# INTERNATIONAL STANDARD

## ISO/IEC 9594-9

Seventh edition
2017-05

# Information technology — Open Systems Interconnection — The Directory —

## Part 9:
## Replication

*Technologies de l'information — Interconnexion de systèmes ouverts (OSI) — L'annuaire —*

*Partie 9: Duplication*

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**Foreword**

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This seventh edition cancels and replaces the sixth edition (ISO/IEC 9594-9:2014), which has been technically revised.

This document was prepared by ISO/IEC JTC 1, *Information technology*, SC 6, *Telecommunications and information exchange between systems*, in collaboration with ITU-T. The identical text is published as ITU-T X.525 (10/2016).

A list of all parts in the ISO/IEC 9594 series, published under the general title *Information technology — Open Systems Interconnection — The Directory*, can be found on the ISO website.

**CONTENTS**

**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 the replication capabilities provided by Directory system agents (DSAs) to improve the level of service to Directory users.

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

This eighth 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 eight editions, except for those specifically assigned to version 2, are accommodated using the rules of extensibility defined in Rec. ITU-T X.519 | ISO/IEC 9594-5.

Annex A, which is an integral part of this Recommendation | International Standard, provides the ASN.1 module for the Directory shadow abstract service.

Annex B, 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: Replication

## 1    Scope

This Recommendation | International Standard specifies a shadow service which Directory system agents (DSAs) may use to replicate Directory information. The service allows Directory information to be replicated among DSAs to improve service to Directory users. The shadowed information is updated, using the defined protocol, thereby improving the service provided to users of the Directory.

## 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 edition 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.500 (2016) | ISO/IEC 9594-1:2017, *Information technology – Open Systems Interconnection – The Directory: Overview of concepts, models and services.*

–    Recommendation ITU-T X.501 (2016) | ISO/IEC 9594-2:2017, *Information technology – Open Systems Interconnection – The Directory: Models.*

–    Recommendation ITU-T X.509 (2016) | ISO/IEC 9594-8:2017, *Information technology – Open Systems Interconnection – The Directory: Public-key and attribute certificate frameworks.*

–    Recommendation ITU-T X.511 (2016) | ISO/IEC 9594-3:2017, *Information technology – Open Systems Interconnection – The Directory: Abstract service definition.*

–    Recommendation ITU-T X.518 (2016) | ISO/IEC 9594-4:2017, *Information technology – Open Systems Interconnection – The Directory: Procedures for distributed operation.*

–    Recommendation ITU-T X.519 (2016) | ISO/IEC 9594-5:2017, *Information technology – Open Systems Interconnection – The Directory: Protocol specifications.*

–    Recommendation ITU-T X.520 (2016) | ISO/IEC 9594-6:2017, *Information technology – Open Systems Interconnection – The Directory: Selected attribute types.*

–    Recommendation ITU-T X.521 (2016) | ISO/IEC 9594-7:2017, *Information technology – Open Systems Interconnection – The Directory: Selected object classes.*

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

## 3    Definitions

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

### 3.1    Basic Directory definitions

The following term is defined in Rec. ITU-T X.500 | ISO/IEC 9594-1:

–    *(the) Directory*.