
**Information technology — Open Systems
Interconnection — The Directory:
Selected object classes**

*Technologies de l'information — Interconnexion de systèmes ouverts
(OSI) — L'annuaire: Classes d'objets sélectionnées*

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO/IEC 9594-7:2008](https://standards.iteh.ai/catalog/standards/sist/8417cd3f-8510-4b22-88e8-d70f5b2fe0c5/iso-iec-9594-7-2008)

[https://standards.iteh.ai/catalog/standards/sist/8417cd3f-8510-4b22-88e8-
d70f5b2fe0c5/iso-iec-9594-7-2008](https://standards.iteh.ai/catalog/standards/sist/8417cd3f-8510-4b22-88e8-d70f5b2fe0c5/iso-iec-9594-7-2008)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO/IEC 9594-7:2008](https://standards.iteh.ai/catalog/standards/sist/8417cd3f-8510-4b22-88e8-d70f5b2fe0c5/iso-iec-9594-7-2008)

<https://standards.iteh.ai/catalog/standards/sist/8417cd3f-8510-4b22-88e8-d70f5b2fe0c5/iso-iec-9594-7-2008>



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2008

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published by ISO in 2009

Published in Switzerland

CONTENTS

	<i>Page</i>
Foreword	v
Introduction	vi
SECTION 1 – GENERAL	1
1 Scope	1
2 Normative references	1
2.1 Identical Recommendations International Standards	1
3 Definitions	2
3.1 Communication Model definitions.....	2
3.2 Directory Model definitions	2
4 Conventions	2
SECTION 2 – SELECTED OBJECT CLASSES	4
5 Definition of useful attribute sets	4
5.1 Telecommunication attribute set.....	4
5.2 Postal attribute set	4
5.3 Locale attribute set	4
5.4 Organizational attribute set	4
6 Definition of selected object classes	5
6.1 Country.....	5
6.2 Locality.....	5
6.3 Organization	5
6.4 Organizational Unit	5
6.5 Person.....	5
6.6 Organizational Person	6
6.7 Organizational Role	6
6.8 Group of Names	6
6.9 Group of Unique Names.....	6
6.10 Residential Person.....	7
6.11 Application Process	7
6.12 Application Entity	7
6.13 DSA	7
6.14 Device	8
6.15 Strong Authentication User.....	8
6.16 User Security Information.....	8
6.17 Certification Authority	8
6.18 Certification Authority-V2.....	9
6.19 DMD.....	9
6.20 OID Obj1	9
6.21 OID Obj2	9
6.22 OID ObjC.....	9
6.23 UII to URN.....	9
6.24 URN to URL.....	10
SECTION 3 – SELECTED NAME FORMS	11
7 Definition of selected name forms.....	11
7.1 Country name form	11
7.2 Locality name form	11
7.3 State or Province name form	11
7.4 Organization name form.....	11
7.5 Organizational Unit name form.....	11

	<i>Page</i>
7.6 Person name form	11
7.7 Organizational Person name form.....	12
7.8 Organizational Role name form	12
7.9 Group of Names name form	12
7.10 Residential Person name form	12
7.11 Application Process name form.....	12
7.12 Application Entity name form.....	12
7.13 DSA name form.....	12
7.14 Device name form.....	13
7.15 DMD name form.....	13
7.16 OIDC1 name form.....	13
7.17 OIDC2 name form.....	13
7.18 OIDC name form	13
Annex A – Selected object classes and name forms in ASN.1	14
Annex B – Suggested name forms and DIT structures	21
B.1 Country.....	21
B.2 Organization	22
B.3 Locality.....	22
B.4 Organizational Unit	22
B.5 Organizational Person	23
B.6 Organizational Role.....	23
B.7 Group of Names	23
B.8 Residential Person.....	24
B.9 Application Entity	24
B.10 Device	24
B.11 Application Process.....	24
B.12 Alternative Structure Rule for Locality.....	24
Annex C – Amendments and corrigenda.....	26

iTech STANDARD PREVIEW
(standards.itech.ai)

[ISO/IEC 9594-7:2008](https://standards.itech.ai/catalog/standards/sist/8417cd3f-8510-4b22-88e8-d705b21e0c5/iso-iec-9594-7-2008)

<https://standards.itech.ai/catalog/standards/sist/8417cd3f-8510-4b22-88e8-d705b21e0c5/iso-iec-9594-7-2008>

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 9594-7:2008 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*, in collaboration with ITU-T. The identical text is published as ITU-T Rec. X.521 (11/2008).

This sixth edition cancels and replaces the fifth edition (ISO/IEC 9594-7:2005), which has been technically revised.

[ISO/IEC 9594-7:2008](https://standards.iteh.ai/catalog/standards/sist/8417ed36-8510-4b22-88e8-d70f5b2fe0c5/iso-iec-9594-7-2008)

ISO/IEC 9594 consists of the following parts, under the general title *Information technology — Open Systems Interconnection — The Directory*:

- *Part 1: Overview of concepts, models and services*
- *Part 2: Models*
- *Part 3: Abstract service definition*
- *Part 4: Procedures for distributed operation*
- *Part 5: Protocol specifications*
- *Part 6: Selected attribute types*
- *Part 7: Selected object classes*
- *Part 8: Public-key and attribute certificate frameworks*
- *Part 9: Replication*
- *Part 10: Use of systems management for administration of the Directory*

Introduction

This Recommendation | International Standard, together with other Recommendations | International Standards, has been produced to facilitate the interconnection of information processing systems to provide directory services. A set of such systems, together with the directory information that 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.

This Recommendation | International Standard defines a number of attribute sets and object classes which may be found useful across a range of applications of the Directory.

This Recommendation | International Standard provides the foundation frameworks upon which industry profiles can be defined by other standards groups and industry forums. Many of the features defined as optional in these frameworks may be mandated for use in certain environments through profiles. This sixth edition technically revises and enhances, but does not replace, the fifth edition of this Recommendation | International Standard. Implementations may still claim conformance to the fifth edition. However, at some point, the fifth edition will not be supported (i.e., reported defects will no longer be resolved). It is recommended that implementations conform to this sixth edition as soon as possible.

This sixth edition specifies versions 1 and 2 of the Directory protocols.

The first and second editions specified only version 1. Most of the services and protocols specified in this edition are designed to function under version 1. However some enhanced services and protocols, e.g., signed errors, will not function unless all Directory entities involved in the operation have negotiated version 2. Whichever version has been negotiated, differences between the services and between the protocols defined in the six editions, except for those specifically assigned to version 2, are accommodated using the rules of extensibility defined in ITU-T Rec. X.519 | ISO/IEC 9594-5.

Annex A, which is an integral part of this Recommendation | International Standard, provides an ASN.1 module containing all of the type and value definitions which appear in this Recommendation | International Standard.

Annex B, which is not an integral part of this Recommendation | International Standard, provides some common naming and structure rules which may or may not be used by administrative authorities.

Annex C, which is not an integral part of this Recommendation | International Standard, lists the amendments and defect reports that have been incorporated to form this edition of this Recommendation | International Standard.

**INTERNATIONAL STANDARD
ITU-T RECOMMENDATION**

**Information technology – Open Systems Interconnection –
The Directory: Selected object classes**

SECTION 1 – GENERAL

1 Scope

This Recommendation | International Standard defines a number of object classes and name forms which may be found useful across a range of applications of the Directory. The definition of an object class involves listing a number of attribute types which are relevant to objects of that class. The definition of a name form involves naming the object class to which it applies and listing the attributes to be used in forming names for objects of that class. These definitions are used by the administrative authority which is responsible for the management of the directory information.

Any administrative authority can define its own object classes or subclasses and name forms for any purpose.

NOTE 1 – Those definitions may or may not use the notation specified in ITU-T Rec. X.501 | ISO/IEC 9594-2.

NOTE 2 – It is recommended that an object class defined in this Recommendation | International Standard, or a subclass derived from one, or a name form defined in this Recommendation | International Standard, be used in preference to the generation of a new one, whenever the semantics is appropriate for the application.

Administrative authorities may support some or all the selected object classes and name forms, and may also add additional ones.

All administrative authorities shall support the object classes which the directory uses for its own purpose (the top, alias and DSA object classes).

STANDARD PREVIEW
(standards.iteh.ai)

2 Normative references

The following 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 Telecommunication Standardization Bureau of the ITU maintains a list of currently valid ITU-T Recommendations.

2.1 Identical 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.500 (2008) | ISO/IEC 9594-1:2008, *Information technology – Open Systems Interconnection – The Directory: Overview of concepts, models and services.*
- ITU-T Recommendation X.501 (2008) | ISO/IEC 9594-2:2008, *Information technology – Open Systems Interconnection – The Directory: Models.*
- ITU-T Recommendation X.509 (2008) | ISO/IEC 9594-8:2008, *Information technology – Open Systems Interconnection – The Directory: Public-key and attribute certificate frameworks.*
- ITU-T Recommendation X.511 (2008) | ISO/IEC 9594-3:2008, *Information technology – Open Systems Interconnection – The Directory: Abstract service definition.*
- ITU-T Recommendation X.518 (2008) | ISO/IEC 9594-4:2008, *Information technology – Open Systems Interconnection – The Directory: Procedures for distributed operation.*
- ITU-T Recommendation X.519 (2008) | ISO/IEC 9594-5:2008, *Information technology – Open Systems Interconnection – The Directory: Protocol specifications.*
- ITU-T Recommendation X.520 (2008) | ISO/IEC 9594-6:2008, *Information technology – Open Systems Interconnection – The Directory: Selected attribute types.*

- ITU-T Recommendation X.525 (2008) | ISO/IEC 9594-9:2008, *Information technology – Open Systems Interconnection – The Directory: Replication.*
- ITU-T Recommendation X.530 (2008) | ISO/IEC 9594-10:2008, *Information technology – Open Systems Interconnection – The Directory: Use of systems management for administration of the Directory.*
- ITU-T Recommendation X.668 (2008) | ISO/IEC 9834-9:2008, *Information technology – Open Systems Interconnection – Procedures for the operation of OSI Registration Authorities: Registration of object identifier arcs for applications and services using tag-based identification.*
- ITU-T Recommendation X.680 (2008) | ISO/IEC 8824-1:2008, *Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation.*
- ITU-T Recommendation X.681 (2008) | ISO/IEC 8824-2:2008, *Information technology – Abstract Syntax Notation One (ASN.1): Information object specification.*
- ITU-T Recommendation X.682 (2008) | ISO/IEC 8824-3:2008, *Information technology – Abstract Syntax Notation One (ASN.1): Constraint specification.*
- ITU-T Recommendation X.683 (2008) | ISO/IEC 8824-4:2008, *Information technology – Abstract Syntax Notation One (ASN.1): Parameterization of ASN.1 specifications.*

3 Definitions

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

3.1 Communication Model definitions

The following terms are defined in ITU-T Rec. X.519 | ISO/IEC 9594-5:

- a) *application-entity*;
- b) *application process*.

STANDARD PREVIEW
(standards.iteh.ai)

3.2 Directory Model definitions

The following terms are defined in ITU-T Rec. X.501 | ISO/IEC 9594-2:

- a) *attribute*; <https://standards.iteh.ai/catalog/standards/sist/8417cd3f-8510-4b22-88e8-d70f5b2fe0c5/iso-iec-9594-7-2008>
- b) *attribute type*;
- c) *Directory Information Tree (DIT)*;
- d) *Directory System Agent (DSA)*;
- e) *attribute set*;
- f) *entry*;
- g) *name*;
- h) *object class*;
- i) *subclass*;
- j) *name form*;
- k) *structure rule*.

4 Conventions

The term "Directory Specification" (as in "this Directory Specification") shall be taken to mean ITU-T Rec. X.521 | ISO/IEC 9594-7. The term "Directory Specifications" shall be taken to mean the X.500-series Recommendations and all parts of ISO/IEC 9594.

This Directory Specification uses the term *first edition systems* to refer to systems conforming to the first 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.

This Directory Specification uses the term *second edition systems* to refer to systems conforming to the second edition of the Directory Specifications, i.e., the 1993 edition of the series of ITU-T X.500 Recommendations and the ISO/IEC 9594:1995 edition.

This Directory Specification uses the term *third edition systems* to refer to systems conforming to the third edition of the Directory Specifications, i.e., the 1997 edition of the series of ITU-T X.500 Recommendations and the ISO/IEC 9594:1998 edition.

This Directory Specification uses the term *fourth edition systems* to refer to systems conforming to the fourth edition of the Directory Specifications, i.e., the 2001 editions of ITU-T Recs X.500, X.501, X.511, X.518, X.519, X.520, X.521, X.525, and X.530, the 2000 edition of ITU-T Rec. X.509, and parts 1-10 of the ISO/IEC 9594:2001 edition.

This Directory Specification uses the term *fifth edition systems* to refer to systems conforming to the fifth edition of the Directory Specifications, i.e., the 2005 edition of the series of ITU-T X.500 Recommendations and the ISO/IEC 9594:2005 edition.

This Directory Specification uses the term *sixth edition systems* to refer to systems conforming to the sixth edition of the Directory Specifications, i.e., the 2008 edition of the series of ITU-T X.500 Recommendations and the ISO/IEC 9594:2008 edition.

This Directory Specification presents ASN.1 notation in the bold Helvetica typeface. When ASN.1 types and values are referenced in normal text, they are differentiated from normal text by presenting them in the bold Helvetica typeface. The names of procedures, typically referenced when specifying the semantics of processing, are differentiated from normal text by displaying them in bold Times. Access control permissions are presented in italicized Times.

Object classes and name forms are defined in this Directory Specification as values of the **OBJECT-CLASS** and **NAME-FORM** information object classes defined in ITU-T Rec. X.501 | ISO/IEC 9594-2.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[ISO/IEC 9594-7:2008](https://standards.iteh.ai/catalog/standards/sist/8417cd3f-8510-4b22-88e8-d70f5b2fe0c5/iso-iec-9594-7-2008)

<https://standards.iteh.ai/catalog/standards/sist/8417cd3f-8510-4b22-88e8-d70f5b2fe0c5/iso-iec-9594-7-2008>

SECTION 2 – SELECTED OBJECT CLASSES

5 Definition of useful attribute sets**5.1 Telecommunication attribute set**

This set of attributes is used to define those which are commonly used for business communications.

```
TelecommunicationAttributeSet ATTRIBUTE ::= {
    facsimileTelephoneNumber |
    internationalISDNNumber |
    telephoneNumber |
    -- teletexTerminalIdentifier |      Attribute type has been deleted
    telexNumber |
    preferredDeliveryMethod |
    destinationIndicator |
    registeredAddress |
    x121Address }
```

5.2 Postal attribute set

This set of attributes is used to define those which are directly associated with postal delivery.

```
PostalAttributeSet ATTRIBUTE ::= {
    physicalDeliveryOfficeName |
    postalAddress |
    postalCode |
    postOfficeBox |
    streetAddress }
```

iTeh STANDARD PREVIEW
(standards.iteh.ai)

5.3 Locale attribute set

This set of attributes is used to define those which are commonly used for search purposes to indicate the locale of an object.

ISO/IEC 9594-7:2008
<https://standards.iteh.ai/catalog/standards/sist/8417cd3f-8510-4b22-88e8-d70f5b2fe0c5/iso-iec-9594-7-2008>

```
LocaleAttributeSet ATTRIBUTE ::= {
    localityName |
    stateOrProvinceName |
    streetAddress }
```

5.4 Organizational attribute set

This set of attributes is used to define the attributes that an organization or organizational unit may typically possess.

```
OrganizationalAttributeSet ATTRIBUTE ::= {
    description |
    LocaleAttributeSet |
    PostalAttributeSet |
    TelecommunicationAttributeSet |
    businessCategory |
    seeAlso |
    searchGuide |
    userPassword }
```

6 Definition of selected object classes

6.1 Country

A *Country* object class is used to define country entries in the DIT.

```
country OBJECT-CLASS ::= {
  SUBCLASS OF { top }
  MUST CONTAIN { countryName }
  MAY CONTAIN { description | searchGuide }
  ID id-oc-country }
```

6.2 Locality

The *Locality* object class is used to define locality in the DIT.

```
locality OBJECT-CLASS ::= {
  SUBCLASS OF { top }
  MAY CONTAIN { description |
               searchGuide |
               LocaleAttributeSet |
               seeAlso }
  ID id-oc-locality }
```

At least one of Locality Name or State or Province Name shall be present.

6.3 Organization

The *Organization* object class is used to define organization entries in the DIT.

```
organization OBJECT-CLASS ::= {
  SUBCLASS OF { top }
  MUST CONTAIN { organizationName }
  MAY CONTAIN { OrganizationalAttributeSet }
  ID id-oc-organization } ISO/IEC 9594-7:2008
```

<https://standards.iteh.ai/catalog/standards/sist/8417cd3f-8510-4b22-88e8-d70f5b2fe0c5/iso-iec-9594-7-2008>

6.4 Organizational Unit

The *Organizational Unit* object class is used to define entries representing subdivisions of organizations.

```
organizationalUnit OBJECT-CLASS ::= {
  SUBCLASS OF { top }
  MUST CONTAIN { organizationalUnitName }
  MAY CONTAIN { OrganizationalAttributeSet }
  ID id-oc-organizationalUnit }
```

6.5 Person

The *Person* object class is used to define entries representing people generically.

```
person OBJECT-CLASS ::= {
  SUBCLASS OF { top }
  MUST CONTAIN { commonName | surname }
  MAY CONTAIN { description |
               telephoneNumber |
               userPassword |
               seeAlso }
  ID id-oc-person }
```

6.6 Organizational Person

The *Organizational Person* object class is used to define entries representing people employed by, or in some other important way associated with, an organization.

```
organizationalPerson OBJECT-CLASS ::= {
  SUBCLASS OF { person }
  MAY CONTAIN { LocaleAttributeSet |
               PostalAttributeSet |
               TelecommunicationAttributeSet |
               organizationalUnitName |
               title }
  ID          id-oc-organizationalPerson }
```

6.7 Organizational Role

The *Organizational Role* object class is used to define entries representing an organizational role, i.e., a position or role within an organization. An organizational role is normally considered to be filled by a particular organizational person. Over its lifetime, however, an organizational role may be filled by a number of different organizational people in succession. In general, an organizational role may be filled by a person or a non-human entity.

```
organizationalRole OBJECT-CLASS ::= {
  SUBCLASS OF { top }
  MUST CONTAIN { commonName }
  MAY CONTAIN { description |
               LocaleAttributeSet |
               organizationalUnitName |
               PostalAttributeSet |
               preferredDeliveryMethod |
               roleOccupant |
               seeAlso |
               TelecommunicationAttributeSet }
  ID          id-oc-organizationalRole }
```

6.8 Group of Names

ISO/IEC 9594-7:2008

The *Group Of Names* object class is used to define entries representing an unordered set of names which represent individual objects or other groups of names. The membership of a group is static, i.e., it is explicitly modified by administrative action, rather than dynamically determined each time the group is referred to.

The membership of a group can be reduced to a set of individual object's names by replacing each group with its membership. This process could be carried out recursively until all constituent group names have been eliminated, and only the names of individual objects remain.

```
groupOfNames OBJECT-CLASS ::= {
  SUBCLASS OF { top }
  MUST CONTAIN { commonName | member }
  MAY CONTAIN { description |
               organizationName |
               organizationalUnitName |
               owner |
               seeAlso |
               businessCategory }
  ID          id-oc-groupOfNames }
```

6.9 Group of Unique Names

The *Group Of Unique Names* object class is used to define entries representing an unordered set of names whose integrity can be assured and which represent individual objects or other groups of names. The membership of a group is static, i.e., it is explicitly modified by administrative action, rather than dynamically determined each time the group is referred to.