



INTERNATIONAL TELECOMMUNICATION UNION

**ITU-T**

TELECOMMUNICATION  
STANDARDIZATION SECTOR  
OF ITU

**X.662**

(08/2004)

SERIES X: DATA NETWORKS AND OPEN SYSTEM  
COMMUNICATIONS

OSI networking and system aspects – Naming,  
Addressing and Registration

---

**Information technology – Open Systems  
Interconnection – Procedures for the operation  
of OSI Registration Authorities: Registration of  
object identifier arcs beneath the top-level arc  
jointly administered by ISO and ITU-T**

ITU-T Recommendation X.662

---

ITU-T X-SERIES RECOMMENDATIONS  
DATA NETWORKS AND OPEN SYSTEM COMMUNICATIONS

<b>PUBLIC DATA NETWORKS</b>	
Services and facilities	X.1–X.19
Interfaces	X.20–X.49
Transmission, signalling and switching	X.50–X.89
Network aspects	X.90–X.149
Maintenance	X.150–X.179
Administrative arrangements	X.180–X.199
<b>OPEN SYSTEMS INTERCONNECTION</b>	
Model and notation	X.200–X.209
Service definitions	X.210–X.219
Connection-mode protocol specifications	X.220–X.229
Connectionless-mode protocol specifications	X.230–X.239
PICS proformas	X.240–X.259
Protocol Identification	X.260–X.269
Security Protocols	X.270–X.279
Layer Managed Objects	X.280–X.289
Conformance testing	X.290–X.299
<b>INTERWORKING BETWEEN NETWORKS</b>	
General	X.300–X.349
Satellite data transmission systems	X.350–X.369
IP-based networks	X.370–X.399
MESSAGE HANDLING SYSTEMS	X.400–X.499
DIRECTORY	X.500–X.599
<b>OSI NETWORKING AND SYSTEM ASPECTS</b>	
Networking	X.600–X.629
Efficiency	X.630–X.639
Quality of service	X.640–X.649
<b>Naming, Addressing and Registration</b>	<b>X.650–X.679</b>
Abstract Syntax Notation One (ASN.1)	X.680–X.699
<b>OSI MANAGEMENT</b>	
Systems Management framework and architecture	X.700–X.709
Management Communication Service and Protocol	X.710–X.719
Structure of Management Information	X.720–X.729
Management functions and ODMA functions	X.730–X.799
SECURITY	X.800–X.849
<b>OSI APPLICATIONS</b>	
Commitment, Concurrency and Recovery	X.850–X.859
Transaction processing	X.860–X.879
Remote operations	X.880–X.899
OPEN DISTRIBUTED PROCESSING	X.900–X.999
TELECOMMUNICATION SECURITY	X.1000–

*For further details, please refer to the list of ITU-T Recommendations.*

**Information technology – Open Systems Interconnection – Procedures for the operation of OSI  
Registration Authorities: Registration of object identifier arcs beneath the top-level arc jointly  
administered by ISO and ITU-T**

**Summary**

This Recommendation | International Standard specifies the procedures for operating the International Registration Authority for assignment of values to ASN.1 object identifier arcs beneath the top-level arc {joint-iso-itu-t}. Assignment of the authority to allocate arcs beneath such arcs is either given to a specific area of work approved jointly by ISO/IEC and ITU-T (and is normally recorded in Recommendations | International Standards) or is given to an international organization producing open standards.

**Source**

ITU-T Recommendation X.662 was approved on 22 August 2004 by ITU-T Study Group 17 (2001-2004) under the ITU-T Recommendation A.8 procedure. An identical text is also published as ISO/IEC 9834-3.

## FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

## NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure e.g. interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

## INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

© ITU 2005

All rights reserved. No part of this publication may be reproduced, by any means whatsoever, without the prior written permission of ITU.

## CONTENTS

	<i>Page</i>
1 Scope .....	1
2 Normative references .....	1
2.1 Identical Recommendations   International Standards .....	1
3 Definitions .....	1
3.1 ASN.1 terms .....	1
3.2 Directory terms .....	1
3.3 RH-name-tree and object identifier tree terms .....	2
3.4 Additional definitions .....	2
4 Abbreviations .....	2
5 General information .....	2
6 Elements of information of register entries .....	2
7 Procedures .....	3
7.1 Maintenance of the register .....	3
7.2 Recording of entries .....	3
7.3 Deletion of entries .....	3
7.4 Change of entries .....	3
7.5 Resolving disputes .....	3
Annex A – Proforma for registration .....	5
A.1 Key to register entries .....	5
A.2 An example of a possible registration entry for joint ISO and ITU-T work.....	5
A.3 An example of a possible registration entry for an international organization.....	5

## Introduction

ITU-T Rec. X.660 | ISO/IEC 9834-1 defines procedures for registration to meet requirements for assignment of unambiguous names (e.g., object identifiers as specified in ITU-T Rec. X.680 | ISO/IEC 8824-1, or Distinguished Names as specified in ITU-T Rec. X.501 | ISO/IEC 9594-2) to objects (distinguishable entities). These registration procedures are generally applicable to registration independent of the type of object involved. In particular, ITU-T Rec. X.660 | ISO/IEC 9834-1 defines the registration-hierarchical-name-tree, which is a tree whose nodes correspond to objects that are registered and whose non-leaf nodes may be Registration Authorities. ITU-T Rec. X.660 | ISO/IEC 9834-1 also defines procedures for the delegation of authority for the assignment of names in order to ensure that names are unambiguous.

The root of the ASN.1 object identifier tree is ITU-T Rec. X.660 | ISO/IEC 9834-1. There are three top-level arcs:

Primary integer value	Secondary identifier
0	<code>itu-t</code>
1	<code>iso</code>
2	<code>joint-iso-itu-t</code>

NOTE 1 – In accordance with ITU-T Rec. X.680 | ISO/IEC 8824-1, the secondary identifiers `ccitt` and `joint-iso-ccitt` may be used as synonyms for `itu-t` and `joint-iso-itu-t`, respectively.

NOTE 2 – `itu-r` is an additional secondary identifier for top-level arc 0.

The Registration Authority for the nodes identified by the top-level arcs `itu-t(0)` and `iso(1)` are provided by ITU-T Rec. X.660 | ISO/IEC 9834-1, Annex A. Further discussion is beyond the scope of this Recommendation | International Standard.

The Registration Authority identified by `{joint-iso-itu-t(2)}` is the "International Registration Authority for assignment of values to ASN.1 object identifier arcs beneath the top-level arc jointly administered by ISO and ITU-T". The operations of this Registration Authority<sup>1)</sup> are specified by this Recommendation | International Standard.

This Recommendation | International Standard is concerned with a Registration Authority which performs a purely administrative role as defined in ITU-T Rec. X.660 | ISO/IEC 9834-1.

---

<sup>1)</sup> The Registration Authority for the assignment of arcs for joint ISO/IEC and ITU-T work is the American National Standards Institute (ANSI), <http://www.ansi.org>.

**INTERNATIONAL STANDARD  
ITU-T RECOMMENDATION****Information technology – Open Systems Interconnection – Procedures for the operation of OSI Registration Authorities: Registration of object identifier arcs beneath the top-level arc jointly administered by ISO and ITU-T****1 Scope**

This Recommendation | International Standard specifies the procedures for operating the International Registration Authority for assignment of values to ASN.1 object identifier arcs beneath the top-level arc jointly administered by ISO and ITU-T.

**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**

- ITU-T Recommendation X.501 (2001) | ISO/IEC 9594-2:2001, *Information technology – Open Systems Interconnection – The Directory: Models*.
- ITU-T Recommendation X.660 (2004) | ISO/IEC 9834-1:2004, *Information technology – Open Systems Interconnection – Procedures for the operation of OSI Registration Authorities: General procedures*.
- ITU-T Recommendation X.680 (2002) | ISO/IEC 8824-1:2002, *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 ASN.1 terms**

This Recommendation | International Standard uses the following terms defined in ITU-T Rec. X.680 | ISO/IEC 8824-1:

- a) object;
- b) object identifier.

**3.2 Directory terms**

This Recommendation | International Standard uses the following terms defined in ITU-T Rec. X.501 | ISO/IEC 9594-2:

- a) Directory name;
- b) relative distinguished name.

### 3.3 RH-name-tree and object identifier tree terms

This Recommendation | International Standard uses the following terms defined in ITU-T Rec. X.660 | ISO/IEC 9834-1:

- a) additional secondary identifier;
- b) primary integer value;
- c) Registration Authority;
- d) Registration-hierarchical-name (RH-name);
- e) Registration-hierarchical-name-tree (RH-name-tree);
- f) secondary value.

### 3.4 Additional definitions

**3.4.1 register:** The collection of all the entries registered by the registrar.

**3.4.2 RH-name-tree node name:** A type of RH-name that identifies a node in the RH-name-tree.

## 4 Abbreviations

For the purposes of this Recommendation | International Standard, the following abbreviations apply:

ASN.1	Abstract Syntax Notation One
RH-name-tree	Registration-hierarchical-name-tree

## 5 General information

**5.1** The Registration Authority performs a purely administrative role in recording decisions made by the appropriate ITU-T Study Group | ISO/IEC Subcommittee or ISO Technical Committee on the addition of an entry to the register.

**5.2** Where an allocation is made to an international organization or to an area of joint work, the responsible officers shall ensure that an appropriate tree of Registration Authorities be established in order to record all subsequent allocations.

## 6 Elements of information of register entries

**6.1** The elements of information of a register entry shall be:

- a) the name of a node in the RH-name-tree, composed of a primary integer value and (optionally) a secondary value (a secondary identifier) drawn from the character set specified for an "identifier" in ITU-T Rec. X.680 | ISO/IEC 8824-1, 11.3 (together forming an instance of the "NameAndNumberForm" for "ObjIdComponent" – see ITU-T Rec. X.680 | ISO/IEC 8824-1, 31.3), each primary integer value of which shall be unique within a register;

NOTE – ITU-T Rec. X.680 | ISO/IEC 8824-1, 11.3, specifies that an "identifier" shall consist of an arbitrary number (one or more) of letters, digits and hyphens and that the initial character shall be a lower-case letter and that the last character shall not be a hyphen and that a hyphen shall not be immediately followed by a hyphen.

- b) either:
  - 1) an area of joint ISO/IEC and ITU-T work in which the value is to be applied, specified by the ISO work item number and number of the International Standard in which the RH-name-tree node is specified, and the ITU-T Study Group, Study Period, and Question, and the number of the ITU-T (or CCITT) Recommendation in which the RH-name-tree node is specified, and a brief title; or
  - 2) an international organization producing open standards;  
EXAMPLE – The Universal Postal Union (UPU) or the Organization for the Advancement of Structured Information Standards (OASIS) are examples of such international organizations.
- c) status of the entry indicating whether the entry is "active" or "deleted"; and
- d) either:
  - 1) a "Responsible Officer" nominated by ISO/IEC and a "Responsible Officer" nominated by ITU-T, who will jointly agree on the assignment of RH-name-tree nodes within the area of work; or



- 2) a "Responsible Officer" in the international organization to which the subordinate node(s) are being assigned.

**6.2** The registration entry shall be identified by the object identifier derived from the RH-name-tree node name, as specified in ITU-T Rec. X.660 | ISO/IEC 9834-1, Annex A.

## **7 Procedures**

### **7.1 Maintenance of the register**

A register is to be maintained, recording for each entry the information required by clause 6.

### **7.2 Recording of entries**

**7.2.1** The register is to have new entries added as the result of simple resolutions by the appropriate ISO/IEC Subcommittee or ISO Technical Committee, ratified by decisions of the appropriate ITU-T Study Group, or as the result of decisions by the appropriate ITU-T Study Group, ratified by simple resolutions by the appropriate ISO/IEC Subcommittee or ISO Technical Committee.

**7.2.2** The secondary identifier of the arc beneath top-level arc 2 shall be requested by the Responsible Officers of ISO/IEC and ITU-T or of the international organization. If the secondary identifier is already assigned within the register, or otherwise deemed inappropriate by the Registration Authority, the request shall be rejected by the Registration Authority. Otherwise the secondary identifier shall be assigned.

**7.2.3** The primary integer value of the arc shall be assigned by the International Registration Authority. This value shall normally be increased sequentially by the positive integer one, i.e., +1, above the last assigned primary integer value in the register.

### **7.3 Deletion of entries**

**7.3.1** The status entry shall be updated upon activation or deletion of an entry.

**7.3.2** Entries shall be marked as deleted (but still retained) as the result of simple resolutions by the appropriate ISO/IEC Subcommittee or ISO Technical Committee, ratified by decisions of the appropriate ITU-T Study Group, or as the result of decisions by the appropriate ITU-T Study Group, ratified by simple resolutions by the appropriate ISO/IEC Subcommittee or ISO Technical Committee, when no further assignments of object identifiers are expected in the area of work. The primary integer values (and the secondary identifiers) of arcs marked as deleted shall never be reused for a new arc.

### **7.4 Change of entries**

**7.4.1** Entries shall not be changed except to replace the ISO/IEC "Responsible Officer" or project number, or the ITU-T "Responsible Officer" or Question identification.

**7.4.2** The former changes shall require a simple resolution of the ISO/IEC Subcommittee or ISO Technical Committee involved in the work, notified in writing to the International Registration Authority.

**7.4.3** The latter changes shall require a decision of the ITU-T Study Group involved in the work, notified in writing to the International Registration Authority.

### **7.5 Resolving disputes**

**7.5.1** It may come to pass that a dispute in the operation of the register may arise. For example, a secondary identifier may be requested which has already been assigned in the register. Disputes shall be resolved in the following manner.

**7.5.2** The international registrar shall inform the ISO/IEC Responsible Officer and the ITU-T Responsible Officer that a dispute has occurred and requires resolution.

**7.5.3** The Responsible Officers shall attempt to expedite the resolution of the dispute.

**7.5.4** If the Responsible Officers are unable to resolve the dispute, the Convenor of the concerned ISO/IEC Working Group and the Chairman of the concerned ITU-T Working Party shall attempt to expedite the resolution of the dispute.

**ISO/IEC 9834-3:2005 (E)**

**7.5.5** In the event that the Convenor and the Chairman are unable to resolve the dispute, an arc leading to a joint ISO/IEC and ITU-T RH-name-tree node shall not be assigned by the International Registration Authority that assigns values to RH-name-tree arcs beneath arc 2.

## Annex A

### Proforma for registration

(This annex does not form an integral part of this Recommendation | International Standard)

#### A.1 Key to register entries

- i) Primary integer and secondary identifier values allocated to the arc leading to an RH-name-tree node beneath arc 2.  
(Multiple values can be allocated to the same organization or area of joint work in a single register entry, by providing a list of identifiers and arc numbers in entry i.)
- ii) Brief title and area of work.
- iii) ISO Work Item number, if applicable.
- iv) ISO Standard number and date, if applicable.
- v) ITU-T Question identification, if applicable.
- vi) ITU-T Recommendation number and date, if applicable.
- vii) ISO "Responsible Officer" or the "Responsible Officer" in the international organization.
- viii) ITU-T "Responsible Officer" or the "Responsible Officer" in the international organization.
- ix) Status – active/deleted.

#### A.2 An example of a possible registration entry for joint ISO and ITU-T work

i) asn1 (1)	ii) ASN.1	ix) active
iii) 97.21.17.3-4	v) (85-88) Q. 40/VII (now Q.12/17)	
iv) ISO/IEC 8824:1987 [now ISO/IEC 8824-1 (2002)]	vi) X.208:1988 (now ITU-T Rec. X.680:2002)	
vii) ISO ASN.1 Rapporteur	viii) ITU-T ASN.1 Rapporteur	

#### A.3 An example of a possible registration entry for an international organization

i) tcs (400) org-x-admin (401) org-x-projects (402) org-x-other (403)	ii) org-x	ix) active
iii) N/A	v) N/A	
iv) N/A	vi) N/A	
vii) Standards liaison officer in org-x	viii) Standards liaison officer in org-x	

NOTE – It is likely that if this example register entry were approved, then org-x would be approved as an additional secondary identifier for `joint-iso-itu-t` (see ITU-T Rec. X.660 | ISO/IEC 9834-1, A.5).





## SERIES OF ITU-T RECOMMENDATIONS

Series A	Organization of the work of ITU-T
Series D	General tariff principles
Series E	Overall network operation, telephone service, service operation and human factors
Series F	Non-telephone telecommunication services
Series G	Transmission systems and media, digital systems and networks
Series H	Audiovisual and multimedia systems
Series I	Integrated services digital network
Series J	Cable networks and transmission of television, sound programme and other multimedia signals
Series K	Protection against interference
Series L	Construction, installation and protection of cables and other elements of outside plant
Series M	TMN and network maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits
Series N	Maintenance: international sound programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Telephone transmission quality, telephone installations, local line networks
Series Q	Switching and signalling
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
Series T	Terminals for telematic services
Series U	Telegraph switching
Series V	Data communication over the telephone network
<b>Series X</b>	<b>Data networks and open system communications</b>
Series Y	Global information infrastructure, Internet protocol aspects and Next Generation Networks
Series Z	Languages and general software aspects for telecommunication systems