isode

Protocol Implementation Conformance Statement (PICS) for Isode Release 10.2

for the

Directory System Protocol (DSP) 1993 Edition

Based on draft ISP Proforma Version 0.51

© Copyright Isode Limited 2004

Isode Confidential
This document contains confidential information belonging to Isode Limited

Contents

Forward

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 on 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, government and non-governmental, in liason 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.

This International Standard defines a Protocol Implementation Conformance Statement (PICS) for the 1993 edition of the ITU-T X.500 recommendations for the Directory System Protocol (DSP).

Introduction

This Recommendation has been produced to facilitate the interconnection of information processing systems to provide directory services. The set of all such systems, together with the directory information which they hold, can be viewed as an integrated whole, called the ***Directory.*** The information held by the Directory, collectively known as the Directory Information Base (DIB), is typically used to facilitate communication between, with or about objects such as application entities, people, terminals and distribution lists.

The Directory plays a significant role in Open Systems Interconnection, whose aim is to allow, with a minimum of technical agreement outside of the interconnection standards themselves, the interconnection of information processing systems:

- from different manufacturers;
- under different managements;
- of different levels of complexity; and
- of different ages.

To evaluate conformance of a particular implementation, it is necessary to have a statement of which capabilities and options have been implemented for a given OSI protocol. Such statement is called a Protocol Implementation Conformance Statement (PICS).

Annex A of this Recommendation specifies the PICS proforma for the Directory System Protocol as defined in ISO/IEC 9594 : 1993(E) standard.

Information Technology - Open Systems Interconnection Protocol Implementation Conformance Statement (PICS) Proforma for the Directory System Protocol 1993 edition

1 Scope

This Documentation provides the PICS proforma for the Directory System Protocol (DSP) specified in the ISO/IEC 9594 : 1993(E) standard. This PICS Proforma is in compliance with the relevant requirements, and in accordance with the relevant guidance for PICS Proforma, given in ISO/IEC 9646-7.

The supplier of a DSP implementation that is claimed to conform to ISO/IEC 9594 (1993) standard is required to complete a copy of the PICS proforma provided in Annex A and is required to provide the information necessary to identify both the supplier and the implementation.

The scope of this Documentation is the specification of the conformance statements for a Directory System Agent (DSA).

2 Normative References

The following Recommendations and International Standards contain provisions which, through reference in this text, constitute provisions of this Recommendation | International Standard part. 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 Telecommunications Standardization Bureau of the ITU maintains a list of currently valid ITU-T Recommendations.

ITU-T Recommendation X.501 (1993) | ISO/IEC 9594-2:1993, *Information Technology -- Open Systems Interconnection -- The Directory: Models.*
ITU-T Recommendation X.511 (1993) | ISO/IEC 9594-3:1993, *Information Technology -- Open Systems Interconnection -- The Directory: Abstract Service Definition.*
ITU-T Recommendation X.518 (1993) | ISO/IEC 9594-4:1993, *Information Technology -- Open Systems Interconnection -- The Directory: Procedures for Distributed Operations.*
ITU-T Recommendation X.519 (1993) | ISO/IEC 9594-5:1993, *Information Technology -- Open Systems Interconnection -- The Directory: Protocol Specifications.*
ITU-T Recommendation X.520 (1993) | ISO/IEC 9594-6:1993, *Information Technology -- Open Systems Interconnection -- The Directory: Selected Attribute Types.*
ITU-T Recommendation X.521 (1993) | ISO/IEC 9594-7:1993, *Information Technology -- Open Systems Interconnection -- The Directory: Selected Object Classes.*
ITU-T Recommendation X.509 (1993) | ISO/IEC 9594-8:1993, *Information Technology -- Open Systems Interconnection -- The Directory: Authentication Framework.*
ITU-T Recommendation X.525 (1993) | ISO/IEC 9594-9:1993, *Information Technology -- Open Systems Interconnection -- The Directory: Replication.*
ISO/IEC 9646-1:1994, *Information Technology -- Open Systems Interconnection -- Conformance testing methodology and framework - Part 1: General Concepts.*
ISO/IEC DIS 9646-7:1994, *Information Technology -- Open Systems Interconnection -- Conformance testing methodology and framework - Part 7: Implementation conformance statements -- Requirements and guidance on ICS and ICS proformas.*

3 Definitions

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

3.1 Directory definitions

This Document uses terms defined in ISO/IEC 9594 (1993) standards.

3.2 Conformance definitions

This Document uses the following terms defined in ISO/IEC 9646:

a) Protocol Implementation Conformance Statement (PICS);
b) PICS Proforma;
c) conformance;
d) mandatory requirement;
e) optional requirement;
f) conditional requirement.

3.3 Basic directory conformance definitions

This Document uses the following terms:

centralized DSA: a DSA that is not capable of holding knowledge information about other DSAs. Such a DSA is not capable of returning referrals.

cooperating DSA: a DSA that is capable of holding knowledge references. Such a DSA is capable of returning referrals, and may also be a chaining DSA.

chaining DSA: a cooperating DSA that is capable of invoking chained operations, functioning as a DSP invoker. A chaining DSA is also a cooperating DSA.

Security Level: Security levels shall be declared for peer entity authentication, originator authentication and results authentication, respectively.

a) For originator authentication, there are five security levels which are "none", "simple without password", "simple with unprotected password", "simple with protected password" and "strong".
b) For peer entity authentication, there are three security levels which are "none", "simple with distinguished name" and "strong".
c) For results authentication, there are two security levels which are "none" and "strong".

4 Abbreviations

For the purposes of this Protocol Implementation Conformance Statement, the following abbreviations apply.

ACI	Access Control Information
DAP	Directory Access Protocol
DISP	Directory Information Shadowing Protocol
DOP	Directory Operational Binding Management Protocol
DSA	Directory System Agent
DSP	Directory System Protocol
DUA	Directory User Agent
NSSR	Non-Specific Subordinate Reference
NSAP	Network Service Access Point
PICS	Protocol Implementation Conformance Statement
RDN	Relative Distinguished Name
ROSE	Remote Operations Service Element

5 Conventions

With minor exceptions this Directory Specification has been prepared according to the "Presentation of ITU-TS/ISO/IEC common text" guidelines in the Guide for ITU-TS and ISO/IEC JTC 1 Cooperation, March 1993.

The term "Directory Specification" (as in 'this Directory Specification') shall be taken to mean ITU-T Rec. X.500 ISO/IEC 9594-1.

This Directory Specification uses the term "1988 edition systems" to refer to systems conforming to the previous (1988) edition of the Directory Specifications, i.e., the 1988 edition of the series of CCITT X.500 Recommendations and the ISO/IEC 9594:1990 edition. Systems conforming to the current Directory Specifications are referred to as "1993 edition systems".

6 Conformance

A conforming PICS proforma shall be technically equivalent to ISO/IEC 9594 (1993 E) and shall preserve the numbering and ordering of the items in ISO/IEC 9594 (1993 E).

A PICS which conforms to this Documentation shall:

a) describe an implementation which conforms to ISO/IEC 9594 (1993 E);

b) be a conforming PICS proforma, which has been completed in accordance with the instructions for completion given in clause A.4;

c) include information necessary to uniquely identify both the supplier and the implementation.

(This page intentionally left blank.)

ANNEX A

Directory System Protocol -
Protocol Implementation Conformance Statement (PICS) Proforma

A.1 *Identification of the implementation*

A.1.1 *Identification of PICS*

Item No.	Question	Response
1	Date of Statement (DD/MM/YY)	08/01/2004
2	PICS Serial Number	0.51
3	System Conformance Statement Cross Reference	—

A.1.2 *Identification of the implementation and/or system*

Item No.	Question	Response
1	Implementation Name	Isode X.500(93) Directory Server
2	Version Number	R10.2v0
3	Machine Name	Sun Microsystems SPARCstation series
4	Machine Version Number	UltraSparc
5	Operating System Name	Solaris
6	Operating System Version No.	8
7	Special Configuration	Note 1 — Cooperating, Chaining, First-level DSA
8	Other information	

Note 1 - Shall be a "cooperating" DSA as defined in clause 3 of this PICS. Other responses may be given, provided they do not conflict with other parts of the conformance statement. Some examples of other configurations:

- Chaining DSAs;
- First-level DSAs;

A.1.3 ***Identification of the system supplier and/or test laboratory client***

Item No.	Question	Response
1	Organization Name	Isode Limited
2	Contact Name(s)	Steve Kille
3	Address	5 Castle Business Village, 36 Station Road, Hampton, England TW12 2BX, United Kingdom
4	Telephone Number	+44 20 8783 0203
5	Telex Number	N/A
6	Fax Number	+44 20 8783 9292
7	E-Mail Address	steve.kille@isode.com
8	Other information	http://www.isode.com/

A.2 ***Identification of the protocol***

Item No.	Question	Response
1	Title, Reference, No., publication date of the protocol standard	X.518 (1993E) | ISOC/IEC 9594-4
2	Protocol Version Number	1.0
3	Implemented Addenda	none
4	Implementor's Guide Version Number	8.0
5	Implemented Defect Reports (Reference No.)	none

A.3 *Global statement of conformance*

Answering "No" to A.3.1.1 indicates non-conformance to the protocol specification. Non supported mandatory capabilities are to be identified in the PICS, with an explanation of why the implementation is non-conformant. Such information shall be provided in section A.7 "Other Information".

A.3.1 *DSA implementation and/or system*

Item No.	Question		Status	Support	Predicate Name
1	Are all mandatory general capabilities for the DSA implemented?		m	N	
2	Are all mandatory First-level DSA requirements (ISO/IEC 9594-4) implemented?		c0	Y	
3	Are minimum knowledge requirements (ISO/IEC 9594-2) implemented?		m	Y	
4	Other Supported Reference(s)	Cross Reference	o	Y	
		Non-Specific Subordinate Reference	o	N	
		Immediate Superior Reference	o	N	
5	Is asynchronous (ROSE class 2) mode of operation supported?		m	Y	
6	Supported security levels - *see Table A.3.2*		-		-
7	Does the DSA follow the rules of extensibility as defined in section 7.5 of ISO/IEC 9594-5?		m	Y	
8	Is the alias mechanism implemented?		m	Y	
9	Does the DSA support the application-context(s) directorySystemAC?		m	Y	
10	Supported Access Controls	Simplified Access Control	o	Y	SAC-DSA
		Basic Access Control	o	Y	BAC-DSA
		Other	i	N	
11	Is the DSA capable of supporting collective attributes?		o	Y	Coll-Attr
12	Is the DSA capable of supporting hierarchical attributes (Subtypes)?		o	Y	Hier-Attr
13	Is the DSA capable of supporting auxiliary object classes?		o	Y	
14	Is the DSA capable of supporting the subschema for its portion of the DIT?		o	Y	

c0: if the special configuration in item A.1.2/7 is First-level DSA then m else i.

A.3.2 ***Supported security levels***

Item No.	Question	Status	Support	Predicate Name
1	Is the security level "none" for peer entity authentication supported?	o.1	Y	
2	Is security level "simple without password" for peer entity authentication supported?	o.1	Y	SmpNoPwd
3	Is security level "simple with unprotected password" for peer entity authentication supported?	o.1	Y	SmpUnPwd
4	Is security level "simple with protected password" peer entity authentication supported?	o.1	N	SmpPrPwd
5	Is security level "strong" for peer entity authentication supported?	o.1	N	Strong-Pr
6	Is security level "none" for originator authentication supported?	o.2	Y	
7	Is security level "simple with distinguished name" for originator authentication supported?	o.2	Y	SimpleDN-Or
8	Is security level "strong" for originator authentication supported?	o.2	N	Strong-Or
9	Is security level "none" for results authentication supported?	o.3	Y	
10	Is security level "strong" for results authentication supported?	o.3	N	Strong-Rs

o.1: At least one of security levels for peer entity authentication shall be supported.
o.2: At least one of security levels for originator authentication shall be supported.
o.3 At least one of security levels for results authentication shall be supported.

A.4 *Instruction for completing the PICS Proforma*

A.4.1 *Definition of support*

A DSA implementation may be an invoker and/or a consumer of a DSA operation unless Chaining Mode" is supported, then the DSA implementation must be able to invoke and consume DSA operations.

A capability is said to be supported if the Implementation Under Test (IUT) is able:

- to generate the corresponding operation parameters (either automatically or because the invoker requires that capability explicitly);

- to interpret, handle and when required make available to the invoker the corresponding error or result.

A protocol element is said to be supported for a sending implementation if the IUT is able to generate it under some circumstances (either automatically or because the invoker requires relevant services explicitly).

A protocol element is said to be supported for a receiving implementation if it is correctly interpreted and handled and also, when appropriate, made available to the invoker.

An object class is said to be supported if the IUT is able to construct entries of that object class. Support of an object class also requires support of the object identifier(s) of its superclass(es) of that object class.

An attribute type is said to be supported by a DSA implementation if the DSA supports a subset or all aspects of the attribute syntax of the attribute and stores the attribute value(s) where appropriate.

A.4.2 *Status column*

This column indicates the level of support required for conformance to the ISO/IEC standard.
The values are as follows:

m	mandatory support is required;
o	optional support is permitted for conformance to the standard. If implemented it must conform to the specifications and restrictions contained in the standard. These restrictions may affect the optionality of other items;
c	the item is conditional (support of the capability is subject to a predicate);
c: m	the item is mandatory if the predicate is true, optional otherwise;
-	the item is not applicable;
i	the item is outside the scope of this PICS.

In the PICS proforma tables, every leading item marked 'm' shall be supported by the IUT. Sub-items marked 'm' shall be supported if the corresponding leading item is supported by the IUT.

The Initiator (Init) indicates that the implementation under the IUT is a sending DSP and the Status Responder (Resp) indicates that the implementation under the IUT is a responding DSP.

A.4.3 *Support column*

This column shall be completed by the supplier or implementor, when either a [ ] or a ( ), to indicate the level of implementation of each item. The proforma has designed such that values required in [ ] are:

Y yes, the item has been implemented;
N no, the item has not been implemented;
- the item is not applicable;

All entries within the PICS proforma shall be made in ink. Alterations to such entries shall be made by crossing out, not erasing nor making the original entry illegible, and writing the new entry alongside. All such alterations to records shall be initialized by the staff making them.

A.4.4 Note column

This column indicates the following:

notexx - refers to Note xx;
d(xx) - a default value xx within ( ) is defined in the Standard. When absent in the PDU, both sender and receiver shall interpret it as having the default value specified in the standard.

A.4.5 Predicate column

The item number contained in the predicate column, if any, means that the status in the "Status" column applies only when the PICS states that one or more features identified by the item is supported.

A.4.6 Item reference numbers

Each line within the PICS proforma which requires implementation details to be entered is number at the left hand edge of the line. This numbering is included as a mean of uniquely identifying all possible implementation details within the PICS proforma. This referencing is used both inside the PICS proforma, and for references from other test specification documents.

The means of referencing individual responses is done by the following sequence:

- a reference to the smallest enclosing the relevant item;
- a solidus character, '/';
- the reference number of the row in which the response appears;
- if, and only if, more than one response occurs in the row identified by the reference number, then each possible entry is implicitly labeled a, b, c, etc. from left to right, and this letter is appended to the sequence.

An example of the use of this notation would be A.5.3.1.1/2, which refers to the support for credentials in a DirectoryBind protocol data unit.

A.5 *Capabilities and options*

This part of the PICS proforma identifies the supported application context, the PDUs and operations. Finally, the operation arguments and PDU parameters are identified.

A.5.1 *Supported application context*

The only application context supported by this PICS proforma is Directory System application context.

A.5.2 *Operations and Extensibility*

A.5.2.1 ***Operations*** Ref. X.511

Item No.	Protocol Element	Status Init	Status Resp	Predicate Name	Note	Support Init	Support Resp
1	DirectoryBind	m	m	Bind		Y	Y
2	DirectoryUnbind	m	m	Unbind		N	Y
3	ChainedRead	m	m	Read		Y	Y
4	ChainedCompare	m	m	Compare		Y	Y
5	ChainedAbandon	m	m	Abandon		N	Y
6	ChainedList	m	m	List		Y	Y
7	ChainedSearch	m	m	Search		Y	Y
8	ChainedAddEntry	m	m	AddEntry		Y	Y
9	ChainedRemoveEntry	m	m	RemoveEntry		Y	Y
10	ChainedModifyEntry	m	m	ModifyEntry		Y	Y
11	ChainedModifyDN	m	m	ModifyDN		Y	Y

A.5.2.2 Extensibility

This table defines a number of extensions which are available in the 1993 edition of the Directory. The supplier of the implementation shall indicate in the following table, which extensions for which conformance is claimed.

Ref. X.511, clause 7.3.1

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	subentries	o	o			Y	Y
2	copyShallDo	o	o			Y	Y
3	attribute size limit	o	o			Y	N
4	extraAttributes	o	o			Y	Y
5	modifyRightsRequest	o	o			Y	Y
6	pagedResultsRequest	-	-			-	Y
7	matchValuesOnly	o	o			Y	N
8	extendedFilter	o	o			Y	N
9	targetSystem	o	o			Y	N
10	useAliasOnUpdate	o	o			Y	Y
11	newSuperior	o	o			Y	N

A.5.3 *Protocol Elements*

A.5.3.1 *DirectoryBind Elements* Ref. X.511, clause 8.1

A.5.3.1.1 ***Directory Bind Arguments*** Ref. X.511, clause 8.1.2

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	DirectoryBindArg	m	m			Y	Y
2	credentials	c1	c1			Y	Y
3	simple	c2	c2			Y	Y
4	name	m	m			Y	Y
5	validity	c: m	c: m	A.5.3.1.1/8		N	N
6	password	c3	c3			Y	Y
7	unprotected	c: m	c: m	SmpUnPwd		Y	Y
8	protected	c: m	c: m	SmpPrPwd		N	N
9	strong	c: m	c: m	Strong-Or		N	N
10	certification-path	o	o		Note 3	N	N
11	bind-token SIGNED	m	m			N	N
12	algorithm	m	m			N	N
13	name	m	m			N	N
14	time	m	m			N	N
15	random	m	m			N	N
16	name	o	o			N	N
16	externalProcedure	i	i			N	N
17	versions	m	m		d(v1)	Y	Y

c1: If [SmpNoPwd or SmpUnPwd or SmpPrPwd or Strong-Or] then support is m else o.
c2: if [SmpNoPwd or SmpUnPwd or SmpPrPwd] then supprt is m else o.
c3: If [SmpUnPwd or SmpPrPwd] then support is m else o.

Note 3: Reference Table A.5.3.28

A.5.3.1.2 ***Directory Bind Result*** Ref. X.511, clause 8.1.3

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	DirectoryBindResult	m	m			Y	Y
2	credentials	c4	c4			Y	Y
3	simple	c: m	c: m	SimpleDN-Pr		Y	Y
4	name	m	m			Y	Y
5	validity	c: m	c: m	A.5.3.1.2/8		N	N
6	password	o	o			Y	Y
7	unprotected	o.4	o.4			Y	Y
8	protected	o.4	o.4			N	N
9	strong	c: m	c: m	Strong-Pr		N	N
10	certification-path	o	o		Note 3	N	N
11	bind-token SIGNED	m	m			N	N
12	algorithm	m	m			N	N
13	name	m	m			N	N
14	time	m	m			N	N
15	random	m	m			N	N
16	name	o	o			N	N
17	externalProcedure	i	i			N	N
18	versions	m	m		d(v1)	Y	Y

c4: If [SimpleDN-Pr or Strong-Pr] then support is m else support is o.

o.4 The password may be unprotected or protected as described in clause 5 of ISO/IEC 9594-8.

Note 3: Reference Table A.5.3.28

A.5.3.1.3 ***Directory Bind Error*** Ref. X.511, clause 8.1.4

Item No.	Protocol Element	Status Init	Status Init	Predicate	Note	Support Init	Support Resp
1	DirectoryBindError	m	m			Y	Y
2	versions	m	m		d(v1)	Y	Y
3	serviceError	m	m			Y	Y
4	securityError	m	m			Y	Y

A.5.3.2 ***Directory Unbind Elements*** Ref. X.511, clause 8.2

DirectoryUnbind has no arguments (see Section 8.2 of ISO/IEC 9594-3)

A.5.3.3 ***ChainedRead Elements*** Ref. X.518, clause 12.1

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	chained read	c: m	c: m	Read		Y	Y
2	ChainingArguments	m	m			Y	Y
3	ReadArgument	m	m			Y	Y
4	SIGNED ReadArgument	o	o			N	N
5	object	m	m			Y	Y
6	selection	m	m		d({})	Y	Y
7	modifyRightsRequest	c: m	c: m	A.5.2.2/5	d(false)	Y	Y
8	CommonArguments	m	m			Y	Y
9	ReadResult	m	m			Y	Y
10	SIGNED ReadResult	o	o			N	N
11	entry	m	m			Y	Y
12	modifyRights	c: m	c: m	A.5.3.3/7		Y	Y
13	commonResults	m	m			Y	Y
14	ChainingResults	m	m			Y	Y

A.5.3.4 ***ChainedCompare Elements*** Ref. X.518, clause 12.1

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	chained compare	c: m	c: m	Compare		Y	Y
2	ChainingArguments	m	m			Y	Y
3	CompareArgument	m	m			Y	Y
4	SIGNED CompareArgument	o	o			N	N
5	object	m	m			Y	Y
6	purported	m	m			Y	Y
7	CommonArguments	m	m			Y	Y
8	CompareResult	m	m			Y	Y
19	SIGNED CompareResult	o	o			N	N
10	name	m	m			Y	Y
11	matched	m	m			Y	Y
12	fromEntry	m	m		d(true)	Y	Y
13	matchedSubtype	c: m	c: m	Hier-Attr		Y	Y
14	CommonResults	m	m			Y	Y
15	ChainingResults	m	m			Y	Y

A.5.3.5 ***ChainedAbandon Elements*** Ref. X.518, clause 12.2

Item No.	Protocol Element	Status Init	Status Resp	Predictate	Note	Support Init	Support Resp
1	abandon	c: m	c: m	Abandon		N	Y
2	AbandonArgument	m	m			N	Y
3	invokeID	m	m			N	Y
4	AbandonResult	m	m			N	Y

A.5.3.6 ***ChainedList Elements*** Ref. X.518, clause 12.1

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	chained list	c: m	c: m	List		Y	Y
2	ChainingArgumentss	m	m			Y	Y
3	ListArgument	m	m			Y	Y
4	SIGNED ListArgument	o	o			N	N
5	object	m	m			Y	Y
6	pagedResults	c: m	c: m	A.5.2.2/6		N	N
7	CommonArguments	m	m			Y	Y
8	ListResult	m	m			Y	Y
9	SIGNED ListResult	o	o			N	N
10	listInfo	m	m			Y	Y
11	name	m	m			Y	Y
12	subordinates	m	m			Y	Y
13	rdn	m	m			Y	Y
14	aliasEntry	m	m		d(false)	Y	Y
15	fromEntry	m	m		d(true)	Y	Y
16	PartialOutcomeQualifier	m	m			Y	Y
17	limitProblem	m	m			Y	Y
18	unexplored	m	m			Y	Y
19	unavailableCriticalExt	m	m		d(false)	Y	Y
20	unknownErrors	m	m			N	Y
21	queryReference	m	m	A.5.3.6/6		ignored	ignored
22	CommonResults	m	m			Y	Y
23	uncorrelatedListInfo	m	m			Y	Y
24	ChainingResults	m	m			Y	Y

A.5.3.7 ***ChainedSearch Elements*** Ref. X.518, clause 12.1

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	chained search	c: m	c: m	Search		Y	Y
2	ChainingArguments	m	m			Y	Y
3	SearchArgument	m	m			Y	Y
4	SIGNED SearchArgument	o	o			N	N
5	baseObject	m	m			Y	Y
6	subset	m	m		d({})	Y	Y
7	filter	m	m		d(and{})	Y	Y
8	searchAlias	m	m		d(true)	Y	Y
9	selection	m	m		d({})	Y	Y
10	pagedResults	c: m	c: m	A.5.2.2/6		N	N
11	matchValuesOnly	c: m	c: m	A.5.2.2/7	d(false)	N	N
12	extendedFilter	c: m	c: m	A.5.2.2/8		N	N
13	CommonArguments	m	m			Y	Y
14	SearchResult	m	m			Y	Y
15	SIGNED SearchResult	o	o			N	N
16	searchInfo	m	m			Y	Y
17	name	m	m			Y	Y
18	entries	m	m			Y	Y
19	PartialOutcomeQualifier	m	m			Y	Y
20	limitProblem	m	m			Y	Y
21	unexplored	m	m			Y	Y
22	unavailableCriticalExt	m	m			Y	Y
23	unknownErrors	m	m			N	Y
24	queryReference	c: m	c: m	A.5.3.7/9		ignored	ignored
25	CommonResults	m	m			Y	Y
26	uncorrelatedSearchInfo	m	m			Y	Y
27	ChainingResults	m	m			Y	Y

A.5.3.8 ***ChainedAdd Entry Elements*** Ref. X.518, clause 12.1

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	chained addentry	c: m	c: m	AddEntry		Y	Y
2	ChainingArguments	m	m			Y	Y
3	AddEntryArgument	m	m			Y	Y
4	SIGNED AddEntry Argument	o	o			N	N
5	object	m	m			Y	Y
6	entry	m	m			Y	Y
7	targetSystem	c: m	c: m	A.5.2.2/9		N	N
8	CommonArguments	m	m			Y	Y
9	AddEntryResult	m	m		= NULL	Y	Y
10	ChainingResults	m	m			Y	Y

A.5.3.9 ***ChainedRemove Entry Elements*** Ref. X.518, clause 12.1

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	chained remove entry	c: m	c: m	RemoveEntry		Y	Y
2	ChainingArguments	m	m			Y	Y
3	RemoveEntryArgument	m	m			Y	Y
4	SIGNED RemoveEntryArgument	o	o			N	N
5	object	m	m			Y	Y
6	CommonArguments	m	m			Y	Y
7	RemoveEntryResult	m	m		= NULL	Y	Y
8	ChainingResults	m	m			Y	Y

A.5.3.10 ***ChainedModify Entry Elements*** Ref. X.518, clause 12.1

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	chained modify	c: m	c: m	ModifyEntry		Y	Y
2	ChainingArguments	m	m			Y	Y
3	ModifyEntryArgument	m	m			Y	Y
4	SIGNED ModifyEntryArgument	o	o			N	N
5	object	m	m			Y	Y
6	changes	m	m			Y	Y
7	addAttribute	m	m			Y	Y
8	removeAttribute	m	m			Y	Y
9	addValues	m	m			Y	Y
10	removeValues	m	m			Y	Y
11	CommonArguments	m	m			Y	Y
12	ModifyEntryResult	m	m		= NULL	Y	Y
13	ChainingResults	m	m			Y	Y

A.5.3.11 ***ChainedModifyDN Elements*** Ref. X.518, clause 12.1

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	chained modifyDN	c: m	c: m	ModifyDN	Note 4 & 5	Y	Y
2	ChainingArguments	m	m			Y	Y
3	ModifyDNArgument	m	m			Y	Y
4	SIGNED ModifyDNArgument	o	o			N	N
5	object	m	m			Y	Y
6	newRDN	m	m			Y	Y
7	deleteOldRDN	m	m		d(false)	Y	Y
8	newSuperior	c: m	c: m	A.5.2.2/11		N	N
9	CommonArguments	m	m			Y	Y
10	ModifyDNResult	m	m		= NULL	Y	Y
11	ChainingResults	m	m			Y	Y

Note 4 : 1988-edition systems may use the operation only to change the Relative Distinguished Name of a leaf entry.

Note 5: IC R3.0v4 provides 1988 equivalent functionality for modifying leaf nodes only.

A.5.3.12 ***Errors and Parameters*** Ref. X.511, clause 12

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	Abandoned	m	m			Y	Y
2	AbandonFailed	m	m			Y	Y
3	problem	m	m			Y	Y
4	operation	m	m			Y	Y
5	AttributeError	m	m			Y	Y
6	object	m	m			Y	Y
7	problems	m	m			Y	Y
8	problem	m	m			Y	Y
9	type	m	m			Y	Y
10	value	m	m			Y	Y
11	NameError	m	m			Y	Y
12	problem	m	m			Y	Y
13	matched	m	m			Y	Y
14	DSAReferral	m	m			Y	Y
15	continuationReference	m	m			Y	Y
16	contextPrefix	m	m			Y	Y
17	SecurityError	m	m			Y	Y
18	problem	m	m			Y	Y
19	ServiceError	m	m			Y	Y
20	problem	m	m			Y	Y
21	UpdateError	m	m			Y	Y
22	problem	m	m			Y	Y

A.5.3.13 ***Common Arguments Elements*** Ref. X.511, clause 7.3

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	ServiceControls	m	m		d({})	Y	Y
2	SecurityParameters	c: m	m	Strong-Rs		Y	Y
3	requestor	o	o		Note 5	Y	Y
4	OperationProgress	m	m			Y	Y
5	nameResolutionPhase	m	m		d(notStarted)	Y	Y
6	nextRDNToBeResolved	m	m			Y	Y
7	aliasedRDNs	o	o		Note 6	Y	Y
8	criticalExtensions	m	m			Y	Y
9	referenceType	m	m			Y	Y
10	entryOnly	m	m		d(true)	Y	Y
11	exclusions	m	m			Y	Y
12	nameResolveOnMaster	m	m		d(false)	Y	Y

Note 5: This parameter may be ignored unless the request is signed.
Note 6: This parameter is provided for compatibility with the 1988 edition of the Directory. DSAs implemented according to later editions shall always omit this parameter.

A.5.3.14 ***Common Results Elements*** Ref. X.511, clause 7.4

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	SecurityParameters	c: m	m	Strong-Rs		Y	Y
2	performer	o	o			Y	Y
3	aliasedDereferenced	m	m		d(false)	Y	Y

A.5.3.15 ***Service Controls*** Ref. X.511, clause 7.5

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	ServiceControls	m	m			Y	Y
2	options	m	m		d({})	Y	Y
3	priority	m	m		d(medium)	Y	Y
4	timeLimit	m	m			Y	Y
5	sizeLimit	m	m			Y	Y
6	scopeOfReferral	m	m			Y	Y
7	attributeSizeLimit	c: m	c: m	A.5.2.2/3		Y	N

A.5.3.16 ***Entry Information Selection*** Ref. X.511, clause 7.6

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	entryInformationSelection	m	m			Y	Y
2	attributes	m	m		d(allUserAttributes)	Y	Y
3	allUserAttributes	m	m			Y	Y
4	select	m	m			Y	Y
5	infoTypes	m	m		d(attributeTypesAnd Values)	Y	Y
6	attributeTypesOnly	m	m			Y	Y
7	attributeTypesAndValues	m	m			Y	Y
8	extraAttributes					Y	Y
9	allOperationalAttributes	m	m			Y	Y
10	select	m	m			Y	Y

A.5.3.17 ***Entry Information*** Ref. X.511, clause 7.7

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	EntryInformation	m	m			Y	Y
2	name	m	m			Y	Y
3	fromEntry	m	m		d(true)	Y	Y
4	Information	m	m			Y	Y
5	AttributeType	m	m			Y	Y
6	Attribute	m	m			Y	Y
7	incompleteEntry	m	m		d(false)	Y	Y

A.5.3.18 ***Filter Elements*** Ref. X.511, clause 7.8

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	item	m	m			Y	Y
2	and	m	m			Y	Y
3	or	m	m			Y	Y
4	not	m	m			Y	Y

A.5.3.19 ***Filter Item Elements*** Ref. X.511, clause 7.8.2

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	equality	m	m			Y	Y
2	substrings	m	m			Y	Y
3	type	m	m			Y	Y
4	strings	m	m			Y	Y
5	intial	m	m			Y	Y
6	any	m	m			Y	Y
7	final	m	m			Y	Y
8	greaterOrEqual	m	m			Y	Y
9	lessOrEqual	m	m			Y	Y
10	present	m	m			Y	Y
11	approximateMatch	m	m			Y	Y
12	extensibleMatch	m	m			N	N
13	MatchingRule	m	m			N	N
14	type	m	m			N	N
15	matchValue	m	m			N	N
16	dnAttributes	m	m		d(false)	N	N

A.5.3.20 ***Paged Results*** Ref. X.511, clause 7.9

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	PagedResultsRequest	-	-	A.5.2.2/6		-	-
2	newRequest	-	-			-	-
3	pageSize	-	-			-	-
4	sortkeys	-	-			-	-
5	type	-	-			-	-
6	orderingRule	-	-			-	-
7	reverse	-	-		d(false)	-	-
8	unmerged	-	-		d(false)	-	-
9	queryReference	-	-			-	-

A.5.3.21 ***Continuation Reference*** Ref. X.518, clause 10.10

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	targetObject	m	m			Y	Y
2	aliasedRDNs	m	m			Y	Y
3	operationProgress	m	m			Y	Y
4	nameResolutionPhase	m	m			Y	Y
5	nextRDNToBeResolved	m	m			Y	Y
6	rdnsResolved	m	m			Y	Y
7	referenceType	m	m			Y	Y
8	accessPoints	m	m			Y	Y
9	MasterOrShadowAccessPoint	m	m			Y	Y
10	Category	m	m			Y	Y
11	AccessPoint	m	m			Y	Y
12	entryOnly	m	m		d(false)	Y	Y
13	exclusions	m	m			Y	Y
14	returnToDUA	m	m		d(false)	Y	Y
15	nameResolveOnMaster	m	m		d(false)	Y	Y

A.5.3.22 ***Chaining Argument Elements*** Ref. X.518, clause 10.3

Item No.	Argument	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	orginator	m	m			Y	Y
2	targetObject	m	m			Y	Y
3	operationProgress	m	m			Y	Y
4	nameResolutionPhase	m	m		d(notStarted)	Y	Y
5	nextRDNToBeResolved	m	m			Y	Y
6	traceInformation	m	m			Y	Y
7	aliasDereferenced	m	m		d(false)	Y	Y
8	aliasedRDNs	m	m			Y	Y
9	returnCrossRefs	m	m		d(false)	Y	ignored
10	referenceType	m	m		d(superior)	Y	Y
11	info	o	o			N	N
12	timeLimit	m	m			Y	Y
13	entryOnly	m	m			Y	Y
14	securityParameters	m	m		d({})	N	N
15	certification-path	m	m			N	N
16	name	m	m			N	Y
17	time	m	m			N	N
18	random	m	m			N	N
19	target	m	m			N	ignored
20	uniqueIdentifier	m	m			N	N
21	authenticationLevel	m	m			Y	Y
22	exclusions	m	m			Y	Y
23	excludeShadows	m	m		d(false)	Y	Y
24	nameResolveOnMaster	m	m		d(false)	Y	Y

A.5.3.23 ***Chaining Result Elements*** Ref. X.518, clause 10.4

Item No.	Protocol Elements	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	info	m	m			Y	ignored
2	crossReferences	m	m			N	ignored
3	securityParameters	m	m		d({})	Y	N
4	alreadysearched	m	m			Y	Y

A.5.3.24 ***CrossReference*** Ref. X.518, clause 10.4b

Item No.	Protocol Elements	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	contextPrefix	m	m			N	N
2	accessPoints	m	m			N	N
3	name	m	m			N	N
4	MasterOrShadowAccessPoint	m	m			N	N
5	Category	m	m			N	N
6	AccessPoint	m	m			N	N

A.5.3.25 ***Trace Information*** Ref. X.518, clause 10.6

Item No.	Protocol Elements	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	TraceItem	m	m			Y	Y
2	dsa	m	m			Y	Y
3	targetObject	m	m			Y	Y
4	operationProgress	m	m			Y	Y
5	nameResolutionPhase	m	m			Y	Y
6	nextRDNToBeResolved	m	m			Y	Y

A.5.3.26 ***AccessPoint*** Ref. X.518, clause 10.8

Item No.	Protocol Elements	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	ae-title	m	m			Y	Y
2	address	m	m			Y	Y
3	pSelector	m	m			Y	Y
4	sSelector	m	m			Y	Y
5	tSelector	m	m			Y	Y
6	nSelector	m	m			Y	Y
7	protocolInformation	o	o			N	ignored

A.5.3.27 ***SecurityParameters*** Ref. X.511, clause 7.10

Item No.	Protocol Elements	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	certification-path	m	m			N	N
2	name	m	m			Y	Y
3	time	c5	o			N	N
4	random	c5	o			N	N
5	target	m	m			N	N

c5: If A.5.3.27 appears in tables A.5.3.13 and A.5.3.14 then support is m else support is o.

A.5.3.28 ***CertificationPath*** Ref. X.509, clause 8

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support Init	Support Resp
1	CertificationPath	c6	c6			N	N
2	Certificate	m	m			N	N
3	version	m	m		d(v1)	N	N
4	serialNumber	m	m			N	N
5	signature	m	m			N	N
6	issuer	m	m			N	N
7	validity	m	m			N	N
8	subject	m	m			N	N
9	subjectPublicKeyInfo	m	m			N	N
10	issuerUniqueIdentifier	o	o		Note 7	N	N
11	subjectUniqueIdentifier	o	o		Note 7	N	N
12	CertificatePair	o	o			N	N
13	forward	o	o			N	N
14	reverse	o	o			N	N

c6 : If [A.5.3.1.1/10 or A.5.3.1.2/10 or A.5.3.27/1] then support is m else support is o.

Note 7: If present, version must be v2.

A.5.3.29 ***Access Control*** Ref. X.501, clause 16

A.5.3.29.1 ***Access Control Information*** Ref. X.501, clause 16.4

Item No.		Status Init	Status Resp	Predicate	Note	Support
1	ACIItem	c7	c7			Y
2	identificationTag	m	m			Y
3	precedence	m	m			Y
4	authenticationLevel	m	m			Y
5	basicLevels	m	m			Y
6	level	m	m			Y
7	localQualifier	o	o			N
8	other	i	i			N
9	itemOrUserFirst	m	m			Y
10	itemFirst	m	m			Y
11	protectedItems	m	m			Y
12	itemPermissions	m	m			Y
13	precedence	o	o		d(A.5.3.29.1/3)	Y
14	userClasses	o	o			Y
15	grantsAndDenials	m	m			Y
16	userFirst	m	m			Y
17	userClasses	o	o			Y
18	userPermissions	m	m			Y
19	precedence	o	o		d(A.5.3.29.1/3)	Y
20	protectedItems	m	m			Y
21	grantsAndDenials	m	m			Y

c7: if [SAC-DSA or BAC-DSA] then m else i.

A.5.3.29.2 ***Protected Items*** Ref. X.501, clause 16.4.2.4a

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support
1	ProtectedItems	c: m	c: m	A.5.3.29.1/11or A.5.3.29.1/20		Y
2	entry	o	o			Y
3	allUserAttributesTypes	o	o			Y
4	attributeType	o	o			Y
5	allAttributeValues	o	o			Y
6	allUserAttributeTypes&Values	o	o			Y
7	attributeValue	o	o			Y
8	selfValue	o	o			Y

A.5.3.29.3 ***UserClasses*** Ref. X.501, clause 16.4.2.4b

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support
1	UserClasses	c: m	c: m	A.5.3.29.1/14 or A.5.3.29.1/17		Y
2	allUsers	o	o			Y
3	thisEntry	o	o			Y
4	name	o	o			Y
5	userGroup	o	o			Y
6	subtree	o	o			Y

A.5.3.30 ***Subtrees*** Ref. X.501, clause 11.3

Item No.	Protocol Element	Status Init	Status Resp	Predicate	Note	Support
1	SubtreeSpecification	c: m	c: m	A.5.2.2/1		Y
2	base	m	m		d({})	Y
3	ChopSpecification	o	o			Y
4	specificExclusions	m	m			Y
5	chopBefore	m	m			Y
6	chopAfter	o	o			Y
7	minimum	m	m		d(0)	Y
8	maximum	o	o			Y
9	specificationFilter	o	o			N
10	item	m	m			N
11	and	m	m			N
12	or	m	m			N
13	not	m	m			N

A.6 *Directory schema*

A.6.1 *Supported Object Classes* Ref. X.521

A.6.1.1 *Standard Object Classes*

The supplier of the DSA implementation shall indicate, in the table below, the selected object classes defined in ISO/IEC 9594-7 for which conformance is claimed. The supplier of the DUA implementation need not complete the following table:

Item	Object class	Status	Support	Note
1	top	m	Y	
2	alias	m	Y	
3	country	o	Y	
4	locality	o	Y	
5	organization	o	Y	
6	organizational Unit	o	Y	
7	person	o	Y	
8	organizationalPerson	o	Y	
9	organizationalRole	o	Y	
10	groupOfNames	o	Y	
11	groupOfUniqueNames	o	Y	
12	residentialPerson	o	Y	
13	applicationProcess	o	Y	
14	applicationEntity	o	Y	
15	dSA	m	Y	
16	device	o	Y	
17	strongAuthenticationUser	o	Y	
18	certificationAuthority	o	Y	

A.6.1.2 *Other Supported object classes*

The supplier of the DSA implementation is required to list any other object classes provided for which conformance is claimed in the following table:

Index	Supported object classes
	COSINE and RFC 1274 defined object classes MHS defined object classes MHS-DS defined object classes

A.6.2 *Supported Attribute Types* Ref. X.520

Item No.	Attribute Type	Upperbound	Status	Support	Note
0	DirectoryString		o	Y	
1	teletexString		o	Y	
2	printableString		o	Y	
3	universalString		o	Y	

A.6.2.1 *Standard Attribute Types*

The supplier of the implementation shall indicate, in the following table, the selected attribute types defined in ISO/IEC 9594-6 for which conformance is claimed:

Item	Attribute Type	Upperbound	Status	Support	Note
0	objectClass		m	Y	
1	aliasedEntryName		o	Y	
2	knowledgeInformation		o	Y	
3	name	64	o	Y	
4	commonName	64	c8	Y	
5	surName	64	o	Y	
6	givenName		o	Y	
7	initials		o	Y	
8	generationQualifier		o	Y	
9	uniqueIdentifier		o	Y	
10	dnQualifier		o	Y	
11	serialNumber	64	o	Y	
12	countryName		o	Y	size = 2
13	localityName	128	o	Y	
14	stateOrProvinceName	128	o	Y	
15	streetAddress	128	o	Y	
16	houseIdentifier	64	o	Y	
17	organizationName	64	o	Y	
18	organizationalUnitName	64	o	Y	
19	title	64	o	Y	
20	description	1024	o	Y	
21	searchGuide		o	Y	
22	enhancedSearchGuide		o	Y	
23	businessCategory	128	o	Y	

24	postalAddress	6(lines) x 30(chs)	o	Y	
25	postalCode	40	o	Y	
26	postOfficeBox	40	o	Y	
27	physicalDeliveryOfficeName	128	o	Y	
28	telephoneNumber	32	o	Y	
29	telexNumber	14, 4, 8	o	Y	
30	teletexTerminalIdentifier	1024	o	Y	
31	fasimileTelephoneNumber	32	o	Y	
32	X.121 Address	15	o	Y	
33	internationalISDNNumber	16	o	Y	
34	registeredAddress	6(lines) x 30(chs)	o	Y	
35	destinationIndicator	128	o	Y	
36	preferredDeliveryMethod		o	Y	
37	presentationAddress		o	Y	
38	supportedApplicationContext		o	Y	
39	protocolInformation		o	Y	
40	distinguishedName		o	Y	
41	member		o	Y	
42	uniqueMember		o	Y	
43	owner		o	Y	
44	roleOccupent		o	Y	
45	seeAlso		o	Y	
46	userPassword	128	c9	Y	
47	userCertificate		c10	Y	
48	cACertificate		c10	Y	
49	authorityRevocationList		o	Y	
50	certificateRevocationList		o	Y	
51	crossCertificatePair		o	Y	

c8: if support for subentries [A.5.2.2/1] is claimed then this attribute is m else o.
c9: if support for password [A.5.3.1.1/6 or A.5.3.1.2/6] is claimed then this attribute is m else o.
c10: if [Strong-Or or Strong-Pr] then support is m else support is o.

A.6.2.2 *Collective Standard Attribute Types*

The supplier of the implementation shall indicate, in the following table, the selected collective attribute types defined in ISO/IEC 9594-6 for which conformance is claimed:

If the supplied implementation supports the collective attributes claimed in item A.3.1/10 then A.6.2.2 is required to be answered by the supplier.

Item	Attribute Types	Upperbound	Status	Support	Note
1	collectiveLocalityName	128	o	Y	
2	collectiveStateOrProvinceName	128	o	Y	
3	collectiveStreetAddress	128	o	Y	
4	collectiveOrganizationName	64	o	Y	
5	collectiveOrganizationalUnitName	64	o	Y	
6	collectivePostalAddress	6(lines) x 30(chs)	o	Y	
7	collectivePostalCode	40	o	Y	
8	collectivePostOfficeBox	40	o	Y	
9	collecivePhysicalDelivery OfficeName	128	o	Y	
10	collectiveTelephoneNumber	32	o	Y	
11	collectiveTelexNumber	14,4,8	o	Y	
12	collectiveTeletexTerminalIdentifier	1024	o	Y	
13	collectiveFacsmileTelephoneNumber	32	o	Y	
14	collectiveInternationalISDNNumber	16	o	Y	

A.6.2.3 *Other Supported Attribute Types*

The supplier of the DSA implementation is required to list any other object classes provided for which conformance is claimed in the folowing table:

Index	Attribute types
	COSINE and RFC 1274 attributes

A.6.3 *Standard Matching Rules* Ref. X.521

The supplier of the implementation shall indicate, in the following table, the matching rules defined in ISO/IEC 9594-6 for which support is claimed:

Item	Matching Rule	Status	Support	Note
1	caseIgnoreMatch	o	Y	
2	caseIgnoreOrderingMatch	o	Y	
3	caseIgnoreSubstringMatch	o	Y	
4	SubstringAssertion	o	Y	
5	caseExactMatch	o	Y	
6	caseExactSubstringMatch	o	Y	
7	numericStringMatch	o	Y	
8	numericStringOrderingMatch	o	Y	
9	numericStringSubstringMatch	o	Y	
10	caseIgnoreListMatch	o	Y	
11	caseIgnoreListSubstringsMatch	o	Y	
12	booleanMatch	o	Y	
13	integerMatch	o	Y	
14	integerOrderingMatch	o	Y	
15	bitStringMatch	o	Y	
16	octetStringMatch	o	Y	
17	octetStringOrderingMatch	o	Y	
18	octetStringSubStringsMatch	o	Y	
19	octetSubStringAssertion	o	Y	
20	telephoneNumberMatch	o	Y	
21	presentationAddressMatch	o	Y	
22	uniqueMember	o	N	
23	protocolInformationMatch	o	N	
24	uTCTimeMatch	o	Y	
25	uTCTimeOrderingMatch	o	Y	
26	genreralizedTimeMatch	o	Y	
27	generalizedTimeOrderingMatch	o	Y	
28	integerFirstComponentMatch	o	N	
29	objectIdentifierFirstComponentMatch	o	N	
30	directoryStringFirstComponentMatch	o	N	
31	wordMatch	o	N	
32	keywordMatch	o	N	

A.6.4 *Information Framework* Ref. X.501, clause 13

The supplier of the implementation shall indicate, in the following table, the object class, attributes , and matching rules defined in ISO/IEC 9594-2, Information Framework for which support is claimed.

A.6.4.1 *Information Framework Object Classes*

Item No.	Object class	Status	Support	Predictae	Note
1	subentry	c: m	Y	A.5.2.2/1	
2	accessControlSubentry	c11	Y		
3	collectiveAttributeSubentry	c12	Y		

c11: if [A.5.2.2/1 and [SAC-DSA or BAC-DSA]] then m else n/a.
c12: if [A.5.2.2/1 and Coll-Attr] then m else n/a.

A.6.4.2 *Information Framework Attributes*

Item No.	Attribute	Status	Support	Predicate	Note
1	createTimestamp	o	Y		
2	modifyTimestamp	o	Y		
3	creatorsName	o	Y		
4	modifiersName	o	Y		
5	administrativeRole	m	Y		
6	subtreeSpecification	c: m	Y	A.5.2.2/1	
7	collectiveExclusions	o	Y		

A.6.4.3 *Information Framework Matching Rules*

Item No.	Matching rule	Status	Support	Predicate	Note
1	objectIdentifierMatch	m	Y		
2	distinguishedNameMatch	m	Y		

A.6.5 *Subschema Administration* Ref. X.501, Clause 14

If the supplied implementation supports the subschema for its portion of the DSA claimed in item A.3.1/15 then A.6.5.1, A.6.5.2 and A.6.5.3 is required to be answered by the supplier.

A.6.5.1 *Subschema Adminstration Object Classes*

Item No.	Object class	Status	Support	Predicate	Note
1	subschema	m	Y		

A.6.5.2 *Subschema Administration Attributes*

Item No.	Attribute	Status	Support	Predicate	Note
1	dITStructureRules	m	N		
2	dITContentRules	m	N		
3	matchingRules	m	N		
4	atttributeTypes	m	Y		
5	objectClasses	m	Y		
6	nameForms	m	N		
7	matchingRuleUse	m	N		
8	structuralObjectClass	m	N		
9	governingStructureRule	m	N		

A.6.5.3 *Subschema Administration Matching Rules*

None.

A.6.6 *Access Control* Ref. X.501, clause 16

A.6.6.1 *Access Control Object Classes*

None.

A.6.6.2 *Access Control Attributes*

Item No.	Attribute	Status	Support	Predicate	Note
1	accessControlScheme	m	Y		
2	prescriptiveACI	c: m	Y	SAC-DSA or BAC-DSA	
3	entryACI	c: m	Y	BAC-DSA	
4	subentryACI	c: m	Y	SAC-DSA or BAC-DSA	

A.6.6.3 *Access Control Matching Rules*

None.

A.6.7. *DSA Operational Attributes* Ref. X.501, clause 20

A.6.7.1 *DSA Operational Attribute Object Classes*

None.

A.6.7.2 *DSAOperational Attributes*

Item No.	Attribute Types	Status	Support	Predicate	Note
1	dseType	m	Y		
2	myAccessPoint	m	Y		
3	superiorKnowledge	c: m	Y	A.3.1/3	
4	specificKnowledge	c: m	Y	A.3.1/3	
5	nonSpecificKnowledge	c: m	N	A.3.1/4b	
6	supplierKnowledge	c: m	Y	A.3.1/3	
7	consumerKnowledge	c: m	Y	A.3.1/3	
8	secondaryShadows	o	N		

A.6.7.3 *DSA Operational Matching Rules*

Item No.	Matching Rule	Status	Support	Predicate	Note
1	accessPointMatch	m	N		
2	masterAndShadowAccessPointsMatch	o	N		
3	supplierOrConsumerInformationMatch	o	N		
4	supplierAndConsumerMatch	c: m	N	A.3.1/3	

A.7 *Other information*

The following table can be used to provide any other relevant information:

Index	Other information