INTERNATIONAL STANDARDIZED PROFILE

ISO/IEC ISP 12059-4

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Information technology — International Standardized Profiles — OSI Management — Common information for management functions —

Part 4: Alarm reporting

Technologies de l'information — Profils normalisés internationaux — Gestion OSI — Information courante pour fonctions de gestion —

Partie 4: Rapport d'alarme

Reference number
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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. In addition to developing International Standards, ISO/IEC JTC 1 has created a special group on Functional Standardization for the elaboration of International Standardized Profiles.

An International Standardized Profile is an internationally agreed, harmonized document which identifies a standard or group of standards, together with options and parameters, necessary to accomplish a function or set of functions.

Draft International Standardized Profiles are circulated to national bodies for voting. Publication as an International Standardized Profile requires approval by at least 75 % of the national bodies casting a vote.

International Standardized Profile ISO/IEC ISP 12059-4 was prepared with the collaboration of

— Asia-Oceania Workshop (AOW);

— European Workshop for Open Systems (EWOS);

— Open Systems Environment Implementors' Workshop (OIW).

ISO/IEC ISP 12059 consists of the following parts, under the general title *Information technology - International Standardized Profiles - OSI Management - Common information for management functions*:

— *Part 0: Common definitions for management function profiles*

— *Part 1: Object management*

— *Part 2: State management*

— *Part 3: Attributes for representing relationships*

— *Part 4: Alarm reporting*

— *Part 5: Event report management*

— *Part 6: Log control*

Annexes A and B form an integral part of this part of ISO/IEC ISP 12059.

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Information technology - International Standardized Profiles - OSI Management - Common information for management functions -

Part 4:

Alarm reporting

1 Scope

1.1 General

This part of ISO/IEC ISP 12059 is based on CCITT Rec. X.733 | ISO/IEC 10164-4, Alarm reporting function. Each part of ISO/IEC ISP 12059 is a building block, containing a subset of systems management function capability, and is used by ISO/IEC ISP 12060 parts to build interoperable profile specifications.

1.2 Position within the Taxonomy

This part of ISO/IEC ISP 12059 may be referenced by parts of ISO/IEC ISP 12060 for the specification of management function profiles. The position of this part of ISO/IEC ISP 12059 within the taxonomy is described in ISO/IEC ISP 12059-0.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC ISP 12059. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this part of ISO/IEC ISP 12059 are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by ISPs to such documents is that they may be specific to a particular edition. Members of IEC and ISO maintain registers of currently valid International Standards and ISPs, and ITU-T maintains published editions of its current Recommendations.

2.1 Identical CCITT Recommendations | International Standards

- ITU-T Recommendation X.200 (1994) | ISO/IEC 7498-1:1994, *Information technology - Open Systems Interconnection - Basic Reference Model: The Basic Model.*
- CCITT Recommendation X.701 (1992) | ISO/IEC 10040:1992, *Information technology - Open Systems Interconnection - Systems management overview.*
- CCITT Recommendation X.720 (1992) | ISO/IEC 10165-1:1993, *Information technology - Open Systems Interconnection - Structure of management information: Management information model.*
- CCITT Recommendation X.721 (1992) | ISO/IEC 10165-2:1992, *Information technology - Open Systems Interconnection - Structure of management information: Definition of management information.*
- CCITT Recommendation X.722 (1992) | ISO/IEC 10165-4:1992, *Information technology - Open Systems Interconnection - Structure of management information: Guidelines for the definition of managed objects.*
- CCITT Recommendation X.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.*
- CCITT Recommendation X.731 (1992) | ISO/IEC 10164-2:1993, *Information technology - Open Systems Interconnection - Systems Management: State management function.*
- CCITT Recommendation X.732 (1992) | ISO/IEC 10164-3:1993, *Information technology - Open Systems Interconnection - Systems Management: Attributes for representing relationships.*
- CCITT Recommendation X.733 (1992) | ISO/IEC 10164-4:1992, *Information technology - Open Systems Interconnection - Systems Management: Alarm reporting function.*

- CCITT Recommendation X.734 (1992) | ISO/IEC 10164-5:1993, *Information technology - Open Systems Interconnection - Systems Management: Event report management function.*
- CCITT Recommendation X.735 (1992) | ISO/IEC 10164-6:1993, *Information technology - Open Systems Interconnection - Systems Management: Log control function.*

2.2 Paired CCITT/ITU-T Recommendations | International Standards equivalent in technical content

- CCITT Recommendation X.208 (1988), *Specification of abstract syntax notation one (ASN.1).*

  ISO/IEC 8824:1990, *Information technology - Open Systems Interconnection - Specification of Abstract Syntax Notation One (ASN.1).*
- CCITT Recommendation X.290 (1992), *OSI conformance testing methodology and framework for protocol Recommendations for CCITT applications - General concepts.*

  ISO/IEC 9646-1:1994, *Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts.*
- CCITT Recommendation X.291 (1992), *OSI conformance testing methodology and framework for protocol Recommendations for CCITT applications - Abstract test suite specification.*

  ISO/IEC 9646-2:1994, *Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract test suite specification.*
- ITU-T Recommendation X.296[1)], *OSI conformance testing methodology and framework - Implementation Conformance Statements.*

  ISO/IEC 9646-7:1995, *Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements.*
- CCITT Recommendation X.700 (1992), *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.710 (1991), *Common Management Information Service Definition for CCITT applications.*

  ISO/IEC 9595:1991, *Information technology - Open Systems Interconnection - Common management information service definition.*

2.3 Additional references

ISO/IEC 9545:1994, *Information technology - Open Systems Interconnection - Application layer Structure.*

- ISO/IEC TR 10000-1:1992[2)], *Information technology - Framework and taxonomy of International Standardized Profiles - Part 1: Framework.*
- ISO/IEC TR 10000-2:1994[2)], *Information technology - Framework and taxonomy of International Standardized Profiles - Part 2: Principles and Taxonomy for OSI Profiles.*
- ISO/IEC ISP 12059-0:1995, *Information technology - International Standardized Profiles - OSI Management - Common information for management functions - Part 0: Common definitions for management function profiles.*

1) Currently at the stage of Draft Recommendation.

2) Under revision.

3 Definitions

The terms used in this part of ISO/IEC ISP 12059 are defined in the referenced base standards.

4 Abbreviations

The abbreviations used in this part of ISO/IEC ISP 12059 are specified in ISO/IEC ISP 12059-0.

5 Conventions

5.1 Common conventions

The common conventions and status codes for IPRL used in this part of ISO/IEC ISP 12059, including c3, are defined in ISO/IEC ISP 12059-0.

5.2 Document specific conventions

The following conventions are used to specify conditions used in the tables of this part of ISO/IEC ISP 12059.

c21	If A.3/4 then m else -
c22	If the alarm is reported by the exceed of threshold, this is mandatory.
c23	Support required if any gauge attribute is supported.
c24	If there is a state attribute value transition, this is mandatory.

The following conditions are specified in the referenced base standard and used in this part of ISO/IEC ISP 12059:

4B/cn	See CCITT Rec. X.733 | ISO/IEC 10164-4, Annex B, condition cn.
4C/cn	See CCITT Rec. X.733 | ISO/IEC 10164-4, Annex C, condition cn.

6. Conformance requirements

This part of ISO/IEC ISP 12059 is referenced by parts of ISO/IEC ISP 12060. Those parts of ISO/IEC ISP 12060 that reference this part of ISO/IEC ISP 12059 each define the requirements for a particular AOM2xx profile and state the conformance requirements for that profile.

Annex A

ISPICS Requirements List (IPRL) for Alarm reporting

(This annex forms an integral part of ISO/IEC ISP 12059-4)

The following clarifies, where necessary, the column headings used in the IPRL in this annex:

Index:	The row index of this item in the referenced ICS proforma.
Constraints and Values:	Base standard constraints or any additional constraints defined in the common profile for this item.
Base Std.:	The status value of the item as defined in the base standard.
Common Profile:	Common profile requirements defined for this item (relevant to any profile referencing this table).

The notation used in this annex is identified in clause 5. The parameter names are those which are specified in CCITT Recommendation X.733 | ISO/IEC 10164-4 and CCITT Recommendation X.721 | ISO/IEC 10165-2.

A.1 Manager/Agent role

Table A.1 is based on Table B.4 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.1 - Management role support

Index	Systems management functional unit	Manager		Agent		Additional Information
		Base Std.	Common Profile	Base Std.	Common Profile	
1	alarm reporting	4B/c2	o.1	4B/c2	o.1	

A.2 MAPDU support

Table A.2 is based on Table B.5 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.2 - Alarm reporting MAPDUs

Index	MAPDU(agent sending)(manager receiving)	Base Std.	Common Profile	Additional information
1	Communications alarm (agent sending)	4B/c3	4B/c3	
2	Environmental alarm (agent sending)	4B/c3	4B/c3	
3	Equipment alarm (agent sending)	4B/c3	4B/c3	
4	Processing error alarm (agent sending)	4B/c3	4B/c3	
5	Quality of service alarm (agent sending)	4B/c3	4B/c3	
6	Communications alarm (manager receiving)	4B/c4	4B/c4	
7	Environmental alarm (manager receiving)	4B/c4	4B/c4	
8	Processing error alarm (manager receiving)	4B/c4	4B/c4	
9	Processing failure (manager receiving)	4B/c4	4B/c4	
10	Quality of service alarm (manager receiving)	4B/c4	4B/c4	

A.2.1 Communications alarm MAPDU support

Table A.3 is based on Table B.6 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.3 - Communications alarm MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Base Std.	Common Profile	Additional information
1	probableCause	-	m	mm	
1.1	globalValue	-	o.1	mc3	
1.2	localValue	-	o.1	ii	
2	specificProblems	required for some objects	o	oo	
2.1	global	-	c:o.2	c:mc3	
2.2	local	-	c:o.2	c:ii	
3	perceivedSeverity	ENUMERATED 0 to 5	m	mm	
4	backedUpStatus	required for some objects	o	oo	
5	backUpObject	for backUp relationships	o	oc21	
5.1	distinguishedName	-	c:o.3	c:oc3	
5.2	nonSpecificForm	-	c:o.3	c:oc3	
5.3	localDistinguishedName	-	c:o.3	c:oc3	
6	trendIndication	ENUMERATED 0 to 2	o	oo	
7	thresholdInfo	for threshold attributes	o	oc22	
7.1	triggeredThreshold	-	c:m	c:mm	
7.2	observedValue	-	c:m	c:mm	
7.2.1	integer	-	c:o.4	c:mc3	
7.2.2	real	required for some objects	c:o.4	c:oc3	
7.3	thresholdLevel	-	c:o	c:mo	
7.3.1	up	-	c:o.5	c:mc3	
7.3.1.1	high	-	c:m	c:mm	
7.3.1.1.1	integer	-	c:o.6	c:mc3	
7.3.1.1.2	real	required for some objects	c:o.6	c:oc3	
7.3.1.2	low	for gauge thresholds	c:o	c:oc23	
7.3.1.2.1	integer	-	c:o.7	c:mc3	
7.3.1.2.2	real	required for some objects	c:o.7	c:oc3	
7.3.2	down	-	c:o.5	c:mc3	
7.3.2.1	high	-	c:m	c:mm	
7.3.2.1.1	integer	-	c:o.8	c:mc3	
7.3.2.1.2	real	required for some objects	c:o.8	c:oc3	
7.3.2.2	low	-	c:m	c:mm	
7.3.2.2.1	integer	-	c:o.9	c:mc3	
7.3.2.2.2	real	required for some objects	c:o.9	c:oc3	
7.4	armTime	-	c:o	c:mo	
8	notificationIdentifier	-	4B/c5	4B/c5o	
9	correlatedNotifications	-	o	oo	
9.1	correlatedNotifications	-	c:m	c:mm	
9.2	sourceObjectInst	-	c:o	c:mo	
9.2.1	distinguishedName	-	c:o.51	c:mc3	
9.2.2	nonSpecificForm	-	c:o.51	c:mc3	
9.2.3	localDistinguishedName	-	c:o.51	c:mc3	
10	stateChangeDefinition	required for some objects	o	oc24	
10.1	attributeId	-	c:m	c:mm	
10.2	oldAttributeValue	-	c:o	c:mo	
10.3	newAttributeValue	-	c:m	c:mm	
11	moniteredAttributes	required for some objects	o	oo	
12	proposedRepairActions	required for some objects	o	oo	
12.1	global	-	c:o.10	c:mc3	
12.2	local	-	c:o.10	c:ii	
13	additionalText	-	o	oo	
14	additionalInformation	required for some objects	o	oo	

Table A.4 is based on Table B.7 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.4 - Communications alarm MAPDU (Manager receiving)

Index	Parameter name	Constraints and values	Base Std.	Common Profile	Additional information
1	probableCause	-	m	mm	
1.1	globalValue	-	m	mc3	
1.2	localValue	-	m	mc3	
2	specificProblems	-	m	mo	
2.1	global	-	m	mo	
2.2	local	-	m	mo	
3	perceivedSeverity	ENUMERATED 0 to 5	m	mm	
4	backedUpStatus	-	m	mo	
5	backUpObject	-	m	mc21	
5.1	distinguishedName	-	m	mc3	
5.2	nonSpecificForm	-	m	mc3	
5.3	localDistinguishedName	-	m	mc3	
6	trendIndication	ENUMERATED 0 to 2	m	mo	
7	thresholdInfo	-	m	mc22	
7.1	triggeredThreshold	-	m	mo	
7.2	observedValue	-	m	mo	
7.2.1	integer	-	m	mc3	
7.2.2	real	-	m	mc3	
7.3	thresholdLevel	-	m	mo	
7.3.1	up	-	m	mo	
7.3.1.1	high	-	m	mo	
7.3.1.1.1	integer	-	m	mc3	
7.3.1.1.2	real	-	m	mc3	
7.3.1.2	low	-	m	mc23	
7.3.1.2.1	integer	-	m	mc3	
7.3.1.2.2	real	-	m	mc3	
7.3.2	down	-	m	mc3	
7.3.2.1	high	-	m	mo	
7.3.2.1.1	integer	-	m	mc3	
7.3.2.1.2	real	-	m	mc3	
7.3.2.2	low	-	m	mo	
7.3.2.2.1	integer	-	m	mc3	
7.3.2.2.2	real	-	m	mc3	
7.4	armTime	-	m	mo	
8	notificationIdentifier	-	m	mo	
9	correlatedNotifications	-	m	mo	
9.1	correlatedNotifications	-	m	mo	
9.2	sourceObjectInst	-	m	mo	
9.2.1	distinguishedName	-	m	mc3	
9.2.2	nonSpecificForm	-	m	mc3	
9.2.3	localDistinguishedName	-	m	mc3	
10	stateChangeDefinition	-	m	mo	
10.1	attributeId	-	m	mo	
10.2	oldAttributeValue	-	m	mo	
10.3	newAttributeValue	-	m	mo	
11	moniteredAttributes	-	m	mo	
12	proposedRepairActions	-	m	mo	
12.1	global	-	m	mc3	
12.2	local	-	m	mc3	
13	additionalText	-	m	mo	
14	additionalInformation	-	m	mo	

A.2.2 Quality of service alarm MAPDU support

Table A.5 is based on Table B.8 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.5 - Quality of service alarm MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Base Std.	Common Profile	Additional information
1	probableCause	-	m	mm	
1.1	globalValue	-	o.11	mc3	
1.2	localValue	-	o.11	ii	
2	specificProblems	required for some objects	o	oo	
2.1	global	-	c:o.12	c:mc3	
2.2	local	-	c:o.12	c:ii	
3	perceivedSeverity	ENUMERATED 0 to 5	m	mm	
4	backedUpStatus	required for some objects	o	oo	
5	backUpObject	for backUp relationships	o	oc21	
5.1	distinguishedName	-	c:o.13	c:oc3	
5.2	nonSpecificForm	-	c:o.13	c:oc3	
5.3	localDistinguishedName	-	c:o.13	c:oc3	
6	trendIndication	ENUMERATED 0 to 2	o	oo	
7	thresholdInfo	for threshold attributes	o	oc22	
7.1	triggeredThreshold	-	c:m	c:mm	
7.2	observedValue	-	c:m	c:mm	
7.2.1	integer	-	c:o.14	c:mc3	
7.2.2	real	required for some objects	c:o.14	c:oc3	
7.3	thresholdLevel	-	c:o	c:mo	
7.3.1	up	-	c:o.15	c:mc3	
7.3.1.1	high	-	c:m	c:mm	
7.3.1.1.1	integer	-	c:o.16	c:mc3	
7.3.1.1.2	real	required for some objects	c:o.16	c:oc3	
7.3.1.2	low	for gauge thresholds	c:o	c:oc23	
7.3.1.2.1	integer	-	c:o.17	c:mc3	
7.3.1.2.2	real	required for some objects	c:o.17	c:oc3	
7.3.2	down	-	c:o.15	c:mc3	
7.3.2.1	high	-	c:m	c:mm	
7.3.2.1.1	integer	-	c:o.18	c:mc3	
7.3.2.1.2	real	required for some objects	c:o.18	c:oc3	
7.3.2.2	low	-	c:m	c:mm	
7.3.2.2.1	integer	-	c:o.19	c:mc3	
7.3.2.2.2	real	required for some objects	c:o.19	c:oc3	
7.4	armTime	-	c:o	c:mo	
8	notificationIdentifier	-	4B/c6	4B/c6o	
9	correlatedNotifications	-	o	oo	
9.1	correlatedNotifications	-	c:m	c:mm	
9.2	sourceObjectInst	-	c:o	c:mo	
9.2.1	distinguishedName	-	c:o.52	c:mc3	
9.2.2	nonSpecificForm	-	c:o.52	c:mc3	
9.2.3	localDistinguishedName	-	c:o.52	c:mc3	
10	stateChangeDefinition	required for some objects	o	oc24	
10.1	attributeId	-	c:m	c:mm	
10.2	oldAttributeValue	-	c:o	c:mo	
10.3	newAttributeValue	-	c:m	c:mm	
11	moniteredAttributes	required for some objects	o	oo	
12	proposedRepairActions	required for some objects	o	oo	
12.1	global	-	c:o.20	c:mc3	
12.2	local	-	c:o.20	c:ii	
13	additionalText	-	o	oo	
14	additionalInformation	required for some objects	o	oo	

Table A.6 is based on Table B.9 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.6 - Quality of service alarm MAPDU (Manager receiving)

Index	Parameter name	Constraints and values	Base Std.	Common Profile	Additional information
1	probableCause	-	m	mm	
1.1	globalValue	-	m	mc3	
1.2	localValue	-	m	mc3	
2	specificProblems	-	m	mo	
2.1	global	-	m	mo	
2.2	local	-	m	mo	
3	perceivedSeverity	ENUMERATED 0 to 5	m	mm	
4	backedUpStatus	-	m	mo	
5	backUpObject	-	m	mc21	
5.1	distinguishedName	-	m	mc3	
5.2	nonSpecificForm	-	m	mc3	
5.3	localDistinguishedName	-	m	mc3	
6	trendIndication	ENUMERATED 0 to 2	m	mo	
7	thresholdInfo	-	m	mc22	
7.1	triggeredThreshold	-	m	mo	
7.2	observedValue	-	m	mo	
7.2.1	integer	-	m	mc3	
7.2.2	real	-	m	mc3	
7.3	thresholdLevel	-	m	mo	
7.3.1	up	-	m	mo	
7.3.1.1	high	-	m	mo	
7.3.1.1.1	integer	-	m	mc3	
7.3.1.1.2	real	-	m	mc3	
7.3.1.2	low	-	m	mc23	
7.3.1.2.1	integer	-	m	mc3	
7.3.1.2.2	real	-	m	mc3	
7.3.2	down	-	m	mc3	
7.3.2.1	high	-	m	mo	
7.3.2.1.1	integer	-	m	mc3	
7.3.2.1.2	real	-	m	mc3	
7.3.2.2	low	-	m	mo	
7.3.2.2.1	integer	-	m	mc3	
7.3.2.2.2	real	-	m	mc3	
7.4	armTime	-	m	mo	
8	notificationIdentifier	-	m	mo	
9	correlatedNotifications	-	m	mo	
9.1	correlatedNotifications	-	m	mo	
9.2	sourceObjectInst	-	m	mo	
9.2.1	distinguishedName	-	m	mc3	
9.2.2	nonSpecificForm	-	m	mc3	
9.2.3	localDistinguishedName	-	m	mc3	
10	stateChangeDefinition		m	mo	
10.1	attributeId		m	mo	
10.2	oldAttributeValue	-	m	mo	
10.3	newAttributeValue	-	m	mo	
11	moniteredAttributes	-	m	mo	
12	proposedRepairActions	-	m	mo	
12.1	global	-	m	mc3	
12.2	local	-	m	mc3	
13	additionalText	-	m	mo	
14	additionalInformation	-	m	mo	

A.2.3 Processing error alarm MAPDU support

Table A.7 is based on Table B.10 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.7 - Processing error alarm MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Base Std.	Common Profile	Additional information
1	probableCause	-	m	mm	
1.1	globalValue	-	o.21	mc3	
1.2	localValue	-	o.21	ii	
2	specificProblems	required for some objects	o	oo	
2.1	global	-	c:o.22	c:mc3	
2.2	local	-	c:o.22	c:ii	
3	perceivedSeverity	ENUMERATED 0 to 5	m	mm	
4	backedUpStatus	required for some objects	o	oo	
5	backUpObject	for backUp relationships	o	oc21	
5.1	distinguishedName	-	c:o.23	c:oc3	
5.2	nonSpecificForm	-	c:o.23	c:oc3	
5.3	localDistinguishedName	-	c:o.23	c:oc3	
6	trendIndication	ENUMERATED 0 to 2	o	oo	
7	thresholdInfo	for threshold attributes	o	oc22	
7.1	triggeredThreshold	-	c:m	c:mm	
7.2	observedValue	-	c:m	c:mm	
7.2.1	integer	-	c:o.24	c:mc3	
7.2.2	real	required for some objects	c:o.24	c:oc3	
7.3	thresholdLevel	-	c:o	c:mo	
7.3.1	up	-	c:o.25	c:mc3	
7.3.1.1	high	-	c:m	c:mm	
7.3.1.1.1	integer	-	c:o.26	c:mc3	
7.3.1.1.2	real	required for some objects	c:o.26	c:oc3	
7.3.1.2	low	for gauge thresholds	c:o	c:oc23	
7.3.1.2.1	integer	-	c:o.27	c:mc3	
7.3.1.2.2	real	required for some objects	c:o.27	c:oc3	
7.3.2	down	-	c:o.25	c:mc3	
7.3.2.1	high	-	c:m	c:mm	
7.3.2.1.1	integer	-	c:o.28	c:mc3	
7.3.2.1.2	real	required for some objects	c:o.28	c:oc3	
7.3.2.2	low	-	c:m	c:mm	
7.3.2.2.1	integer	-	c:o.29	c:mc3	
7.3.2.2.2	real	required for some objects	c:o.29	c:oc3	
7.4	armTime	-	c:o	c:mo	
8	notificationIdentifier	-	4B/c7	4B/c7o	
9	correlatedNotifications	-	o	oo	
9.1	correlatedNotifications	-	c:m	c:mm	
9.2	sourceObjectInst		c:o	c:mo	
9.2.1	distinguishedName		c:o.53	c:mc3	
9.2.2	nonSpecificForm	-	c:o.53	c:mc3	
9.2.3	localDistinguishedName	-	c:o.53	c:mc3	
10	stateChangeDefinition	required for some objects	o	oc24	
10.1	attributeId	-	c:m	c:mm	
10.2	oldAttributeValue	-	c:o	c:mo	
10.3	newAttributeValue	-	c:m	c:mm	
11	moniteredAttributes	required for some objects	o	oo	
12	proposedRepairActions	required for some objects	o	oo	
12.1	global	-	c:o.30	c:mc3	
12.2	local	-	c:o.30	c:ii	
13	additionalText	-	o	oo	
14	additionalInformation	required for some objects	o	oo	

Table A.8 is based on Table B.11 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.8 - Processing error alarm MAPDU (Manager receiving)

Index	Parameter name	Constraints and values	Base Std.	Common Profile	Additional information
1	probableCause	-	m	mm	
1.1	globalValue	-	m	mc3	
1.2	localValue	-	m	mc3	
2	specificProblems	-	m	mo	
2.1	global	-	m	mo	
2.2	local	-	m	mo	
3	perceivedSeverity	ENUMERATED 0 to 5	m	mm	
4	backedUpStatus	-	m	mo	
5	backUpObject	-	m	mc21	
5.1	distinguishedName	-	m	mc3	
5.2	nonSpecificForm	-	m	mc3	
5.3	localDistinguishedName	-	m	mc3	
6	trendIndication	ENUMERATED 0 to 2	m	mo	
7	thresholdInfo	-	m	mc22	
7.1	triggeredThreshold	-	m	mo	
7.2	observedValue	-	m	mo	
7.2.1	integer	-	m	mc3	
7.2.2	real	-	m	mc3	
7.3	thresholdLevel	-	m	mo	
7.3.1	up	-	m	mo	
7.3.1.1	high	-	m	mo	
7.3.1.1.1	integer	-	m	mc3	
7.3.1.1.2	real	-	m	mc3	
7.3.1.2	low	-	m	mc23	
7.3.1.2.1	integer	-	m	mc3	
7.3.1.2.2	real	-	m	mc3	
7.3.2	down	-	m	mc3	
7.3.2.1	high	-	m	mo	
7.3.2.1.1	integer	-	m	mc3	
7.3.2.1.2	real	-	m	mc3	
7.3.2.2	low	-	m	mo	
7.3.2.2.1	integer	-	m	mc3	
7.3.2.2.2	real	-	m	mc3	
7.4	armTime	-	m	mo	
8	notificationIdentifier	-	m	mo	
9	correlatedNotifications	-	m	mo	
9.1	correlatedNotifications	-	m	mo	
9.2	sourceObjectInst	-	m	mo	
9.2.1	distinguishedName	-	m	mc3	
9.2.2	nonSpecificForm	-	m	mc3	
9.2.3	localDistinguishedName	-	m	mc3	
10	stateChangeDefinition	-	m	mo	
10.1	attributeId	-	m	mo	
10.2	oldAttributeValue	-	m	mo	
10.3	newAttributeValue	-	m	mo	
11	moniteredAttributes	-	m	mo	
12	proposedRepairActions	-	m	mo	
12.1	global	-	m	mc3	
12.2	local	-	m	mc3	
13	additionalText	-	m	mo	
14	additionalInformation	-	m	mo	

A.2.4 Equipment alarm MAPDU support

Table A.9 is based on Table B.12 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.9 - Equipment alarm MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Base Std.	Common Profile	Additional information
1	probableCause	-	m	mm	
1.1	globalValue	-	o.31	mc3	
1.2	localValue	-	o.31	ii	
2	specificProblems	required for some objects	o	oo	
2.1	global	-	c:o.32	c:mc3	
2.2	local	-	c:o.32	c:ii	
3	perceivedSeverity	ENUMERATED 0 to 5	m	mm	
4	backedUpStatus	required for some objects	o	oo	
5	backUpObject	for backUp relationships	o	oc21	
5.1	distinguishedName	-	c:o.33	c:oc3	
5.2	nonSpecificForm	-	c:o.33	c:oc3	
5.3	localDistinguishedName	-	c:o.33	c:oc3	
6	trendIndication	ENUMERATED 0 to 2	o	oo	
7	thresholdInfo	for threshold attributes	o	oc22	
7.1	triggeredThreshold	-	c:m	c:mm	
7.2	observedValue	-	c:m	c:mm	
7.2.1	integer	-	c:o.34	c:mc3	
7.2.2	real	required for some objects	c:o.34	c:oc3	
7.3	thresholdLevel	-	c:o	c:mo	
7.3.1	up	-	c:o.35	c:mc3	
7.3.1.1	high	-	c:m	c:mm	
7.3.1.1.1	integer	-	c:o.36	c:mc3	
7.3.1.1.2	real	required for some objects	c:o.36	c:oc3	
7.3.1.2	low	for gauge thresholds	c:o	c:oc23	
7.3.1.2.1	integer	-	c:o.37	c:mc3	
7.3.1.2.2	real	required for some objects	c:o.37	c:oc3	
7.3.2	down	-	c:o.35	c:mc3	
7.3.2.1	high	-	c:m	c:mm	
7.3.2.1.1	integer	-	c:o.38	c:mc3	
7.3.2.1.2	real	required for some objects	c:o.38	c:oc3	
7.3.2.2	low	-	c:m	c:mm	
7.3.2.2.1	integer	-	c:o.39	c:mc3	
7.3.2.2.2	real	required for some objects	c:o.39	c:oc3	
7.4	armTime	-	c:o	c:mo	
8	notificationIdentifier	-	4B/c8	4B/c8o	
9	correlatedNotifications	-	o	oo	
9.1	correlatedNotifications	-	c:m	c:mm	
9.2	sourceObjectInst	-	c:o	c:mo	
9.2.1	distinguishedName	-	c:o.54	c:mc3	
9.2.2	nonSpecificForm	-	c:o.54	c:mc3	
9.2.3	localDistinguishedName	-	c:o.54	c:mc3	
10	stateChangeDefinition	required for some objects	o	oc24	
10.1	attributeId	-	c:m	c:mm	
10.2	oldAttributeValue	-	c:o	c:mo	
10.3	newAttributeValue	-	c:m	c:mm	
11	moniteredAttributes	required for some objects	o	oo	
12	proposedRepairActions	required for some objects	o	oo	
12.1	global	-	c:o.40	c:mc3	
12.2	local	-	c:o.40	c:ii	
13	additionalText	-	o	oo	
14	additionalInformation	required for some objects	o	oo	

Table A.10 is based on Table B.13 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.10 - Equipment alarm MAPDU (Manager receiving)

Index	Parameter name	Constraints and values	Base Std.	Common Profile	Additional information
1	probableCause	-	m	mm	
1.1	globalValue	-	m	mc3	
1.2	localValue	-	m	mc3	
2	specificProblems	-	m	mo	
2.1	global	-	m	mo	
2.2	local	-	m	mo	
3	perceivedSeverity	ENUMERATED 0 to 5	m	mm	
4	backedUpStatus	-	m	mo	
5	backUpObject	-	m	mc21	
5.1	distinguishedName	-	m	mc3	
5.2	nonSpecificForm	-	m	mc3	
5.3	localDistinguishedName	-	m	mc3	
6	trendIndication	ENUMERATED 0 to 2	m	mo	
7	thresholdInfo	-	m	mc22	
7.1	triggeredThreshold	-	m	mo	
7.2	observedValue	-	m	mo	
7.2.1	integer	-	m	mc3	
7.2.2	real	-	m	mc3	
7.3	thresholdLevel	-	m	mo	
7.3.1	up	-	m	mo	
7.3.1.1	high	-	m	mo	
7.3.1.1.1	integer	-	m	mc3	
7.3.1.1.2	real	-	m	mc3	
7.3.1.2	low	-	m	mc23	
7.3.1.2.1	integer	-	m	mc3	
7.3.1.2.2	real	-	m	mc3	
7.3.2	down	-	m	mc3	
7.3.2.1	high	-	m	mo	
7.3.2.1.1	integer	-	m	mc3	
7.3.2.1.2	real	-	m	mc3	
7.3.2.2	low	-	m	mo	
7.3.2.2.1	integer	-	m	mc3	
7.3.2.2.2	real	-	m	mc3	
7.4	armTime	-	m	mo	
8	notificationIdentifier	-	m	mo	
9	correlatedNotifications	-	m	mo	
9.1	correlatedNotifications	-	m	mo	
9.2	sourceObjectInst	-	m	mo	
9.2.1	distinguishedName	-	m	mc3	
9.2.2	nonSpecificForm	-	m	mc3	
9.2.3	localDistinguishedName	-	m	mc3	
10	stateChangeDefinition	-	m	mo	
10.1	attributeId	-	m	mo	
10.2	oldAttributeValue	-	m	mo	
10.3	newAttributeValue	-	m	mo	
11	moniteredAttributes	-	m	mo	
12	proposedRepairActions	-	m	mo	
12.1	global	-	m	mc3	
12.2	local	-	m	mc3	
13	additionalText	-	m	mo	
14	additionalInformation	-	m	mo	

A.2.5 Environmental alarm MAPDU support

Table A.11 is based on Table B.14 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.11 - Environmental alarm MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Base Std.	Common Profile	Additional information
1	probableCause	-	m	mm	
1.1	globalValue	-	o.41	mc3	
1.2	localValue	-	o.41	ii	
2	specificProblems	required for some objects	o	oo	
2.1	global	-	c:o.42	c:mc3	
2.2	local	-	c:o.42	c:ii	
3	perceivedSeverity	ENUMERATED 0 to 5	m	mm	
4	backedUpStatus	required for some objects	o	oo	
5	backUpObject	for backUp relationships	o	oc21	
5.1	distinguishedName	-	c:o.43	c:oc3	
5.2	nonSpecificForm	-	c:o.43	c:oc3	
5.3	localDistinguishedName	-	c:o.43	c:oc3	
6	trendIndication	ENUMERATED 0 to 2	o	oo	
7	thresholdInfo	for threshold attributes	o	oc22	
7.1	triggeredThreshold	-	c:m	c:mm	
7.2	observedValue	-	c:m	c:mm	
7.2.1	integer	-	c:o.44	c:mc3	
7.2.2	real	required for some objects	c:o.44	c:oc3	
7.3	thresholdLevel	-	c:o	c:mo	
7.3.1	up	-	c:o.45	c:mc3	
7.3.1.1	high	-	c:m	c:mm	
7.3.1.1.1	integer	-	c:o.46	c:mc3	
7.3.1.1.2	real	required for some objects	c:o.46	c:oc3	
7.3.1.2	low	for gauge thresholds	c:o	c:oc23	
7.3.1.2.1	integer	-	c:o.47	c:mc3	
7.3.1.2.2	real	required for some objects	c:o.47	c:oc3	
7.3.2	down	-	c:o.45	c:mc3	
7.3.2.1	high	-	c:m	c:mm	
7.3.2.1.1	integer	-	c:o.48	c:mc3	
7.3.2.1.2	real	required for some objects	c:o.48	c:oc3	
7.3.2.2	low	-	c:m	c:mm	
7.3.2.2.1	integer	-	c:o.49	c:mc3	
7.3.2.2.2	real	required for some objects	c:o.49	c:oc3	
7.4	armTime	-	c:o	c:mo	
8	notificationIdentifier	-	4B/c9	4B/c9o	
9	correlatedNotifications	-	o	oo	
9.1	correlatedNotifications	-	c:m	c:mm	
9.2	sourceObjectInst	-	c:o	c:mo	
9.2.1	distinguishedName	-	c:o.55	c:mc3	
9.2.2	nonSpecificForm	-	c:o.55	c:mc3	
9.2.3	localDistinguishedName	-	c:o.55	c:mc3	
10	stateChangeDefinition	required for some objects	o	oc24	
10.1	attributeId	-	c:m	c:mm	
10.2	oldAttributeValue	-	c:o	c:mo	
10.3	newAttributeValue	-	c:m	c:mm	
11	moniteredAttributes	required for some objects	o	oo	
12	proposedRepairActions	required for some objects	o	oo	
12.1	global	-	c:o.50	c:mc3	
12.2	local	-	c:o.50	c:ii	
13	additionalText	-	o	oo	
14	additionalInformation	required for some objects	o	oo	

Table A.12 is based on Table B.15 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.12 - Environmental alarm MAPDU (Manager receiving)

Index	Parameter name	Constraints and values	Base Std.	Common Profile	Additional information
1	probableCause	-	m	mm	
1.1	globalValue	-	m	mc3	
1.2	localValue	-	m	mc3	
2	specificProblems	-	m	mo	
2.1	global	-	m	mo	
2.2	local	-	m	mo	
3	perceivedSeverity	ENUMERATED 0 to 5	m	mm	
4	backedUpStatus	-	m	mo	
5	backUpObject	-	m	mc21	
5.1	distinguishedName	-	m	mc3	
5.2	nonSpecificForm	-	m	mc3	
5.3	localDistinguishedName	-	m	mc3	
6	trendIndication	ENUMERATED 0 to 2	m	mo	
7	thresholdInfo	-	m	mc22	
7.1	triggeredThreshold	-	m	mo	
7.2	observedValue	-	m	mo	
7.2.1	integer	-	m	mc3	
7.2.2	real	-	m	mc3	
7.3	thresholdLevel	-	m	mo	
7.3.1	up	-	m	mo	
7.3.1.1	high	-	m	mo	
7.3.1.1.1	integer	-	m	mc3	
7.3.1.1.2	real	-	m	mc3	
7.3.1.2	low	-	m	mc23	
7.3.1.2.1	integer	-	m	mc3	
7.3.1.2.2	real	-	m	mc3	
7.3.2	down	-	m	mc3	
7.3.2.1	high	-	m	mo	
7.3.2.1.1	integer	-	m	mc3	
7.3.2.1.2	real	-	m	mc3	
7.3.2.2	low	-	m	mo	
7.3.2.2.1	integer	-	m	mc3	
7.3.2.2.2	real	-	m	mc3	
7.4	armTime	-	m	mo	
8	notificationIdentifier	-	m	mo	
9	correlatedNotifications	-	m	mo	
9.1	correlatedNotifications	-	m	mo	
9.2	sourceObjectInst	-	m	mo	
9.2.1	distinguishedName	-	m	mc3	
9.2.2	nonSpecificForm	-	m	mc3	
9.2.3	localDistinguishedName	-	m	mc3	
10	stateChangeDefinition	-	m	mo	
10.1	attributeId	-	m	mo	
10.2	oldAttributeValue	-	m	mo	
10.3	newAttributeValue	-	m	mo	
11	moniteredAttributes	-	m	mo	
12	proposedRepairActions	-	m	mo	
12.1	global	-	m	mc3	
12.2	local	-	m	mc3	
13	additionalText	-	m	mo	
14	additionalInformation	-	m	mo	

A.3 Managed object support

A.3.1 Introduction

The following MOCS tables define the requirements for the alarm record managed object class corresponding to the communications alarm, the quality of service alarm, the processing error alarm, the equipment alarm and the environmental alarm.

A.3.2 Alarm record support

A.3.2.1 Alarm record packages support

Table A.13 is based on Table C.3 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.13 - Alarm record packages

Index	Package template label	Value of object identifier for package	Constraints and values	Base Std.	Common Profile	Additional Information
1	topPackage	-	-	m	m	
2	packagesPackage	{dmi-pkg 16}	-	4C/c1	m	
3	allomorphicPackage	{dmi-pkg 17}	-	4C/c2	i	
4	logRecordPackage	-	-	m	m	
5	eventLogRecordPackage	-	-	m	m	
6	eventTimePackage	{dmi-pkg 11}	-	o	m	
7	notificationIdentifierPackage	{dmi-pkg 24}	-	o	m	
8	correlatedNotificationsPackage	{dmi-pkg 23}	-	o	m	
9	additionalTextPackage	{dmi-pkg 19}	-	o	m	
10	additionalInformationPackage	{dmi-pkg 18}	-	o	m	
11	alarmRecordPackage	-	-	m	m	
12	specificProblemsPackage	{dmi-pkg 1}	-	o	m	
13	backedUpStatusPackage	{dmi-pkg 2}	-	o	m	
14	backUpObjectPackage	{dmi-pkg 3}	-	o	m	
15	trendIndicationPackage	{dmi-pkg 4}	-	o	m	
16	thresholdInfoPackage	{dmi-pkg 5}	-	o	m	
17	stateChangeDefinitionPackage	{dmi-pkg 6}	-	o	m	
18	monitoredAttributesPackage	{dmi-pkg 7}	-	o	m	
19	proposedRepairActionsPackage	{dmi-pkg 8}	-	o	m	

A.3.2.2 Alarm record attributes support

Table A.14 is based on Table C.4 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.14 - Alarm record attributes

Index	Attribute template label	Value of object identifier for attribute	Constraints and values	Set by Create		Get		Replace	
				Base Std.	Common Profile	Base Std	Common Profile	Base Std.	Common Profile
1	objectClass	{dmi-att 65}	-	x	x	m	m	-	-
2	nameBinding	{dmi-att 63}	-	x	x	m	m	-	-
3	packages	{dmi-att 66}	-	x	x	4C/c3	m	-	-
4	allomorphs	{dmi-att 50}	-	x	x	4C/c4	i	-	-
5	logRecordID	{dmi-att 3}	-	x	x	m	m	x	x
6	loggingTime	{dmi-att 59}	-	x	x	m	m	x	x
7	managedObjectClass	{dmi-att 60}	-	x	x	m	m	x	x
8	managedObjectInstance	{dmi-att 61}	-	x	x	m	m	x	x
9	eventType	{dmi-att 14}	-	x	x	m	m	x	x
10	eventTime	{dmi-att 13}	-	x	x	4C/c5	m	x	x
11	notificationIdentifier	{dmi-att 16}	-	x	x	4C/c6	m	x	x
12	correlatedNotifications	{dmi-att 12}	-	x	x	4C/c7	m	x	x
13	additionalText	{dmi-att 7}	-	x	x	4C/c8	m	x	x
14	additionalInformation	{dmi-att 6}	-	x	x	4C/c9	m	x	x
15	probableCause	{dmi-att 18}	-	x	x	m	m	x	x
16	perceivedSeverity	{dmi-att 17}	-	x	x	m	m	x	x
17	specificProblems	{dmi-att 27}	-	x	x	4C/c10	m	x	x
18	backedUpStatus	{dmi-att 11}	-	x	x	4C/c11	m	x	x
19	backUpObjectStatus	{dmi-att 40}	-	x	x	4C/c12	m	x	x
20	trendIndication	{dmi-att 30}	-	x	x	4C/c13	m	x	x
21	thresholdInfo	{dmi-att 29}	-	x	x	4C/c14	m	x	x
22	stateChangeDefinition	{dmi-att 28}	-	x	x	4C/c15	m	x	x
23	monitoredAttributes	{dmi-att 15}	-	x	x	4C/c16	m	x	x
24	proposedRepairActions	{dmi-att 19}	-	x	x	4C/c17	m	x	x

Table A.14 (concluded) - Alarm record attributes

Index	Add		Remove		Set to Default		Additional information
	Base Std.	Common Profile	Base Std.	Common Profile	Base Std.	Common Profile	
1	-	-	-	-	-	-	
2	-	-	-	-	-	-	
3	-	-	-	-	-	-	
4	-	-	-	-	-	-	
5	-	-	-	-	-	-	
6	-	-	-	-	-	-	
7	-	-	-	-	-	-	
8	-	-	-	-	-	-	
9	-	-	-	-	-	-	
10	-	-	-	-	-	-	
11	-	-	-	-	-	-	
12	x	x	x	x	-	-	
13	-	-	-	-	-	-	
14	x	x	x	x	-	-	
15	-	-	-	-	-	-	
16	-	-	-	-	-	-	
17	x	x	x	x	-	-	
18	-	-	-	-	-	-	
19	-	-	-	-	-	-	
20	-	-	-	-	-	-	
21	-	-	-	-	-	-	
22	x	x	x	x	-	-	
23	x	x	x	x	-	-	
24	x	x	x	x	-	-	

Annex B

(normative)

ICS proformas for Alarm reporting function

NOTE - The ICS proforma for CCITT Recommendation X.733 | ISO/IEC 10164-4 is currently at DAM stage. This part of ISO/IEC ISP 12059 is based on that DAM. The text of that DAM forms this appendix but will be removed once the DAM is approved and this part of ISO/IEC ISP 12059 is modified accordingly.

INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION – SYSTEMS MANAGEMENT: ALARM REPORTING FUNCTION

AMENDMENT 1

Page 2

Add the following reference to subclause 2.1:

"

- ITU-T Recommendation X.724 | ISO/IEC 10165-6, *Information technology - Open Systems Interconnection - Structure of Management information: Requirements and guidelines for implementation conformance statement proformas associated with OSI management.*

"

Add the following reference to subclause 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 (presently at stage of draft), *OSI conformance testing methodology and framework: Implementation Conformance Statements.*

  ISO/IEC 9646-7 : 199x, *Information technology - Open Systems Interconnection - Conformance testing methodology and framework: Implementation Conformance Statements.*

"

Page 3

Add the following definitions to subclause 3.7:

"

PICS proforma;

protocol implementation conformance statement;

"

Add the following abbreviations to clause 4:

"

MCS	management conformance summary
MIDS	management information definition statement
MOCS	managed object conformance statement
PICS	protocol implementation conformance statement
MRCS	managed relationship conformance statement

"

Page 14

Add the following new clauses:

"

13.3 PICS requirements

A PICS proforma which conforms to this Recommendation | International Standard shall be textually identical to Annex B, differing only in pagination and page headers. A PICS which conforms to this Recommendation | International Standard shall

- describe an implementation which conforms to CCITT Rec. X.733 | ISO/IEC 10164-4;
- be a conforming PICS proforma which has been completed in accordance with the instructions for completion given in clause 1 of Annex B;
- include the information necessary to uniquely identify both the supplier and the implementation.

The supplier of a protocol implementation which is claimed to conform to CCITT Rec. X.733 | ISO/IEC 10164-4 shall complete a copy of the PICS proforma provided in Annex B as part of the conformance requirements, and shall provide the information necessary to identify both the supplier and the implementation.

13.4 Management information conformance requirements

A MCS proforma which conforms to this Recommendation | International Standard shall be textually identical to the MCS proforma specified in Annex A, differing only in indices, pagination and page headers. An alarm record object class MOCS proforma which conforms to this Recommendation | International Standard shall be textually identical to the MOCS proforma specified in Annex C, differing only in pagination and page headers. An alarm notification MIDS proforma which conforms to this Recommendation | International Standard shall be textually identical to the MIDS proforma specified in Annex D, differing only in pagination and page headers. An MCS, MIDS, MOCS, MRCS and PICS which conforms to this Recommendation | International Standard shall

- describe an implementation which conforms to this Recommendation | International Standard;
- be conforming MCS, MIDS, MOCS, MRCS and/or PICS proformas which 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.

The supplier of an implementation which is claimed to conform to this Recommendation | International Standard shall complete a copy of the management conformance summary provided in Annex A as part of the conformance requirements, and shall provide the information necessary to identify both the supplier and the implementation.

"

TEMPORARY NOTE: NB comment is invited on titles and structure of 13.3 and 13.4.

Add the following annexes::

TEMPORARY NOTE: The actual annex title letters corresponding to A, B, C and D used in this document will be determined at the time of publication.

Annex A
MCS proforma[1)]

(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 an MCS[2)]

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, appreviations 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).

The following requirements are commonly used throughout this MCS poforma

c1: If A.1/1 then m else o .

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 numbers of the first block of columns are the index numbers of the corresponding rows of the remaining blocks of columns.

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1) 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.

2) Instructions for MCS proforma are specified in ITU-TS Rec.X.724 | ISO/IEC 10165-6 Clause 5.

When a table with subrows is too wide to fit on a page, the continuation table(s) have been constructed with index numbers idential to the index numbers in the corresponding rows of the first table, and with subindiex numbers corresponding to the subrows within each indexed row.

References to cells within tables shall be interpreted as references within reconstructed tables. When only one support column exists in a table, it is referenced within condition statements without the suffix "a" (e.g., see c1 above).

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

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, in the box below.

A.3 Identification of the Recommendation | International Standard 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 Recommendation | International Standard which specifies the management information to which conformance is claimed, in the box below.

Recommendation	International Standard 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 Recommendation | International Standard, 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 Recommendation | International Standard, in the box below.

A.4 Management conformance summary

The supplier of the implementation shall provide information on whether the implementation claims conformance to any of the set of Recommendations | International Standards globally representing the implementation under claim. For each Recommendation | International Standard the supplier of the implementation claims conformance to, the corresponding conformance statement(s) shall be completed, or referenced by, the MCS. Columns 7 (Support), 8 (Table numbers of PICS/MOCS/MRCS) and 9 (Additional information) are to be filled in by the supplier of the implementation.

Table A.1 – Logging of event records

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

NOTE - Conformance to this Recommendation | International Standard does not require conformance to logging.

In the following tables A.2, A.3 and A.4, the "Status" column is used to indicate whether the supplier of the implementation is required to complete the referenced table or referenced items. Conformance requirements are as specified in the referenced tables or referenced items, and are not changed by the value in the MCS status column. Similarly, the "Support" column is used by the supplier of the implementation to indicate completion of the referenced tables of referenced items.

Table A.2 — PICS support summary

Index	Identification of the document including the PICS proforma	Table numbers of PICS proforma	Description	Constraints and values	Status	Support	Table numbers of PICS	Additional information
1	CCITT Rec. X.733 | ISO/IEC 10164-4	Annex B all tables	-	-	m			
2	CCITT Rec. X.730 | ISO/IEC 10164-1	Annex E all tables	SM application context	-	m			

Table A.3 — MOCS support summary

Index	Identification of the document including the MOCS proforma	Table numbers of MOCS proforma	Description	Constraints and values	Status	Support	Table numbers of MOCS	Additional information
1	CCITT Rec. X.733 | ISO/IEC 10164-4	Annex C all tables	alarmRecord	-	c1			

Table A.4 — MRCS support summary

Index	Identification of the document including the MRCS proforma	Table numbers of MRCS proforma	Description	Constraints and values	Status	Support	Table numbers of MRCS	Additional information
1	CCITT Rec. X.735 | ISO/IEC 10164-6	Item D.1/1	logRecord-Log	-	c1			

Annex B

PICS proforma[3)]

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

B.1 Instructions for completing the PICS proforma

B.1.1 Purpose and structure

The purpose of this PICS proforma is to provide a mechanism whereby a supplier of an implementation of CCITT Rec. X.733 | ISO/IEC 10164-4 may provide information in a standard form. The PICS proforma is subdivided into clauses for the following categories of information

- protocol details;
- overall conformance claim;
- implementation capabilities.

B.1.2 Symbols, abbreviations and terms

The PICS proforma contained in this annex is comprised of information in a tabular form in accordance with the guidelines presented in CCITT Rec. X.291 | ISO/IEC 9646-2.

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

Within this PICS proforma, space has been provided for the supplier of the implementation to specify support for individual items and, if appropriate, to provide additional information. It is recommended that references to additional specifications are included where appropriate (for example, to list the OBJECT IDENTIFIER values and/or ranges supported), and that these additional specifications be appended to the completed PICS proforma.

B.1.3 Nesting rules

In the Status column of the tables in this Recommendation | International Standard, a mandatory element contained within an optional or conditional constructor parameter is mandatory only if the option or condition is taken. The "c:" notation, specified in ITU-T Rec. X.296 | ISO/IEC 9646-7 is used to express these nesting rules.

B.1.4 Instructions for completing the PICS

The supplier of the implementation shall enter an explicit statement in each of the boxes provided using the notation described in clause B.1.2. Specific instruction is provided in the text which preceeds each table.

B.2 Global statement of conformance

The supplier of the implementation shall state whether or not all mandatory capabilities are implemented for CCITT Rec. X.733 | ISO/IEC 10164-4, in Table B.1.

Table B.1 – Capabilities

Index		Status	Support	Additional information
1	Are all mandatory capabilities implemented?	m		
2	Does the implementation support the General conformance class ?	o		

NOTE – Answering NO to question B.1/1 indicates non-conformance to the protocol standard. Non-supported mandatory capabilities are listed in the table below, explaining why the status of the implementation is abnormal.

3) Users of this Recommendation | International Standard may freely reproduce the PICS proforma in this Annex so that it can be used for its intended purpose, and may further publish the completed PICS.

Capability not implemented	Reason

B.3 Capabilities

B.3.1 Systems management functional unit support

The supplier of the implementation shall state the capability for supporting the Systems Management functional units, in Table B.2.

Table B.2 – SMFU support

Index	Functional unit name	Status	Support	MAPDU support	CMIS support	Additional information
1	alarm reporting functional unit	c1		communicationAlarm environmentalAlarm equipmentAlarm processingErrorAlarm qualityOfServiceAlarm	M-EVENT-REPORT	

c1: If B.1/2 then m else o

Temporary note: This table may be redundant (see tables B.4 and B.5). National body comment is invited.

B.3.2 Systems management functional unit negotiation support

The supplier of the implementation shall state the capability for negotiating the use of the security audit trail reporting functional unit, in Table B.3.

Table B.3 – SMFU negotiation support

Index	Negotiation capability	Status	Support	Additional information
1	Does the implementation support the negotiation of systems management functional units?	o		

The tables for the functional unit negotiation mechanism are specified in Annex E of the first amendment to CCITT Rec. X.730 | ISO/IEC 10164-1.

B.3.3 Management roles

The supplier of the implementation shall state the management role for which conformance is claimed, in Table B.4.

Table B.4 – Management role support

		Manager		Agent		
Index	Systems management functional unit name	Status	Support	Status	Support	Additional information
1	alarm reporting functional unit	c2		c2		

c2: If B.1/2 then o.56 else o

B.3.4 MAPDU support

The supplier of the implementation shall state support for the MAPDUs in the management role(s) for which conformance is claimed, in Table B.5.

Table B.5 – Alarm reporting MAPDUs

Index	MAPDU (agent sending) / (manager receiving)	Status	Support	Additional Information
1	Communications alarm MAPDU (agent sending)	c3		
2	Environmental alarm MAPDU (agent sending)	c3		
3	Equipment alarm MAPDU (agent sending)	c3		
4	Processing failure MAPDU (agent sending)	c3		
5	Quality of service error alarm MAPDU (agent sending)	c3		
6	Communications alarm MAPDU (manager receiving)	c4		
7	Environmental alarm MAPDU (manager receiving)	c4		
8	Equipment alarm MAPDU (manager receiving)	c4		
9	Processing failure MAPDU (manager receiving)	c4		
10	Quality of service error alarm MAPDU (manager receiving)	c4		

c3: If B.4/1b then m else o

c4: If B.4/1a then m else o

A standard mechanism for configuring event forwarding characteristics of an open system has been defined in CCITT Rec. X.734 / ISO/IEC 10164-5. For systems not using this mechanism, the supplier of the implementation shall state the condition under which event reports will be forwarded by the system.

If support for the Communication alarm MAPDU in the agent role is claimed (B.5/1), then the supplier of the implementation shall state whether or not each parameter of the MAPDU is supported in Table B.6.

Table B.6 – Communication alarm MAPDU (Agent sending) - AlarmInfo

Index	Parameter name	Constraints and values	Status	Support	Additional Information
1	probableCause		m		
1.1	globalValue		o.1		
1.2	localValue		o.1		
2	specificProblems	required for some objects	o		
2.1	global		c:o.2		
2.2	local		c:o.2		
3	perceivedSeverity	ENUMERATED 0 to 5	m		
4	backedUpStatus	required for some objects	o		
5	backUpObject	for backUp relationships	o		
5.1	distinguishedName		c:o.3		
5.2	nonSpecificForm		c:o.3		
5.3	localDistinguishedName		c:o.3		
6	trendIndication	ENUMERATED 0 to 2	o		
7	thresholdInfo	for threshold attributes	o		
7.1	triggeredThreshold		c:m		
7.2	observedValue		c:m		
7.2.1	integer		c:o.4		
7.2.2	real	required for some objects	c:o.4		
7.3	thresholdLevel		c:o		
7.3.1	up		c:o.5		
7.3.1.1	high		c:m		
7.3.1.1.1	integer		c:o.6		
7.3.1.1.2	real	required for some objects	c:o.6		
7.3.1.2	low	for gauge thresholds	c:o		
7.3.1.2.1	integer		c:o.7		
7.3.1.2.2	real	required for some objects	c:o.7		
7.3.2	down		c:o.5		
7.3.2.1	high		c:m		
7.3.2.1.1	integer		c:o.8		
7.3.2.1.2	real	required for some objects	c:o.8		
7.3.2.2	low		c:m		
7.3.2.2.1	integer		c:o.9		
7.3.2.2.2	real	required for some objects	c:o.9		
7.4	armTime		c:o		
8	notificationIdentifier		c5		
9	correlatedNotifications		o		
9.1	correlatedNotifications		c:m		
9.2	sourceObjectInst		c:o		
9.2.1	distinguishedName		c:o.51		
9.2.2	nonSpecificForm		c:o.51		
9.2.3	localDistinguishedName		c:o.51		
10	stateChangeDefinition	required for some objects	o		
10.1	attributeId		c:m		
10.2	oldAttributeValue		c:o		
10.3	newAttributeValue		c:m		
11	monitoredAttributes	required for some objects	o		
12	proposedRepairActions	required for some objects	o		
12.1	global		c:o.10		
12.2	local		c:o.10		
13	additionalText		o		
14	additionalInformation	required for some objects	o		

c5: If B.7/9 then m else o

If support for the Communication alarm MAPDU in the manager role is claimed (B.5/5), then the supplier of the implementation shall state whether or not each parameter of the MAPDU is supported in Table B.7.

Table B.7 – Communication alarm MAPDU (Manager receiving) - AlarmInfo

Index	Parameter name	Constraints and values	Status	Support	Additional information
1	probableCause		m		
1.1	globalValue		m		
1.2	localValue		m		
2	specificProblems		m		
2.1	global		m		
2.2	local		m		
3	perceivedSeverity	ENUMERATED 0 to 5	m		
4	backedUpStatus		m		
5	backUpObject		m		
5.1	distinguishedName		m		
5.2	nonSpecificForm		m		
5.3	localDistinguishedName		m		
6	trendIndication	ENUMERATED 0 to 2	m		
7	thresholdInfo		m		
7.1	triggeredThreshold		m		
7.2	observedValue		m		
7.2.1	integer		m		
7.2.2	real		m		
7.3	thresholdLevel		m		
7.3.1	up		m		
7.3.1.1	high		m		
7.3.1.1.1	integer		m		
7.3.1.1.2	real		m		
7.3.1.2	low		m		
7.3.1.2.1	integer		m		
7.3.1.2.2	real		m		
7.3.2	down		m		
7.3.2.1	high		m		
7.3.2.1.1	integer		m		
7.3.2.1.2	real		m		
7.3.2.2	low		m		
7.3.2.2.1	integer		m		
7.3.2.2.2	real		m		
7.4	armTime		m		
8	notificationIdentifier		m		
9	correlatedNotifications		m		
9.1	correlatedNotifications		m		
9.2	sourceObjectInst		m		
9.2.1	distinguishedName		m		
9.2.2	nonSpecificForm		m		
9.2.3	localDistinguishedName		m		
10	stateChangeDefinition		m		
10.1	attributeId		m		
10.2	oldAttributeValue		m		
10.3	newAttributeValue		m		
11	monitoredAttributes		m		
12	proposedRepairActions		m		
12.1	global		m		
12.2	local		m		
13	additionalText		m		
14	additionalInformation		m		

If support for the Environmental alarm MAPDU in the agent role is claimed (B.5/2), then the supplier of the implementation shall state whether or not each parameter of the MAPDU is supported in Table B.8.

Table B.8 – Environmental Alarm MAPDU (Agent sending) - AlarmInfo

Index	Parameter name	Constraints and values	Status	Support	Additional information
1	probableCause		m		
1.1	globalValue		o.11		
1.2	localValue		o.11		
2	specificProblems	required for some objects	o		
2.1	global		c:o.12		
2.2	local		c:o.12		
3	perceivedSeverity	ENUMERATED 0 to 5	m		
4	backedUpStatus	required for some objects	o		
5	backUpObject	for backUp relationships	o		
5.1	distinguishedName		c:o.13		
5.2	nonSpecificForm		c:o.13		
5.3	localDistinguishedName		c:o.13		
6	trendIndication	ENUMERATED 0 to 2	o		
7	thresholdInfo	for threshold attributes	o		
7.1	triggeredThreshold		c:m		
7.2	observedValue		c:m		
7.2.1	integer		c:o.14		
7.2.2	real	required for some objects	c:o.14		
7.3	thresholdLevel		c:o		
7.3.1	up		c:o.15		
7.3.1.1	high		c:m		
7.3.1.1.1	integer		c:o.16		
7.3.1.1.2	real	required for some objects	c:o.16		
7.3.1.2	low	for gauge thresholds	c:o		
7.3.1.2.1	integer		c:o.17		
7.3.1.2.2	real	required for some objects	c:o.17		
7.3.2	down		c:o.15		
7.3.2.1	high		c:m		
7.3.2.1.1	integer		c:o.18		
7.3.2.1.2	real	required for some objects	c:o.18		
7.3.2.2	low		c:m		
7.3.2.2.1	integer		c:o.19		
7.3.2.2.2	real	required for some objects	c:o.19		
7.4	armTime		c:o		
8	notificationIdentifier		c6		
9	correlatedNotifications		o		
9.1	correlatedNotifications		c:m		
9.2	sourceObjectInst		c:o		
9.2.1	distinguishedName		c:o.52		
9.2.2	nonSpecificForm		c:o.52		
9.2.3	localDistinguishedName		c:o.52		
10	stateChangeDefinition	required for some objects	o		
10.1	attributeId		c:m		
10.2	oldAttributeValue		c:o		
10.3	newAttributeValue		c:m		
11	monitoredAttributes	required for some objects	o		
12	proposedRepairActions	required for some objects	o		
12.1	global		c:o.20		
12.2	local		c:o.20		
13	additionalText		o		
14	additionalInformation	required for some objects	o		

c6: If B.3/9 then m else o

If support for the Environmental Alarm MAPDU in the manager role is claimed (B.5/6), then the supplier of the implementation shall state whether or not each parameter of the MAPDU is supported in Table B.9.

Table B.9 – Environmental Alarm MAPDU (Manager receiving) - AlarmInfo

Index	Parameter name	Constraints and values	Status	Support	Additional information
1	probableCause		m		
1.1	globalValue		m		
1.2	localValue		m		
2	specificProblems		m		
2.1	global		m		
2.2	local		m		
3	perceivedSeverity	ENUMERATED 0 to 5	m		
4	backedUpStatus		m		
5	backUpObject		m		
5.1	distinguishedName		m		
5.2	nonSpecificForm		m		
5.3	localDistinguishedName		m		
6	trendIndication	ENUMERATED 0 to 2	m		
7	thresholdInfo		m		
7.1	triggeredThreshold		m		
7.2	observedValue		m		
7.2.1	integer		m		
7.2.2	real		m		
7.3	thresholdLevel		m		
7.3.1	up		m		
7.3.1.1	high		m		
7.3.1.1.1	integer		m		
7.3.1.1.2	real		m		
7.3.1.2	low		m		
7.3.1.2.1	integer		m		
7.3.1.2.2	real		m		
7.3.2	down		m		
7.3.2.1	high		m		
7.3.2.1.1	integer		m		
7.3.2.1.2	real		m		
7.3.2.2	low		m		
7.3.2.2.1	integer		m		
7.3.2.2.2	real		m		
7.4	armTime		m		
8	notificationIdentifier		m		
9	correlatedNotifications		m		
9.1	correlatedNotifications		m		
9.2	sourceObjectInst		m		
9.2.1	distinguishedName		m		
9.2.2	nonSpecificForm		m		
9.2.3	localDistinguishedName		m		
10	stateChangeDefinition		m		
10.1	attributeId		m		
10.2	oldAttributeValue		m		
10.3	newAttributeValue		m		
11	monitoredAttributes		m		
12	proposedRepairActions		m		
12.1	global		m		
12.2	local		m		
13	additionalText		m		
14	additionalInformation		m		

If support for the Equipment alarm MAPDU in the agent role is claimed (B.5/3), then the supplier of the implementation shall state whether or not each parameter of the MAPDU is supported in Table B.10.

Table B.10 – Equipment alarm MAPDU (Agent sending) - AlarmInfo

Index	Parameter name	Constraints and values	Status	Support	Additional information
1	probableCause		m		
1.1	globalValue		o.21		
1.2	localValue		o.21		
2	specificProblems	required for some objects	o		
2.1	global		c:o.22		
2.2	local		c:o.22		
3	perceivedSeverity	ENUMERATED 0 to 5	m		
4	backedUpStatus	required for some objects	o		
5	backUpObject	for backUp relationships	o		
5.1	distinguishedName		c:o.23		
5.2	nonSpecificForm		c:o.23		
5.3	localDistinguishedName		c:o.23		
6	trendIndication	ENUMERATED 0 to 2	o		
7	thresholdInfo	for threshold attributes	o		
7.1	triggeredThreshold		c:m		
7.2	observedValue		c:m		
7.2.1	integer		c:o.24		
7.2.2	real	required for some objects	c:o.24		
7.3	thresholdLevel		c:o		
7.3.1	up		c:o.25		
7.3.1.1	high		c:m		
7.3.1.1.1	integer		c:o.26		
7.3.1.1.2	real	required for some objects	c:o.26		
7.3.1.2	low	for gauge thresholds	c:o		
7.3.1.2.1	integer		c:o.27		
7.3.1.2.2	real	required for some objects	c:o.27		
7.3.2	down		c:o.25		
7.3.2.1	high		c:m		
7.3.2.1.1	integer		c:o.28		
7.3.2.1.2	real	required for some objects	c:o.28		
7.3.2.2	low		c:m		
7.3.2.2.1	integer		c:o.29		
7.3.2.2.2	real	required for some objects	c:o.29		
7.4	armTime		c:o		
8	notificationIdentifier		c7		
9	correlatedNotifications		o		
9.1	correlatedNotifications		c:m		
9.2	sourceObjectInst		c:o		
9.2.1	distinguishedName		c:o.53		
9.2.2	nonSpecificForm		c:o.53		
9.2.3	localDistinguishedName		c:o.53		
10	stateChangeDefinition	required for some objects	o		
10.1	attributeId		c:m		
10.2	oldAttributeValue		c:o		
10.3	newAttributeValue		c:m		
11	monitoredAttributes	required for some objects	o		
12	proposedRepairActions	required for some objects	o		
12.1	global		c:o.30		
12.2	local		c:o.30		
13	additionalText		o		
14	additionalInformation	required for some objects	o		

c7: If B.~~11~~10 then m else o

If support for the Equipment alarm MAPDU in the manager role is claimed (B.5/7), then the supplier of the implementation shall state whether or not each parameter of the MAPDU is supported in Table B.11.

Table B.11 – Equipment alarm MAPDU (Manager receiving) - AlarmInfo

Index	Parameter name	Constraints and values	Status	Support	Additional information
1	probableCause		m		
1.1	globalValue		m		
1.2	localValue		m		
2	specificProblems		m		
2.1	global		m		
2.2	local		m		
3	perceivedSeverity	ENUMERATED 0 to 5	m		
4	backedUpStatus		m		
5	backUpObject		m		
5.1	distinguishedName		m		
5.2	nonSpecificForm		m		
5.3	localDistinguishedName		m		
6	trendIndication	ENUMERATED 0 to 2	m		
7	thresholdInfo		m		
7.1	triggeredThreshold		m		
7.2	observedValue		m		
7.2.1	integer		m		
7.2.2	real		m		
7.3	thresholdLevel		m		
7.3.1	up		m		
7.3.1.1	high		m		
7.3.1.1.1	integer		m		
7.3.1.1.2	real		m		
7.3.1.2	low		m		
7.3.1.2.1	integer		m		
7.3.1.2.2	real		m		
7.3.2	down		m		
7.3.2.1	high		m		
7.3.2.1.1	integer		m		
7.3.2.1.2	real		m		
7.3.2.2	low		m		
7.3.2.2.1	integer		m		
7.3.2.2.2	real		m		
7.4	armTime		m		
8	notificationIdentifier		m		
9	correlatedNotifications		m		
9.1	correlatedNotifications		m		
9.2	sourceObjectInst		m		
9.2.1	distinguishedName		m		
9.2.2	nonSpecificForm		m		
9.2.3	localDistinguishedName		m		
10	stateChangeDefinition		m		
10.1	attributeId		m		
10.2	oldAttributeValue		m		
10.3	newAttributeValue		m		
11	monitoredAttributes		m		
12	proposedRepairActions		m		
12.1	global		m		
12.2	local		m		
13	additionalText		m		
14	additionalInformation		m		

If support for the Processing Error alarm MAPDU in the agent role is claimed (B.5/4), then the supplier of the implementation shall state whether or not each parameter of the MAPDU is supported in Table B.12.

Table B.12 – Processing failure alarm MAPDU (Agent sending) - AlarmInfo

Index	Parameter name	Constraints and values	Status	Support	Additional information
1	probableCause		m		
1.1	globalValue		o.31		
1.2	localValue		o.31		
2	specificProblems	required for some objects	o		
2.1	global		c:o.32		
2.2	local		c:o.32		
3	perceivedSeverity	ENUMERATED 0 to 5	m		
4	backedUpStatus	required for some objects	o		
5	backUpObject	for backUp relationships	o		
5.1	distinguishedName		c:o.33		
5.2	nonSpecificForm		c:o.33		
5.3	localDistinguishedName		c:o.33		
6	trendIndication	ENUMERATED 0 to 2	o		
7	thresholdInfo	for threshold attributes	o		
7.1	triggeredThreshold		c:m		
7.2	observedValue		c:m		
7.2.1	integer		c:o.34		
7.2.2	real	required for some objects	c:o.34		
7.3	thresholdLevel		c:o		
7.3.1	up		c:o.35		
7.3.1.1	high		c:m		
7.3.1.1.1	integer		c:o.36		
7.3.1.1.2	real	required for some objects	c:o.36		
7.3.1.2	low	for gauge thresholds	c:o		
7.3.1.2.1	integer		c:o.37		
7.3.1.2.2	real	required for some objects	c:o.37		
7.3.2	down		c:o.35		
7.3.2.1	high		c:m		
7.3.2.1.1	integer		c:o.38		
7.3.2.1.2	real	required for some objects	c:o.38		
7.3.2.2	low		c:m		
7.3.2.2.1	integer		c:o.39		
7.3.2.2.2	real	required for some objects	c:o.39		
7.4	armTime		c:o		
8	notificationIdentifier		c8		
9	correlatedNotifications		o		
9.1	correlatedNotifications		c:m		
9.2	sourceObjectInst		c:o		
9.2.1	distinguishedName		c:o.54		
9.2.2	nonSpecificForm		c:o.54		
9.2.3	localDistinguishedName		c:o.54		
10	stateChangeDefinition	required for some objects	o		
10.1	attributeId		c:m		
10.2	oldAttributeValue		c:o		
10.3	newAttributeValue		c:m		
11	monitoredAttributes	required for some objects	o		
12	proposedRepairActions	required for some objects	o		
12.1	global		c:o.40		
12.2	local		c:o.40		
13	additionalText		o		
14	additionalInformation	required for some objects	o		

c8: If B.~~13~~12/9 then m else o

If support for the Procesing failure alarm MAPDU in the manager role is claimed (B.4/9), then the supplier of the implementation shall state whether or not each parameter of the MAPDU is supported in Table B.13.

Table B.13 – Processing failure alarm MAPDU (Manager receiving) - AlarmInfo

Index	Parameter name	Constraints and values	Status	Support	Additional information
1	probableCause		m		
1.1	globalValue		m		
1.2	localValue		m		
2	specificProblems		m		
2.1	global		m		
2.2	local		m		
3	perceivedSeverity	ENUMERATED 0 to 5	m		
4	backedUpStatus		m		
5	backUpObject		m		
5.1	distinguishedName		m		
5.2	nonSpecificForm		m		
5.3	localDistinguishedName		m		
6	trendIndication	ENUMERATED 0 to 2	m		
7	thresholdInfo		m		
7.1	triggeredThreshold		m		
7.2	observedValue		m		
7.2.1	integer		m		
7.2.2	real		m		
7.3	thresholdLevel		m		
7.3.1	up		m		
7.3.1.1	high		m		
7.3.1.1.1	integer		m		
7.3.1.1.2	real		m		
7.3.1.2	low		m		
7.3.1.2.1	integer		m		
7.3.1.2.2	real		m		
7.3.2	down		m		
7.3.2.1	high		m		
7.3.2.1.1	integer		m		
7.3.2.1.2	real		m		
7.3.2.2	low		m		
7.3.2.2.1	integer		m		
7.3.2.2.2	real		m		
7.4	armTime		m		
8	notificationIdentifier		m		
9	correlatedNotifications		m		
9.1	correlatedNotifications		m		
9.2	sourceObjectInst		m		
9.2.1	distinguishedName		m		
9.2.2	nonSpecificForm		m		
9.2.3	localDistinguishedName		m		
10	stateChangeDefinition		m		
10.1	attributeId		m		
10.2	oldAttributeValue		m		
10.3	newAttributeValue		m		
11	monitoredAttributes		m		
12	proposedRepairActions		m		
12.1	global		m		
12.2	local		m		
13	additionalText		m		
14	additionalInformation		m		

If support for the Quality of service alarm MAPDU in the agent role is claimed (B.5/5), then the supplier of the implementation shall state whether or not each parameter of the MAPDU is supported in Table B.14.

Table B.14 – Quality of service alarm MAPDU (Agent sending) - AlarmInfo

Index	Parameter name	Constraints and values	Status	Support	Additional information
1	probableCause		m		
1.1	globalValue		o.41		
1.2	localValue		o.41		
2	specificProblems	required for some objects	o		
2.1	global		c:o.42		
2.2	local		c:o.42		
3	perceivedSeverity	ENUMERATED 0 to 5	m		
4	backedUpStatus	required for some objects	o		
5	backUpObject	for backUp relationships	o		
5.1	distinguishedName		c:o.43		
5.2	nonSpecificForm		c:o.43		
5.3	localDistinguishedName		c:o.43		
6	trendIndication	ENUMERATED 0 to 2	o		
7	thresholdInfo	for threshold attributes	o		
7.1	triggeredThreshold		c:m		
7.2	observedValue		c:m		
7.2.1	integer		c:o.44		
7.2.2	real	required for some objects	c:o.44		
7.3	thresholdLevel		c:o		
7.3.1	up		c:o.45		
7.3.1.1	high		c:m		
7.3.1.1.1	integer		c:o.46		
7.3.1.1.2	real	required for some objects	c:o.46		
7.3.1.2	low	for gauge thresholds	c:o		
7.3.1.2.1	integer		c:o.47		
7.3.1.2.2	real	required for some objects	c:o.47		
7.3.2	down		c:o.45		
7.3.2.1	high		c:m		
7.3.2.1.1	integer		c:o.48		
7.3.2.1.2	real	required for some objects	c:o.48		
7.3.2.2	low		c:m		
7.3.2.2.1	integer		c:o.49		
7.3.2.2.2	real	required for some objects	c:o.49		
7.4	armTime		c:o		
8	notificationIdentifier		c9		
9	correlatedNotifications		o		
9.1	correlatedNotifications		c:m		
9.2	sourceObjectInst		c:o		
9.2.1	distinguishedName		c:o.55		
9.2.2	nonSpecificForm		c:o.55		
9.2.3	localDistinguishedName		c:o.55		
10	stateChangeDefinition	required for some objects	o		
10.1	attributeId		c:m		
10.2	oldAttributeValue		c:o		
10.3	newAttributeValue		c:m		
11	monitoredAttributes	required for some objects	o		
12	proposedRepairActions	required for some objects	o		
12.1	global		c:o.50		
12.2	local		c:o.50		
13	additionalText		o		
14	additionalInformation	required for some objects	o		

c9: If B.~~15~~14/9 then m else o

If support for the Quality of service error alarm MAPDU in the manager role is claimed (B.5/10), then the supplier of the implementation shall state whether or not each parameter of the MAPDU is supported in Table B.15.

Table B.15 – Quality of service error alarm MAPDU (Manager receiving) - AlarmInfo

Index	Parameter name	Constraints and values	Status	Support	Additional information
1	probableCause		m		
1.1	globalValue		m		
1.2	localValue		m		
2	specificProblems		m		
2.1	global		m		
2.2	local		m		
3	perceivedSeverity	ENUMERATED 0 to 5	m		
4	backedUpStatus		m		
5	backUpObject		m		
5.1	distinguishedName		m		
5.2	nonSpecificForm		m		
5.3	localDistinguishedName		m		
6	trendIndication	ENUMERATED 0 to 2	m		
7	thresholdInfo		m		
7.1	triggeredThreshold		m		
7.2	observedValue		m		
7.2.1	integer		m		
7.2.2	real		m		
7.3	thresholdLevel		m		
7.3.1	up		m		
7.3.1.1	high		m		
7.3.1.1.1	integer		m		
7.3.1.1.2	real		m		
7.3.1.2	low		m		
7.3.1.2.1	integer		m		
7.3.1.2.2	real		m		
7.3.2	down		m		
7.3.2.1	high		m		
7.3.2.1.1	integer		m		
7.3.2.1.2	real		m		
7.3.2.2	low		m		
7.3.2.2.1	integer		m		
7.3.2.2.2	real		m		
7.4	armTime		m		
8	notificationIdentifier		m		
9	correlatedNotifications		m		
9.1	correlatedNotifications		m		
9.2	sourceObjectInst		m		
9.2.1	distinguishedName		m		
9.2.2	nonSpecificForm		m		
9.2.3	localDistinguishedName		m		
10	stateChangeDefinition		m		
10.1	attributeId		m		
10.2	oldAttributeValue		m		
10.3	newAttributeValue		m		
11	monitoredAttributes		m		
12	proposedRepairActions		m		
12.1	global		m		
12.2	local		m		
13	additionalText		m		
14	additionalInformation		m		

NOTE - In the above tables additionalInformation has not been expanded since the implementation shall support sending the "True" value of the significance parameter. This implies that all subparameters have static mandatory support.