

**Telecommunications and Information Exchange Between Systems**

**ISO/IEC JTC 1/SC 6**

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**Question(s):** 12/17

Geneva, 11-20 February 2009

**TEMPORARY DOCUMENT****Source:** Editors of Rec. ITU-T X.oid-res**Title:** Revised text of Draft Recommendation ITU-T X.oid-res

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This TD contains revised joint text for Draft Recommendation ITU-T X.oid-res | ISO/IEC 29168 based on the discussions in Geneva (11-20 February 2009) from TD 32/PLEN.

A second working draft (without change marks and with significant new text) will be posted in ISO/IEC JTC 1/SC 6 shortly after 31 March 2009, and a new TD (for information) will be posted at that time.

The important changes from TD 32/PLEN are;

- Delete Issue 1 from the issues list
- Modify Issue 2
- Delete text which is related to the possibility of using X.500 (important)

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**Issue List for X.oid-res (ISO/IEC 29168 designated)**

**Issue 1: DNS zone for OID Resolution System**

It is proposed to create a new DNS top level domain name "OID" and possibly to place four zones on all the DNS root servers that instantiate the real-time resolution capability of the OID root and top level arcs (domains): **OID.**, **0.OID.**, **1.OID.** and **2.OID.**

If obtaining the DNS top level domain "OID" proves impossible, the options of "OID.INT" or "OID.ARPA" will need to be discussed further.

**Issue 2: Revised Summary and Scope**

It has been proposed to change the current SG17 summary to the following:

This Recommendation | International Standard specifies the system to be used (based on DNS) for resolving any reference to an International Object Identifier (OID) tree node into the canonical form of an OID-IRI referencing that node and into access methods and locations for obtaining additional information associated with that node. This process also supports the return of information about the child nodes in the International OID tree to determine information about the sub arcs from that node.

EDITORS NOTE: It is not yet clear whether the DNS interactions can support the last sentence above.

INTERNATIONAL STANDARD ISO/IEC XXXX

ITU-T RECOMMENDATION X.XXX

**Information technology –  
Open Systems Interconnection –  
Object Identifier Resolution System**

**Summary**

This Recommendation | International Standard will provide all necessary text for the development of an infrastructure to support access to information associated with nodes in the Internationalized Object Identifier tree (see Rec. ITU-T X.660 | ISO/IEC 9834-1) using a distributed set of resolvers.

**EDITORS NOTE:** See also Issue 2.

**Keywords**

OID, resolution, Object Identifier

# **Information technology – Open Systems Interconnection – Object Identifier Resolution System**

## **Introduction**

This Recommendation | International Standard specifies an Object Identifier (OID) Resolution System which provides information associated with any object identified by an Object Identifier.

**TBD**

## **1 Scope**

This Recommendation | International Standard specifies an OID Resolution System including the overall architecture and a DNS-based protocol. The OID Resolution System provides access to the information associated with a given OID using DNS servers.

This Recommendation | International Standard applies to the implementation, administration and maintenance of the OID Resolution System.

## **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) series | ISO/IEC 9834:2008, *Information technology – Open Systems Interconnection – Procedures for the operation of OSI Registration Authorities: General procedures*.
- ITU-T Recommendation X.680 (2008) series | ISO/IEC 8824:2008, *Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation*.
- ITU-T Recommendation X.690 (2008) series | ISO/IEC 8825:2008, *Information technology – Abstract Syntax Notation One (ASN.1): Encoding Rules*.

### **2.2 Additional references**

- IETF RFC 1035:1987, *Domain names – Implementation and specification*.

## **3 Definitions**

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

### **3.1 Imported definitions**

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

- a) object identifier.

## **3.2 Additional definitions**

**3.2.1 canonical form (of an OID internationalized resource identifier):** A form which uses only integer valued Unicode labels.

**3.2.2 OID resolution:** TBD

**3.2.3 OID Resolution System:** TBD

**3.2.4 OID resolution client:** TBD

**3.2.5 OID resolution server:** TBD

## **4 Abbreviations and acronyms**

This Recommendation uses the following abbreviations and acronyms:

DNS	Domain Name System
OID	Object Identifier
OID-IRI	OID internationalized resource identifier
ORC	OID Resolution Client
ORS	OID Resolution Server

## **5 OID Resolution System Architecture**

### **5.1 Overview**

The OID Resolution System uses the DNS protocol between the ORC and the ORS. The ORC submits an OID for resolution and this OID is resolved via a series of linked ORSs. An ORS sends information related to an object identified by the OID back to the ORC.

Figure 1 illustrates the overall architecture and operation of the OID Resolution System.

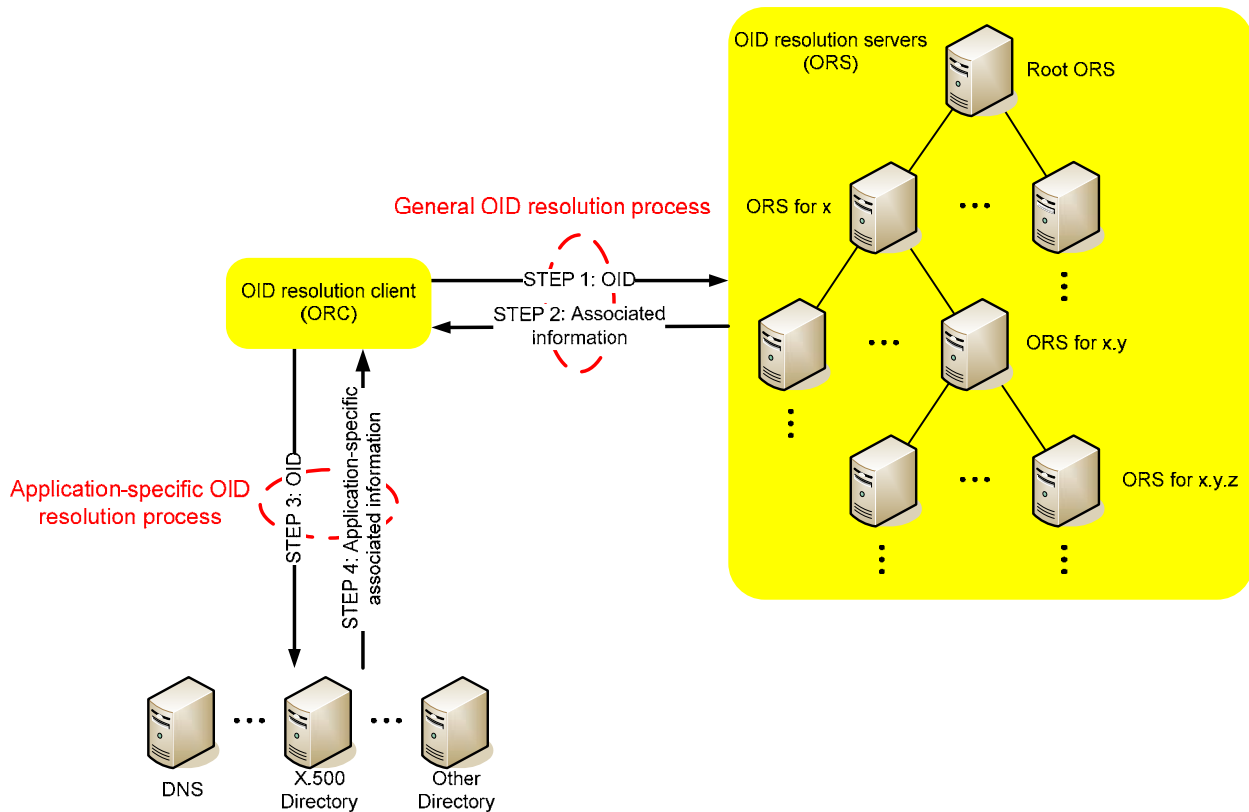


Figure 1. Architecture of the OID Resolution System

The OID Resolution System consists of two processes: a general OID resolution process and an application-specific OID resolution process. The associated information related to an object identified by the OID in STEP 2 in Figure 1 could be access information (see 6.2.1), child nodes information or the canonical form of the IRI.

If the result of the general OID resolution process is child node information or the canonical form of the OID-IRI, then the OID resolution process is finished. If the result of the general OID resolution process is access information then the application-specific OID resolution process is initiated.

## 5.2 General OID resolution process

TBD

## 5.3 Application-specific OID resolution process

TBD

# 6 The DNS protocol for the general OID resolution process

The general OID resolution process utilizes the DNS protocol.

TBD

**EDITOR's NOTE** – Message formats for queries and responses will be defined here

## 6.1 Input to an OID resolution server

An input to any intermediate node or leaf node in the ORS tree is an object identifier. The form of input is a value of the ASN.1 type **OID-IRI** or the ASN.1 type **OBJECT IDENTIFIER**.

TBD

## **6.2 Output from the OID resolution server**

The result of a query to the ORS can be access information , child node information, or the canonical form of the OID-IRI (which has the same information content as the value of an OID). The output from the ORS can also be the ASN.1 type NULL indicating that there is no information available of the type requested.

**TBD**

### **6.2.1 Access information**

**TBD**

### **6.2.2 Child node information**

**TBD**

### **6.2.3 Canonical form of an IRI**

**TBD**

## **7 Operation of the OID Resolution System**

**TBD**

**EDITOR's NOTE** – The hierarchical structure and its delegation structure will be defined here.

## **8 Security and Trust Aspects of the OID Resolution System**

**TBD**

**EDITOR's NOTE 1** – It is agreed to consider the use of DNSsec for information requiring a high degree of trust.

**EDITOR's NOTE 2** – It is suggested that text in SAML “3.1.2 Security” mat be useful



## **Bibliography**

[1] TBD

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