INTERNATIONAL STANDARDIZED PROFILE

ISO/IEC ISP 12060-1

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

Part 1:
AOM211 — General management capabilities

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

Partie 1: AOM211 — Capacité globale de gestion

Reference number
ISO/IEC ISP 12060-1:1995(E)

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Foreword

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

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. 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 12060-1 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 1:

AOM211 - General management capabilities

1 Scope

1.1 General

This part of ISO/IEC ISP 12060 specifies the General management capabilities profile, AOM211, which is applicable to end systems operating in the Open Systems Interconnection (OSI) environment. AOM211 specifies a combination of OSI standards, which collectively provide General management capabilities. These capabilities include the ability to create and delete any managed object instance, retrieve and modify any attribute, report any event, and initiate any action. These capabilities further include a specific set of reporting services for object creation, object deletion, attribute value change, state change, relationship change, and alarm; and attribute modification and retrieval services for a specific set of state and relationship attributes and attribute groups.

AOM211 also specifies use of a combination of standards that collectively provide 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 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

AOM211 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 requesting the specified set of operations upon any managed object which is in the system acting in the role of the agent, and receiving notifications which are generated by managed objects in the system acting in the role of the agent.

The specification of the managed objects receiving operations and generating notifications are outside the scope of this profile.

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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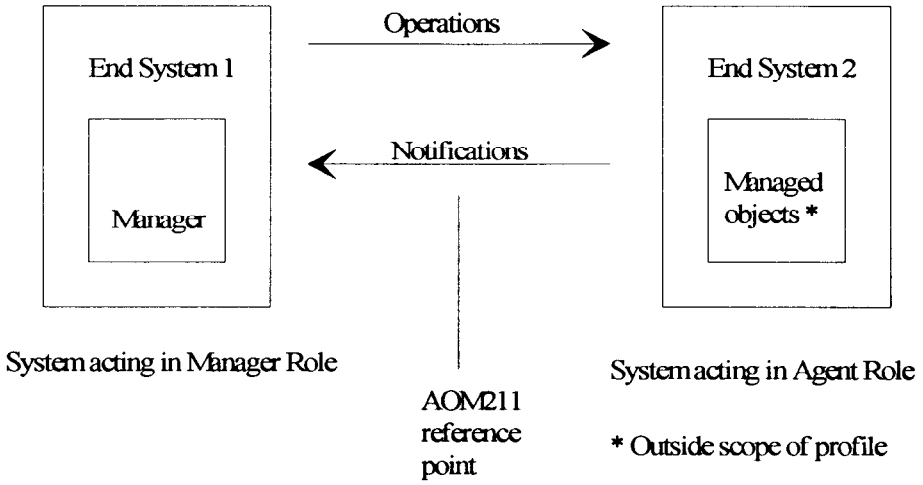

Figure 1 - One scenario of applicability of the AOM211 profile

AOM211 references the following standards.

Application Layer	ISO/IEC 10164-1	Object management function
	ISO/IEC 10164-2	State management function
	ISO/IEC 10164-3	Attributes for representing relationships
	ISO/IEC 10164-4	Alarm reporting function
	ISO/IEC 10165-2	Definition of management information
	ISO/IEC 9595, 9596-1	CMIS and CMIP
	ISO/IEC 9072-1, 2	ROSE
	ISO/IEC ISP 11183-2	CMISE/ROSE for AOM12 - Enhanced management communications
	ISO 8649, 8650	ACSE
	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 8822, 8823	Session
	ISO/IEC 8326/Add.2	
	ISO/IEC 8327/Add.2	
	ISO/IEC ISP 11183-1	Specification of ACSE, Presentation and Session

AOM211 includes by reference the subset of the Enhanced Management Communications profile (AOM12) that is required to support the above services.

NOTE – Refer to the description of AOM12 for further information about the communications support including specification of the protocol stack.

An end system implementing AOM211 can interwork with an end system implementing the same profile in a complementary role. An end system implementing this profile can also inter work with an end system implementing profiles AOM212 (Alarm reporting and state management capabilities), or AOM213 (Alarm Reporting Capabilities), in a complementary role, in the mode of operation specified by those profiles. A system implementing the Enhanced Management Communications profile (AOM12) will be compatible with the communications aspects of AOM211.

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1.3 Position within the Taxonomy

AOM211 is identified in ISO/IEC TR10000-2 as :

AOM	OSI Management
AOM2	Management Functions
AOM21	Management Capabilities
AOM211	General Management Capabilities

AOM211 may be combined with any T-profile (identified in ISO/IEC TR 10000-2) specifying the OSI connection-mode transport service.

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.210 (1993) | ISO/IEC 10731:1994, *Information technology - Open Systems Interconnection - Basic Reference Model - Conventions for the definition of OSI services.*
- 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.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.732 (1992) | ISO/IEC 10164-3:1993, *Information technology - Open Systems Interconnection - Systems Management: Attributes for representing relationships.*

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- 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.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.210 (1988), *Open Systems Interconnection (OSI) Layer Service Definition Conventions for CCITT Applications.*

  ISO/TR 8509:1987, *Information processing systems - Open Systems Interconnection - Service conventions.*
- 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.*

1) Currently at the stage of Draft Recommendation.

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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.*

- 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: Ulimited 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 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 12059-3:1995, *Information technology - International Standardized Profiles - OSI Management - Common information for management functions- Part 3: Attributes for representing relationships.*

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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 12059-4:1995, *Information technology - International Standardized Profiles - OSI Management - Common information for management functions - Part 4: Alarm reporting.*
- ISO/IEC ISP 12060-2:1995, *Information technology - International Standardized Profiles - OSI Management - Management functions - Part 2: AOM212 – Alarm reporting and state 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 12060-4:1995, *Information technology - International Standardized Profiles - OSI Management - Management functions - Part 4: AOM221 – General event report management.*
- 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, including c3, are defined 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:

1A/cn	see CCITT Rec X.730 | ISO/IEC 10164-1, Annex A, condition cn
2A/cn	see CCITT Rec X.731 | ISO/IEC 10164-2, Annex A, condition cn
3A/cn	see CCITT Rec X.732 | ISO/IEC 10164-3, Annex A, condition cn
4A/cn	see CCITT Rec X.733 | ISO/IEC 10164-4, Annex A, condition cn
1B/cn	see CCITT Rec X.730 | ISO/IEC 10164-1, Annex B, condition cn
2B/cn	see CCITT Rec X.731 | ISO/IEC 10164-2, Annex B, condition cn
3B/cn	see CCITT Rec X.732 | ISO/IEC 10164-3, Annex B, 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 general requirements for interworking between two management systems with general management capabilities. A claim of conformance to AOM211 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 of this part of ISO/IEC ISP 12060 are satisfied.

AOM211 requires conformance to the following systems management standards:

CCITT Rec X.730 | ISO/IEC 10164-1, Object management function

CCITT Rec X.731 | ISO/IEC 10164-2, State management function

CCITT Rec X.732 | ISO/IEC 10164-3, Attribute for representing relationships

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 1, 2, 3 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 11183-2 for CMIP and ROSE, as specified by this profile.

An implementation in an agent role shall accept a value of "actual class" for "object class" parameter as defined in clause 6.4.5 of CCITT Rec. 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 A of this part of ISO/IEC ISP 12060.

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Implementations conforming to AOM211 shall implement all the mandatory features. The supplier of an implementation claiming conformance to AOM211 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.

AOM211 requires support of the Object management, State management, Attributes for representing relationships, and Alarm reporting functions as specified in CCITT Rec. X730 | ISO/IEC 10164-1, CCITT Rec. X731 | ISO/IEC 10164-2, CCITT Rec. X732 | ISO/IEC 10164-3, and CCITT Rec. X733 | ISO/IEC 10164-4, respectively. As a result this requires support for the protocol elements needed to provide the PT-GET, PT-SET, PT-CREATE, PT-DELETE, PT-ACTION, PT-EVENT-REPORT, object creation reporting, object deletion reporting, attribute value change reporting, state change reporting, relationship change reporting, and alarm reporting services. This profile also requires support for all state and relationship attribute and attribute group syntax.

For PT-EVENT-REPORT and PT-ACTION, AOM211 requires support for any Event or Action Type.

AOM211 requires the support of all CMISE functional units except the extended services functional unit.

An implementation conforming to AOM211 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 AOM211 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 of this part of ISO/IEC ISP 12060.

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.

objectCreation

objectDeletion

attributeValueChange

stateChange

relationshipChange

communicationAlarm

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 responses.

objectCreation

objectDeletion

attributeValueChange

stateChange

relationshipChange

communicationAlarm

environmentalAlarm

equipmentAlarm

processingErrorAlarm

qualityofServiceAlarm

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6.2 Systems management functional units

The SMASE functional units for general management capability are defined in CCITT Rec. X.730, X.731, X.732, X.733 | ISO/IEC 10164-1, 2, 3 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) and profile specific ICS proforma for AOM211

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 constarints 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.
AOM211 Profile:	AOM211 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 Rec. X.730, X.731, X.732, X.733 | ISO/IEC 10164-1, 2, 3 and 4 and CCITT Rec. 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 of the MCS "Base Std." column and "Profile" column.

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Table A.1 is based on Table A.2 of CCITT Rec X.730 | ISO/IEC 10164-1 DAM 1, Table A.2 of CCITT Rec X.731 | ISO/IEC 10164-2 DAM 1, Table A.2 of CCITT Rec X.732 | ISO/IEC 10164-3 DAM 1 and Table A.2 of CCITT Rec 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.	AOM211 Profile	Table numbers of PICS	Additional information
1	CCITT Rec X.730 | ISO/IEC 10164-1	Annex B all tables	–	–	m	m		Specified in ISO/IEC ISP 12059-1
2	CCITT Rec X.730 | ISO/IEC, 10164-1	Annex E all tables	SM application Context	OBJECT IDENTIFIER	m	m		Specified in ISO/IEC ISP 12059-0
3	CCITT Rec X.731 | ISO/IEC 10164-2	Annex B all tables	–	–	m	m		Specified in ISO/IEC ISP 12059-2
4	CCITT Rec X.732 | ISO/IEC 10164-3	Annex B all tables	–	–	m	m		Specified in ISO/IEC ISP 12059-3
5	CCITT Rec X.733 | ISO/IEC 10164-4	Annex B all tables	–	–	m	m		Specified in ISO/IEC ISP 12059-4
6	CCITT Rec X.712 | ISO/IEC 9596-2	all tables	CMIP	–	o	m		Specified in ISO/IEC ISP 11183-2
7	ISO/IEC 8650-2	all tables	ACSE	–	o	m		Specified in ISO/IEC ISP 11183-1
8	ISO/IEC 8823-2	all tables	Presentation	–	o	m		Specified in ISO/IEC ISP 11183-1
9	ISO/IEC 8327-2	all tables	Session	–	o	m		Specified in ISO/IEC ISP 11183-1

Table A.2 is based on Table A.3 of CCITT Rec X.730 | ISO/IEC 10164-1 DAM 1, Table A.3 of CCITT Rec X.731 | ISO/IEC 10164-2 DAM 1, Table A.3 of CCITT Rec X.732 | ISO/IEC 10164-3 DAM 1 and Table A.3 of CCITT Rec 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.	AOM211 Profile	Table numbers of MOCS	Additional information
1	CCITT Rec X.730 | ISO/IEC 10164-1,	Annex C all tables	All record objects	–	1A/c1	1A/c1		Specified in ISO/IEC ISP 12059-1
2	CCITT Rec X.731 | ISO/IEC 10164-2	Annex C all tables	All record objects	–	2A/c1	2A/c1		Specified in ISO/IEC ISP 12059-2
3	CCITT Rec X.732 | ISO/IEC 10164-3	Annex C all tables	All record objects	–	3A/c1	3A/c1		Specified in ISO/IEC ISP 12059-3
4	CCITT Rec X.733 | ISO/IEC 10164-4	Annex C all tables	All record objects	–	4A/c1	4A/c1		Specified in ISO/IEC ISP 12059-4

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Table A.3 is based on Table A.4 of CCITT Rec X.730 | ISO/IEC 10164-1 DAM 1, Table A.4 of CCITT Rec X.731 | ISO/IEC 10164-2 DAM 1, Table A.4 of CCITT Rec X.732 | ISO/IEC 10164-3 DAM 1 and Table A.4 of CCITT Rec 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.	AOM211 Profile	Table numbers of MRCS	Additional information
1	CCITT Rec X.735 | ISO/IEC 10164-6,	Item D.1/1	LogRecord-Log name binding	–	1A/c1	1A/c1		Specified in ISO/IEC ISP 12060-5

A.2 Management capability support

An implementation conforming to AOM211 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 Rec X.730 | ISO/IEC 10164-1 DAM 1, Table B.2 of CCITT Rec X.731 | ISO/IEC 10164-2 DAM 1, Table B.2 of CCITT Rec X.732 | ISO/IEC 10164-3 DAM 1, and Table B.2 of CCITT Rec X.733 | ISO/IEC 10164-4 DAM 1.

Table A.4 – Management capability

Index	Functional unit name	Base Std.	AOM211 Profile	MAPDUs	CMIS service primitive	Additional information
1	allEvents	o	m	–	M-EVENT-REPORT	(1)
2	control	o	m	–	M-GET, M-SET, M-CREATE, M-DELETE, M-ACTION	(2)
3	monitor	o	m	–	M-GET	(3)
4	objectEvents	1B/c1	m	objectCreation objectDeletion attributeValueChange	M-EVENT-REPORT	
5	state change reporting	2B/c1	m	stateChange	M-EVENT-REPORT	
6	relationship change reporting	3B/c1	m	relationshipChange	M-EVENT-REPORT	
7	alarm reporting	4B/c1	m	communicationAlarm environmentalAlarm equipmentAlarm processingErrorAlarm qualityofServiceAlarm	M-EVENT-REPORT	

(1) The implementation:
in the manager role, shall be able to receive CMIP Event Report PDUs with any notification type to be passed to the MIS-user
in the agent role, shall be able to send CMIP Event Report PDUs with any notification type passed down from the MIS-user.
(2) The implementation:
in the manager role, shall be able to send any of the Get, Set, Create, Delete and Action operations as requested by the MIS-user - the operations may be requested for any attribute type, action type, or any managed object class
in the agent role, shall be able to receive any of the Get, Set, Create, Delete and Action operations to be passed to the MIS-user - the operations may be requested for any attribute type, action type, or any managed object class.
(3) The implementation:
in the manager role, shall be able to send Get operations as requested by the MIS-user - the operation may be requested for any attribute type of any managed object class
in the agent role, shall be able to receive Get operations to be passed to the MIS-user - the operations may be requested for any attribute type of any managed object class.

A.2.1 MAPDU support

A.2.1.1 Object management

The detailed information of the MAPDUs for which support is required is specified in ISO/IEC ISP 12059-1. However, AOM211 places the following additional restrictions on parameter support.

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Table A.5 is based on Table A.3 of ISO/IEC ISP 12059-1.

Table A.5 – Object creation MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Common Profile	AOM211 Profile	Additional information
6	additional Information	required for some objects	oo	mo	

Table A.6 is based on Table A.5 of ISO/IEC ISP 12059-1.

Table A.6 – Object deletion MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Common Profile	AOM211 Profile	Additional information
6	additionalInformation	required for some objects	oo	mo	

Table A.7 is based on Table A.7 of ISO/IEC ISP 12059-1.

Table A.7 – Attribute value change MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Common Profile	AOM211 Profile	Additional information
7	additionalInformation	required for some objects	oo	mo	

A.2.1.2 State management

The detailed information of the MAPDU for which support is required is specified in ISO/IEC ISP 12059-2. However, AOM211 places the following additional restrictions on parameter support.

Table A.8 is based on Table A.3 of ISO/IEC ISP 12059-2.

Table A.8 – State change MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Common Profile	AOM211 Profile	Additional information
7	additionalInformation	required for some objects	oo	mo	

A.2.1.3 Relationship change

The detailed information of the MAPDU for which support is required is specified in ISO/IEC ISP 12059-3. However, AOM211 places the following additional restrictions on parameter support.

Table A.9 is based on Table A.3 of ISO/IEC ISP 12059-3.

Table A.9 – Relationship change MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Common Profile	AOM211 Profile	Additional information
7	additionalInformation	required for some objects	oo	mo	

A.2.1.4 Alarm reporting

The detailed information of the MAPDU for which support is required is specified in ISO/IEC ISP 12059-4. However, AOM211 places the following additional restrictions on parameter support.

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Table A.10 is based on Table A.3 of ISO/IEC ISP 12059-4.

Table A.10 – Communications alarm MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Common Profile	AOM211 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.11 is based on Table A.5 of ISO/IEC ISP 12059-4.

Table A.11 – Quality of service alarm MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Common Profile	AOM211 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.12 is based on Table A.7 of ISO/IEC ISP 12059-4.

Table A.12 – Processing error alarm MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Common Profile	AOM211 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.13 is based on Table A.9 of ISO/IEC ISP 12059-4.

Table A.13 – Equipment alarm MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Common Profile	AOM211 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.14 is based on Table A.11 of ISO/IEC ISP 12059-4.

Table A.14 – Environmental alarm MAPDU (Agent sending)

Index	Parameter name	Constraints and values	Common Profile	AOM211 Profile	Additional Information
2	specificProblem	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.2.2.2 Generic relationship attribute and relationships attribute group support

Operations on generic relationship attributes and relationships attribute group shall be supported. The details of the operations are specified in ISO/IEC ISP 12059-3.

A.3 CMIP PDU requirements

An implementation conforming to AOM211 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 11183-2.

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Table A.15 – CMIP PDU requirements

Index	CMIS Service Primitive	ISO/IEC ISP 11183-2 Table Reference		Changes from profile columns in ISO/IEC ISP 11183-2 tables
		Manager	Agent	
1	M-ACTION	Table A.15	Table A.16	none
2	M-CANCEL-GET	Table A.17	Table A.18	none
3	M-CREATE	Table A.19	Table A.20	none
4	M-DELETE	Table A.21	Table A.22	none
5	M-EVENT-REPORT	Table A.24	Table A.23	none
6	M-GET	Table A.25	Table A.26	none
7	M-SET	Table A.27	Table A.28	none

A.4 Managed object support

A.4.1 Introduction

AOM211 includes conditional support for object creation record, object deletion record, attribute value change record, state change record, relationship change record, and alarm record managed objects.

A.4.2 Event log record support

If an implementation supports any AOM23x profile, the implementation conforming to AOM211 shall support the following log records.

Table A.16 – Event log record support

Index	Managed object class	Base Std.		AOM211 Profile		Reference
		Objects corresponding to received notifications	Objects corresponding to internal notifications	Objects corresponding to received notifications	Objects corresponding to internal notifications	
1	objectCreationRecord	1A/c1	1A/c1	1A/c1	1A/c1	ISO/IEC ISP 12059-1
2	objectDeletionRecord	1A/c1	1A/c1	1A/c1	1A/c1	ISO/IEC ISP 12059-1
3	attributeValueChange Rrecord	1A/c1	1A/c1	1A/c1	1A/c1	ISO/IEC ISP 12059-1
4	stateChangeRecord	2A/c1	2A/c1	2A/c1	2A/c1	ISO/IEC ISP 12059-2
5	relationshipChangeRecord	3A/c1	3A/c1	3A/c1	3A/c1	ISO/IEC ISP 12059-3
6	alarmRecord	4A/c1	4A/c1	4A/c1	4A/c1	ISO/IEC ISP 12059-4
7						(1)

(1) The supplier of the implementation may provide a list of other event record objects that the system is capable of supporting corresponding to the additional notifications the system can send or receive through the use of pass-through PT-EVENT-REPORT service.

A.5 Pass through operations

The supplier of the implementation may provide a list of other specific notifications and/or actions that the system is capable of supporting through the use of pass-through services.

Table A.17 – Pass-through operations

Index	Notifications	Actions
1		
2		

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