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Information technology — Open systems interconnection —

Part 7: The Directory: Selected object classes

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Foreword

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This document was prepared by ITU-T as ITU-T X.521 (10/2019) and drafted in accordance with its editorial rules, in collaboration with Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*.

This ninth edition cancels and replaces the eighth edition (ISO/IEC 9594-7:2017), which has been technically revised.

A list of all parts in the ISO/IEC 9594 series can be found on the ISO website.

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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 ninth edition technically revises and enhances the eighth edition of this Recommendation | International Standard.

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.

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INTERNATIONAL STANDARD
RECOMMENDATION ITU-T

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 Rec. ITU-T 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 Directory system agent (DSA) object classes).

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

- Recommendation ITU-T X.200 (1994) | ISO/IEC 7498-1:1994, *Information technology – Open Systems Interconnection – Basic Reference Model: The Basic Model.*
- Recommendation ITU-T X.500 (2019) | ISO/IEC 9594-1:2020, *Information technology – Open Systems Interconnection – The Directory: Overview of concepts, models and services.*
- Recommendation ITU-T X.501 (2019) | ISO/IEC 9594-2:2020, *Information technology – Open Systems Interconnection – The Directory: Models.*
- Recommendation ITU-T X.509 (2019) | ISO/IEC 9594-8:2020, *Information technology – Open Systems Interconnection – The Directory: Public-key and attribute certificate frameworks.*
- Recommendation ITU-T X.511 (2019) | ISO/IEC 9594-3:2020, *Information technology – Open Systems Interconnection – The Directory: Abstract service definition.*
- Recommendation ITU-T X.518 (2019) | ISO/IEC 9594-4:2020, *Information technology – Open Systems Interconnection – The Directory: Procedures for distributed operation.*
- Recommendation ITU-T X.519 (2019) | ISO/IEC 9594-5:2020, *Information technology – Open Systems Interconnection – The Directory: Protocol specifications.*
- Recommendation ITU-T X.520 (2019) | ISO/IEC 9594-6:2020, *Information technology – Open Systems Interconnection – The Directory: Selected attribute types.*
- Recommendation ITU-T X.525 (2019) | ISO/IEC 9594-9:2020, *Information technology – Open Systems Interconnection – The Directory: Replication.*

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– Recommendation ITU-T X.680 (2015) | ISO/IEC 8824-1:2015, *Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation*.

– Recommendation ITU-T X.681 (2015) | ISO/IEC 8824-2:2015, *Information technology – Abstract Syntax Notation One (ASN.1): Information object specification*.

– Recommendation ITU-T X.682 (2015) | ISO/IEC 8824-3:2015, *Information technology – Abstract Syntax Notation One (ASN.1): Constraint specification*.

– Recommendation ITU-T X.683 (2015) | ISO/IEC 8824-4:2015, *Information technology – Abstract Syntax Notation One (ASN.1): Parameterization of ASN.1 specifications*.

– Recommendation ITU-T X.690 (2015) | ISO/IEC 8825-1:2015, *Information technology – ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER).*

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 Rec. ITU-T X.519 | ISO/IEC 9594-5:

a) *application-entity*;

b) *application process*.

3.2 Directory Model definitions

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

a) *attribute*;

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 Rec. ITU-T X.521 | ISO/IEC 9594-7. The term "Directory Specifications" shall be taken to mean the Rec. ITU-T X.500 | ISO/IEC 9594-1, Rec. ITU-T X.501 | ISO/IEC 9594-2, Rec. ITU-T X.511 | ISO/IEC 9594-3, Rec. ITU-T X.518 | ISO/IEC 9594-4, Rec. ITU-T X.519 | ISO/IEC 9594-5, Rec. ITU-T X.520 | ISO/IEC 9594-6, Rec. ITU-T X.521 | ISO/IEC 9594-7 and Rec. ITU-T X.525 | ISO/IEC 9594-9.

If an International Standard or ITU-T Recommendation is referenced within normal text without an indication of the edition, the edition shall be taken to be the latest one as specified in the normative references clause.

This Directory Specification makes extensive use of Abstract Syntax Notation One (ASN.1) for the formal specification of data types and values, as it is specified in Rec. ITU-T X.680 | ISO/IEC 8824-1, ITU-T X.681 | ISO/IEC 8824-2, ITU-T X.682 | ISO/IEC 8824-3, ITU-T X.683 | ISO/IEC 8824-4 and Rec. ITU-T X.690 | ISO/IEC 8825-1.

This Directory Specification presents ASN.1 notation in the bold Courier New typeface. When ASN.1 types and values are referenced in normal text, they are differentiated from normal text by presenting them in the bold Courier New typeface. The names of procedures, typically referenced when specifying the semantics of processing, are differentiated

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from normal text by displaying them in bold Times New Roman. Access control permissions are presented in italicized Times New Roman.

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 Rec. ITU-T X.501 | ISO/IEC 9594-2.

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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)
-- 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}
```

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.

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


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