INTERNATIONAL TELECOMMUNICATION UNION

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STANDARDIZATION SECTOR
OF ITU

X.660

Amendment 2
(08/97)

SERIES X: DATA NETWORKS AND OPEN SYSTEM COMMUNICATION

OSI networking and system aspects – Naming, Addressing and Registration

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Information technology – Open Systems Interconnection – Procedures for the operation of OSI Registration Authorities: General procedures

Amendment 2: Incorporation of the root arcs of the object identifier tree

ITU-T Recommendation X.660 – Amendment 2

(Previously CCITT Recommendation)

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INTERNATIONAL STANDARD 9834-1

ITU-T RECOMMENDATION X.660

INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION – PROCEDURES FOR THE OPERATION OF OSI REGISTRATION AUTHORITIES: GENERAL PROCEDURES

AMENDMENT 2
Incorporation of the root arcs of the object identifier tree

Summary

This Amendment identifies the text that is to be moved or copied from Recommendation X.680 to Recommendation X.660, in particular the text that pertains to general registration principles and registration aspects of object ID naming, including the specification of the top level arcs of registration-hierarchical-name-tree.

Source

The ITU-T Recommendation X.660, Amendment 2 was approved on the 9th of August 1997. The identical text is also published as ISO/IEC International Standard 9834-1.

FOREWORD

ITU (International Telecommunication Union) is the United Nations Specialized Agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the ITU. The 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 Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 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.

INTELLECTUAL PROPERTY RIGHTS

The ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. The 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, the 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.

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1) Subclause 2.1

Add the following references:

- ITU-T Recommendation X.680 (1994) | ISO/IEC 8824-1:1995, *Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation.*
- ITU-T Recommendation X.690 (1994) | ISO/IEC 8825-1:1995, *Information technology – ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER).*
- ITU-T Recommendation X.662 (1997) | ISO/IEC 9834-3:1997, *Information technology – Open Systems Interconnection – Procedures for the operation of OSI Registration Authorities: Registration of values to RH-name-tree components for joint ISO and ITU-T use*

2) Subclause 2.2

Delete references to CCITT Recommendation X.200 (1988) and ISO 7498:1984.

3) Subclause 3.5

Replace this subclause by:

3.5 The following terms are used in this Recommendation | International Standard, and are defined in ITU-T Rec. X.680 | ISO/IEC 8824-1:

a) object;

b) Object Descriptor type;

c) object identifier type.

4) Subclause 6.1

Introduce new clause heading **6.1 General***, and renumber the existing paragraphs as* 6.1.1, 6.1.2, *etc.*

5) Subclause 6.2

Replace the existing 6.2 by the following:

6.2 Object identifiers

6.2.1 An object identifier type, as specified in ITU-T Rec. X.680 | ISO/IEC 8824-1, is an ASN.1 type whose abstract values are associated with a specific form of RH-name. The semantics of an object identifier value are defined by reference to an **object identifier tree**. An object identifier tree is a subtree of the RH name tree whose root corresponds to this Recommendation | International Standard and whose vertices correspond to administrative authorities responsible for allocating arcs from that vertex. Each arc of the tree is labelled by an object identifier component value which is a numeric value.

An arc may (but need not) also have associated with it an identifier. The identifier of an arc is required to commence with a lower case letter, and to contain only letters, digits, and hyphens. The last character shall not be a hyphen, nor shall there be two consecutive hyphens in the name.

From any given vertex, the numeric value and (if present) the identifier for arcs from that vertex are all required to be distinct.

Each object to be identified is allocated precisely one vertex (normally, but not necessarily, a leaf), and no other object (of the same or a different type) is allocated to that same vertex. Thus, an object is uniquely and unambiguously identified by the sequence of numeric values (object identifier component values) labelling the arcs in a path from the root to the vertex allocated to the object.

NOTE 1 – The authorities allocating numeric values and identifiers to object identifier components are identified in the annexes to this Recommendation | International Standard.

NOTE 2 – Object identifier values contain at least two object identifier components, as specified in Annexes A to C.

6.2.2 An object identifier value is semantically an ordered list of object identifier component values. Starting with the root of the object identifier tree, each object identifier component value identifies an arc in the object identifier tree. The last object identifier component value identifies an arc leading to a vertex to which an object has been assigned. It is this object which is identified by the object identifier value.

The significant part of an object identifier component is the numeric value. The identifier (if present) aids human readability but is not used in computer communication.

NOTE 1 – In general, an object is a class of information (for example, a file format), rather than an instance of such a class (for example, an individual file). It is thus the class of information (defined by some referenceable specification), rather than the piece of information itself, that is assigned a place in the tree.

NOTE 2 – It is recommended that, whenever a Recommendation, International Standard or other document assigns object identifier values to identify objects, there should be an appendix or annex which summarizes the assignments made therein. It is also recommended that an authority assigning an object identifier value to identify an object should also assign a value of ASN.1 type ObjectDescriptor to describe that object.

NOTE 3 – ITU-T Rec. X.680 | ISO/IEC 8824-1 defines a number of syntactic forms for the specification of object identifier values within an ASN.1 module. Where these syntactic forms make no use of ASN.1 value references, they are independent of the ASN.1 environment and can be used to specify object identifier values outside of ASN.1 modules.

NOTE 4 – ITU-T Rec. X.690 | ISO/IEC 8825-1 defines an encoding of object identifier values that can be used in computer communication.

NOTE 5 – Examples of the ASN.1 syntactic forms for the specification of object identifier values are given in clause 29 of ITU-T Rec. X.680 | ISO/IEC 8824-1.

6) Annex A

Replace the existing Annex A by the following annexes, and reletter the existing annexes:

Annex A

ISO assignment of OBJECT IDENTIFIER component values

(This annex forms an integral part of this Recommendation | International Standard)

A.1 Three arcs are specified from the root node. The assignment of values and identifiers, and the authority for assignment of subsequent component values, are as follows:

Value	*Identifier*	*Authority for subsequent assignments*
0	itu-t	ITU-T
1	iso	ISO
2	joint-iso-itu-t	See Annex C

NOTE 1 – The ASN.1 encoding of object identifier values specified in ITU-T Rec. X.690 | ISO/IEC 8825-1 assumes that there are only three arcs allocated from the root node (with object identifier component values of 0, 1, and 2), and at most 40 arcs from the first two of these arcs (with object identifier component values of 0 to 39). Any change to this situation would require modification of that text before it could be supported.

NOTE 2 – The remainder of this annex concerns itself only with ISO assignment of values.

A.2 The identifiers "ccitt" and "joint-iso-ccitt" are synonyms for "itu-t" and "joint-iso-itu-t", respectively, and thus may appear in syntax specifying object identifier values.

A.3 Three arcs are specified from the node identified by "iso". The assignment of values and identifiers is:

Value	*Identifier*	*Authority for subsequent assignments*
0	Standard	See A.4
2	member-body	See A.5
3	identified-organization	See A.6

NOTE – Arc 1 (registration-authority) is not used. It was reserved in earlier versions for future use, but its use has been withdrawn.

A.4 The arcs below "Standard" shall each have the value of the number of an International Standard. Where the International Standard is multi-part, there shall be an additional arc for the part number, unless this is specifically excluded in the text of the International Standard. Further arcs shall have values as defined in that International Standard.

NOTE – If a non-multipart International Standard allocates object identifiers, and subsequently becomes a multipart International Standard, it shall continue to allocate object identifiers as if it were a single part International Standard.

A.5 The arcs immediately below "member-body" shall have values of a three digit numeric country code, as specified in ISO 3166, that identifies the ISO Member Body in that country (see Note). The "NameForm" of object identifier component is not permitted with these identifiers. Arcs below the "country code" are not defined in this International Standard.

NOTE – The existence of a country code in ISO 3166 does not necessarily imply that there is an ISO Member Body representing that country or that the ISO Member Body for that country administers a scheme for the allocation of object identifier components.

A.6 The arcs immediately below "identified-organization" shall have values of an International Code Designator (ICD) allocated by the Registration Authority for ISO 6523 that identify an issuing organization specifically registered by that authority as allocating object identifier components (see Notes 1 and 2). The arcs immediately below the ICD shall have values determined by the organization to which the ICD is issued.

NOTE 1 – The requirement that issuing organizations are recorded by the Registration Authority for ISO 6523 as allocating object identifier components ensures that only numerical values in accordance with this International Standard are allocated.

NOTE 2 – The declaration that an issuing organization allocates object identifier components does not preclude the use of these codes for other purposes.

Annex B

ITU-T assignment of OBJECT IDENTIFIER component values

(This annex forms an integral part of this Recommendation | International Standard)

B.1 Three arcs are specified from the root node. The assignment of values and identifiers, and the authority for assignment of subsequent component values are as follows:

Value	*Identifier*	*Authority for subsequent assignments*
0	itu-t	ITU-T
1	iso	ISO
2	joint-iso-itu-t	See Annex C

NOTE 1 – The ASN.1 encoding of object identifier values specified in ITU-T Rec. X.690 | ISO/IEC 8825-1 assumes that there are only three arcs allocated from the root node (with object identifier component values of 0, 1, and 2), and at most 40 arcs from the first two of these arcs (with object identifier component values of 0 to 39). Any change to this situation would require modification of that text before it could be supported

NOTE 2 – The remainder of this annex concerns itself only with ITU-T assignment of values.

B.2 The identifiers "ccitt" and "joint-iso-ccitt" are synonyms for "itu-t" and "joint-iso-itu-t", respectively, and thus may appear in syntax specifying object identifier values.

B.3 Five arcs are specified from the node identified by "itu-t". The assignment of values and identifiers is:

Value	*Identifier*	*Authority for subsequent assignments*
0	Recommendation	See B.4
1	question	See B.5
2	Administration	See B.6
3	network-operator	See B.7
4	identified-organization	See B.8

B.4 The arcs below "Recommendation" have the value 1 to 26 with assigned identifiers of a to z. Arcs below these have the numbers of ITU-T and CCITT Recommendations in the series identified by the letter. Arcs below this are determined as necessary by the ITU-T and CCITT Recommendation. The identifiers a to z may be used as a "NameForm".

B.5 The arcs below "question" have values corresponding to ITU-T Study Groups, qualified by the Study Period. The value is computed by the formula:

study group number + (Period * 32)

where "Period" has the value 0 for 1984-1988, 1 for 1988-1992, etc., and the multiplier is 32 decimal.

The arcs below each study group have the values corresponding to the questions assigned to that study group. Arcs below this are determined as necessary by the group (e.g. working party or special rapporteur group) assigned to study the question.

B.6 The arcs below "Administration" have the values of X.121 DCCs. Arcs below this are determined as necessary by the Administration of the country identified by the X.121 DCC.

B.7 The arcs below "network-operator" have the value of X.121 DNICs. Arcs below this are determined as necessary by the Administration or ROA identified by the DNIC.

B.8 The arcs below "identified-organization" are assigned values by the ITU Telecommunication Standardization Bureau (TSB). Arcs below this are determined as necessary by the organizations identified by the value assigned by the ITU-T.

NOTE – It is reasonable to expect that the types of organizations which might find this arc useful include:

- ROAs not operating a public data network;
- scientific and industrial organizations;
- regional standards organizations; and
- multi-national organizations.

Annex C

Joint assignment of OBJECT IDENTIFIER component values

(This annex forms an integral part of this Recommendation | International Standard)

C.1 Three arcs are specified from the root node. The assignment of values and identifiers, and the authority for assignment of subsequent component values are as follows:

Value	*Identifier*	*Authority for subsequent assignments*
0	itu-t	ITU-T
1	iso	ISO
2	joint-iso-itu-t	See below

NOTE 1 – The ASN.1 encoding of object identifier values specified in ITU-T Rec. X.690 | ISO/IEC 8825-1 assumes that there are only three arcs allocated from the root node (with object identifier component values of 0, 1, and 2), and at most 40 arcs from the first two of these arcs (with object identifier component values of 0 to 39). Any change to this situation would require modification of that text before it could be supported.

NOTE 2 – The remainder of this annex concerns itself only with joint ISO/ITU-T assignment of values.

C.2 The identifiers "ccitt" and "joint-iso-ccitt" are synonyms for "itu-t" and "joint-iso-itu-t", respectively, and thus may appear in syntax specifying object identifier values.

C.3 The arcs below "joint-iso-itu-t" have values which are assigned and agreed from time to time by ISO and ITU-T to identify areas of joint ISO/ITU-T standardization activity, in accordance with the ITU-T Rec. X.662 | ISO/IEC 9834-3[1)].

C.4 The arcs beneath each arc identified by the mechanisms of C.3 shall be allocated in accordance with mechanisms established when the arc is allocated.

NOTE – It is expected that this will involve delegation of authority to the joint agreement of ITU-T and ISO Rapporteurs for the joint area of work.

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1) The Registration Authority for the assignment of object identifier component values for joint ISO/ITU-T use is the American National Standards Institute (ANSI), 11 West 42nd Street, New York, NY 10036, USA.

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