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Abstract

This is a joint contribution, submitted on behalf of the UK Administration to ITU-T SG 17/12 and ITU-T SG 17/4 and on behalf of the National Body responsible for agreeing submission to ISO/IEC JTC 1/SC 6 WG 9 on progression of the ASN.1 OID resolution system. This contribution builds on issues raised in Com17-C85-E and identifies what steps need to be taken to address these issues.

1 Introduction

1.1 This contribution seeks to address a number of issues that will require further consideration in the discussions associated with the proposed solution (and with the Recommendation | International Standard) for the OID resolution system (ORS). In this contribution, the main issues can broadly be described as governance or commercial issues.

1.2 This text is both a COM submitted by the UK Administration for consideration by Q.12/17 at its meeting in Geneva, September 2009 (jointly with ISO/IEC JTC 1/SC 6 WG9) and is also an approved UK National Body contribution to SC 6 WG 9 as comments on CD1 of the ORS. Use of "UK" (unqualified) below means that this is an agreed position of both the UK Administration and of the UK National Body in SC 6.

1.3 In COM 85, the UK opposed the sending of the letter proposed in TD 0242 at that time. The UK now goes further. It believes that the reasons in COM 85 for not trying to obtain a gTLD of .oid remain valid, and will remain valid indefinitely. The UK recommends that Q.12 should do no further work related to a gTLD. However, other comments made in COM 85 are also still valid, and need to be discussed in Q.12 in the light of comments in the clauses below.

1.4 The UK recognises that use of the DNS system (port 53, not port 80) is an appropriate way to handle the ORS, rather than a Directory base. However, the UK is firmly of the view that a "private DNS" (using DNS software but administered differently) is **not** a good way to go, and it would oppose work in this area.

1.5 The UK is supportive of the ORS work done so far, and recognises its potential importance in a number of application areas. There are still many technical, governance and commercial issues to be resolved (some of which are on the Q.12 agenda for Geneva), but critical ones include the positioning of the root of the OID tree within the DNS system, the governance and commercial issues related to maintenance of the DNS zone files, and charging. These issues are addressed in following clauses.

1.6 The UK accepts that the present approval mechanisms for adding and changing arcs of the OID tree (in use since the late 1980s), functions well, and will not be impacted when there is linkage to the DNS. In particular, the UK understands and accepts the procedures by which the allocation of high-level nodes under the root of the OID tree are assigned, and the flexibility for allocation of lower level nodes (and their optional registration in the OID Repository). It does not wish to make any change to these procedures. However, decisions on the provision of (and charging for) DNS-OID-mirror zone files for a child of an OID node that already has a corresponding DNS entry need to be resolved

(see clause 5). This is separate from the current (working) allocation procedures for allocation of a child OID node to an existing OID node.

1.7 It is important for text to be included that recognises that the DNS zone files provide a mirror of OID nodes descendent from high-level OID nodes (potentially with additional information for each OID node that has a DNS zone file). Initially, it is expected that the DNS partial mirror of the OID tree will cover only the nodes specified in the X.660 | ISO/IEC 9834 series (these need to be explicitly listed, but are called "high-level OID nodes" in what follows). It is expected that the DNS-OID-mirror (the set of DNS zone files corresponding to OID nodes) will progressively grow downwards over time from the high-level OID nodes, and there are administrative, governance and commercial issues related to that which are discussed below.

1.8 The UK believes, should there be enough information available in Geneva (from homework requests made in Tokyo to Korea and China), that a sensible decision could be taken on the position of the root of the OID tree within the DNS (or at least, for a primary direction to be initiated and work to begin on obtaining access to this position in the DNS structure). This is discussed much further in clause 2 below.

1.9 The UK also understands that there are deadlines imposed by ISO/IEC for progression to FCD ballot. The UK recommends that a second CD be produced out of Geneva, (hopefully covering all the technical, governance and commercial issues known or discussed below) with the intent of moving to an FCD ballot from the January 2010 meeting of SC6 in Barcelona, and Consent to a Last Call (on completion of that ballot) from the April 2010 meeting of SG17.

1.10 The UK recommends that COM 85 be reviewed again by Q.12, as it contains a number of comments (for example on charging issues, governance, security and implementation) that still need to be addressed by good text in the next CD.

1.11 The UK considers that the following sets of issues need addressing:

a) the positioning of the root of the OID tree within the DNS tree, and plans to obtain an associated DNS name; (see clause 2);

b) the process of populating and maintaining the DNS zone files mirroring the current high-level nodes of the OID tree; how to determine and allocate the administrative authority for this;

c) mechanisms for secondary DNS sites for these primary DNS zone files – how they are determined, mechanisms for synchronisation with the primary zone files (including timing issues), etc; (see clause 4);

d) procedures and charging regimes for an entity that has been allocated an OID child node beneath one of these parent high level OID nodes (which will already have DNS zone files under item b) above) – for example OIDs 2.xx – to (optionally) determine to manage a DNS zone file for their DNS-OID-mirror node (and optionally to support any children); (see clause 5);

e) technical issues already identified by Q.12 | WG9, including but not limited to trust and security issues, use of CNAME and DNAME and NAPTR records, use of punycode or % encoding, case-folding in Unicode labels, and a possible crawler to synchronise the OID Repository with the partial DNS-OID-mirror of the OID tree.

Item e) above is not discussed in clauses below, but the UK National Body may provide further comments in these areas (these will not have been reviewed by the UK ITU-T Administration, due to time constraints). The UK recognises that work in these areas is on-going, and hopes that most of these areas will be covered by text in the second CD. Discussion should be left to the normal Q.12 | WG 9 meeting times.

1.12 The UK believes that it would be appropriate to progress, in parallel, work on all of a) to e) above, with as much text as possible included in the next CD where necessary (initial draft text would be a minimum, anything less would likely prevent an FCD in January). Full text for the proposed solution for each issue is much preferred.

1.13 The UK is also aware that there have been discussions concerning the recording of implementation issues (and guidance on use of CNAME and/or DNAME) in an "Implementer's Handbook", rather than in the main Recommendation | International Standard. The UK sees this as an attractive approach, but believes that it is not a good idea, as there is an intimate tie-up of implementation issues with the required functionality of avoiding multiple zone file changes when a new name is added to a high arc, and of ensuring full security for all the ORS activity. Thus the UK believes that all such text should be placed in the main Recommendation | International Standard. However, where this text is advisory rather than being mandatory to achieve the required effects, it could be in an informative annex. This is left for Q.12 | WG 9 discussion.

2 Issues that need to be resolved in Geneva related to DNS positioning

2.1 As stated earlier, the UK believes that this is an area that should be resolved in Geneva, at least for initial ongoing activity, as it could take up to two years to resolve fully.

2.2 Fundamentally, the positioning of the root has to be determined (at least for further work to obtain that position to proceed). If later difficulties are encountered, then other alternatives may have to be considered at subsequent meetings.

2.3 There are several issues on this positioning. These relate to:

a) the availability of the name (which does not have to be "oid.xxx.yyy", but could be (for example) "oid-info.xxx.yyy";

b) the initial and recurrent costs of obtaining the name;

c) if piggy-backed on an existing name (for example oid-info.com), the willingness of the owner of that name to expand its use (currently only used for www.oid-info.com);

d) if a new name, who (or what organisation) becomes the formal owner of the name;

e) who pays for any initial and recurrent costs associated with obtaining and retaining the name?

2.4 The UK believes that only organisations that have such operational activity within their remit should undertake the application for the domain name, following normal commercial processes.

2.5 The UK has already stated that it has a preference for .oid.arpa. ITU-T SG17/12 should, subject to agreements at the September 2009 meeting, identify plans and the work required to obtain this. This is likely to involve the production and approval of an internet draft for a standards-track RFC, in accordance with RFC 3172.

2.6 Whether .oid.arpa or some other .oid.xxx.yyy is applied for, three things need to be determined, and should be discussed at the Thursday lunchtime meeting. These are:

a) who will "make the running" on getting the allocation (reporting back to Q.12 | WG 9 and asn1dev and tsg17q10@ties.itu.int as necessary)? An Expert from Q.12 | WG9 needs to be identified to make the running (obtain the allocation) on this;

b) in whose name will the application be made?

c) who will provide any necessary funding for initial allocation and any annual retention fees?

2.7 As stated in 2.4, the UK is opposed to the involvement of any International Organisation in the above that does not already have an operational remit in this area. It tentatively suggests that the DNS name be assigned to the occupant of a specified role related to OIDs (not to an individual or organisation). Choices could be the OID Project Leader, or the Rapporteur of the Study Group Question that maintains the X.660 series (or the Convenor of the ISO WG with responsibility for ISO/IEC 9834) – or possibly a higher-level Chairman post in the two organisations. This needs further discussion.

2.8 It is expected that the xxx.yyy authority in the chosen .oid.xxx.yyy would follow all its normal rules for the allocation and retention of .oid.xxx.yyy.

2.9 If the chosen xxx.yyy requires a payment, then one possibility could be to link this application to the organisation identified in 1.11 b), who would be given ownership under conditions related to performing the functions for 1.11 b), and would pay any necessary costs.

3 Responsibility for the DNS-OID-mirror of the high-levels of the OID tree

3.1 Responsibility for the administration of the DNS-OID-mirror zone files for the high-level nodes of the OID tree needs to be assigned. The organisation responsible for this should be called the "High-level OID DNS administrative Registration Authority (RA)". This can be abbreviated to "OID DNS RA"

3.2 Agreeing on this RA should be done sooner rather than later, particularly as the RA may be involved in the ownership and payment for .oid.xxx.yyy as discussed in 2.9.

3.3 The UK suggests that a non-governmental organization be identified for this activity, and its willingness to act in this role sought.

3.4 Confirmation of the appointment would be by an SG17 plenary decision and an SC6 Resolution. In the case of SC6 (in view of the importance of this role), the approval should propagate through JTC 1 to ISO SMB and IEC

TMB (and if necessary to Council if charging issues occur), with signature of the normal ISO/IEC contract and entry on the ISO Web pages as an RA. Ideally, this should be initiated in the January 2010 meeting of SC 6 and ratified in the April 2010 meeting of SG 17.

3.5 However, it should be noted that such an agreement is unlikely to be reached until the issues in clause 5 are resolved, as otherwise the responsibilities of the RA are not determined, and potential candidates will not know the rules that they will operate under.

3.6 It is expected (but not necessary) that all the high-level zone files will be on a single server, but it is highly desirable that the OID DNS RA be responsible for **all** of them.

4 DNS secondary servers for the root (or high-level) primary DNS-OID-mirror zone files

4.1 Q.12 needs to discuss the need for DNS secondary servers of the zone files for the DNS-OID-mirror of the root of the OID tree (and perhaps of the DNS-OID-mirror of **all** high-level OID nodes).

4.2 If some or all of these are determined to have secondary servers, then there is a need to agree the organizations that will provide secondary servers.

4.3 Text will be needed in the ORS standard concerning the duties of a secondary DNS server supporting the OID DNS RA site(s), and of timing and synchronization requirements and mechanisms, although this can probably be simply reference to current specifications and practice for the DNS.

4.4 The UK believes that appointment of DNS secondary server sites (if needed) is less important than the appointment of the OID DNS RA, and can be done by a simple Resolution of both SG17 and SC6, but this needs to be stated in the ORS standard.

4.5 It will also be necessary to provide text on the nature of the contract to be agreed between the OID DNS RA and organizations providing secondary sites for the high-level zone files.

5 Growing the DNS-OID-mirror

5.1 It will be necessary to establish how (for example) a Recommendation or Standard or country or 2.xxx node allocating an arc requests a pointer to zone files on a DNS server, should it wish to have DNS support for that node (and potentially for its children). This text is needed in the Standard, covering each arc beneath the high-level arcs.

5.2 It is expected that the OID DNS RA will make a charge for inserting a pointer to these next-level node's zone files, and may make a (somewhat larger) charge for maintaining their zone files on its server (and for any grandchildren, to any depth). This could be part of the ISO contract with the OID DNS RA, but the framework for this will need to be established in the ORS standard.

5.3 Initially, it is expected that the high-level DNS support will initially grow mainly from country nodes and from 2.xxx nodes, but no options should be excluded. Addition of new 2.xxx nodes and of long arcs may occur from time to time. (ITU-T SG17/12 has yet to address the implementation issues concerning DNS support for long arcs.)

5.4 However, it is important that ITU-T SG17/12 | ISO/IEC JTC 1/SC 6 WG 9 carefully list what are the high-level nodes that the OID DNS RA will provide support for, and the procedures for growth from the bottom of these.

NOTE – As stated earlier, an OID node which is in the DNS (perhaps the bottom of the high-level nodes, but not necessarily) and which allocates OID children will agree with each of those children whether a DNS node for them is needed (and any charging or server issues). The current text says that if there are child OID nodes of a DNS-OID node, that do not have their own zone files, the parent will return a Boolean saying "there are (other) OID children that are not in the DNS".