

International Telecommunication Union

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

X.662

(08/2008)

SERIES X: DATA NETWORKS, OPEN SYSTEM
COMMUNICATIONS AND SECURITY

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, OPEN SYSTEM COMMUNICATIONS AND SECURITY

PUBLIC DATA NETWORKS	
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
OPEN SYSTEMS INTERCONNECTION	
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
INTERWORKING BETWEEN NETWORKS	
General	X.300–X.349
Satellite data transmission systems	X.350–X.369
IP-based networks	X.370–X.379
MESSAGE HANDLING SYSTEMS	X.400–X.499
DIRECTORY	X.500–X.599
OSI NETWORKING AND SYSTEM ASPECTS	
Networking	X.600–X.629
Efficiency	X.630–X.639
Quality of service	X.640–X.649
Naming, Addressing and Registration	X.650–X.679
Abstract Syntax Notation One (ASN.1)	X.680–X.699
OSI MANAGEMENT	
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
OSI APPLICATIONS	
Commitment, Concurrency and Recovery	X.850–X.859
Transaction processing	X.860–X.879
Remote operations	X.880–X.889
Generic applications of ASN.1	X.890–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

ITU-T Recommendation X.662 | ISO/IEC 9834-3 specifies the procedures for operating the International Registration Authority for assignment of values to object identifier arcs beneath the top-level arc with primary integer value 2, Unicode label **Joint-ISO-ITU-T** and secondary identifier **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.

Source

ITU-T Recommendation X.662 was approved on 29 August 2008 by ITU-T Study Group 17 (2005-2008) under 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, information and communication technologies (ICTs). 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, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <http://www.itu.int/ITU-T/ipr/>.

© ITU 2009

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 International Object Identifier tree terms.....	1
3.3 Additional definitions	2
4 Abbreviations	2
5 General information	2
6 Elements of information of a register entry	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	4
7.5 Resolving disputes	4
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 X.....	5

Introduction

ITU-T Rec. X.660 | ISO/IEC 9834-1 defines procedures for registration to meet requirements for assignment of unambiguous names to objects. 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 International Object Identifier 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 International Object Identifier tree supports the ASN.1 object identifier and OID internationalized resource identifier types.

The root of the International Object Identifier tree is ITU-T Rec. X.660 | ISO/IEC 9834-1. There are three root arcs from this root:

<i>Primary integer value</i>	<i>Resulting integer-valued Unicode label</i>	<i>(Non-integer) Unicode label</i>	<i>Secondary identifier</i>
0	"0"	"ITU-T"	itu-t
1	"1"	"ISO"	iso
2	"2"	"Joint-ISO-ITU-T"	joint-iso-itu-t

The Registration Authority for the nodes identified by the top-level arcs with primary integer values 0 and 1 (Unicode labels "ITU-T" and "ISO") 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 operation of the Registration Authority for the node identified by the joint arc (see 3.3) is specified in this Recommendation | International Standard. The corresponding register is called the "Register of arcs beneath the top arc with primary integer value 2".

**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 adding or modifying entries in the "Register of arcs beneath the top level arc with primary integer value 2" and for the publication of such entries.

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.660 (2008) | ISO/IEC 9834-1:2008, *Information technology – Open Systems Interconnection – Procedures for the operation of OSI Registration Authorities: General procedures and top arcs of the International Object Identifier tree.*
- ITU-T Recommendation X.680 (2008) | ISO/IEC 8824-1:2008, *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 identifier type;
- b) OID internationalized resource identifier type.

3.2 International 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) additional Unicode label;
- c) integer-valued Unicode label;
- d) International Object Identifier tree;

- e) Joint ITU-T | ISO/IEC JTC 1 Collaborative Team for object identifiers;
- f) long arc;
- g) non-integer Unicode label;
- h) primary integer value;
- i) Registration Authority;
- j) relevant ITU-T Study Group;
- k) relevant ISO/IEC JTC 1 Sub-Committee;
- l) secondary identifier;
- m) Unicode label.

3.3 Additional definitions

3.3.1 joint arc: The root arc of the International Object Identifier tree that has primary integer value 2, Unicode label "Joint-ISO-ITU-T" and secondary identifier `joint-iso-itu-t`.

4 Abbreviations

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

- ASN.1 Abstract Syntax Notation One
- OID Object Identifier

5 General information

5.1 When a new arc is allocated beneath the joint arc, it identifies an international organization or an area of joint work between ITU-T and ISO.

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.

5.3 The allocation determines the primary integer value and optionally one or more Unicode labels and secondary identifiers for the new arc.

5.4 The allocation may also add a new long arc from the root to directly identify the new node in accordance with ITU-T Rec. X.660 | ISO 9834-1, A.6. It may also add additional secondary identifiers or additional Unicode labels to the joint arc in accordance with ITU-T Rec. X.660 | ISO 9834-1, A.7.

NOTE – The provision for additional secondary identifiers or additional Unicode labels on the root nodes pre-dated the provision for long arcs. The long arc mechanism would normally be preferred.

6 Elements of information of a register entry

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

- a) the identification of a new node (Registration Authority) in the International Object Identifier tree by assigning a primary value and names to a new arc beneath the joint arc; the names shall consist of:
 - 1) an integer-valued Unicode label (defined by the primary integer value) and;
 - 2) (optionally) one or more non-integer Unicode labels; and
 - 3) (optionally) one or more secondary identifiers;
- b) either:
 - 1) an area of joint ISO/IEC and ITU-T work which will be the Registration Authority responsible for the allocation of a sub-tree beneath the arc specified in a) above, specified by the ISO project number and the number of the International Standard in which the sub-tree arcs will be specified, and the ITU-T Study Group, Study Period, and Question, and the number of the ITU-T (or CCITT) Recommendation in which the sub-tree arcs will be specified, and a brief title; or

- 2) an international organization which will be the Registration Authority responsible for the allocation of a sub-tree beneath the arc specified in a) above;
 EXAMPLE – The Universal Postal Union (UPU) or the Organization for Advancing Open Standards for the Information Society (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 sub-tree arcs within the area of work; or
 - 2) a "Responsible Officer" in the international organization that is responsible for the assignment of sub-tree arcs for that organization.

6.2 The registration entry for an arc from the joint arc shall be identified by specifying that it is the entry for an arc from the joint arc and by giving its primary integer value. An alternative form of identification would be by the use of an IRI/URI value (see ITU-T Rec. X.660 | ISO/IEC 9834-1, Annex F), with either two Unicode labels or a single Unicode label for the long arc (if one has been allocated).

7 Procedures

7.1 Maintenance of the register

The "Register of arcs beneath the root arc with primary integer value 2" is to be maintained in accordance with ITU-T Rec. X.660 | ISO/IEC 9834-1, A.8.1.4, recording for each entry the information required by clause 6, using the proforma in Annex A or otherwise.

NOTE – It is recommended that the Register be made publicly available through the OID repository at <http://www.oid-info.com/get/2>.

7.2 Recording of entries

7.2.1 The register is to have new entries added as the result of simple resolutions by the relevant ISO/IEC JTC 1 Sub-Committee, ratified by decisions of the relevant ITU-T Study Group, or as the result of decisions by the relevant ITU-T Study Group, ratified by simple resolutions by the relevant ISO/IEC JTC 1 Sub-Committee.

7.2.2 The non-integer Unicode labels (if any) and secondary identifiers (if any) of the arc beneath joint arc shall be requested by the Responsible Officers of ISO/IEC and ITU-T (see 6.1.d.1) or of the international organization (see 6.1.d.2) as specified in ITU-T Rec. X.660 | ISO/IEC 9834-1, A.8.2. If a requested Unicode label or secondary identifier is already assigned within the register, or otherwise deemed inappropriate by the International Registration Authority, the request shall be rejected by the Registration Authority. Otherwise, the non-integer Unicode label and secondary identifiers shall be assigned.

7.2.3 The primary integer value (defining the integer-valued Unicode label) 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.

NOTE – The top two arcs of the International Object Identifier tree will encode into a single octet in an ASN.1 object identifier encoding if and only if the primary integer value is in the range 0 to 47, and allocations may be made from 48 upwards if a short identification is not considered necessary for this application.

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 relevant ISO/IEC JTC 1 Sub-Committee, ratified by decisions of the relevant ITU-T Study Group, or as the result of decisions by the relevant ITU-T Study Group, ratified by simple resolutions by the relevant ISO/IEC JTC 1 Sub-Committee, when no further assignments of object identifiers are expected in the area of work. The primary integer values (defining the integer-valued Unicode labels) and the non-integer Unicode labels 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 "Responsible Officers" or project number, or the ITU-T Question identification.

7.4.2 These changes shall be done as an administrative action on receipt of notification of the required change by either the relevant ITU-T Study Group or the relevant ISO/IEC JTC 1 Sub-Committee.

7.5 Resolving disputes

7.5.1 It may come to pass that a dispute in the operation of the registration process may arise. For example, a non-integer Unicode label or 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 Joint ITU-T | ISO/IEC JTC 1 Collaborative Team for object identifiers shall inform the Responsible Officers 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 Chairman of the relevant ISO/IEC JTC 1 Sub-Committee and the Chairman of the relevant ITU-T Study Group shall attempt to expedite the resolution of the dispute.

7.5.5 In the event that the Chairmen are unable to resolve the dispute, a new arc shall not be assigned.

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 value (defining the integer-valued Unicode label) and any Unicode labels and/or secondary identifiers allocated to the arc from the joint arc.
- ii) Brief title and area of work.
- iii) ISO project number, if applicable.
- iv) ISO Standard number and date, if applicable.
- v) ITU-T Question identification, if applicable.
- vi) Recommendation ITU-T 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) Primary integer value: 1 Unicode labels: "ASN.1" Secondary identifier: asn1	ii) ASN.1 & OID Work	ix) active
iii) 97.06.50-53	v) (2004-2008) Q.10/17	
iv) ISO/IEC 8824:2008	vi) ITU-T Rec. X.680:2008	
vii) ISO ASN.1 Convenor	viii) ITU-T ASN.1 Rapporteur	

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

i) Primary integer value: 50 Unicode Labels: "ORG-X" Secondary identifier: org-x	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 "**Organization_X**" would also be approved as a Unicode label for a long arc to this node.

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	Telecommunication management, including TMN and network maintenance
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
Series X	Data networks, open system communications and security
Series Y	Global information infrastructure, Internet protocol aspects and next-generation networks
Series Z	Languages and general software aspects for telecommunication systems