

dnsop
Internet-Draft
Intended status: Informational
Expires: August 14, 2014

W. Kumari
Google
A. Sullivan
Dyn
February 10, 2014

The ALT Special Use Top Level Domain
draft-wkumari-dnsop-alt-tld-00

Abstract

This document reserves a string to be used as a TLD label in non-DNS contexts. [Ed note: By now you should be wildly confused. Go read the intro / background :-P]

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of [BCP 78](#) and [BCP 79](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF). Note that other groups may also distribute working documents as Internet-Drafts. The list of current Internet-Drafts is at <http://datatracker.ietf.org/drafts/current/>.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

This Internet-Draft will expire on August 14, 2014.

Copyright Notice

Copyright (c) 2014 IETF Trust and the persons identified as the document authors. All rights reserved.

This document is subject to [BCP 78](#) and the IETF Trust's Legal Provisions Relating to IETF Documents (<http://trustee.ietf.org/license-info>) in effect on the date of publication of this document. Please review these documents carefully, as they describe your rights and restrictions with respect to this document. Code Components extracted from this document must include Simplified BSD License text as described in Section 4.e of the Trust Legal Provisions and are provided without warranty as described in the Simplified BSD License.

Table of Contents

1.	Introduction	2
1.1.	Requirements notation	2
1.2.	Terminology	2
2.	Background	2
3.	The ALT namespace	3
4.	IANA Considerations	4
5.	Security Considerations	5
6.	Acknowledgements	5
7.	References	5
7.1.	Normative References	5
7.2.	Informative References	6
Appendix A.	Changes / Author Notes.	6
	Authors' Addresses	6

[1.](#) Introduction

Lots of protocols and systems need to name entities, and the DNS "standard" of a series of labels separated with dots has become common, even in systems that are not actually part of the DNS.

This document reserves the string "ALT" (short for Alternate) as a Special Use Domain ([\[RFC6761\]](#)) that should be used in the right-most label position to signify that this name is not rooted in the DNS, and that normal registration and lookup rules do not apply.

[1.1.](#) Requirements notation

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [\[RFC2119\]](#).

[1.2.](#) Terminology

This document assumes familiarity with DNS terms and concepts. Please see [\[RFC1034\]](#) for background and concepts.

- o DNS context: The namespace administered by ICANN. This is the namespace / context that "normal" DNS uses.
- o non-DNS context: Any other / alternate namespace.

[2.](#) Background

The DNS is a tree, and so has a single root. Conventionally, a name immediately beneath the root is called a "Top Level Domain" or "TLD". TLDs usually delegate portions of their namespace to others, who may

then delegate further. The hierarchical, distributed, caching nature of the DNS has made it the primary resolution system on the Internet.

The success of the DNS means makes it a natural starting point for systems that need to name entities in a non-DNS context. These name resolutions occur in a namespace distinct from the DNS. A number of good examples of these sorts of systems are documented in Special-Use Domain Names of Peer-to-Peer Systems [I-D.hoff-iesg-special-use-p2p-names]

In many cases, these systems build a DNS style tree parallel to the global DNS administered by IANA. They often use a pseudo-TLD to cause resolution in this alternate namespace, using things like browser plugins, shims in the name resolution process, or simply applications only use this alternate namespace.

In many cases the creators of these alternate namespaces have simply chosen a convenient / descriptive string and started using this. These new strings are "alternate" strings, and not actually registered anywhere or part of the DNS. However they appear to be TLDs, as they are the in the right-most position of a name. Issues may arise if they are looked up in the DNS. These include:

- o User confusion: If someone emails a link of the form foo.bar.pseudo-TLD to someone who does not have the necessary software to resolve names in the pseudo-TLD namespace, they may become confused.
- o Excess traffic hitting the DNS root. Lookups may leak out of the pseudo-TLD namespace and end up hitting the DNS root nameservers.
- o Collisions. If the pseudo-TLD is eventually delegated from the root zone the behavior may be non-deterministic.
- o Lack of success for the user's original goal.

3. The ALT namespace

In order to avoid the above issues we reserve the .ALT label. This label should be used as a pseudo-TLD (in the right most (TLD) position of a name) to signify that this is an alternate (non-DNS) namespace.

Alternate namespaces should differentiate themselves from other alternate namespaces by choosing a name and using it in the label position just before the pseudo-TLD. For example, a group wishing create a namespace for [TODO(?): Need something better] Friends Of

Olaf they may choose the string "foo" and use any set of labels under foo.alt.

As they are in an alternate namespace they have no significance in the regular DNS context and so should not be looked up in the DNS context. Unfortunately simply saying that "something should not happen" doesn't actually stop it from happening, so we need some rules to deal with these.

1. Stub resolvers MAY elect not to send queries to any upstream resolver for names in the ALT TLD.
2. Iterative resolvers SHOULD follow the advice in [\[RFC6303\]](#), [Section 3](#).
3. The root zone nameservers should either return NXDOMAIN responses, or the ALT TLD should be delegated to "new style" AS112 nameservers. (TODO(WK): WK, JA, BD to revive AS112 / AS112-bis).

Groups wishing to create alternate namespaces SHOULD create their alternate namespace "under" a label that names their namespace, and "under" the ALT label. They SHOULD choose a label that they expect to be unique / descriptive. As there is no registry for the ALT namespace uniqueness is not guaranteed.

Currently deployed projects and protocols that are using pseudo-TLDs (for example, the ".onion" pseudo-TLD (and other labels in [\[I-D.grothoff-iesg-special-use-p2p-names\]](#)) are not expected to move under the ALT TLD (but may do so if they wish; this is a common resource). Rather, the ALT TLD is being reserved so that future projects of a similar nature have a designated place to create alternate resolution namespaces that will not conflict with the regular DNS context.

4. IANA Considerations

The IANA is requested to add the ALT string to the "Special-Use Domain Name" registry ([\[RFC6761\]](#), and reference this document. In addition, the "Locally Served DNS Zones" ([\[RFC6303\]](#)) registry should be updated to reference this document.

[Ed: There are two options here. Option 1: We could ask the IANA to run a "First Come First Served" registry for labels under the ALT TLD. By registry I mean a "standard" IANA registry, not a registry in the DNS sense of the word (IANA would publish on a webpage "Foo | fred@example.com | Used for the foo project"). Option 2: This is a fully uncoordinated space (in the same way that people have been

picking pseudo-TLDs up till now) -- pick something that, as far as you know other's are not using... There are pros and cons to both -- I don't want to overload the IANA, have people stage a land-grab for names, or give the impression that this is a "real" TLD. Thoughts? Currently we say there is no registry ([Section 3](#)), but that can be changed.)]

5. Security Considerations

One of the motivators for the creation of the alt pseudo-TLD is that unmanaged labels in the managed root name space are subject to unexpected takeover if the manager of the root name space decides to delegate the unmanaged label.

The unmanaged and registry-free nature of labels beneath .ALT provides the opportunity for an attacker to re-use the chosen label and thereby possibly compromise applications dependent on the special host name.

6. Acknowledgements

The authors understand that there is much politics surrounding the delegation of a new TLD and thank the ICANN liaison (and any other poor sod who gets sucked into this) in advance.

7. References

7.1. Normative References

- [I-D.grothoff-iesg-special-use-p2p-names]
Grothoff, C., Wachs, M., hellekin, h., and J. Appelbaum,
"Special-Use Domain Names of Peer-to-Peer Systems", [draft-grothoff-iesg-special-use-p2p-names-01](#) (work in progress),
December 2013.
- [IANA.AS_Numbers]
IANA, "Autonomous System (AS) Numbers",
<<http://www.iana.org/assignments/as-numbers>>.
- [RFC1034] Mockapetris, P., "Domain names - concepts and facilities",
STD 13, [RFC 1034](#), November 1987.
- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate
Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [RFC6303] Andrews, M., "Locally Served DNS Zones", [BCP 163](#), [RFC 6303](#), July 2011.

[RFC6761] Cheshire, S. and M. Krochmal, "Special-Use Domain Names", [RFC 6761](#), February 2013.

[7.2. Informative References](#)

[I-D.ietf-sidr-iana-objects]
Manderson, T., Vegoda, L., and S. Kent, "RPKI Objects issued by IANA", [draft-ietf-sidr-iana-objects-03](#) (work in progress), May 2011.

[Appendix A. Changes / Author Notes.](#)

[RFC Editor: Please remove this section before publication]

From -00 to -01.

- o Nothing changed in the template!

Authors' Addresses

Warren Kumari
Google
1600 Amphitheatre Parkway
Mountain View, CA 94043
US

Email: warren@kumari.net

Andrew Sullivan
Dyn
150 Dow Street
Manchester, NH 03101
US

Email: asullivan@dyn.com

