INTERNATIONAL STANDARDIZED PROFILE

ISO/IEC ISP 12060-2

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Information technology — International Standardized Profiles — OSI Management — Management functions —

Part 2:
AOM212 — Alarm reporting and state management capabilities

Technologies de l'information — Profils normalisés internationaux — Gestion OSI — Fonctions de gestion —

Partie 2: AOM212 — Capacités de rapport d'alarme et de gestion d'état

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 12060-2 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 12060 consists of the following parts, under the general title *Information technology - International Standardized Profiles - OSI Management - Management functions*:

— *Part 1: AOM211 - General management capabilities*

— *Part 2: AOM212 - Alarm reporting and state management capabilities*

— *Part 3: AOM213 - Alarm reporting capabilities*

— *Part 4: AOM221 - General event report management*

— *Part 5: AOM231 - General log control*

Annex A forms an integral part of this part of ISO/IEC ISP 12060.

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Information technology - International Standardized Profiles - OSI Management - Management functions -

Part 2:
AOM212 - Alarm reporting and state management capabilities

1 Scope

1.1 General

This part of ISO/IEC ISP 12060 specifies the Alarm reporting and state management capabilities profile, AOM212, which is applicable to end systems operating in the Open Systems Interconnection (OSI) environment. AOM212 specifies a combination of OSI standards, which collectively provide Alarm reporting and state management capabilities. These capabilities include the ability to report the alarm notifications, the state change notification, and to retrieve and modify the state attributes.

AOM212 also specifies use of a combination of standards that collectively provide the subset of the Common Management Information Service required by this part of ISO/IEC ISP 12060.

The support of the complete set of operation and notification services and of the management attributes does not imply that all these features shall be used in all instances of communications. The selection of the features depends on the requirements of the MIS users.

The definitions and conventions used in this part of ISO/IEC ISP 12060 are specified in ISO/IEC ISP 12059-0, Common definitions for management function profiles.

1.2 Introduction

AOM212 is applicable in an environment in which end systems are able to take a manager role, an agent role or both. A system acting in the role of a manager is capable of receiving notifications which are generated by managed objects in the system acting in the role of the agent. A system acting in the role of a manager is capable of requesting the specified set of operations upon state attributes which are in the system acting in the role of the agent.

The specifications of managed objects are outside the scope of AOM212. Any system that claims to support one or more managed object, and therefore to conform to a managed object definition, must provide all the capability function services required to perform the operations defined for the managed object and to convey the notifications it generates. Since all managed object inherit the object class and name binding attributes from top, GET operations on these attributes must be supported. AOM212 does not support the minimum capability services needed by a system that claims support for managed objects. Managed objects that contain the state attributes as defined in ISO/IEC 10164-2 may be manipulated via the use of services provided by AOM212.

Figure 1 illustrates only one of those configurations, one in which one system is acting in a manager role and a further system is acting in the agent role.

The roles of manager and agent may be determined in advance, for the duration of an association or the duration of a single management interaction. The application context is defined in Systems Management Overview (ISO/IEC 10040).

NOTE - Negotiation of functional units is optional.

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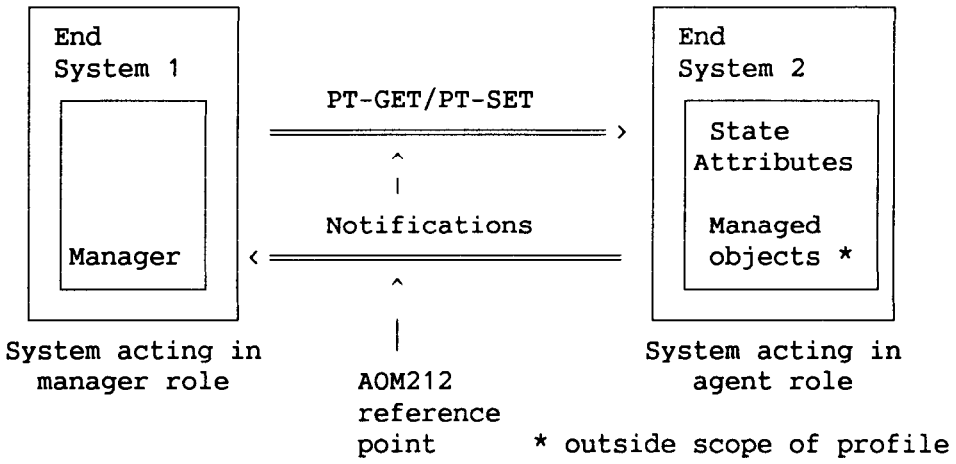


Figure 1 - One scenario of applicability of the AOM212 profile

AOM212 references the following standards.

Application Layer	ISO/IEC 10164-1	Object management function
	ISO/IEC 10164-2	State management function
	ISO/IEC 10164-4	Alarm reporting function
	ISO/IEC 10165-2	Definition of management information
	ISO/IEC 9595	CMIS
	ISO/IEC 9596-1	CMIP
	ISO/IEC 9072-1, 2	ROSE
	ISO 8649, 8650	ACSE
	ISO/IEC ISP 11183-3	CMISE/ROSE for AOM11 - Basic management communications
	ISO/IEC ISP 11183-1	Specification of ACSE, Presentation and Session
Presentation Layer	ISO 8822, 8823	Presentation
	ISO/IEC 8824, 8825	ASN.1
	ISO/IEC ISP 11183-1	Specification of ACSE, Presentation and Session
Session Layer	ISO 8326, 8327	Session
	ISO 8326/Add.2	
	ISO 8327/Add.2	
	ISO/IEC ISP 11183-1	Specification of ACSE, Presentation and Session

AOM212 includes by reference the subset of the Basic Management Communications profile (AOM11) that is required to support the above services.

NOTE - Refer to the description of AOM11 for further information about the communications support including specification of the protocol stack.

An end system implementing AOM212 can interwork with an end system implementing the same profile in a complementary role. An end system implementing this profile can also interwork with an end system implementing profiles AOM211 (General Management Capabilities), or AOM213 (Alarm Reporting Capabilities) in a complementary role, at the common level of functionality. A system implementing the Basic Management Communications profile (AOM11) will be compatible with the communications aspects of AOM212. AOM12 is also compatible with communication aspects of AOM212.

1.3 Position within the Taxonomy

AOM212 is identified in ISO/IEC TR 10000-2 as:

AOM - OSI Management
AOM2 - Management Functions
AOM21 - Management Capabilities
AOM212 - Alarm Reporting and State Management Capabilities

AOM212 may be combined with any T-Profile (identified in ISO/IEC TR 10000-2) specifying the OSI connection-mode transport service.

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2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC ISP 12060. 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 12060 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.*

- ITU-T Recommendation X.216 (1994) | ISO/IEC 8822:1994, *Information technology - Open Systems Interconnection - Presentation service definition.*

- ITU-T Recommendation X.226 (1994) | ISO/IEC 8823-1:1994, *Information technology - Open Systems Interconnection - Connection-oriented presentation protocol: Protocol specification.*

  NOTE — ITU-T Rec. X.216 (1994) | ISO/IEC 8822:1994 and ITU-T Rec. X.226 (1994) | ISO/IEC 8823-1:1994 supersede CCITT Rec. X.216 (1988) | ISO 8822:1988 and CCITT Rec. X.226 (1988) | ISO 8823:1988 respectively. However, when this part of ISO/IEC ISP 12060 was under development, the previous editions were valid and this part of ISO/IEC ISP 12060 is therefore based on these editions, which are listed below.

  - CCITT Recommendation X.216 (1988), *Presentation Service Definition for Open Systems Interconnection for CCITT Applications.*

    ISO 8822:1988, *Information processing systems - Open Systems Interconnection - Connection oriented presentation service definition.*

  - CCITT Recommendation X.226 (1988), *Connection oriented presentation protocol specification.*

    ISO 8823:1988, *Information processing systems - Open Systems Interconnection - Connection oriented presentation protocol specification.*

- CCITT Recommendation X.701 (1992) | ISO/IEC 10040:1992, *Information technology - Open Systems Interconnection - Systems management overview.*

- CCITT Recommendation X.712 (1992) | ISO/IEC 9596-2:1993, *Information technology - Open Systems Interconnection - Common management information protocol: Protocol Implementation Conformance Statement (PICS) proforma.*

- 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.730 (1992) | ISO/IEC 10164-1:1993, *Information technology - Open Systems Interconnection - Systems Management: Object management function.*

- CCITT Recommendation X.731 (1992) | ISO/IEC 10164-2:1993, *Information technology - Open Systems Interconnection - Systems Management: State management function.*

- CCITT Recommendation X.733 (1992) | ISO/IEC 10164-4:1992, *Information technology - Open Systems Interconnection - Systems Management: Alarm reporting function.*

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

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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.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.215 (1988), *Session service definition for Open Systems Interconnection for CCITT applications.*

  ISO 8326:1987, *Information processing systems - Open Systems Interconnection - Basic connection oriented session service definition.*

- CCITT Recommendation X.217 (1988), *Association Control Service Definition for Open Systems Interconnection for CCITT applications.*

  ISO 8649:1988, *Information processing systems - Open Systems Interconnection - Service definition for the Association Control Service Element.*

- CCITT Recommendation X.219 (1988), *Remote Operations: Model, notation and service definition..*

  ISO/IEC 9072-1:1989, *Information processing systems - Text communication - Remote Operations - Part 1: Model, notation and service definition.*

- CCITT Recommendation X.225 (1988), *Session protocol specification for Open Systems Interconnection for CCITT applications.*

  ISO 8327:1987, *Information processing systems - Open Systems Interconnection - Basic connection oriented session protocol specification.*

- CCITT Recommendation X.227 (1988), *Association Control Protocol Specification for Open Systems Interconnection for CCITT Applications.*

  ISO 8650:1988, *Information processing systems - Open Systems Interconnection - Protocol specification for the Association Control Service Element.*

- CCITT Recommendation X.229 (1988), *Remote Operations: Protocol specification.*

  ISO/IEC 9072-2:1989, *Information processing systems - Text communication - Remote Operations - Part 2: Protocol specification.*

- 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 for protocol Recommendations for ITU-T applications - 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 for CCITT applications.*

  ISO/IEC 7498-4:1989, *Information processing systems - Open Systems Interconnection - Basic Reference Model - Part 4: Management framework.*

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1) Currently at the stage of Draft Recommendation.

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- CCITT Recommendation X.710 (1991), *Common management information service definition for CCITT applications.*

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

- CCITT Recommendation X.711 (1991), *Common Management Information protocol specification for CCITT Applications.*

  ISO/IEC 9596-1:1991, *Information technology - Open Systems Interconnection - Common management information protocol - Part 1: Specification.*

2.3 Additional references

- ISO 8326/Add.2:[2], *Information processing systems - Open Systems Interconnection - Basic connection oriented session service definition - Addendum 2: Unlimited user data.*

- ISO 8327/Add.2:[2], *Information processing systems - Open Systems Interconnection - Basic connection oriented session protocol specification - Addendum 2: Unlimited user data.*

- ISO/IEC 8327-2:[3], *Information technology - Open Systems Interconnection - Basic connection oriented session protocol specification - Part 2: Protocol Implementation Conformance Statement (PICS) proforma.*

- ISO/IEC 8650-2:1995, *Information technology - Open Systems Interconnection - Protocol specification for the Association Control Service Element: Protocol Implementation Conformance Statement (PICS) proforma.*

- ISO/IEC 8823-2:1995, *Information technology - Open Systems Interconnection - Connection-oriented presentation protocol: Protocol Implementation Conformance Statement (PICS) proforma.*

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

- ISO/IEC TR 10000-1:1990[4], *Information technology - Framework and taxonomy of International Standardized Profiles - Part 1: Framework.*

- ISO/IEC TR 10000-2:1994[4], *Information technology - Framework and taxonomy of International Standardized Profiles - Part 2: Principles and Taxonomy for OSI Profiles.*

- ISO/IEC ISP 11183-1:1992, *Information technology - International Standardized Profiles AOM1n OSI Management - Management communications - Part 1: Specification of ACSE, presentation, and session protocols for the use by ROSE and CMISE.*

- ISO/IEC ISP 11183-2:1992, *Information technology - International Standardized Profiles AOM1n OSI Management - Management communications - Part 2: CMISE/ROSE for AOM12 - Enhanced Management Communications.*

- ISO/IEC ISP 11183-3:1992, *Information technology - International Standardized Profiles AOM1n OSI Management - Management communications - Part 3: CMISE/ROSE for AOM11 - Basic Management Communications.*

- 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.*

- ISO/IEC ISP 12059-1:1995, *Information technology - International Standardized Profiles - OSI Management - Common information for management functions - Part 1: Object management.*

- ISO/IEC ISP 12059-2:1995, *Information technology - International Standardized Profiles - OSI Management - Common information for management functions - Part 2: State management.*

- ISO/IEC ISP 12059-4:1995, *Information technology - International Standardized Profiles - OSI Management - Common information for management functions - Part 4: Alarm reporting.*

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2) To be incorporated in a new edition of the base standard.

3) To be published.

4) Under revision.

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- ISO/IEC ISP 12060-1: 1995, *Information technology - International Standardized Profiles - OSI Management- Management Functions - Part 1: AOM211 - General management capabilities.*

- ISO/IEC ISP 12060-3: 1995, *Information technology - International Standardized Profiles- OSI Management- Management Functions - Part 3: AOM213 - Alarm reporting capabilities.*

- ISO/IEC ISP 12060-5: 1995, *Information technology - International Standardized Profiles - OSI Management- Management Functions - Part 5: AOM231 - General log control.*

3 Definitions

The terms used in this part of ISO/IEC ISP 12060 are defined in the referenced base standards.

4 Abbreviations

The abbreviations used in this part of ISO/IEC ISP 12060 are specified in ISO/IEC ISP 12059-0.

5 Conventions

The common conventions used in this part of ISO/IEC ISP 12060 are specified in ISO/IEC ISP 12059-0.

The following conditions are specified in the referenced base standards and used in this part of ISO/IEC ISP 12060:

2A/cn	See CCITT Rec. X.731 | ISO/IEC 10164-2, Annex A, condition cn.
2B/cn	See CCITT Rec. X.731 | ISO/IEC 10164-2, Annex B, condition cn.
4A/cn	See CCITT Rec. X.733 | ISO/IEC 10164-4, Annex A, condition cn.
4B/cn	See CCITT Rec. X.733 | ISO/IEC 10164-4, Annex B, condition cn.

6 Conformance requirements

This part of ISO/IEC ISP 12060 states the requirements for interworking between two management systems with alarm reporting and state management capabilities. A claim of conformance to AOM212 is a claim that all the mandatory requirements in the relevant base standards are satisfied, and that all the requirements in the following clauses, and in annex A are satisfied

AOM212 requires conformance to the following system management standards:

CCITT Rec. X.731 | ISO/IEC 10164-2: State management function
CCITT Rec. X.733 | ISO/IEC 10164-4: Alarm reporting function.

The detailed requirements for the support of the above base standards are specified in ISO/IEC ISP 12059 parts 0, 2 and 4.

The implementation shall support the requirements specified in ISO/IEC ISP 11183-1 for the ACSE, Presentation and Session layers, and part of ISO/IEC ISP 11183 for CMIP and ROSE, as specified by this profile.

An implementation acting in an agent role shall accept a value of "actual class" for "object class" parameter as defined in clause 6.4.5 of CCITT Recommendation X.722 | ISO/IEC 10165-4.

The common requirements for this profile are specified in ISO/IEC ISP 12059-0. The specific requirements are specified in Annex At.

Implementations conforming to AOM212 shall implement all the mandatory features. The supplier of an implementation claiming conformance to AOM212 shall make available a statement of support or non-support of each optional function, feature or parameter identified in this part of ISO/IEC ISP 12060.

AOM212 requires support of the State management and Alarm reporting functions as specified in CCITT Rec. X.731 | ISO/IEC 10164-2 and CCITT Rec. X.733 | ISO/IEC 10164-4, respectively, and part of the Object management function as specified in CCITT Rec. X.730 | ISO/IEC 10164-1. As a result this requires support for the protocol elements needed to provide the PT-GET, PT-SET, state change reporting and alarm reporting services. This profile also requires support for all state attribute and state attribute group syntax.

AOM212 requires support of the CMISE kernel functional unit.

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An implementation conforming to AOM212 in the agent role shall support a mechanism to ensure that the managed system can send notifications to a managing system.

To assist in migration and compatibility, it is recommended that management systems be capable of tolerating the arrival of unexpected information, such as notifications and attribute values.

6.1 MAPDU support

An implementation conforming to AOM212 shall support the following MAPDUs for each of the management roles supported. The detailed requirements for each of the MAPDUs are specified in Annex A.

6.1.1 Manager role requirements

An implementation supporting the manager role shall be able to receive the following set of MAPDUs and generate, when required, a response.

stateChange
communicationsAlarm
environmentalAlarm
equipmentAlarm
processingErrorAlarm
qualityofServiceAlarm

6.1.2 Agent role requirements

An implementation supporting the agent role shall be able to send the following set of MAPDUs and receive the corresponding response.

stateChange
communicationsAlarm
environmentalAlarm
equipmentAlarm
processingErrorAlarm
qualityofServiceAlarm

6.2 Systems management functional units

The SMASE functional units for alarm reporting and state management capabilities are defined in CCITT Rec. X.730, X.731, X.733 | ISO/IEC 10164-1, 2 and 4, and the requirements for support are defined in Table A.4. The support of these functional units requires the implementation of all the capabilities included in the functional unit. The negotiation of functional units is optional. An implementation is required to support at least one role.

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Annex A

(normative)

ISPICS Requirements List (IPRL) for AOM212

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 or this profile for this item.
Base Std.:	The status value of the item as defined in the base standard
Common Profile:	Requirements as defined for this item in the referenced common profile.
AOM212 Profile:	AOM212 profile requirements defined for this item.

The notation used in this annex is identified in clause 5. The parameter names are those which are specified in CCITT Recommendation X.731 | ISO/IEC 10164-2, CCITT Recommendation X.733 | ISO/IEC 10164-4 and CCITT Recommendation X.721 | ISO/IEC 10165-2.

A.1 Management conformance summary

The following tables identify part of the information that the supplier of the implementation shall provide in the final management conformance summary. The supplier shall indicate claims of conformance to the following Recommendations | International Standards.

NOTE - In tables A.1, A.2 and A.3, the "Base Std." column and the "Profile" column are 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 in the MCS "Base Std." column and "Profile" column.

Table A.1 is based on Table A.2 of CCITT Recommendation X.731|ISO/IEC 10164-2 DAM 1 and Table A.2 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.1 - PICS support summary

Index	Identification of the document including the PICS proforma	Table numbers of PICS proforma	Description	Constraints and values	Base Std.	AOM212 Profile	Table numbers of PICS	Additional information
1	CCITT Rec.X.731 | ISO/IEC 10164-2	Annex B all tables	-	-	m	m		Specified in ISO/IEC ISP 12059-2
2	CCITT Rec.X.733 | ISO/IEC 10164-4	Annex B all tables	-	-	m	m		Specified in ISO/IEC ISP 12059-4
3	CCITT Rec.X.730 | ISO/IEC 10164-1	Annex E all tables	SM application context	-	m	m		Specified in ISO/IEC ISP 12059-0
4	CCITT Rec.X.712 | ISO/IEC 9596-2	Annex A all tables	CMIP	-	o	m		Specified in ISO/IEC ISP 11183-3
5	ISO/IEC 8650-2	All tables	ACSE	-	o	m		Specified in ISO/IEC ISP 11183-1
6	ISO/IEC 8823-2	All tables	Presentation	-	o	m		Specified in ISO/IEC ISP 11183-1
7	ISO/IEC 8327-2	All tables	Session	-	o	m		Specified in ISO/IEC ISP 11183-1

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Table A.2 is based on Table A.3 of CCITT Recommendation X.731|ISO/IEC 10164-2 DAM 1 and Table A.3 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.2 - MOCS support summary

Index	Identification of the document including the MOCS proforma	Table numbers of MOCS proforma	Description	Constraints and values	Base Std.	AOM212 Profile	Table numbers of MOCS	Additional information
1	CCITT Rec.X.731 | ISO/IEC 10164-2	Annex C all tables	stateChange Record	-	2A/c1	2A/c1		Specified in ISO/IEC ISP 12059-2
2	CCITT Rec.X.733 | ISO/IEC 10164-4	Annex C all tables	alarm Record	-	4A/c1	4A/c1		Specified in ISO/IEC ISP 12059-4

Table A.3 is based on Table A.4 of CCITT Recommendation X.731|ISO/IEC 10164-2 DAM 1 and Table A.4 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.3 - MRCS support summary

Index	Identification of the document including the MRCS proforma	Table numbers of MRCS proforma	Description	Constraints and values	Base Std.	AOM212 Profile	Table numbers of MRCS	Additional information
1	CCITT Rec.X.735 | ISO/IEC 10164-6	Annex D Item D.1/1	logRecord-Log name binding	-	4A/c1	4A/c1		Specified in ISO/IEC ISP 12060-5

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A.2 Management capability support

An implementation conforming to AOM212 shall indicate which systems management functional units are supported. The functional units require the support of a set of MAPDUs that are carried using CMIP PDUs. The negotiation of functional units is optional.

Table A.4 is based on Table B.2 of CCITT Recommendation X.730|ISO/IEC 10164-1 DAM 1, Table B.2 of CCITT Recommendation X.731|ISO/IEC 10164-2 DAM 1 and Table B.2 of CCITT Recommendation X.733|ISO/IEC 10164-4 DAM 1.

Table A.4 - Management capability

Index	Functional unit name	Base Std.	AOM212 Profile	MAPDUs	CMIS service primitives	Additional information
1	monitor	o	m	-	M-GET	
2	control	o	m	-	M-GET, M-SET	
3	state change reporting	2B/c1	m	stateChange	M-EVENT-REPORT	
4	alarm reporting	4B/c1	m	communicationsAlarm environmentalAlarm equipmentAlarm processingErrorAlarm QualityofServiceAlarm	M-EVENT-REPORT	

The Monitor functional unit is only used to Get the values of generic state attributes by PT-GET service. Other uses of the Monitor functional unit and PT-GET service are out of scope of AOM212.

The Control functional unit is only used to Get and Set the values of generic state attributes by PT-GET and PT-SET services. Other uses of the Control functional unit and PT-GET and PT-SET service are out of scope.

A.2.1 MAPDU support

A.2.1.1 State change MAPDU support

The detailed information of the MAPDU for which support is required is specified in ISO/IEC ISP 12059-2. However, AOM212 places the following additional restrictions on parameter support.

Table A.5 is based on Table A.3 of ISO/IEC ISP12059-2.

Table A.5 - State change MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Common Profile	AOM212 Profile	Additional information
7	additionalInformation	required for some objects	oo	mo	

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A.2.1.2 Alarm reporting MAPDU support

The detailed information of the MAPDUs for which support is required is specified in ISO/IEC ISP 12059-4. However AOM212 places the following additional restrictions on parameter support.

Table A.6 is based on Table A.3 of ISO/IEC ISP 12059-4.

Table A.6 - Communications alarm MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Common Profile	AOM212 Profile	Additional information
2	specificProblems	required for some objects	oo	mo	
4	backedUpStatus	required for some objects	oo	mo	
7.2.2	real	-	c:oc3	c:mc3	
7.3.1.1.2	real	-	c:oc3	c:mc3	
7.3.1.2.2	real	-	c:oc3	c:mc3	
7.3.2.1.2	real	-	c:oc3	c:mc3	
7.3.2.2.2	real	-	c:oc3	c:mc3	
10	stateChangeDefinition	required for some objects	oc24	mc24	
11	monitoredAttributes	required for some objects	oo	mo	
12	proposedRepairActions	required for some objects	oo	mo	
14	additionalInformation	required for some objects	oo	mo	

c24 is defined in ISO/IEC ISP 12059-4.

Table A.7 is based on Table A.5 of ISO/IEC ISP 12059-4.

Table A.7 - Quality of service alarm MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Common Profile	AOM212 Profile	Additional information
2	specificProblems	required for some objects	oo	mo	
4	backedUpStatus	required for some objects	oo	mo	
7.2.2	real	-	c:oc3	c:mc3	
7.3.1.1.2	real	-	c:oc3	c:mc3	
7.3.1.2.2	real	-	c:oc3	c:mc3	
7.3.2.1.2	real	-	c:oc3	c:mc3	
7.3.2.2.2	real	-	c:oc3	c:mc3	
10	stateChangeDefinition	required for some objects	oc24	mc24	
11	monitoredAttributes	required for some objects	oo	mo	
12	proposedRepairActions	required for some objects	oo	mo	
14	additionalInformation	required for some objects	oo	mo	

c24 is defined in ISO/IEC ISP 12059-4.

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Table A.8 is based on Table A.7 of ISO/IEC ISP 12059-4.

Table A.8 - Processing error alarm MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Common Profile	AOM212 Profile	Additional information
2	specificProblems	required for some objects	oo	mo	
4	backedUpStatus	required for some objects	oo	mo	
7.2.2	real	-	c:oc3	c:mc3	
7.3.1.1.2	real	-	c:oc3	c:mc3	
7.3.1.2.2	real	-	c:oc3	c:mc3	
7.3.2.1.2	real	-	c:oc3	c:mc3	
7.3.2.2.2	real	-	c:oc3	c:mc3	
10	stateChangeDefinition	required for some objects	oc24	mc24	
11	monitoredAttributes	required for some objects	oo	mo	
12	proposedRepairActions	required for some objects	oo	mo	
14	additionalInformation	required for some objects	oo	mo	

c24 is defined in ISO/IEC ISP 12059-4.

Table A.9 is based on Table A.9 of ISO/IEC ISP 12059-4.

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

Index	Parameter name	Constraints and values	Common Profile	AOM212 Profile	Additional information
2	specificProblems	required for some objects	oo	mo	
4	backedUpStatus	required for some objects	oo	mo	
7.2.2	real	-	c:oc3	c:mc3	
7.3.1.1.2	real	-	c:oc3	c:mc3	
7.3.1.2.2	real	-	c:oc3	c:mc3	
7.3.2.1.2	real	-	c:oc3	c:mc3	
7.3.2.2.2	real	-	c:oc3	c:mc3	
10	stateChangeDefinition	required for some objects	oc24	mc24	
11	monitoredAttributes	required for some objects	oo	mo	
12	proposedRepairActions	required for some objects	oo	mo	
14	additionalInformation	required for some objects	oo	mo	

c24 is defined in ISO/IEC ISP 12059-4.

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Table A.10 is based on Table A.11 of ISO/IEC ISP 12059-4.

Table A.10 - Environmental alarm MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Common Profile	AOM212 Profile	Additional information
2	specificProblems	required for some objects	oo	mo	
4	backedUpStatus	required for some objects	oo	mo	
7.2.2	real	-	c:oc3	c:mc3	
7.3.1.1.2	real	-	c:oc3	c:mc3	
7.3.1.2.2	real	-	c:oc3	c:mc3	
7.3.2.1.2	real	-	c:oc3	c:mc3	
7.3.2.2.2	real	-	c:oc3	c:mc3	
10	stateChangeDefinition	required for some objects	oc24	mc24	
11	monitoredAttributes	required for some objects	oo	mo	
12	proposedRepairActions	required for some objects	oo	mo	
14	additionalInformation	required for some objects	oo	mo	

c24 is defined in ISO/IEC ISP 12059-4.

A.2.2 Generic attribute support

A.2.2.1 Generic state attribute and state attribute group support

Operations on generic state attributes and state attribute groups shall be supported. The details of the operations are specified in ISO/IEC ISP 12059-2.

A.3 CMIP PDU requirements

An implementation conforming to AOM212 shall support the CMIP PDUs associated with the following CMIS services. The list of CMIP PDUs associated with each service is specified in ISO/IEC ISP 11183-3.

Table A.11 - CMIP PDU requirements

Index	CMIS Service Primitive	ISO/IEC ISP 11183-3 Table Reference		Changes from profile columns in ISO/IEC ISP 11183-3 tables
		Manager	Agent	
1	M-EVENT-REPORT	Table A.24	Table A.23	none
2	M-GET	Table A.25	Table A.26	none
3	M-SET	Table A.27	Table A.28	none

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A.4 Managed object support

A.4.1 Introduction

AOM212 includes conditional support for alarm record and state change record managed objects.

A.4.2 Event log record support

If an implementation supports any AOM23x profile, the implementation conforming to AOM212 shall support the following log records.

Table A.12 - Event log record support

Index	Event log record subclass name	Base Std.		AOM212 Profile		Reference
		objects corresponding to received notifications	objects corresponding to internal notifications	objects corresponding to received notifications	objects corresponding to internal notifications	
1	stateChangeRecord	2A/c1	2A/c1	2A/c1	2A/c1	ISO/IEC ISP 12059-2
2	alarmRecord	4A/c1	4A/c1	4A/c1	4A/c1	ISO/IEC ISP 12059-4

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