Telecommunications and Information Exchange Between Systems

ISO/IEC JTC 1/SC 6

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Issue List for ISO/IEC 29168 designated

Issue 1: **Which protocol should be selected?**

DNS based and X.500 based approaches are proposed. The current discussions have been more detailed on the DNS based approach, but the X.500 based approach (or even both) is not rejected at this stage.

Advantage of DNS based approach is that there is a worldwide infrastructure. Advantage of X.500 based approach is that we only need to define additional attributes.

Issue 2: **DNS zone for OID resolution system**

This issue is applicable when the DNS based approach is selected.

It is proposed to creation of a new DNS top level domain name "OID" and placement of 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`.

INTERNATIONAL STANDARD ISO/IEC XXXX

ITU-T RECOMMENDATION X.XXX

Information technology –
Open Systems Interconnection –
Object Identifier resolution protocol and associated architecture, requirements and guidance.

NOTE 1 – Change the title of this project and Recommendation | International Standard as "Object Identifier resolution system" should be considered.

NOTE 2 – It is agreed that the work will initially progress as a single project in ISO/IEC JTC 1. There may be a later decision to perform a project spilt as specified in the NP(6N13665) to produce this as a multi-part Recommendation | International Standard.

Summary

TBD

Keywords

OID, resolution, Object Identifier

Information technology –
Open Systems Interconnection –
Object Identifier resolution protocol and associated architecture, requirements and guidance.

Introduction

This Recommendation | International Standard specifies an Object Identifier resolution protocol to get information associated with any object identified by an Object Identifier.

TBD

1 Scope

This Recommendation | International Standard specifies an object identifier resolution protocol which provides access to all the information associated with a given OID using distributed communicating resolvers.

TBD

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 (2004) series | ISO/IEC 9834:2004, *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.*

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.680 | ISO/IEC 8824-1:

a) object identifier.

3.2 Additional definitions

3.2.1 OID resolution: TBD

3.2.2 OID resolution system: TBD

3.2.~~2~~3 OID resolution ~~server~~clent: TBD

3.2.4 OID resolution server: TBD

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

OID   Object Identifier

ORC   OID Resolution Client

ORP   OID Resolution Protocol

ORS   OID Resolution Server

5 OID Resolution Architecture

5.1 Overview

NOTE 1 – It was generally agreed that general OID resolution process in OID resolution system should return only an access mechanism and pointer (such as URL) for an application specific resolution. (see 4.2.1 of 6N13803 and 12D365)

NOTE 2 – Following figure should be considered to as an overall architecture for OID resolution system.

NOTE 3 – It was generally accepted that the inquiry can be made to a server anywhere in the OID resolution server tree and recursive operation of servers. (see 4.2.2 of 6N13803)

NOTE 4 – An investigation is needed whether the DNS and X.500 based approach support the architecture described in NOTE 3. (see 4.2.3 of 6N13803)
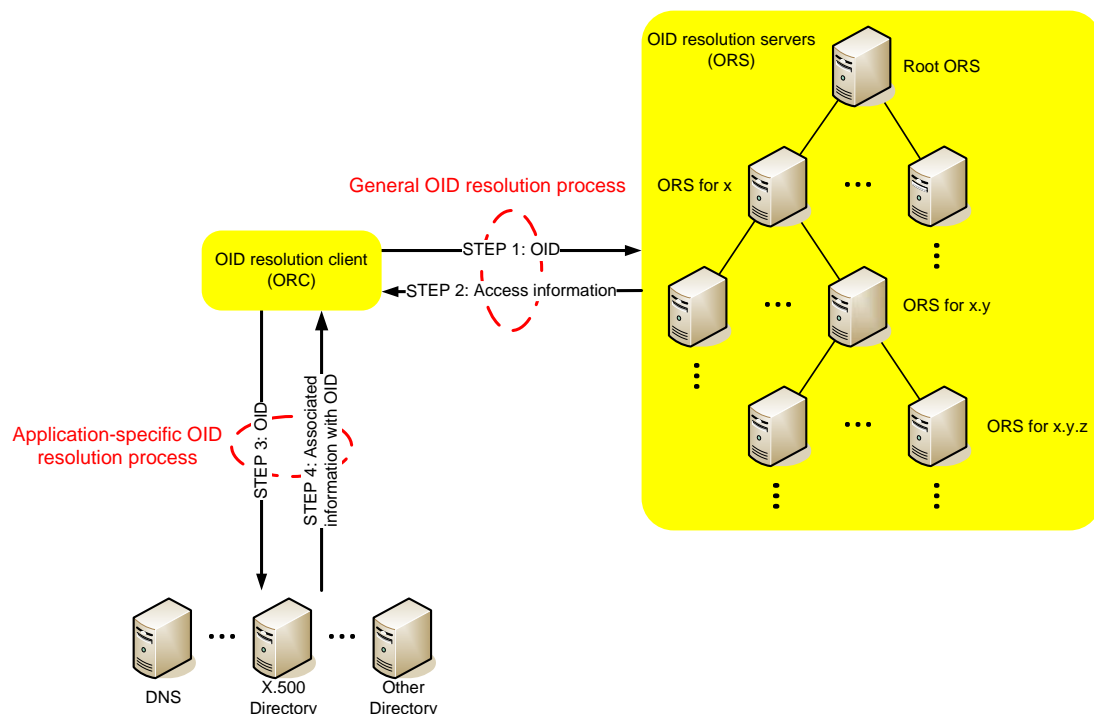
ORP is a protocol between ORC and ORS. ORC can submit an OID for resolution using a protocol that is defined in this Recommendation | International Standard and this OID is resolved via a series of linked ORS. ORS send information related to an object identified the OID back to ORC.

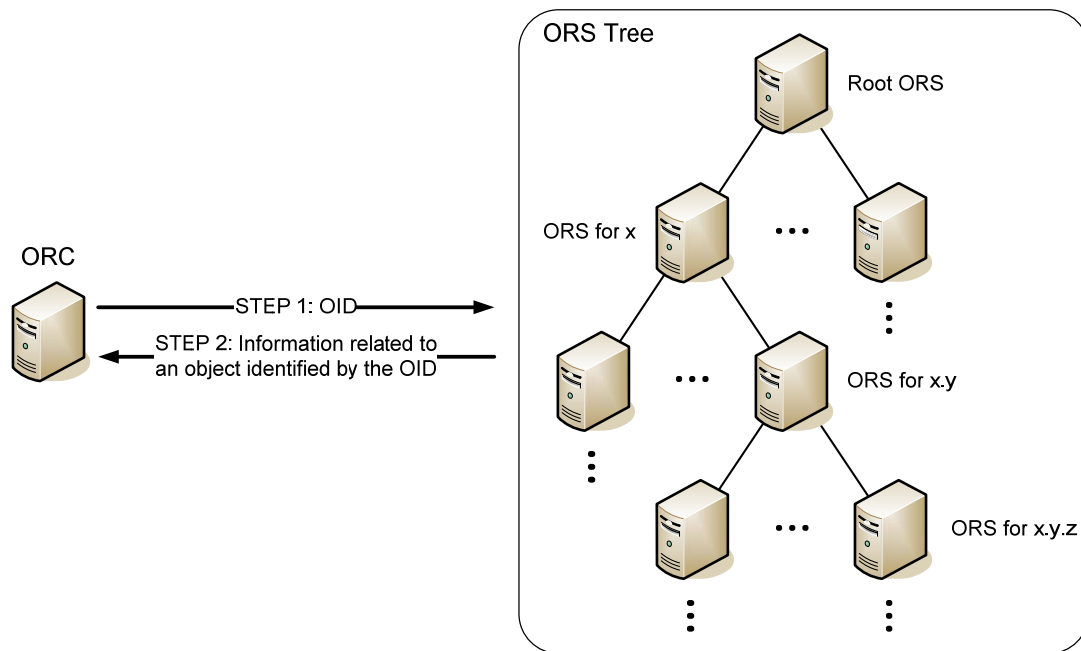Figure 1 illustrates overall architecture and operation of ORP.

Figure 1. Architecture of OID resolution protocol

NOTE 5 – A node in OID resolution server tree has zero or more subordinate nodes. An intermediate node normally does not have associated information. However, a node which once a leaf node may create subordinates and the associate information for that node should still be accessible. (There is no agreement on this yet) (see also FR2 in 6N13802)

NOTE 6 – The information returns on a query will depend on the knowledge a node in OID resolution server tree has and also depends on information that the OID resolution client has identified in the input. (There is no agreement on this yet)

NOTE 7 – A particular node may be operating on behalf of number of related node in OID resolution server tree. (There is no agreement on this yet)

The information related to an object identified by the OID in STEP 2 in Figure 1 could be any format such as video, audio, image or text associated with the identified node or a superior node, together with child information for the identified node. The resolution request will determine how much information is returned. It is also to be determined whether the ORC gets back only intermediate information and has to make further requests, or whether internal processing fully resolves the request.

5.2   Requirements of OID resolution system

TBD

NOTE – Following all subsections are not agreed, but need to be considered. (see 12D366)

5.2.1   Automatic recursion

NOTE – see also CN2 in 6N113802

TBD

5.2.2   Resolution message options

TBD

5.2.3   Query-response rates

TBD

5.2.4   Caching and Time-to-Live

TBD

5.2.5   Security, availability and administration

TBD

5.2.6 Standardization ports

TBD

6 OID Resolution Protocol

TBD

> NOTE 1 – This protocol can be based on the IETF DNS protocol, X.500, LDAP or can be a totally new one. (It is not decided yet)
>
> NOTE 2 – Message formats for query and response will be defined here
>
> NOTE 3 – It is for discussion whether an ORC needs to make multiple queries to obtain final resolution, or whether this is done transparently within the OID resolution service.
>
> NOTE 4 – It is possible that the protocol will make significant use of Directory Attribute Certificates to obtain the necessary security.

6.1 Input to ORS

An input to any intermediate node or leaf node in ORS tree is object identifier. The form of input can be any of the ASN.1 types OBJECT IDENTIFIER, RELATIVE-OID, OID-IRI, RELATIVE-OID-IRI or NULL. (see TD3565 Rev1 and CN1 in 6N13802)

TBD

6.2 Output from ORS

The result of query to ORS can be referral to other ORS nodes or the result of interactions with other ORS nodes transparently to the client. The output from ORS can be ANS.1 type NULL which is indicating that there is no known subordinate node. (see TD3565 Rev1)

> NOTE 1 – If the architecture in NOTE 2 in section 5 is agreed, the output from ORS will be an access mechanism and pointer (such as URL) for an application specific resolution.

TBD

7 Operation of the OID Resolution Service

TBD

> NOTE – The hierarchical structure and its delegation structure will be defined here.

8 Security and Trust Aspects of OID Resolution Process

TBD

> NOTE 1 – It is agreed that any consideration of DNS based approach should also consider the use of DNSsec for information requiring a high degree of trust.
>
> NOTE 2 – It is suggested that text in SAML "3.1.2 Security" mat be useful

9 TBD

TBD

Bibliography

[1] TBD

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