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Information technology — Open Systems Interconnection — Common management information protocol: Protocol Implementation Conformance Statement (PICS) proforma

*Technologies de l'information — Interconnexion de systèmes ouverts:
Protocole commun d'information de gestion — PICS proforma*



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Foreword

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

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75% of the national bodies casting a vote.

International Standard ISO/IEC 9596-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in collaboration with the CCITT. The identical text is published as CCITT Recommendation X.712.

ISO/IEC 9596 consists of the following parts, under the general title *Information technology – Open Systems Interconnection – Common management information protocol* :

- *Part 1: Specification*
- *Part 2: Protocol Implementation Conformance Statement (PICS) proforma*

Annexes A and B form an integral part of this part of ISO/IEC 9596.

Introduction

ISO/IEC 9596 is a multipart standard developed according to ISO 7498 and ISO/IEC 7498-4. ISO/IEC 9596 is related to the following International Standards

- ISO/IEC 9595 : 1991, *Information technology – Open Systems Interconnection – Common management information service definition*;
- ISO/IEC 10040 : 1992, *Information technology – Open Systems Interconnection – Systems management overview*;
- ISO/IEC 10164 : 1992, *Information technology – Open Systems Interconnection – Systems management*.
- ISO/IEC 10165 : 1992, *Information technology – Open Systems Interconnection – Structure of management information*.

INTERNATIONAL STANDARD

CCITT RECOMMENDATION

INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION – COMMON MANAGEMENT INFORMATION PROTOCOL: PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT (PICS) PROFORMA

1 Scope

This Recommendation | International Standard provides the Protocol Implementation Conformance Statement (PICS) proforma for the detailed expression of the conformance requirements of CCITT Rec. X.711 | ISO/IEC 9596-1. This PICS proforma is in compliance with the relevant requirements and in accordance with the relevant guidance, given in CCITT Rec. X.291 | ISO/IEC 9646-2.

Annex A contains the PICS proforma for version 2 of CMIP. Annex B contains version 1 of the tables of the kernel functional unit that were amended by version 2. All other tables of the kernel functional unit are the same for both versions 1 and 2 of CMIP.

2 Normative references

The following CCITT Recommendations and International Standards contain provisions which, through reference in this text, constitute provisions of this Recommendation | International Standard. At the time of publication, the editions indicated were valid. All Recommendations and Standards are subject to revision, and parties to agreements based on this Recommendation | International Standard are encouraged to investigate the possibility of applying the most recent editions of the Recommendations and Standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards. The CCITT Secretariat maintains a list of currently valid CCITT Recommendations.

2.1 Paired Recommendations | International Standards equivalent in technical content

- 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.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.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.227 (1992), *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.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.*

- CCITT Recommendation X.290 (1992), *OSI conformance testing methodology and framework for protocol Recommendations for CCITT applications – General concepts.*

ISO/IEC 9646-1:1991, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 1: General concepts.*

- 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.*

2.2 Additional references

- ISO 8326/Add.2:1988, *Information processing systems – Open Systems Interconnection – Basic connection oriented session service definition: Addendum 2: Incorporation of unlimited user data.*

3 Definitions

For the purposes of this Recommendation | International Standard, the following definitions apply.

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

- a) PICS proforma;
- b) protocol implementation conformance statement (PICS);
- c) system conformance statement.

4 Abbreviations

ACSE	Association Control Service Element
APDU	application protocol data unit
CMIP	Common Management Information Protocol
CMIS	Common Management Information Services
CMISE	Common Management Information Service Element
PDU	protocol data unit
PICS	protocol implementation conformance statement
ROSE	Remote Operations Service Element

5 Conformance

A PICS proforma which conforms to this Recommendation | International Standard shall be textually identical to Annex A, 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.711 | ISO/IEC 9596-1;
- be a conforming PICS proforma which has been completed in accordance with the instructions for completion given in clause 1 of Annex A;
- 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.711 | ISO/IEC 9596-1 shall complete a copy of the PICS proforma provided in Annex A as part of the conformance requirements, shall complete a copy of the PICS proforma provided in Annex B if the implementation claims support for version 1 of CMIP, and shall provide the information necessary to identify both the supplier and the implementation.

NOTE – Version 1 of CMIP is specified in ISO/IEC 9596, now superseded by ISO/IEC 9596-1. There is no CCITT equivalent of ISO/IEC 9596.

Annex A

PICS proforma¹⁾

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

A.1 Instructions for completing the PICS proforma

A.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.711 | ISO/IEC 9596-1 may provide information in a standard form. The PICS proforma is subdivided into clauses for the following categories of information:

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

A.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. The following abbreviations are used:

ADB	ANY DEFINED BY
Spt	Support
Sts	Status
TVR	Type(s), value(s) and range(s)

The following common notations, defined in CCITT Rec. X.291 | ISO/IEC 9646-2 are used for the status (Sts) column:

m	mandatory
o	optional
o.N	(N is an integer) support of at least one of the choices is required
x	prohibited
–	not applicable

The following requirements are commonly used throughout the PICS proforma:

- c1 if A.7.1 then m else –
- c2 if A.7.2 then m else –
- c3 if A.7.3 then m else –
- c4 if A.14.5/1 or A.14.5/2 then o else –
- c5 if A.7.5 then m else –
- c6 if A.7.1 or A.7.2 or A.7.3 or A.7.4 or A.7.5 then m else o
- c7 if A.7.1 then m else o
- c8 if A.6.2 then m else o.16
- c9 if A.7.2 and (A.14.1/1 or A.14.3/1 or A.14.5/1 or A.14.6/1) then m else –
- c10 if A.7.2 and (A.14.1/2 or A.14.3/2 or A.14.5/2 or A.14.6/2) then m else –
- c11 if A.1.1/1 then m else –
- c12 if A.1.1/2 then m else –

¹⁾ 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.

NOTES

- 1 A.1.1 is support for association initialisation.
- 2 A.6.2 is support for all of the kernel functional unit.
- 3 A.7.1 is support for the multiple object selection functional unit.
- 4 A.7.2 is support for the filter functional unit.
- 5 A.7.3 is support for the multiple reply functional unit.
- 6 A.7.4 is support for the extended service functional unit.
- 7 A.7.5 is support for the cancel get functional unit.
- 8 A.14.5 is support for protocol for the M-GET service.

The following common notations, defined in CCITT Rec. X.291 | ISO/IEC 9646-2 are used for the support (Spt) column:

N	not implemented
Y	implemented
–	not applicable

Within this PICS proforma, index numbers have been uniquely generated by prefixing the table identifier as the first component of the index. In the conditional predicates specified above, the identification of the referenced items is constructed from the unique index number with the answer column identifier appended, as defined in CCITT Rec. X.291 | ISO/IEC 9646-2. When only one answer column is present for the index, the column identifier has been omitted.

Within this PICS proforma, ASN.1 values specified in the Syntax column of the tables are provided for guidance purposes only. No attempt has been made to specify any IMPLICIT condition or any tag value associated with any parameter. CCITT Rec. X.711 | ISO/IEC 9596-1 contains the definitive specification of the abstract syntax.

Within this PICS proforma, space has been provided for the supplier of the implementation to specify types, values and ranges of all parameters supported. 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.

The parameter names in the tables within this Recommendation | International Standard correspond with those specified in the abstract syntax of CCITT Rec. X.711 | ISO/IEC 9596-1.

A.1.3 Scoping 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.

A.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 A.1.2. Specific instruction is provided in the text which preceeds each table.

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 PICS, in the box below.

--

A.2.4 Relationship with the system conformance statement

The supplier of the implementation shall provide information which describes the relationship between the PICS and the system conformance statement for the system, in the box below.

--

A.3 Identification of the protocol

The supplier of the implementation shall enter the title, reference number and date of the publication of the Recommendation | International Standard to which conformance is claimed, in the box below.

Recommendation International Standard to which conformance is claimed

The supplier of the implementation shall specify support of versions of CMIP, in the box below.

Which version(s) of the CMIP protocol are supported?
--

The supplier of the implementation shall enter the name of each abstract syntax for CCITT Rec. X.711 | ISO/IEC 9596-1 to which conformance is claimed, and the corresponding transfer syntax name(s) in the box below.

Abstract syntax name	Transfer syntax name(s)

A.3.1 Defect report numbers and amendments implemented

The supplier of the implementation shall enter the reference numbers of implemented defect reports or corresponding amendment documents which modify the specification to CCITT Rec. X.711 | ISO/IEC 9596-1, in the box below.

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A.3.2 Addenda implemented

The supplier of the implementation shall state the titles and reference numbers of implemented addenda to CCITT Rec. X.711 | ISO/IEC 9596-1, in the box below.

--

A.4 Global statement of conformance

The supplier of the implementation shall state whether or not all mandatory capabilities are implemented for CCITT Rec. X.711 | ISO/IEC 9596-1.

Are all mandatory capabilities implemented?

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

Capability not implemented	Reason

A.5 Capabilities**A.5.1 Initiator/Responder capability**

The supplier of the implementation shall state the capability for initiating and responding to an association request which specifies the use of CMISE, in Table A.1.

Table A.1 – Association initialisation

Index		Association initiator		Association responder	
		Sts	Spt	Sts	Spt
A.1.1	Does the implementation support association initialisation?	o.1		o.1	

The supplier of the implementation shall state the capability for releasing an association, in Table A.2.

Table A.2 – Association release

Index		Release initiator		Release responder	
		Sts	Spt	Sts	Spt
A.2.1	Does the implementation support association release for an association initiated by the implementation?	o.2		o.2	
A.2.2	for an association not initiated by the implementation?	o.3		o.3	

The supplier of the implementation shall state whether or not the CMIPUserInfo and CMIPAbortInfo parameters specified by CCITT Rec. X.711 | ISO/IEC 9596-1 are supported. The supplier shall state the capability for sending and receiving each parameter and the type, value(s) and range(s), in Tables A.3, A.4 and A.5.

Table A.3 – CMIPUserInfo parameter support (in AARQapdu)

Index	Parameter name	Sender			Receiver		
		Sts	Spt	TVR	Sts	Spt	TVR
A.3.1	CMIPUserInfo	c11		—	c12		—
A.3.1.1	protocolVersion	m			m		
A.3.1.2	functionalUnits	c6			m		
A.3.1.3	accessControl	o			m		
A.3.1.4	userInfo	o			m		

Table A.4 – CMIPUserInfo parameter support (in AAREapdu)

Index	Parameter name	Sender			Receiver		
		Sts	Spt	TVR	Sts	Spt	TVR
A.4.1	CMIPUserInfo	c12		—	c11		—
A.4.1.1	protocolVersion	m			m		
A.4.1.2	functionalUnits	c6			m		
A.4.1.3	accessControl	o			m		
A.4.1.4	userInfo	o			m		

Table A.5 – CMIPAbortInfo parameter support

Index	Parameter name	Sender			Receiver		
		Sts	Spt	TVR	Sts	Spt	TVR
A.5.1	CMIPAbortInfo	m		—	m		—
A.5.1.1	abortSource	m			m		
A.5.1.2	userInfo	o			m		

A.5.2 Major capabilities

The supplier of the implementation shall indicate support for protocol that is required to provide the kernel CMIS services, in Table A.6.

Table A.6 – Conformance claim

Index		Sts	Spt
A.6.1	Does the implementation claim to support the protocol that is required to provide some of the kernel CMIS services in the invoker and/or performer roles?	o	
A.6.2	Does the implementation claim to support the protocol that is required to provide all of the kernel CMIS services in both roles?	c13	

c13: if A.6.1 then x else m

The supplier of the implementation shall state whether or not the additional functional units specified by CCITT Rec. X.711 | ISO/IEC 9596-1 are supported, in Table A.7.

Table A.7 – Additional functional unit support

Index	Functional unit	Sts	Spt
A.7.1	Multiple object selection	o	
A.7.2	Filter	o	
A.7.3	Multiple reply	c7	
A.7.4	Extended service	o	
A.7.5	Cancel get	c4	

A.5.3 Protocol parameters**A.5.3.1 System wide parameters**

System wide parameters have a single specification applicable for all APDUs in which they occur and the corresponding tables in which they occur contain references to the following declarations.

The supplier of the implementation shall state whether or not the following parameters specified by CCITT Rec. X.711 | ISO/IEC 9596-1 are supported and their type, value(s) and range(s), in Tables A.8 through A.12. The supplier shall indicate the status of support for sending and receiving each parameter.

Table A.8 – Scope parameter support

Index	Parameter name	Syntax	Value	Sender			Receiver		
				Sts	Spt	TVR	Sts	Spt	TVR
A.8	Scope	CHOICE	—	c14			c15		
A.8.1		INTEGER	0 to 2	o.4			m		
A.8.2	individualLevels	INTEGER	—	o.4			m		
A.8.3	baseToNthLevel	INTEGER	—	o.4			m		

c14: if A.7.1 and (A.14.1/1 or A.14.3/1 or A.14.5/1 or A.14.6/1) then m else –

c15: if A.7.1 and (A.14.1/2 or A.14.3/2 or A.14.5/2 or A.14.6/2) then m else –

Table A.9 – FilterItem parameter support (sending)

Index	Parameter name	Syntax	Sts	Spt	TVR
A.9	FilterItem	CHOICE	c9		–
A.9.1	equality	SEQUENCE	o.5		
A.9.1.1	attributeId	CHOICE	m		–
A.9.1.1.1		OBJECT IDENTIFIER	o.6		
A.9.1.1.2		INTEGER	o.6		
A.9.1.2	attributeValue	ADB attributeId	m		
A.9.2	substrings	SEQUENCE OF CHOICE	o.5		
A.9.2.1	initialString	SEQUENCE	m		
A.9.2.1.1	attributeId	CHOICE	m		–
A.9.2.1.1.1		OBJECT IDENTIFIER	o.7		
A.9.2.1.1.2		INTEGER	o.7		
A.9.2.1.2	string	ADB attributeId	m		
A.9.2.2	anyString	SEQUENCE	m		
A.9.2.2.1	attributeId	CHOICE	m		–
A.9.2.2.1.1		OBJECT IDENTIFIER	o.8		
A.9.2.2.1.2		INTEGER	o.8		
A.9.2.2.2	string	ADB attributeId	m		
A.9.2.3	finalString	SEQUENCE	m		
A.9.2.3.1	attributeId	CHOICE	m		–
A.9.2.3.1.1		OBJECT IDENTIFIER	o.9		
A.9.2.3.1.2		INTEGER	o.9		
A.9.2.3.2	string	ADB attributeId	m		
A.9.3	greaterOrEqual	SEQUENCE	o.5		
A.9.3.1	attributeId	CHOICE	m		–
A.9.3.1.1		OBJECT IDENTIFIER	o.10		
A.9.3.1.2		INTEGER	o.10		
A.9.3.2	attributeValue	ADB attributeId	m		
A.9.4	lessOrEqual	SEQUENCE	o.5		
A.9.4.1	attributeId	CHOICE	m		–
A.9.4.1.1		OBJECT IDENTIFIER	o.11		
A.9.4.1.2		INTEGER	o.11		
A.9.4.2	attributeValue	ADB attributeId	m		
A.9.5	present	CHOICE	o.5		–
A.9.5.1		OBJECT IDENTIFIER	o.12		
A.9.5.2		INTEGER	o.12		
A.9.6	subsetOf	SEQUENCE	o.5		
A.9.6.1	attributeId	CHOICE	m		–
A.9.6.1.1		OBJECT IDENTIFIER	o.13		
A.9.6.1.2		INTEGER	o.13		
A.9.6.2	attributeValue	ADB attributeId	m		
A.9.7	supersetOf	SEQUENCE	o.5		
A.9.7.1	attributeId	CHOICE	m		–
A.9.7.1.1		OBJECT IDENTIFIER	o.14		
A.9.7.1.2		INTEGER	o.14		
A.9.7.2	attributeValue	ADB attributeId	m		
A.9.8	nonNullSetIntersection	SEQUENCE	o.5		
A.9.8.1	attributeId	CHOICE	m		–
A.9.8.1.1		OBJECT IDENTIFIER	o.15		
A.9.8.1.2		INTEGER	o.15		
A.9.8.2	attributeValue	ADB attributeId	m		

Table A.10 – FilterItem parameter support (receiving)

Index	Parameter name	Syntax	Sts	Spt	TVR
A.10	FilterItem	CHOICE	c10		–
A.10.1	equality	SEQUENCE	m		
A.10.1.1	attributeId	CHOICE	m		–
A.10.1.1.1		OBJECT IDENTIFIER	m		
A.10.1.1.2		INTEGER	m		
A.10.1.2	attributeValue	ADB attributeId	m		
A.10.2	substrings	SEQUENCE OF CHOICE	m		
A.10.2.1	initialString	SEQUENCE	m		
A.10.2.1.1	attributeId	CHOICE	m		–
A.10.2.1.1.1		OBJECT IDENTIFIER	m		
A.10.2.1.1.2		INTEGER	m		
A.10.2.1.2	string	ADB attributeId	m		
A.10.2.2	anyString	SEQUENCE	m		
A.10.2.2.1	attributeId	CHOICE	m		–
A.10.2.2.1.1		OBJECT IDENTIFIER	m		
A.10.2.2.1.2		INTEGER	m		
A.10.2.2.2	string	ADB attributeId	m		
A.10.2.3	finalString	SEQUENCE	m		
A.10.2.3.1	attributeId	CHOICE	m		–
A.10.2.3.1.1		OBJECT IDENTIFIER	m		
A.10.2.3.1.2		INTEGER	m		
A.10.2.3.2	string	ADB attributeId	m		
A.10.3	greaterOrEqual	SEQUENCE	m		
A.10.3.1	attributeId	CHOICE	m		–
A.10.3.1.1		OBJECT IDENTIFIER	m		
A.10.3.1.2		INTEGER	m		
A.10.3.2	attributeValue	ADB attributeId	m		
A.10.4	lessOrEqual	SEQUENCE	m		
A.10.4.1	attributeId	CHOICE	m		–
A.10.4.1.1		OBJECT IDENTIFIER	m		
A.10.4.1.2		INTEGER	m		
A.10.4.2	attributeValue	ADB attributeId	m		
A.10.5	present	CHOICE	m		–
A.10.5.1		OBJECT IDENTIFIER	m		
A.10.5.2		INTEGER	m		
A.10.6	subsetOf	SEQUENCE	m		
A.10.6.1	attributeId	CHOICE	m		–
A.10.6.1.1		OBJECT IDENTIFIER	m		
A.10.6.1.2		INTEGER	m		
A.10.6.2	attributeValue	ADB attributeId	m		
A.10.7	supersetOf	SEQUENCE	m		
A.10.7.1	attributeId	CHOICE	m		–
A.10.7.1.1		OBJECT IDENTIFIER	m		
A.10.7.1.2		INTEGER	m		
A.10.7.2	attributeValue	ADB attributeId	m		
A.10.8	nonNullSetIntersection	SEQUENCE	m		
A.10.8.1	attributeId	CHOICE	m		–
A.10.8.1.1		OBJECT IDENTIFIER	m		
A.10.8.1.2		INTEGER	m		
A.10.8.2	attributeValue	ADB attributeId	m		

Table A.11 – CMISFilter parameter support

Index	Parameter name	Syntax	Sender			Receiver		
			Sts	Spt	Max no of FilterItems	Sts	Spt	Max no of FilterItems
A.11	CMISFilter	CHOICE	c9		–	c10		–
A.11.1	item	FilterItem	m		–	m		–
A.11.2	and	SET OF CMISFilter	o			m		
A.11.3	or	SET OF CMISFilter	o			m		
A.11.4	not	CMISFilter	o			m		

NOTE – See Tables A.9 and A.10 for FilterItem parameter support.

Table A.12 – CMISFilter complexity limitations

Index	Complexity limitation	Sender	Receiver
A.12.1	Maximum nesting depth of CMISFilter expressions that may occur in an 'AND' (ref A.11.2)		
A.12.2	Maximum nesting depth of CMISFilter expressions that may occur in an 'OR' (ref A.11.3)		
A.12.3	Maximum number of FilterItem parameters in a CMISFilter parameter		

A.5.3.2 Common parameters

Common parameters may have a specification applicable for many APDUs in which they occur. If the supplier of the implementation provides details of the support of any parameter in the tables below, then an index reference to these details may be supplied in the TVR column of any table in A.5.5 instead of repeating the information. The reference should be specified in the form “[see Table A.13.x]”. If the implementation supports a common specification for both the sending and receiving of any parameter, then it is recommended that Table A.13 be used for this purpose; otherwise the specification shall be inserted in the appropriate table(s) in A.5.5.

For example, if an implementation supports a single specification for the invokeID parameter, then the supplier may provide the details in Table A.13 and for each subsequent instance of the requirement to specify support for the parameter, insert a reference to the common specification as “[see Table A.13.1]”.

The supplier of the implementation may state the type(s), value(s) and range(s) of any of the following parameters specified by CCITT Rec. X.711 | ISO/IEC 9596-1, in Table A.13.

Table A.13 – Common parameter support

Index	Parameter name	Syntax	Spt	TVR
A.13.1	invokeID	INTEGER		
A.13.2	linked-ID	INTEGER		
A.13.3	baseManagedObjectClass	CHOICE	–	–
A.13.3.1		OBJECT IDENTIFIER		
A.13.3.2		INTEGER		
A.13.4	baseManagedObjectInstance	CHOICE	–	–
A.13.4.1		DistinguishedName		
A.13.4.2		OCTET STRING		
A.13.4.3		RDNSequence		
A.13.5	accessControl	EXTERNAL		
A.13.6	synchronization	ENUMERATED		
A.13.7	managedObjectClass	CHOICE	–	–
A.13.7.1		OBJECT IDENTIFIER		
A.13.7.2		INTEGER		
A.13.8	managedObjectInstance	CHOICE	–	–
A.13.8.1		DistinguishedName		
A.13.8.2		OCTET STRING		
A.13.8.3		RDNSequence		
A.13.9	currentTime	GeneralizedTime		
A.13.10	actionType	CHOICE	–	–
A.13.10.1		OBJECT IDENTIFIER		
A.13.10.2		INTEGER		
A.13.11	attributeId	CHOICE	–	–
A.13.11.1		OBJECT IDENTIFIER		
A.13.11.2		INTEGER		
A.13.12	eventType	CHOICE	–	–
A.13.12.1		OBJECT IDENTIFIER		
A.13.12.2		INTEGER		

A.5.3.3 Other parameters

Some parameters only occur in a limited number of APDUs. Declaration of the support for these parameters shall be specified in the tables in which they occur.

A.5.4 Protocol data units

The supplier of the implementation shall indicate protocol support for each of the services in the kernel functional unit of CCITT Rec. X.710 | ISO/IEC 9595 in the invoker and performer roles, in Table A.14. If support for a service is claimed, the supplier of the implementation shall also complete the corresponding CMIP PDU table.

Table A.14 – Protocol support for kernel CMIS services

Index	CMIS service	Invoker role			Performer role		
		CMIP PDU table	Sts	Spt	CMIP PDU table	Sts	Spt
A.14.1	M-ACTION	A.15	c8		A.16	c8	
A.14.2	M-CREATE	A.19	c8		A.20	c8	
A.14.3	M-DELETE	A.21	c8		A.22	c8	
A.14.4	M-EVENT-REPORT	A.23	c8		A.24	c8	
A.14.5	M-GET	A.25	c8		A.26	c8	
A.14.6	M-SET	A.27	c8		A.28	c8	

An implementation shall be capable of receiving all of the ROIV APDUs associated with the kernel functional unit. If the corresponding service is not provided, the implementation shall issue an RORJ APDU. An implementation shall be capable of receiving an RORJ APDU.

If the supplier of the implementation claims to support M-ACTION in the invoker role, indication of support for each of the CMIP PDUs shall be supplied, in Table A.15.

Table A.15 – CMIP PDUs required to support M-ACTION in the invoker role

Invoker sending			
Index	Protocol data unit	Sts	Spt
A.15.1	ROIV-m-Action	m	
A.15.2	ROIV-m-Action-Confirmed	m	
A.15.3	RORJ	m	
Invoker receiving			
Index	Protocol data unit	Sts	Spt
A.15.4	RORS-m-Action-Confirmed	m	
A.15.5	ROIV-m-LinkedReply-Action	c3	
A.15.6	ROER-accessDenied	m	
A.15.7	ROER-classInstanceConflict	m	
A.15.8	ROER-complexityLimitation	m	
A.15.9	ROER-invalidArgumentValue	m	
A.15.10	ROER-invalidFilter	c2	
A.15.11	ROER-invalidScope	c1	
A.15.12	ROER-noSuchAction	m	
A.15.13	ROER-noSuchArgument	m	
A.15.14	ROER-noSuchObjectClass	m	
A.15.15	ROER-noSuchObjectInstance	m	
A.15.16	ROER-processingFailure	m	
A.15.17	ROER-syncNotSupported	c1	
A.15.18	RORJ	m	

If the supplier of the implementation claims to support M-ACTION in the performer role, indication of support for each of the CMIP PDUs shall be supplied, in Table A.16.

Table A.16 – CMIP PDUs required to support M-ACTION in the performer role

Performer receiving			
Index	Protocol data unit	Sts	Spt
A.16.1	ROIV-m-Action	m	
A.16.2	ROIV-m-Action-Confirmed	m	
A.16.3	RORJ	m	
Performer sending			
Index	Protocol data unit	Sts	Spt
A.16.4	RORS-m-Action-Confirmed	m	
A.16.5	ROIV-m-LinkedReply-Action	c3	
A.16.6	ROER-accessDenied	m	
A.16.7	ROER-classInstanceConflict	m	
A.16.8	ROER-complexityLimitation	m	
A.16.9	ROER-invalidArgumentValue	m	
A.16.10	ROER-invalidFilter	c2	
A.16.11	ROER-invalidScope	c1	
A.16.12	ROER-noSuchAction	m	
A.16.13	ROER-noSuchArgument	m	
A.16.14	ROER-noSuchObjectClass	m	
A.16.15	ROER-noSuchObjectInstance	m	
A.16.16	ROER-processingFailure	m	
A.16.17	ROER-syncNotSupported	c1	
A.16.18	RORJ	m	

If the supplier of the implementation claims to support M-CANCEL-GET in the invoker role, indication of support for each of the CMIP PDUs shall be supplied, in Table A.17.

Table A.17 – CMIP PDUs required to support M-CANCEL-GET in the invoker role

Invoker sending			
Index	Protocol data unit	Sts	Spt
A.17.1	ROIV-m-Cancel-Get	m	
A.17.2	RORJ	m	
Invoker receiving			
Index	Protocol data unit	Sts	Spt
A.17.3	RORS-m-Cancel-Get	m	
A.17.4	ROER-noSuchInvokeId	m	
A.17.5	ROER-mistypedOperation	m	
A.17.6	ROER-processingFailure	m	
A.17.7	RORJ	m	

If the supplier of the implementation claims to support M-CANCEL-GET in the performer role, indication of support for each of the CMIP PDUs shall be supplied, in Table A.18.

Table A.18 – CMIP PDUs required to support M-CANCEL-GET in the performer role

Performer receiving			
Index	Protocol data unit	Sts	Spt
A.18.1	ROIV-m-Cancel-Get	m	
A.18.2	RORJ	m	
Performer sending			
Index	Protocol data unit	Sts	Spt
A.18.3	RORS-m-Cancel-Get	m	
A.18.4	ROER-noSuchInvokeId	m	
A.18.5	ROER-mistypedOperation	m	
A.18.6	ROER-processingFailure	m	
A.18.7	RORJ	m	

If the supplier of the implementation claims to support M-CREATE in the invoker role, indication of support for each of the CMIP PDUs shall be supplied, in Table A.19.

Table A.19 – CMIP PDUs required to support M-CREATE in the invoker role

Invoker sending			
Index	Protocol data unit	Sts	Spt
A.19.1	ROIV-m-Create	m	
A.19.2	RORJ	m	
Invoker receiving			
Index	Protocol data unit	Sts	Spt
A.19.3	RORS-m-Create	m	
A.19.4	ROER-accessDenied	m	
A.19.5	ROER-classInstanceConflict	m	
A.19.6	ROER-duplicateManagedObjectInstance	m	
A.19.7	ROER-invalidAttributeValue	m	
A.19.8	ROER-invalidObjectInstance	m	
A.19.9	ROER-missingAttributeValue	m	
A.19.10	ROER-noSuchAttribute	m	
A.19.11	ROER-noSuchObjectClass	m	
A.19.12	ROER-noSuchObjectInstance	m	
A.19.13	ROER-noSuchReferenceObject	m	
A.19.14	ROER-processingFailure	m	
A.19.15	RORJ	m	

If the supplier of the implementation claims to support M-CREATE in the performer role, indication of support for each of the CMIP PDUs shall be supplied, in Table A.20.

Table A.20 – CMIP PDUs required to support M-CREATE in the performer role

Performer receiving			
Index	Protocol data unit	Sts	Spt
A.20.1	ROIV-m-Create	m	
A.20.2	RORJ	m	
Performer sending			
Index	Protocol data unit	Sts	Spt
A.20.3	RORS-m-Create	m	
A.20.4	ROER-accessDenied	m	
A.20.5	ROER-classInstanceConflict	m	
A.20.6	ROER-duplicateManagedObjectInstance	m	
A.20.7	ROER-invalidAttributeValue	m	
A.20.8	ROER-invalidObjectInstance	m	
A.20.9	ROER-missingAttributeValue	m	
A.20.10	ROER-noSuchAttribute	m	
A.20.11	ROER-noSuchObjectClass	m	
A.20.12	ROER-noSuchObjectInstance	m	
A.20.13	ROER-noSuchReferenceObject	m	
A.20.14	ROER-processingFailure	m	
A.20.15	RORJ	m	

If the supplier of the implementation claims to support M-DELETE in the invoker role, indication of support for each of the CMIP PDUs shall be supplied, in Table A.21.

Table A.21 – CMIP PDUs required to support M-DELETE in the invoker role

Invoker sending			
Index	Protocol data unit	Sts	Spt
A.21.1	ROIV-m-Delete	m	
A.21.2	RORJ	m	
Invoker receiving			
Index	Protocol data unit	Sts	Spt
A.21.3	RORS-m-Delete	m	
A.21.4	ROIV-m-LinkedReply-Delete	c3	
A.21.5	ROER-accessDenied	m	
A.21.6	ROER-classInstanceConflict	m	
A.21.7	ROER-complexityLimitation	m	
A.21.8	ROER-invalidFilter	c2	
A.21.9	ROER-invalidScope	c1	
A.21.10	ROER-noSuchObjectClass	m	
A.21.11	ROER-noSuchObjectInstance	m	
A.21.12	ROER-processingFailure	m	
A.21.13	ROER-syncNotSupported	c1	
A.21.14	RORJ	m	

If the supplier of the implementation claims to support M-DELETE in the performer role, indication of support for each of the CMIP PDUs shall be supplied, in Table A.22.

Table A.22 – CMIP PDUs required to support M-DELETE in the performer role

Performer receiving			
Index	Protocol data unit	Sts	Spt
A.22.1	ROIV-m-Delete	m	
A.22.2	RORJ	m	
Performer sending			
Index	Protocol data unit	Sts	Spt
A.22.3	RORS-m-Delete	m	
A.22.4	ROIV-m-LinkedReply-Delete	c3	
A.22.5	ROER-accessDenied	m	
A.22.6	ROER-classInstanceConflict	m	
A.22.7	ROER-complexityLimitation	m	
A.22.8	ROER-invalidFilter	c2	
A.22.9	ROER-invalidScope	c1	
A.22.10	ROER-noSuchObjectClass	m	
A.22.11	ROER-noSuchObjectInstance	m	
A.22.12	ROER-processingFailure	m	
A.22.13	ROER-syncNotSupported	c1	
A.22.14	RORJ	m	

If the supplier of the implementation claims to support M-EVENT-REPORT in the invoker role, indication of support for each of the CMIP PDUs shall be supplied, in Table A.23.

Table A.23 – CMIP PDUs required to support M-EVENT-REPORT in the invoker role

Invoker sending			
Index	Protocol data unit	Sts	Spt
A.23.1	ROIV-m-EventReport	m	
A.23.2	ROIV-m-EventReport-Confirmed	m	
A.23.3	RORJ	m	
Invoker receiving			
Index	Protocol data unit	Sts	Spt
A.23.4	RORS-m-EventReport-Confirmed	m	
A.23.5	ROER-invalidArgumentValue	m	
A.23.6	ROER-noSuchArgument	m	
A.23.7	ROER-noSuchEventType	m	
A.23.8	ROER-noSuchObjectClass	m	
A.23.9	ROER-noSuchObjectInstance	m	
A.23.10	ROER-processingFailure	m	
A.23.11	RORJ	m	