICATIF TECHNIQUE 1

Technical Corrigendum 1 to International Standard ISO/IEC 10164-5:1993/Amd.1:1995 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology,* Subcommittee SC 21, *Open systems interconnection, data management and open distributed processing.*

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ICS 35.100.70 **Ref. No. ISO/IEC 10164-5:1993/Amd.1:1995/Cor.1:1996(E)**

Descriptors: data processing, information interchange, network interconnection, open systems interconnection, application layer, systems management, management.

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INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

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

AMENDMENT 1
Implementation conformance statement proformas

TECHNICAL CORRIGENDUM 1

1) Annex A

In Table A.6 – "PICS Support Summary", *first row referencing* "CCITT Rec. X.730 | ISO/IEC 10164-1, Annex E, SM application context", *change the status from* "m" *to* "o" *and add the following note for the corresponding row of this table:*

"NOTE – The supplier of implementation shall indicate the application contexts supported."

2) Subclause A.1.3

Add the following sentence after the line "– Not applicable or out of scope", *immediately before* "NOTES":

"The value of 'm' in the Status column for the receiving of parameters, of tables of type MCS in Annex A indicates that there is a minimum requirement for the implementation to be able to receive the parameter. The Additional information column shall be used to state whether the implementation provides support for more than the minimum requirement."

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INTERNATIONAL STANDARD

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AMENDMENT 1
1995-12-15

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

AMENDMENT 1: Implementation conformance statement proformas

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

AMENDEMENT 1: Proformes de déclaration de conformité de mise en œuvre



Reference number
ISO/IEC 10164-5:1993/Amd.1:1995(E)

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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.

Amendment 1 to International Standard ISO/IEC 10164-5:1993 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 Rec. X.734/Amd.1.

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Introduction

This amendment includes tables, which document the mandatory and optional management information specific to the Event Reporting Management Function. This amendment will be used by Profile specifiers, for example those developing International Standardized Profiles (ISPs), to specify and explicit subset of capability, which will afford interoperability between implementations. The tables also include a column for equipment vendors to state the capability of their products in terms of the Profiles or base specification. The table structures comply with the Guidelines for Implementation Conformance Statement Proformas specified in ITU-T Recommendation X.724 | ISO/IEC 10165-6.

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INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

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

AMENDMENT 1
(to ITU-T Rec. X.734 | ISO/IEC 10164-5)

Implementation conformance statement proformas

1) *Add the following footnote to the first list item in 2.1:*

"[1] as amended by ITU-T Rec. X.701/Cor.2 | ISO/IEC 10040/Cor.2"

2) *Add the following reference to 2.1:*

"– 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.*"

3) *Add the following references to 2.2:*

"– CCITT Recommendation X.291 (1992), *OSI conformance testing methodology and framework for protocol Recommendations for CCITT applications – Abstract test suite specification.*

ISO/IEC 9646-2:1991, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 2: Abstract test suite specification.*

– ITU-T Recommendation X.296[2], *OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – Implementation conformance statements.*

ISO/IEC 9646-7[1], *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 7: Implementation conformance statements.*"

And then add the following footnote:

[2] Presently at the stage of draft.

4) *Apply the following changes to 3.4:*

Replace "dependent conformance" *with* "managed object conformance statement (MOCS)".

Replace "general conformance" *with* "management information conformance statement (MICS)".

Relabel items f) through h) as h) through j) and insert the following new items:

f) MICS proforma;

g) MOCS proforma;

5) *Apply the following changes to 3.6:*

Replace "term" with "terms".

Replace "system conformance statement" *with the following:*

"a) PICS proforma;

b) protocol implementation conformance statement;

c) system conformance statement."

6) *Renumber 3.7 as 3.8 and insert the following new subclause:*

"3.7 Implementation conformance statement proforma definitions

This Recommendation | International Standard makes use of the following terms defined in ITU-T Rec. X.724 | ISO/IEC 10165-6:

a) Managed Relationship Conformance Statement (MRCS);

b) Management Conformance Summary (MCS);

c) MCS proforma;

d) MRCS proforma."

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7) *Add the following abbreviations to clause 4:*

"ICS Implementation Conformance Statement

MCS Management Conformance Summary

MICS Management Information Conformance Statement

MOCS Managed Object Conformance Statement

MRCS Managed Relationship Conformance Statement

PICS Protocol Implementation Conformance Statement"

8) *Apply the following changes to 9.2:*

In the third paragraph, replace "annex B" *with* "Annex F".

9) *Replace clause 13 with the following:*

"13 Conformance

Implementations claiming to conform to this Recommendation | International Standard shall comply with the conformance requirements as defined in the following subclauses.

13.1 Static conformance

The implementation shall conform to the requirements of this Recommendation | International Standard in the manager role, the agent role, or both roles. A claim of conformance to at least one role shall be made in Table A.1.

If a claim of conformance is made for support in the manager role, the implementation shall support at least one management operation or notification of the event forwarding discriminator managed object specified by this Recommendation | International Standard. The conformance requirements in the manager role for those management operations and notifications are identified in Table A.3 and further tables referenced by Annex A.

If a claim of conformance is made for support in the agent role, the implementation shall support one or more instances of the event forwarding discriminator managed object class identified in Table A.4.

The implementation shall support the transfer syntax derived from the encoding rules specified in CCITT Rec. X.209 | ISO/IEC 8825 named {joint-iso-ccitt asn1(1) basicEncoding(1)} for the abstract data types referenced by the definitions for which support is claimed.

NOTE – Prior to the publication of this amendment, this Recommendation | International Standard identified general and dependent conformance classes. A claim of conformance similar to general conformance class can be made by stating support in the manager role, the agent role, or both roles, for the event report management functional unit in Table A.2. A claim of conformance similar to dependent conformance class can be made by stating support for at least one of the items in Tables A.3 or A.4.

13.2 Dynamic conformance

Implementations claiming to conform to this Recommendation | International Standard shall support the elements of procedure and definitions of semantics corresponding to the definitions for which support is claimed.

13.3 Management implementation conformance statement requirements

Any MCS proforma, MICS proforma, MOCS proforma, and MRCS proforma which conforms to this Recommendation | International Standard shall be technically identical to the proformas specified in Annexes A, B, C and D preserving table numbering and the index numbers of items, and differing only in pagination and page headers.

The supplier of an implementation which is claimed to conform to this Recommendation | International Standard shall complete a copy of the Management Conformance Summary (MCS) provided in Annex A as part of the conformance requirements together with any other ICS proformas referenced as applicable from that MCS. An ICS which conforms to this Recommendation | International Standard shall:

- describe an implementation which conforms to this Recommendation | International Standard;
- have been completed in accordance with the instructions for completion given in ITU-T Rec. X.724 | ISO/IEC 10165-6;
- include the information necessary to uniquely identify both the supplier and the implementation."

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10) *Relabel Annexes A through C as E through G and insert the following annexes:*

Annex A

MCS proforma[3)]

(This annex forms an integral part of this Recommendation | International Standard)

A.1 Introduction

A.1.1 Purpose and structure

The Management Conformance Summary (MCS) is a statement by a supplier that identifies an implementation and provides information on whether the implementation claims conformance to any of the listed set of documents that specify conformance requirements to OSI management.

The MCS proforma is a document in the form of a questionnaire that when completed by the supplier of an implementation becomes the MCS.

A.1.2 Instructions for completing the MCS proforma to produce a MCS

The supplier of the implementation shall enter an explicit statement in each of the boxes provided. Specific instruction is provided in the text which precedes each table.

A.1.3 Symbols, abbreviations and terms

For all annexes of this Recommendation | International Standard, the following common notations, defined in CCITT Rec. X.291 | ISO/IEC 9646-2 and ITU-T Rec. X.296 | ISO/IEC 9646-7, are used for the Status column:

m Mandatory;

o Optional;

c Conditional;

x Prohibited;

– Not applicable or out of scope.

NOTES

1 'c', 'm', and 'o' are prefixed by "c:" when nested under a conditional or optional item of the same table;

2 'o' may be suffixed by ".N" (where N is a unique number) for selectable options among a set of status values. Support of at least one of the choices (from the items with the same value of N) is required.

For all annexes of this Recommendation | International Standard, the following common notations, defined in CCITT Rec. X.291 | ISO/IEC 9646-2 and ITU-T Rec. X.296 | ISO/IEC 9646-7, are used for the Support column:

Y Implemented;

N Not implemented;

– No answer required;

Ig The item is ignored (i.e. processed syntactically but not semantically).

A.1.4 Table format

Some of the tables in this Recommendation | International Standard have been split because the information is too wide to fit on the page. Where this occurs, the index number of the first block of columns are the index numbers of the corresponding rows of the remaining blocks of columns. A complete table reconstructed from the constituent parts should have the following layout:

Index	First block of columns	Second block of columns	Etc.

3) Users of this Recommendation | International Standard may freely reproduce the MCS proforma in this annex so that it can be used for its intended purpose, and may further publish the completed MCS. Instructions for the MCS proforma are specified in ITU-T Rec. X.724 | ISO/IEC 10165-6.

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In this Recommendation | International Standard the constituent parts of the table appear consecutively, starting with the first block of columns.

When a table with sub-rows is too wide to fit on a page, the continuation table(s) have been constructed with index numbers identical to the index numbers in the corresponding rows of the first table, and with sub-index numbers corresponding to the sub-rows within each indexed row. For example, if Table X.1 has 2 rows and the continuation of Table X.1 has 2 sub-rows for each row, the tables are presented as follows:

Table X.1 – Title

					Support		
Index	A	B	C	D	E	F	G
1	a	b	–				
2	a	b	–				

Table X.1 *(continued)* – Title

Index	Sub-index	H	I	J	K	L
1	1.1	h	i	j		
	1.2	h	i	j		
2	2.1	h	i	j		
	2.2	h	i	j		

A complete table reconstructed from the constituent parts should have the following layout:

					Support							
Index	A	B	C	D	E	F	G	Sub-index	H	I	J	K	L
1	a	b	–					1.1	h	i	j		
								1.2	h	i	j		
2	a	b	–					2.1	h	i	j		
								2.2	h	i	j		

References made to cells within tables shall be interpreted as references within reconstructed tables. In the example, above, the reference X.1/1d corresponds to the blank cell in column G for row with Index 1, and X.1/1.2b corresponds to the blank cell in column L for row with Sub-index 1.2.

A.2 Identification of the implementation

A.2.1 Date of statement

The supplier of the implementation shall enter the date of this statement in the box below. Use the format DD-MM-YYYY.

Date of statement

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A.2.2 Identification of the implementation

The supplier of the implementation shall enter information necessary to uniquely identify the implementation and the system(s) in which it may reside, in the box below.

A.2.3 Contact

The supplier of the implementation shall provide information on whom to contact if there are any queries concerning the content of the MCS or any referenced conformance statement, in the box below.

A.3 Identification of the Recommendations | International Standards in which the management information is defined

The supplier of the implementation shall enter the title, reference number and date of the publication of the Recommendations | International Standards which specify the management information to which conformance is claimed, in the box below.

Recommendations	International Standards to which conformance is claimed

A.3.1 Technical corrigenda implemented

The supplier of the implementation shall enter the reference numbers of implemented technical corrigenda which modify the identified Recommendations | International Standards, in the box below.

A.3.2 Amendments implemented

The supplier of the implementation shall state the titles and reference numbers of implemented amendments to the identified Recommendations | International Standards, in the box below.

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A.4 Management conformance summary

The supplier of the implementation shall state the capabilities and features supported and provide a summary of conformance claims to Recommendations I International Standards using the tables in this annex.

The supplier of the implementation shall specify the roles that are supported, in Table A.1.

Table A.1 – Roles

Index	Roles supported	Status	Support	Additional information
1	Manager role support	o.1		
2	Agent role support	o.1		

The supplier of the implementation shall specify support for the systems management functional units, in Table A.2.

Table A.2 – Systems management functional units

		Manager		Agent		
Index	Systems management functional unit name	Status	Support	Status	Support	Additional information
1	event report management functional unit	c1		c2		
2	monitor event report management functional unit	c1		c2		
c1: if A.1/1a then o else –. c2: if A.1/2a then o else –.						

The supplier of the implementation shall specify support for management information in the manager role, in Table A.3.

Table A.3 – Manager role minimum conformance requirement

Index	Item	Status	Support	Additional information
1	Operations on managed objects	c3		
2	Object creation notification for event forwarding discriminator managed object	c4		
3	Object deletion notification for event forwarding discriminator managed object	c4		
4	Attribute value change notification for event forwarding discriminator managed object	c4		
5	State change notification for event forwarding discriminator managed object	c4		
c3: if A.2/1a then m else (if A.1/1a then o.2 else –). c4: if A.2/1a then m else (if A.2/2a then o else (if A.1/1a then o.2 else –)). NOTE – Manager role minimum conformance requires support for at least one of the items identified in this table. Support for either of the functional units identified in Table A.2 mandates support for some of those items. Conditions c3 and c4 express both of these requirements.				

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The supplier of the implementation shall specify support for management information in the agent role, in Table A.4.

Table A.4 – Agent role minimum conformance requirement

Index	Item	Status	Support	Additional information
1	Event forwarding discriminator managed object class	c5		
2	Subclasses of log records associated with notifications emitted by the event forwarding discriminator managed object	c6		

c5: if A.1/2a then m else –.

c6: if A.1/2a and A.5/1a then m else –.

NOTES

1 Condition c6 makes it mandatory, if logging is supported, to support the event log records associated with the notifications supported.

2 The Table reference column in this table is the notification reference of the MOCS supplied by the supplier of the managed object which claims to import the notification from this Recommendation | International Standard.

Table A.5 – Logging of event records

Index		Status	Support	Additional information
1	Does the implementation support logging of event records in agent role?	c7		

c7: if A.1/2a then o else –.

NOTE 1 – Conformance to this Recommendation | International Standard does not require conformance to CCITT Rec. X.735 | ISO/IEC 10164-6.

The supplier of the implementation shall provide information on claims of conformance to any of the Recommendations | International Standards summarized in Tables A.6 to A.9. For each Recommendation | International Standard that the supplier of the implementation claims conformance to, the corresponding conformance statement(s) shall be completed, or referenced by, the MCS. The supplier of the implementation shall complete the Support, Table numbers and Additional information columns.

In Tables A.6 to A.9, the Status column is used to indicate whether the supplier of the implementation is required to complete the referenced tables or referenced items. Conformance requirements are as specified in the referenced tables or referenced items and are not changed by the value of the MCS Status column. Similarly, the Support column is used by the supplier of the implementation to indicate completion of the referenced tables or referenced items.

Table A.6 – PICS support summary

Index	Identification of the document that includes the PICS proforma	Table numbers of PICS proforma	Description	Constraints and values	Status	Support	Table numbers of PICS	Additional information
1	CCITT Rec. X.730 | ISO/IEC 10164-1	Annex E all tables	SM application context	OBJECT IDENTIFIER	m			

NOTE 2 – Conformance to the MAPDUs defined in this Recommendation | International Standard can be claimed by completing the corresponding tables in the MICS and MOCS annexes of the referenced Recommendations | International Standards.

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Table A.7 – MOCS support summary

Index	Identification of the document that includes the MOCS proforma	Table numbers of MOCS proforma	Description	Constraints and values	Status	Support	Table numbers of MOCS	Additional information
1	CCITT Rec. X.730 | ISO/IEC 10164-1	Annex C all tables	objectCreation, objectDeletion and attributeValueChange records	–	c8			
2	CCITT Rec. X.731 | ISO/IEC 10164-2	Annex C all tables	stateChange record	–	c8			
3	CCITT Rec. X.734 | ISO/IEC 10164-5	Annex C all tables	eventForwarding Discriminator	–	m			
c8: if A.4/2a then m else –.								

Table A.8 – MRCS support summary

Index	Identification of the document that includes the MRCS proforma	Table numbers of MRCS proforma	Description	Constraints and values	Status	Support	Table numbers of MRCS	Additional information
1	CCITT Rec. X.734 | ISO/IEC 10164-5	Item D.1/1	discriminator-system name binding	–	c9			
2	CCITT Rec. X.735 | ISO/IEC 10164-6	Item D.1/1	logRecord-log name binding	–	c10			
c9: if A.4/1a then o else –. c10: if A.5/1a then o else –.								

Table A.9 – MICS support summary

Index	Identification of the document that includes the MRCS proforma	Table numbers of MICS proforma	Description	Constraints and values	Status	Support	Table numbers of MICS	Additional information
1	CCITT Rec. X.734 | ISO/IEC 10164-5	Tables B.1 and B.2	management operations	–	c11			
2	CCITT Rec. X.730 | ISO/IEC 10164-1	Table B.1	objectCreation, objectDeletion and attributeValueChange notifications	–	c12			
3	CCITT Rec. X.731 | ISO/IEC 10164-2	Table B.1	stateChange notification	–	c13			
c11: if A.3/1a then m else –. c12: if A.3/2a or A.3/3a or A.3/4a then m else –. c13: if A.3/5a then m else –.								

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Annex B

MICS proforma[4)]

(This annex forms an integral part of this Recommendation I International Standard)

B.1 Introduction

The purpose of this MICS proforma is to provide a mechanism for a supplier of an implementation which claims conformance, in the manager role, to management information specified in this Recommendation I International Standard, to provide conformance information in a standard form.

B.2 Instructions for completing the MICS proforma to produce a MICS

The MICS proforma contained in this annex is comprised of information in tabular form, in accordance with ITU-T Rec. X.724 I ISO/IEC 10165-6. In addition to the general guidance given in ITU-T Rec. X.724 I ISO/IEC 10165-6, the Additional information column shall be used to identify the object classes for which the management operations are supported. The supplier of the implementation shall state which items are supported in the tables below and if necessary, provide additional information.

B.3 Symbols, abbreviations and terms

The following abbreviation is used throughout the MICS proforma:

dmi-att joint-iso-ccitt ms(9) smi(3) part2(2) attribute(7)

The notations used for the Status and Support columns are specified in A.1.3.

B.4 Statement of conformance to the management information

B.4.1 Attributes

The specifier of a manager role implementation that claims to support management operations on the attributes specified in this Recommendation I International Standard shall import a copy of Table B.1 and complete it.

4) Users of this Recommendation I International Standard may freely reproduce the MICS proforma in this annex so that it can be used for its intended purpose, and may further publish the completed MICS.

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Table B.1 – Attribute support

Index	Attribute template label	Value of object identifier for the attribute	Constraints and values	Set by create		Get	
				Status	Support	Status	Support
1	objectClass	{dmi-att 65}	–	c1		o.3	
2	nameBinding	{dmi-att 63}	–	c1		o.3	
3	packages	{dmi-att 66}	–	c1		o.3	
4	allomorphs	{dmi-att 50}	–	c1		o.3	
5	discriminatorId	{dmi-att 1}	–	c1		o.3	
6	discriminatorConstruct	{dmi-att 56}	–	c1		o.3	
7	administrativeState	{dmi-att 31}	–	c1		o.3	
8	operationalState	{dmi-att 35}	–	–		o.3	
9	availabilityStatus	{dmi-att 33}	–	–		o.3	
10	startTime	{dmi-att 68}	–	c1		o.3	
11	stopTime	{dmi-att 69}	–	c1		o.3	
12	intervalsOfDay	{dmi-att 57}	–	c1		o.3	
13	weekMask	{dmi-att 71}	–	c1		o.3	
14	schedulerName	{dmi-att 67}	–	c1		o.3	
15	destination	{dmi-att 55}	–	c1		o.3	
16	activeDestination	{dmi-att 49}	–	–		o.3	
17	backUpDestinationList	{dmi-att 51}	–	c1		o.3	
18	confirmedMode	{dmi-att 53}	–	c1		o.3	
c1: if B.2/1a then o else –.							

Table B.1 *(concluded)* – Attribute support

Index	Replace		Add		Remove		Set to default		Additional information
	Status	Support	Status	Support	Status	Support	Status	Support	
1	–		–		–		–		
2	–		–		–		–		
3	–		–		–		–		
4	–		–		–		–		
5	–		–		–		–		
6	o.3		–		–		o.3		
7	o.3		–		–		–		
8	–		–		–		–		
9	–		–		–		–		
10	o.3		–		–		–		
11	o.3		–		–		o.3		
12	o.3		o.3		o.3		o.3		
13	o.3		o.3		o.3		o.3		
14	–		–		–		–		
15	o.3		–		–		–		
16	–		–		–		–		
17	o.3		–		–		–		
18	–		–		–		–		

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B.4.2 Create and delete management operations

The specifier of a manager role implementation that claims to support the create or delete management operations on the managed objects specified in this Recommendation | International Standard shall import a copy of Table B.2 and complete it.

Table B.2 – Create and delete support

Index	Operation	Constraints and values	Status	Support	Additional information
1	Create support	event forwarding discriminator managed object	o.3		
1.1	Create with reference object	–	c:o		
2	Delete support	event forwarding discriminator managed object	o.3		

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Annex C

MOCS proforma[5)]

(This annex forms an integral part of this Recommendation | International Standard)

C.1 Introduction

The purpose of this MOCS proforma is to provide a mechanism for a supplier of an implementation which claims conformance to a managed object class, to provide conformance information in a standard form.

C.2 Instructions for completing the MOCS proforma to produce a MOCS

The MOCS proforma contained in this annex is comprised of information in tabular form, in accordance with ITU-T Rec. X.724 | ISO/IEC 10165-6. The supplier of the implementation shall state which items are supported in the tables below and if necessary, provide additional information.

C.3 Symbols, abbreviations and terms

The following abbreviations are used throughout the MOCS proforma:

dmi-att	joint-iso-ccitt ms(9) smi(3) part2(2) attribute(7)
dmi-moc	joint-iso-ccitt ms(9) smi(3) part2(2) managedObjectClass(3)
dmi-nb	joint-iso-ccitt ms(9) smi(3) part2(2) nameBinding(6)
dmi-not	joint-iso-ccitt ms(9) smi(3) part2(2) notification(10)
dmi-pkg	joint-iso-ccitt ms(9) smi(3) part2(2) package(4)

The notations used for the Status and Support columns are specified in A.1.3.

The following conditional expression is commonly used throughout this MOCS proforma:

c1: if C.3/3a or C.3/5a or C.3/6a or C.3/7a or C.3/8a or C.3/9a or C.3/11a or C.3/12a then m else –.

C.4 Event forwarding discriminator managed object class

C.4.1 Statement of conformance to the managed object class

The supplier of the implementation shall state whether or not all mandatory features of the event forwarding discriminator managed object class are supported, and if the actual class supported is the same as the managed object class to which conformance is claimed, in Table C.1.

Table C.1 – Managed object class support

Index	Managed object class template label	Value of object identifier for the managed object class	Does the implementation support all mandatory features? (Y/N)	Is the actual class the same as the managed object class to which conformance is claimed? (Y/N)
1	eventForwardingDiscriminator	{dmi-moc 4}		

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If the answer to the actual class question in the managed object class support table is "N", the supplier of the implementation shall supply the actual class support details, in Table C.2.

Table C.2 – Actual class support

Index	Actual managed object class template label	Value of object identifier for the managed object class	Additional information
1			

C.4.2 Packages

See Table C.3.

Table C.3 – Package support

Index	Package template label	Value of object identifier for the package	Constraints and values	Status	Support	Additional information
1	topPackage	–	–	m		
2	packagesPackage	{dmi-pkg 16}	–	c1		
3	allomorphicPackage	{dmi-pkg 17}	–	c2		
4	discriminatorPackage	–	–	m		
5	availabilityStatusPackage	{dmi-pkg 22}	–	c3		
6	durationPackage	{dmi-pkg 26}	–	o		
7	dailySchedulingPackage	{dmi-pkg 25}	–	o		
8	weeklySchedulingPackage	{dmi-pkg 29}	–	o		
9	externalSchedularPackage	{dmi-pkg 27}	–	o		
10	efdPackage	–	–	m		
11	backUpDestinationListPackage	{dmi-pkg 9}	–	o		
12	modePackage	{dmi-pkg 10}	–	o		
c2: if C.1/1b then – else m. c3: if C.3/7a or C.3/8a or C.3/9a then m else –.						

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C.4.3 Attributes

See Table C.4.

Table C.4 – Attribute support

Index	Attribute template label	Value of object identifier for the attribute	Constraints and values	Set by create		Get	
				Status	Support	Status	Support
1	objectClass	{dmi-att 65}	–	m		m	
2	nameBinding	{dmi-att 63}	–	o		m	
3	packages	{dmi-att 66}	–	c4		c1	
4	allomorphs	{dmi-att 50}	–	c5		c6	
5	discriminatorId	{dmi-att 1}	–	o		m	
6	discriminatorConstruct	{dmi-att 56}	See C.4.5	m		m	
7	administrativeState	{dmi-att 31}	–	m		m	
8	operationalState	{dmi-att 35}	–	x		m	
9	availabilityStatus	{dmi-att 33}	off-duty	x		c7	
10	startTime	{dmi-att 68}	–	c8		c8	
11	stopTime	{dmi-att 69}	DMI default	c8		c8	
12	intervalsOfDay	{dmi-att 57}	DMI default	c9		c9	
13	weekMask	{dmi-att 71}	DMI default	c10		c10	
14	schedulerName	{dmi-att 67}	–	c11		c12	
15	destination	{dmi-att 55}	–	m		m	
16	activeDestination	{dmi-att 49}	–	x		c13	
17	backUpDestinationList	{dmi-att 51}	–	c13		c13	
18	confirmedMode	{dmi-att 53}	–	c14		c14	

c4: if C.3/2a then o else –.
c5: if C.3/3a then o else –.
c6: if C.3/3a then m else –.
c7: if C.3/5a then m else –.
c8: if C.3/6a then m else –.
c9: if C.3/7a then m else –.
c10: if C.3/8a then m else –.
c11: if C.3/9a then o else –.
c12: if C.3/9a then m else –.
c13: if C.3/11a then m else –.
c14: if C.3/12a then m else –.

(continued)

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Table C.4 *(concluded)* – Attribute support

	Replace		Add		Remove		Set to default		
Index	Status	Support	Status	Support	Status	Support	Status	Support	Additional information
1	x		–		–		x		
2	c15		–		–		c15		
3	x		x		x		x		
4	c15		c15		c15		c15		
5	c15		–		–		c15		
6	m		–		–		m		
7	m		–		–		c15		
8	x		–		–		x		
9	x		x		x		x		
10	c8		–		–		c15		
11	c8		–		–		c8		
12	c9		c9		c9		c9		
13	c10		c10		c10		c10		
14	x		–		–		x		
15	m		–		–		c15		
16	x		–		–		x		
17	c13		c15		c15		c15		
18	x		–		–		x		
c15: if C.1/1b then x else –.									

C.4.4 Notifications

See Table C.5.

Table C.5 – Event forwarding discriminator object notification support

					Support		
Index	Notification type template label	Value of object identifier for the notification type	Constraints and values	Status	Confirmed	Non-confirmed	Additional information
1	stateChange	{dmi-not 14}	–	m			
2	objectCreation	{dmi-not 6}	–	m			
3	objectDeletion	{dmi-not 7}	–	m			
4	attributeValueChange	{dmi-not 1}	–	m			

(continued)

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Table C.5 *(continued)* – Event forwarding discriminator object notification support

Index	Sub-index	Notification field name label	Value of object identifier for the attribute type associated with the field	Constraints and values	Status	Support	Additional information
1	1.1	sourceIndicator	{dmi-att 26}	ENUMERATED 0 to 2	o		
	1.2	attributeIdentifierList	{dmi-att 8}	–	o		
	1.3	stateChangeDefinition	{dmi-att 28}	–	m		
	1.3.1	attributeID	–	–	m		
	1.3.2	oldAttributeValue	–	–	o		
	1.3.3	newAttributeValue	–	–	m		
	1.4	notificationIdentifier	{dmi-att 16}	INTEGER	c16		
	1.5	correlatedNotifications	{dmi-att 12}	–	o		
	1.5.1	correlatedNotifications	–	–	c:m		
	1.5.2	sourceObjectInst	–	–	c:o		
	1.5.2.1	distinguishedName	–	–	c:o.4		
	1.5.2.2	nonSpecificForm	–	–	c:o.4		
	1.5.2.3	localDistinguishedName	–	–	c:o.4		
	1.6	additionalText	{dmi-att 7}	–	o		
	1.7	additionalInformation	{dmi-att 6}	–	o		
2	2.1	sourceIndicator	{dmi-att 26}	ENUMERATED 0 to 2	o		
	2.2	attributeList	{dmi-att 9}	–	o		
	2.3	notificationIdentifier	{dmi-att 16}	INTEGER	c17		
	2.4	correlatedNotifications	{dmi-att 12}	–	o		
	2.4.1	correlatedNotifications	–	–	c:m		
	2.4.2	sourceObjectInst	–	–	c:o		
	2.4.2.1	distinguishedName	–	–	c:o.5		
	2.4.2.2	nonSpecificForm	–	–	c:o.5		
	2.4.2.3	localDistinguishedName	–	–	c:o.5		
	2.5	additionalText	{dmi-att 7}	–	o		
	2.6	additionalInformation	{dmi-att 6}	–	o		

c16: if C.5/1.5a then m else o.

c17: if C.5/2.4a then m else o.

(continued)

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Table C.5 *(concluded)* – Event forwarding discriminator object notification support

Index	Sub-index	Notification field name label	Value of object identifier for the attribute type associated with the field	Constraints and values	Status	Support	Additional information
3	3.1	sourceIndicator	{dmi-att 26}	ENUMERATED 0 to 2	o		
	3.2	attributeList	{dmi-att 9}	–	o		
	3.3	notificationIdentifier	{dmi-att 16}	INTEGER	c18		
	3.4	correlatedNotifications	{dmi-att 12}	–	o		
	3.4.1	correlatedNotifications	–	–	c:m		
	3.4.2	sourceObjectInst	–	–	c:o		
	3.4.2.1	distinguishedName	–	–	c:o.6		
	3.4.2.2	nonSpecificForm	–	–	c:o.6		
	3.4.2.3	localDistinguishedName	–	–	c:o.6		
	3.5	additionalText	{dmi-att 7}	–	o		
	3.6	additionalInformation	{dmi-att 6}	–	o		
4	4.1	sourceIndicator	{dmi-att 26}	ENUMERATED 0 to 2	o		
	4.2	attributeIdentifierList	{dmi-att 8}	–	o		
	4.3	attributeValueChange Definition	{dmi-att 10}	–	m		
	4.3.1	attributeID	–	–	m		
	4.3.2	oldAttributeValue	–	–	o		
	4.3.3	newAttributeValue	–	–	m		
	4.4	notificationIdentifier	{dmi-att 16}	INTEGER	c19		
	4.5	correlatedNotifications	{dmi-att 12}	–	o		
	4.5.1	correlatedNotifications	–	–	c:m		
	4.5.2	sourceObjectInst	–	–	c:o		
	4.5.2.1	distinguishedName	–	–	c:o.7		
	4.5.2.2	nonSpecificForm	–	–	c:o.7		
	4.5.2.3	localDistinguishedName	–	–	c:o.7		
	4.6	additionalText	{dmi-att 7}	–	o		
	4.7	additionalInformation	{dmi-att 6}	–	o		

c18: if C.5/3.4a then m else o.

c19: if C.5/4.5a then m else o.

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C.4.5 Discriminator construct complexity requirements

The supplier of the implementation shall list the attributes, derived from notifications, that it is able to discriminate, in Table C.6.

Table C.6 – Discrimination input attribute requirements

Notification attribute name	Value of object identifier for the attribute type associated with the field	Additional information
NOTE – These attributes may include the managedObjectClass, eventType, managedObjectInstance, perceivedSeverity, and securityAlarmSeverity attributes specified in CCITT Rec. X.721 | ISO/IEC 10165-2.		

Table C.7 – DiscriminatorConstruct CMISFilter parameter support

		Agent			Manager			
Index	Parameter name	Status	Support	Maximum number of FilterItem	Status	Support	Maximum number of FilterItem	Additional information
1	item	m		–	m		–	
2	and	m			m			
3	or	m			m			
4	not	m		–	m		–	

Table C.8 – Discriminator Construct CMISFilter complexity limitations

Index	Complexity limitation	Agent	Manager	Additional information
1	Maximum nesting depth of CMISFilter expressions in an "AND"			
2	Maximum nesting depth of CMISFilter expressions that may occur in an "OR"			
3	Maximum number of FilterItem parameters in a CMISFilter parameter			

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Table C.9 – FilterItem Parameter Support

		Agent			Manager			
Index	Parameter name	Status	Support	Constraints	Status	Support	Constraints	Additional information
1	equality	o.8		–	m		–	
2	substrings	o.8		–	m		–	
2.1	initialString	m		–	m		–	
2.1.1	attributeId	m		–	m		–	
2.1.2	string	m		–	m		–	
2.2	anyString	m		–	m		–	
2.2.1	attributeId	m		–	m		–	
2.2.2	string	m		–	m		–	
2.3	finalString	m		–	m		–	
2.3.1	attributeId	m		–	m		–	
2.3.2	string	m		–	m		–	
3	greaterOrEqual	o.8		–	m		–	
4	lessOrEqual	o.8		–	m		–	
5	present	o.8		–	m		–	
6	subsetOf	o.8		–	m		–	
7	supersetOf	o.8		–	m		–	
8	nonNullSetIntersection	o.8		–	m		–	

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Annex D

MRCS proforma for name binding[6)]

(This annex forms an integral part of this Recommendation I International Standard)

D.1 Introduction

The purpose of this MRCS proforma for name bindings is to provide a mechanism for a supplier which claims conformance to a name binding to provide conformance information in a standard form.

D.2 Instructions for completing the MRCS proforma for name binding to produce an MRCS

The MRCS proforma contained in this annex is comprised of information in tabular form, in accordance with ITU-T Rec. X.724 I ISO/IEC 10165-6. The supplier of the implementation shall state which items are supported in Table D.1 and if necessary provide additional information.

Notations used in the Status and Support columns are specified in A.1.3.

D.3 Symbols, abbreviations and terms

The following abbreviation is used in this MRCS proforma:

dmi-nb joint-iso-ccitt ms(9) smi(3) part2(2) nameBinding(6)

D.4 Statement of conformance to the name binding

See Table D.1.

Table D.1 – Name binding support

Index	Name binding template label	Value of object identifier for the name binding	Constraints and values	Status	Support	Additional information
1	discriminator-system	{dmi-nb 1}	–	o		

Table D.1 *(concluded)* – Name binding support

Index	Sub-index	Operation	Constraints and values	Status	Support	Additional information
1	1.1	Create support	–	m		
	1.1.1	Create with reference object	–	m		
	1.1.2	Create with automatic instance naming	–	m		
	1.2	Delete support	–	m		
	1.2.1	Delete only if no contained objects	–	m		
	1.2.2	Delete contained objects	–	–		

6) Users of this Recommendation I International Standard may freely reproduce the MRCS proforma in this annex so that it can be used for its intended purpose, and may further publish the completed MRCS. Instructions for completing the MRCS proforma are specified in ITU-T Rec. X.724 I ISO/IEC 10165-6.

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

TECHNICAL CORRIGENDUM 1

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

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INTERNATIONAL STANDARD

CCITT RECOMMENDATION

INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION – SYSTEMS MANAGEMENT: EVENT REPORT MANAGEMENT FUNCTIONS

TECHNICAL CORRIGENDUM 1

Subclause 3.7

Add the following in alphabetical order and renumber the rest of the clause.

3.7.4 event report: a general term for the system management PDUs used to convey the information related to notifications.

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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 10164-5 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.

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*

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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*;

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

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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.*

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- 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.

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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;

c) general conformance;

d) management support object;

e) manager role;

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.

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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.

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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.

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

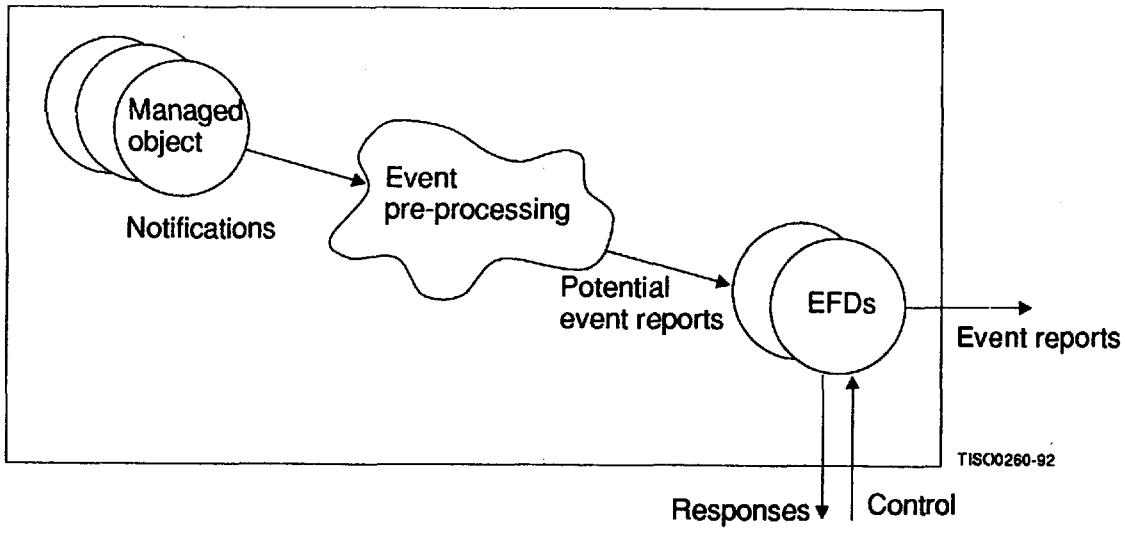


Figure 1 – Event report management model

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7.2.1 Event reporting management function

Event reporting management allows an open system to establish and control the discrimination and the forwarding of event reports to other open systems. Event reports are generated as a result of the notification that an event has occurred, e.g. a threshold violation or a change in configuration status. The event forwarding management function provides the capability of identifying the destinations to which selected event reports are to be sent. Event reporting management provides the means by which discrimination and forwarding can be initiated, terminated, suspended, or resumed and through which the attributes of the event forwarding discriminator can be read and modified.

The event reporting management function provides the capability for setting up a long term event reporting relationship between two open systems. While the event forwarding discriminator is in the unlocked state, the reporting open system forwards event reports to the specified destination given that the operational state is enabled and any schedule is not "off-duty".

Event reporting management comprises the following:

- initiation of event forwarding;
- termination of event forwarding;
- suspension of event forwarding;
- resumption of event forwarding;
- modification of event forwarding conditions;
- retrieval of event forwarding conditions.

8 Generic definitions

8.1 Managed objects

This Recommendation | International Standard provides generic definitions of managed objects, attributes and packages associated with the discriminator and the event forwarding discriminator.

8.1.1 The discriminator

The basic superclass is the **discriminator** object class. The discriminator may be specialized into subclasses to specify management support object classes that allow the control of various system management functions. The discriminator provides for specification of conditions that shall be satisfied prior to allowing the management operation or notification associated with the discriminator input object to proceed. Some of the conditions are common to all subclasses of the discriminator; others are unique to the specific discriminator subclass.

The conditions specified by the discriminator are

- identification of a scheduling packages that determine when discriminator processing will occur;
- the criteria for discrimination;
- the administrative and operational state of the discriminator;
- those specific to a particular discriminator object subclass.

8.1.1.1 Management of discriminators

The discriminator is a managed object that allows a managing system to exercise control over the management operations that may be accepted and the event reports that may be forwarded, by a managed system. Discriminators can, therefore, be created, deleted, read and modified. In addition, the activity of discriminators can be suspended and resumed by means of manipulating their administrative states.

When a discriminator is created, the discriminator shall generate an object creation notification. This notification shall be processed by the newly created discriminator.

Each discriminator has an operational state and an administrative state. The operational states defined for the discriminator are those defined in CCITT Rec. X.731 | ISO/IEC 10164-2. The administrative state attribute defined for the discriminator is a subset of those defined in CCITT Rec. X.731 | ISO/IEC 10164-2. A change in the operational state shall be reported using the state change notification. This notification shall be processed by the affected discriminator before it enters the disabled state or after it enters the enabled state, as appropriate.

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The operational states defined for the discriminator are **enabled** and **disabled**. For the discriminator, the enabled state is the state in which the discriminator can process discriminator input objects (unless administratively prohibited from doing so or if any schedule is "off-duty"); in the disabled state the discriminator does not process any discriminator input objects.

The administrative states defined for the discriminator are **locked** and **unlocked**. State changes in the administrative state of the discriminator are the result of intervention by a managing system or local administrative activity. The precise semantics of these states are defined as part of the class definition of subclasses of discriminator.

The managing system may lock or unlock the discriminator. Whenever the administrative state of the discriminator changes, the discriminator shall generate a notification. When the state is changed from unlocked to locked and the discriminator is in the enabled state, the discriminator shall not change state until a state change notification indicating the state change has been processed by the discriminator. When the discriminator state is changed from locked to unlocked, the discriminator shall generate a notification indicating the state change immediately after having entered the unlocked state. The state change from unlocked to locked is assumed to occur instantaneously and without disrupting the processing of a current potential event report.

When the discriminator is deleted, the discriminator shall generate an object deletion notification and process that notification prior to deletion. If the discriminator is in the unlocked and enabled states it shall process the discriminator input object indicating the object deletion prior to its deletion.

In addition to manipulating the state of a discriminator, a manager can change the time during which a discriminator will be available and change the conditions under which tests on a discriminator input object can evaluate to TRUE. These changes are defined to occur in such a way so as not to impact a discriminator input object that is currently being processed. The availability status shall be present when a manager can change the time during which the discriminator is available. The availability status attribute value for the discriminator is a subset of those defined in CCITT Rec. X.731 | ISO/IEC 10164-1. If discrimination is available and the scheduling attributes are changed so that the current time is not within the "available" time range, the availability status becomes "off-duty". This notification shall be processed by the affected event forwarding discriminator before it enters the off-duty status. No state change notifications are generated for this attribute.

Changes to values of attributes other than administrative state, operational state and, if present, availability status, shall be reported using the attribute value change notification.

Open systems may be configured with a mechanism for forwarding events when no manageable event forwarding discriminator is available (see Annex B). This mechanism is outside the scope of this specification.

8.1.1.2 Normal operation of discriminators

A discriminator contains a discriminator construct that is a filtering mechanism which acts on attributes of discriminator input objects. A discriminator construct is a set of one or more assertions about the presence or values of attributes. If the discriminator construct involves more than one assertion, the assertions are grouped together using logical operators.

The discriminator construct can specify tests for equality and inequality conditions of attributes, test for the presence of attributes and the negation of any of these conditions. Multiple conditions may be combined by means of "AND" or "OR" operators. When an attribute for which an attribute value assertion is present in the discriminator construct, is absent in a discriminator input object to be tested, the result of the test on that attribute value assertion shall be evaluated as FALSE.

An empty discriminator construct will evaluate to TRUE for any set of discriminator input object attributes. For the discriminator, if the discriminator construct evaluates to TRUE, the discriminator is in the unlocked and enabled states, and the availability status, if present, is not "off-duty", then the discriminator input object passes the discriminator and will be processed further (the processing to be performed depends on the precise semantics of the discriminator subclass).

If the discriminator is in the locked or disabled states or has the "off-duty" availability status (if present), then discriminator input objects will not be processed by that discriminator. If the discriminator is created such that a manager can not change the time when it is available, then the discriminator is assumed to be always available.

8.1.1.3 Discriminator attributes

The following mandatory attributes are defined for the discriminator object class.

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8.1.1.3.1 Discriminator Id

This attribute is used to uniquely identify the instance of a discriminator.

8.1.1.3.2 Discriminator construct

This attribute specifies tests on the information that is to be processed by the discriminator.

8.1.1.3.3 Administrative state

This attribute represents the administrative state of the discriminator. The following administrative states are defined:

a) **unlocked** – processing of the information by the discriminator is permitted by a managing system;

b) **locked** – processing of the information by the discriminator is prohibited by a managing system.

8.1.1.3.4 Operational state

This attribute represents the operational capability of the discriminator to perform its function. The following operational states are defined:

a) **enabled** – the discriminator is operational;

b) **disabled** – the discriminator is inoperable.

8.1.1.4 Discriminator notifications

The following mandatory notifications are defined for the discriminator object class:

a) state change;

b) attribute value change;

c) object creation;

d) object deletion.

8.1.1.5 Scheduling packages

To accommodate various levels of complexity in scheduling event reporting activity periods, conditional packages that are related to scheduling are defined for the event forwarding discriminator.

Scheduling packages provide discriminators with the ability to automatically switch between their reporting-on and reporting-off conditions. If no scheduling package is present in a discriminator, it is always in reporting-on condition.

8.1.1.5.1 Availability status package

This conditional package shall be present if any of the other scheduling related packages are instantiated. This package contains the following attribute:

Availability status

This attribute reflects the availability status of the managed object. When the resource has been made unavailable in accordance with a predetermined time schedule its value will be "off-duty". The attribute is read-only. The value on creation is determined by the scheduling parameters specified and the status of the resource. The required value set for this attribute in this package is "off-duty".

No state change notifications are generated for this attribute.

8.1.1.5.2 Duration package

The duration package provides the ability to automatically control the time that a managed object starts and stops functioning through the use of the start time and stop time attributes.

a) **Start time**

This attribute defines the date and time at which an unlocked and enabled managed object starts functioning. If the value of the Start time attribute is not specified in the create request, its value defaults to the time of creation of the managed object and thus causing it to function immediately.

A change in the Start time attribute results in an attribute value change notification.

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b) **Stop time**

This attribute defines the date and time at which a managed object stops functioning. If the value of the Stop time attribute is not specified in the create request, its value defaults to "continuous operation". Continuous operation is represented by a null value for the Stop time.

A change in the Stop time attribute results in an attribute value change notification.

8.1.1.5.3 Daily scheduling package

The daily scheduling conditional package provides the capability of scheduling operability of the discriminator with a periodicity of 24 h.

The scheduling attribute and its associated default, are defined below:

Intervals of day

This attribute defines the list of time intervals (interval-start and interval-end times of day) for which the discriminators will exhibit the "on duty" condition. During excluded intervals the discriminator exhibits the "off-duty" condition. If not specified in the create request, the value of this component defaults to a single interval encompassing the entire 24 h period of a day.

8.1.1.5.4 Weekly scheduling package

The weekly scheduling conditional package provides the capability of scheduling operability of the discriminator with a periodicity of one week.

The scheduling attribute and its associated default, are defined below:

Week mask

This structured attribute defines a set of mask components, each specifying a set of time intervals on a 24 h time-of-day clock, pertaining to selected days of the week. The weekMask attribute defaults to a scheduling criteria of "always on" at discriminator creation. The components of each mask are defined below:

a) **Days of week**

This component defines the days of the week on which the discriminator's scheduling mechanism will allow the discriminator to have intervals during which processing of a discriminator may occur. This component, if not present in a create, will default to all seven days of the week.

b) **Intervals of day**

This component defines the list of time intervals (interval-start and interval-end times of day) for which the discriminator will exhibit the "on duty" condition, if the current day is one of the days that is selected within the corresponding daysOfWeek. During excluded intervals the discriminator exhibits the "off-duty" condition. If not specified in the create request, the value of this component defaults to a single interval encompassing the entire 24 h period of a day.

8.1.1.5.5 External scheduler scheduling package

The external scheduler scheduling conditional package provides the capability of scheduling event reporting based on a schedule defined in an external scheduler managed object. The discriminators' "on duty" and "off duty" conditions will be changed in accordance with the scheduling characteristics specified by a scheduler managed object.

The scheduling attribute is defined below:

Scheduler name

This attribute specifies the name of the schedular managed object that is related to the discriminators. This relationship implies that the discriminator's "on duty" and "off-duty" conditions will be scheduled by the external scheduler. This attribute is a read-only attribute.

8.1.2 Event forwarding discriminator

The **event forwarding discriminator** allows specification of conditions to be satisfied by potential event reports related to managed objects before the event report is forwarded to a particular destination(s). The event forwarding discriminator is a subclass of the discriminator object class.

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8.1.2.1 Event forwarding discriminator attributes

In addition to the attributes inherited from the discriminator, the event forwarding discriminator has the following attribute:

Destination

The destination attribute identifies the destination(s) to which the discriminator forwards event reports. The destination may be a single application entity title or multiple application entity titles.

8.1.2.2 Backup destination package

This package has two attributes which specify the backup destinations and the active destination. This package is present when it is required to provide a backup for the destination.

8.1.2.2.1 Backup destination list

The backup destination list attribute is an ordered list of application entity titles. The application entities identified in the backup destination list are AE Titles designated to be used as event destination if the destination specified by the destination attribute fails. Detection of AE failures and switch-back policy is a local matter. The application entity that appears earlier in the list has priority over those following it in the list.

This attribute is not used when the destination attribute has multiple application entity titles.

8.1.2.2.2 Active destination

The active destination attribute is specified as a single application entity title. The active destination attribute identifies the Application Entity to which events are currently forwarded by the discriminator. This attribute is read-only and its value is assigned as a result of system operation using the destination or backup destination list attributes.

8.1.2.3 Mode package

This package has one attribute and is present when it is required if the mode for reporting events is to be specified by the managing system:

Confirmed mode

This attribute has two values: confirmed and non-confirmed. Its value shall only be set at object creation time. If the attribute is not specified in the request, the mode to be used for sending event reports is a local matter. All potential event reports that are forwarded by the event forwarding discriminator with the mode set to confirmed, are sent as confirmed event reports; if the mode is set to non-confirmed, they are sent as non-confirmed reports.

8.1.2.4 Event forwarding discriminator behaviour

In addition to the behaviour inherited from the discriminator object class, the event forwarding discriminator exhibits the following behaviour.

Tests on the following attributes of a potential event report may be specified by the discriminator construct in the event forwarding discriminator:

- managed object class;
- managed object instance;
- event type;
- event type specific attributes, e.g. for fault related events such attributes as
  - severity;
  - backed Up Status;
  - probable Cause.

In order to perform these tests the abstract syntax used must be known to the discriminator.

If the discriminator construct for a potential event report evaluates to TRUE and the event forwarding discriminator is in the unlocked and enabled state and does not exhibit the "off-duty" availability status, then an event report is directed to the specified destination.

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8.2 Imported generic definitions

The following generic definitions used in this Recommendation | International Standard are defined in CCITT Rec. X.731 | ISO/IEC 10164-2 and CCITT Rec. X.730 | ISO/IEC 10164-1.

- administrative state;
- operational state;
- availability status;
- state change notification;
- object creation notification;
- object deletion notification;
- attribute value change notification.

9 Service definitions

This Recommendation | International Standard does not define any services. The use of services defined in other functions is described below.

9.1 Introduction

The information needs and management control requirements between systems may change with time and changes in the management or communications environment. It is, therefore, necessary to provide a mechanism for administering OSI management services.

It is considered that systems should have the capability of modifying the operation of event forwarding discriminators in other systems. In particular, the operations required, that can be applied to each instance of an event forwarding discriminator, are

- creation of a discriminator;
- deletion of a discriminator;
- modification of discriminator attributes;
- suspension of the activity of the discriminator; and
- resumption of the discriminators activity.

These operations will thus provide a means for a system to initiate/terminate/suspend/resume event reporting for particular managed objects.

It is also considered necessary that systems be able to modify and read any of the attributes of a particular event forwarding discriminator. The operational state attribute, active destination attribute, confirmed mode attribute and availability status attribute are read only and cannot be changed by management.

9.2 Initiation of event report forwarding

The PT-CREATE service defined in CCITT Rec. X.730 | ISO/IEC 10164-1 is used to allow one open system to request that another open system create an event forwarding discriminator, thereby requesting that new or additional event forwarding controls be imposed. When an event forwarding discriminator is created, it generates an object creation notification indicating its administrative, operational states and if present, availability status and confirmed mode. Whether or not this notification will result in the transmission of an event report, depends on the administrative and operational states, availability status and discriminator construct of the discriminators processing the potential event report.

The semantics of the discriminator attributes are defined in clause 8. The attributes and defaults for the create operation are specified below.

Discriminator construct: This attribute specifies the test conditions which will be used by the event forwarding discriminator in testing potential event reports. If no value is specified for this parameter in the incoming request, then an empty discriminator construct will be defined; i.e. a discriminator construct that evaluates to TRUE for all potential event reports. An example of the value notation for the discriminator construct is shown in annex B.

Discriminator Id: If the value is not supplied, the managing system shall assign a value and return it in the response.

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Destination: This attribute identifies the destination to which event reports that have passed the test conditions will be sent. If no destination is specified in the request, then the discriminator is created with the destination defaulted to the AE Title of the invoker.

Administrative state: This attribute specifies the administrative state in which the discriminator is to be created. The discriminator administrative state is a subset of the administrative state defined in CCITT Rec. X.731 | ISO/IEC 10164-2. The discriminator may be created in an unlocked or a locked state. If no administrative state is specified, the unlocked state is assumed.

Operational state: This attribute specifies the operational state of the discriminator. The discriminator operational state are those defined for the operational state in CCITT Rec. X.731 | ISO/IEC 10164-2. The discriminator may be in the enabled or disabled state. The operational state shall not be specified as part of the create request, but shall be returned in the response and will reflect the actual state of the created event forwarding discriminator.

9.3 Termination of event report forwarding

The PT-DELETE service defined in CCITT Rec. X.730 | ISO/IEC 10164-1 is used to allow one open system to request that another open system delete one or more event forwarding discriminators, thereby requesting that some event forwarding controls be terminated. When an event forwarding discriminator is deleted, it generates an object deletion notification. Whether or not this notification will result in the transmission of an event report, depends on the administrative and operational states and discriminator construct of the event forwarding discriminators processing the potential event report. The discriminator shall not be deleted until it has either processed its deletion event report or been prohibited from doing so by being in a locked or disabled state.

9.4 Event forwarding discriminator modification, suspension and resumption

The PT-SET service defined in CCITT Rec. X.730 | ISO/IEC 10164-1 is used to allow one open system to request that another open system change the administrative state or other settable attribute of the event forwarding discriminator. When the administrative state is changed to locked, event forwarding will be suspended; when the administrative state is changed to unlocked and the operational state is enabled, event forwarding will be resumed. When the state of an event forwarding discriminator is changed, it generates a state change notification indicating its new and old values for the state. Whether or not this notification will result in the transmission of an event report, depends on the administrative and operational states and discriminator construct and, if present, on the availability status of the discriminators processing the potential event report. An event forwarding discriminator shall not enter the locked state until it has either processed the potential event report resulting from its state change or been prohibited from doing so by being in a disabled or off-duty state.

When the other non-state attributes of an event forwarding discriminator are changed, it shall generate an attribute change notification indicating the attributes that have changed. Whether or not this notification will result in the transmission of an event report, depends on the administrative and operational states and discriminator construct of the discriminators processing the potential event report. An event forwarding discriminator shall not change the value of its destination attribute until it has either processed the potential event report resulting from the destination change, or been prohibited from doing so by being in a locked, disabled or off-duty state.

9.5 Retrieval of event forwarding discriminator attributes

This Recommendation | International Standard uses the PT-GET service defined in CCITT Rec. X.730 | ISO/IEC 10164-1 for retrieving the attributes of the event forwarding discriminator.

10 Functional units

Two functional units are defined in this Recommendation | International Standard for the management of event forwarding discriminators:

a) event report management functional unit;

b) monitor event report management functional unit.

The monitor event report management functional unit requires the support of PT-GET service for instances of the event forwarding discriminator or any of its subclasses. The event report management functional unit requires the support of PT-GET, PT-SET, PT-CREATE and PT-DELETE, object creation reporting, object deletion reporting, attribute value change reporting and state change reporting services for instances of the event forwarding discriminator or any of its subclasses.

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11 Protocol

11.1 Elements of procedure

This Recommendation | International Standard makes use of the elements of procedure defined for the services described in clause 9 of this Recommendation | International Standard. No additional elements of procedure are defined in this Recommendation | International Standard.

11.2 Abstract syntax

11.2.1 Objects

This Recommendation | International Standard references the following support objects whose ASN.1 value notation is specified in CCITT Rec. X.721 | ISO/IEC 10165-2:

a) eventForwardingDiscriminator;

b) discriminator.

11.2.2 Attributes

This Recommendation | International Standard references the following attributes, associated with the objects specified in 11.2.1, whose abstract syntax is defined in CCITT Rec. X.731 | ISO/IEC 10165-2:

a) activeDestination;

b) administrativeState;

c) availabilityStatus;

d) backUpDestinationList;

e) confirmedMode;

f) destination;

g) discriminatorConstruct;

h) discriminatorId;

i) intervalsOfDay;

j) operationalState;

k) schedulerName;

l) startTime;

m) stopTime;

n) weekMask.

11.2.3 Notifications

This Recommendation | International Standard references the following events defined in CCITT Rec. X.730 | ISO/IEC 10164-1:

a) attribute value change notification;

b) object creation notification;

c) object deletion notification;

This Recommendation | International Standard references the following events defined in CCITT Rec. X.731 | ISO/IEC 10164-2:

d) state change notification.

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11.3 Negotiation of functional units

This Recommendation | International Standard assigns the following object identifier value

{joint-iso-ccitt ms(9) function (2) part5(5) functionalUnitPackage(1)}

as a value of the ASN.1 type FunctionalUnitPackageId defined in CCITT Rec. X.701 | ISO/IEC 10040 to use for negotiating the following functional units:

0 event report management functional unit

1 monitor event report management functional unit

where the number identifies the bit positions in the BIT STRING assigned to the functional units, and the names referencing the functional units as defined in clause 10.

Within the Systems management application context, the mechanism for negotiating the functional units is described by CCITT Rec. X.701 | ISO/IEC 10040.

NOTE – The requirement to negotiate functional units is specified by the application context.

12 Relationship with other functions

The event report management function uses the services defined in CCITT Rec. X.731 | ISO/IEC 10164-2 for the notification of state changes and the services defined in CCITT Rec. X.730 | ISO/IEC 10164-1 for the creation and deletion of discriminators, the retrieval of discriminator attributes, and the notification of attribute changes and object creations and deletions.

The relationship with the log control function in CCITT Rec. X.735 | ISO/IEC 10164-6 is shown in Figure 2 below.

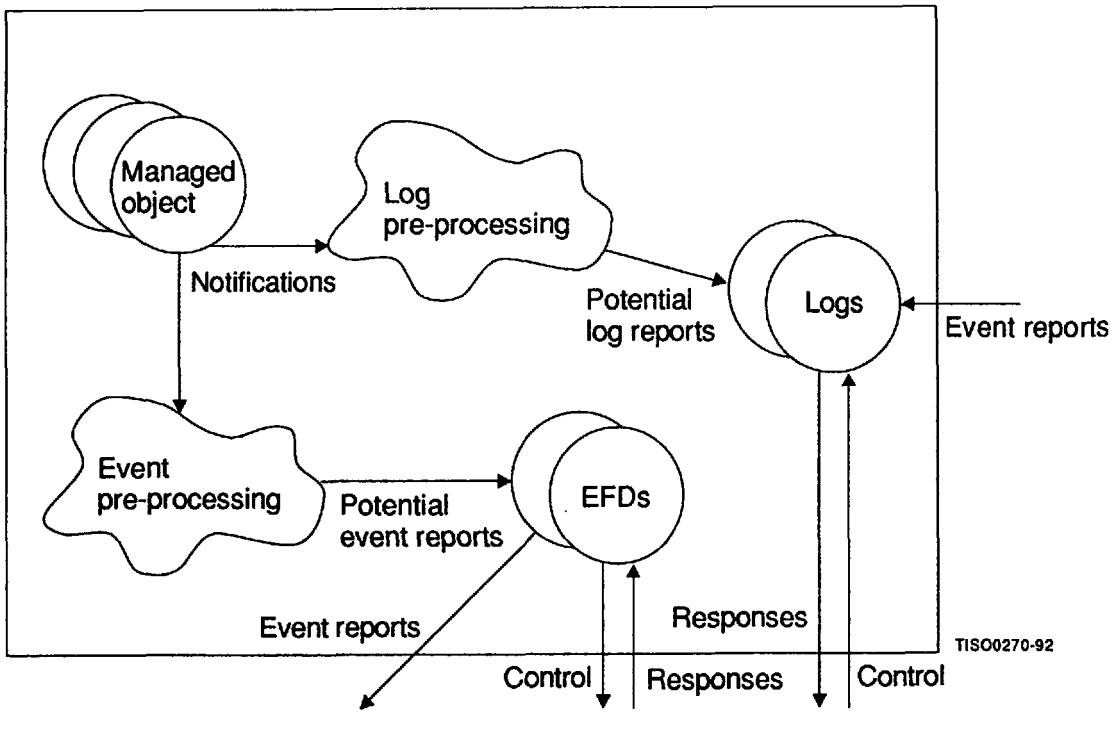


Figure 2 – Relationship between event report and log management models

13 Conformance

There are two conformance classes: general conformance class and dependent conformance class. A system claiming to implement the elements of procedure for system management services referenced by this Recommendation | International Standard shall comply with the requirements for either the general or the dependent conformance class as defined in the following clauses. The supplier of the implementation shall state the class to which the conformance is claimed.

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13.1 General conformance class requirements

A system claiming general conformance shall support this function for all managed object classes that import the management information defined by this Recommendation | International Standard.

NOTE – This is applicable to any subclass of the management support object classes defined in this Recommendation | International Standard.

13.1.1 Static conformance

The system shall

a) support the role of manager or agent or both with respect to the event report management functional unit;

b) support the transfer syntax derived from the encoding rules specified in CCITT Rec. X.209 | ISO/IEC 8825 and named {joint-iso-ccitt asn1(1) basicEncoding(1)}, for the purpose of generating and interpreting the MAPDUs, defined by the abstract data types referenced in 11.2.2 and 11.2.3 of this Recommendation | International Standard;

c) when acting in the agent role, support one or more instances of the event forwarding discriminator managed object class or any of its subclasses.

13.1.2 Dynamic conformance

The system shall, in the role(s) for which conformance is claimed, support the elements of procedure defined in

- CCITT Rec. X.730 | ISO/IEC 10164-1 for the PT-GET, PT-CREATE, PT-DELETE, PT-SET, Object creation reporting, Object deletion reporting and Attribute change reporting services;
- CCITT Rec. X.731 | ISO/IEC 10164-2 for the State change reporting service.

13.2 Dependent conformance class requirements

13.2.1 Static conformance

The system shall

a) supply a System Conformance Statement which identifies the standardized use of this Recommendation | International Standard;

b) support the transfer syntax derived from the encoding rules specified in CCITT Rec. X.209 | ISO/IEC 8825 and named {joint-iso-ccitt asn1(1) basicEncoding(1)}, for the purpose of generating and interpreting the MAPDUs, defined by the abstract data types referenced in 11.2.3 of this Recommendation | International Standard, as required by a standardized use of this systems management function;

c) when acting in the agent role, support one or more instances of the event forwarding discriminator managed object class or any of its subclasses.

13.2.2 Dynamic conformance

The system shall support the elements of procedure referenced by this Recommendation | International Standard, as required by a standardized use of this system management function.

13.3 Conformance to support managed object definitions

The event forwarding discriminator objects supported by the open system shall comply with the behaviour specified in clause 8 and the syntax specified in CCITT Rec. X.721 | ISO/IEC 10165-2. For minimum conformance to the event report management function, an event forwarding discriminator containing the all-pass form of discriminator construct shall be supported.

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Annex A
Example value notation for the discriminator construct

(This annex does not form an integral part of this Recommendation | International Standard)

This annex presents an example of the value notation for the discriminator construct.

The condition to be encoded is given below.

(objectClass **equal to** protocolEntity)
and (entityID **starts with** "123")
and ((severity **not Equal to** minor)
or (badPduCount **greater than or equal to** 20))

where **bold face** words are operators and plain type words are variables.

The following value notation of the value test-filter represents this condition.

```
test-filter CMISFilter ::=
        and {item equality {objectClass, Object-Class protocolEntity},
             item substrings {initialstring {entityID, PrintableString "123"}},
             or { not item equality {severity,Severity minor},
                  item lessOrEqual {badPduCount, INTEGER 20}}}
```

where

objectClass, entityID, severity and badPduCount are value references to AttributeId of type OBJECT IDENTIFIER, protocol entity is a value reference to ObjectClass of type OBJECT IDENTIFIER and minor is a value reference to Severity of type ENUMERATED.

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Annex B
Event forwarding using local mechanism

(This annex does not form an integral part of this Recommendation | International Standard)

This annex presents a mechanism for forwarding events where no manageable event forwarding discriminator is available. This mechanism is a local issue. Figure B.1 illustrates this mechanism.

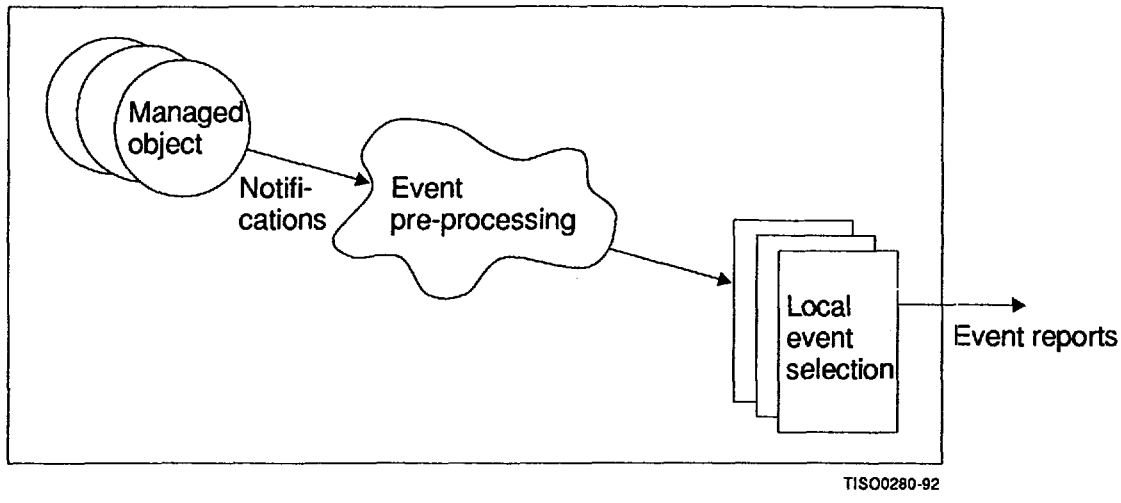


Figure B.1 – Local event selection mechanism

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Annex C
Considerations for system implementation conformance statement

(This annex does not form an integral part of this Recommendation | International Standard)

The following is an example of the information the implementor may specify when defining conformance to this systems management function:

a) the behavioural options implemented for the event forwarding managed object class;

b) the range of all attribute values that can be supported by the event forwarding discriminator;

c) the number of each type of event forwarding discriminator that can be supported by the implementation.

Number	Discriminator type
	All-pass and destination configurable
	Object class and instance selection and destination configurable
	Event type selection and destination configurable
	Event type, object class and instance selection and destination configurable
	Arbitrary selection criteria

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UDC 681.3:691.39

Descriptors: data processing, information interchange, network interconnection, open systems interconnection, application layer, management.

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