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The ALT Special Use Top Level Domain

Abstract

This document reserves a TLD label, "alt" to be used in non-DNS contexts. It also provides advice and guidance to developers developing alternative namespaces.

[This document is being collaborated on in Github at: <https://github.com/wkumari/draft-wkumari-dnsop-alt-tld>. The most recent version of the document, open issues, etc should all be available here. The authors (gratefully) accept pull requests.]

Status of This Memo

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1. Introduction

Many Internet protocols need to name entities. Names that look like DNS names (a series of labels separated with dots) have become common, even in systems that are not part of the global DNS administered by IANA. This document reserves the root-level label "alt" (short for "alternative") as a special-use domain name ([RFC6761]). This root-level label can be used as the final (rightmost) label to signify that the name is not rooted in the DNS, and that it should not be resolved using the DNS protocol.

Throughout the rest of this document, the root-level "alt" label is shown as ".alt" to match the common presentation form of DNS names.

The techniques in this document are primarily intended to address the "Experimental Squatting Problem", the "Land Rush Problem", and "Name Collisions" issues discussed in [RFC8244], which contains additional background on the issues with special use domain names.

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; please see [[RFC8849](#)]. Terminology that is specific to this document is:

- *DNS name: Domain names that are intended to be used with DNS resolution, either in the global DNS or in some other context.
- *DNS context: The namespace anchored at the globally-unique DNS root, administered by IANA. This is the namespace or context that "normal" DNS uses.
- *non-DNS context: Any other (alternative) namespace.
- *pseudo-TLD: A label that appears in a fully-qualified domain name in the position of a TLD, but which is not registered in the global DNS. This term is not intended to be pejorative.
- *TLD: The last visible label in either a fully-qualified domain name or a name that is qualified relative to the root.

2. The alt Namespace

This document reserves the .alt label for use as an unmanaged pseudo-TLD namespace. The .alt label can be used in any domain name as a pseudo-TLD to signify that this is an alternative (non-DNS) namespace, and should not be looked up in a DNS context.

Alternative namespaces should differentiate themselves from other alternative namespaces by choosing a name and using it in the label position just before the .alt pseudo-TLD. For example, a group wishing to create a namespace for Friends Of Olaf might choose the string "foo" and use any set of labels under foo.alt.

Because names beneath .alt are in an alternative namespace, they have no significance in the regular DNS context. DNS stub and recursive resolvers do not need to look them up in the DNS context.

DNS resolvers that serve the DNS protocol and non-DNS protocols at the same time might consider .alt like an entry in the "Transport-Independent Locally-Served DNS Zone Registry" that is part of IANA's "Locally-Served DNS Zones" registry, except that .alt is always used to denote names that are to be resolved by non-DNS protocols.

Note that using .alt as a pseudo-TLD does not mandate how the non-DNS protocol will handle the name. If the non-DNS protocol has a wire format like the DNS wire format, it might append the null label at the end of the name, but it also might not. This document does not make any suggestion for how non-DNS protocols deal with the wire format of their names.

Groups wishing to create new alternative namespaces may create their alternative namespace under a label that names their namespace under the .alt pseudo-TLD. They should attempt to choose a label that they expect to be unique among similar groups and, ideally, descriptive. Developers are wholly responsible for dealing with any collisions that may occur under .alt.

This document creates an IANA registry for specification documents that use the .alt pseudo-TLD. The intention of the registry is to let developers of non-DNS protocols using the .alt pseudo-TLD know which other developers are using names under .alt. It is possible for multiple different protocols to use the same names as each other. Because there is no requirement or expectation that developers of non-DNS protocols will use the registry, there is no priority given to names that appear in the directory.

Currently deployed projects and protocols that are using pseudo-TLDs may choose to move under the .alt pseudo-TLD, but this is not a requirement. Rather, the .alt pseudo-TLD is being reserved so that current and future projects of a similar nature have a designated place to create alternative resolution namespaces that will not conflict with the regular DNS context.

3. IANA Considerations

3.1. Special-Use Domain Name Registry

The IANA is requested to add the .alt name to the "Special-Use Domain Name" registry ([[RFC6761](#)]), and reference this document.

3.2. Non-DNS Protocols Using the .alt Pseudo-TLD Registry

IANA is requested to create a new registry titled "Non-DNS Protocols Using the .alt Pseudo-TLD". That registry description should point to this document.

Entry to the registry is a combination of "Specification Required" and either "Expert Review" or "IESG Approval". See [[RFC8126](#)] for the definition of these three terms,

The registry will have two columns: "Reference" and "Name". The "Reference" column gives a brief title and linked URL of the reference for the non-DNS protocol. The "Name" column lists each name in the non-DNS protocol that would appear immediately to the left of the .alt pseudo-TLD.

4. Privacy Considerations

This document reserves .alt to be used to indicate that a name is not a DNS name, and so should not attempt to be resolved using the

global DNS. Unfortunately, these queries will undoubtedly leak into the global DNS. This is a general problem with alternative name spaces and not confined to names ending in .alt.

5. Security Considerations

The unmanaged and "registration not required" 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

We would like to thank Joe Abley, Mark Andrews, Erik Auerswald, Marc Blanchet, John Bond, Stephane Bortzmeyer, David Cake, David Conrad, Steve Crocker, Brian Dickson, Ralph Droms, Robert Edmonds, Patrik Faltstrom, Olafur Gudmundsson, Bob Harold, Joel Jaeggli, Ted Lemon, Edward Lewis, John Levine, George Michaelson, Ed Pascoe, Jim Reid, Arturo Servin, Paul Vixie and Suzanne Woolf for feedback.

Christian Grothoff was also very helpful and deserves special recognition.

In addition, Andrew Sullivan was an author from adoption (2015) through version 14 (2021).

7. References

7.1. Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, DOI 10.17487/RFC2119, March 1997, <<https://www.rfc-editor.org/info/rfc2119>>.
- [RFC6761] Cheshire, S. and M. Krochmal, "Special-Use Domain Names", RFC 6761, DOI 10.17487/RFC6761, February 2013, <<https://www.rfc-editor.org/info/rfc6761>>.
- [RFC8126] Cotton, M., Leiba, B., and T. Narten, "Guidelines for Writing an IANA Considerations Section in RFCs", BCP 26, RFC 8126, DOI 10.17487/RFC8126, June 2017, <<https://www.rfc-editor.org/info/rfc8126>>.

7.2. Informative References

- [RFC8244] Lemon, T., Droms, R., and W. Kumari, "Special-Use Domain Names Problem Statement", RFC 8244, DOI 10.17487/RFC8244, October 2017, <<https://www.rfc-editor.org/info/rfc8244>>.

[RFC8849]

Even, R. and J. Lennox, "Mapping RTP Streams to Controlling Multiple Streams for Telepresence (CLUE) Media Captures", RFC 8849, DOI 10.17487/RFC8849, January 2021, <<https://www.rfc-editor.org/info/rfc8849>>.

Appendix A. Changes / Author Notes.

[RFC Editor: Please remove this section before publication]

From -15 to -16:

- *Many simplifications to focus the document on the technical bits as much as possible, based on mailing list feedback.
- *Removed unused references.
- *Removed the RFC 2119 language because it is no longer used in the document.
- *Added a non-normative IANA registry.
- *Added Paul Hoffman as second author to help get the draft moving in the DNSOP WG again.

From -14 to -15:

- *[Pinky]: Gee, Brain. What are we going to do tonight?
- *[The Brain]: The same thing we do every 6 months, Pinky. Post a new version of this document, with only the version number changed.

From -13 to -14:

- *Andrew asked to be removed as co-author, due to potential perception of CoI.
- *Erik Auerswald provided Github issues and comments re: references and grammar.

From -12 to -13:

- *Just bumping versions to prevent expiration.

From -08 to -12:

- *Just bumping versions to prevent expiration.
- *Updated references (aggressive-nsec is now RFC 8198, draft-ietf-dnsop-sutld-ps is now 8244).

From -07 to -08:

- *Made it clear that this is only for non-DNS.
- *As per Interim consensus, removed the "add this to local zones" text.
- *Added a Privacy Considerations section
- *Grammar fix -- "alternative" is more correct than "alternate", replaced.

From -06 to -07:

- *Rolled up the GitHub releases in to a full release.

From -07.2 to -07.3 (GitHub point release):

- Removed 'sandbox' at Stephane's suggestion - <https://www.ietf.org/mail-archive/web/dnsop/current/msg18495.html>
- Suggested (in 4.1 bullet 3) that DNS libraries ignore these -- Bob Harold - https://mailarchive.ietf.org/arch/msg/dnsop/a_ruPf8osSzi_hCzCq0xYLXhYoA
- Added some pointers to the SUTLD document.

From -07.1 to -07.2 (Github point release):

- *Reverted the <TBD> string (at request of chairs).
- *Added an editors note explaining the above.
- *Removed some more background, editorializing, etc.

From -06 to -07.1 (<https://github.com/wkumari/draft-wkumari-dnsop-alt-tld/tree/7988fcf06100f7a17f21e6993b781690b5774472>):

- *Replaced ALT with <TBD> at the suggestions of George.

From -05 to -06:

- *Removed a large amount of background - we now have the (adopted) tldr document for that.
- *Made it clear that pseudo-TLD is not intended to be pejorative.
- *Tried to make it clear that this is something people can choose to use - or not.

From -04 to -05:

- *Version bump - we are waiting in the queue for progress on SUN, bumping this to keep it alive.

From -03 to -04:

- *3 changes - the day, the month and the year (a bump to keep alive).

From -02 to -03:

- *Incorporate suggestions from Stephane and Paul Hoffman.

From -01 to -02:

- *Merged a bunch of changes from Paul Hoffman. Thanks for sending a git pull.

From -00 to 01:

- *Removed the "delegated to new style AS112 servers" text -this was legacy from the omniscient AS112 days. (Joe Abley)

- *Removed the "Advice to implementors" section. This used to recommend that people used a subdomain of a domain in the DNS. It was pointed out that this breaks things badly if the domain expires.

- *Added text about why we don't want to administer a registry for ALT.

From Individual-06 to DNSOP-00

- *Nothing changed, simply renamed draft-wkumari-dnsop-alt-tld to draft-ietf-dnsop-alt-tld

From -05 to -06

- *Incorporated comments from a number of people, including a number of suggestion heard at the IETF meeting in Dallas, and the DNSOP Interim meeting in May, 2015.

- *Removed the "Let's have an (optional) IANA registry for people to (opportunisticly) register their string, if they want that option" stuff. It was, um, optional....

From -04 to -05

- *Went through and made sure that I'd captured the feedback received.

- *Comments from Ed Lewis.

- *Filled in the "Domain Name Reservation Considerations" section of RFC6761.

- *Removed examples from .Onion.

From -03 to -04

- *Incorporated some comments from Paul Hoffman

From -02 to -03

- *After discussions with chairs, made this much more generic (not purely non-DNS), and some cleanup.

From -01 to -02

- *Removed some fluffy wording, tightened up the language some.

From -00 to -01.

- *Fixed the abstract.

- *Recommended that folk root their non-DNS namespace under a DNS namespace that they control (Joe Abley)

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