Domain Name System Operations
Internet-Draft
Intended status: Informational
Expires: 3 December 2026

W. Hardaker
W. Kumari
Google, Inc.
J. Reid
RTFM llp
G. Huston
APNIC

1 June 2026

Guidelines for IANA DNS Root Zone Publication List Providers
draft-hardaker-dnsop-root-zone-pub-list-guidelines-02

Abstract

This document describes guidelines for entities that wish to publish a list of URLs from where the contents of the IANA DNS root zone may be obtained. These guidelines are specifically provided as guidance to IANA, but these suggestions may be applicable to any entity wishing to build a list of IANA DNS root zone sources for their own purposes.

About This Document

This note is to be removed before publishing as an RFC.

The latest revision of this draft can be found at https://github.io/hardker/draft-hardaker-dnsop-root-zone-publication-list-guidelines/draft-hardaker-dnsop-root-zone-publication-list-guidelines.html. Status information for this document may be found at https://datatracker.ietf.org/doc/draft-hardaker-dnsop-root-zone-pub-list-guidelines/.

Discussion of this document takes place on the Domain Name System Operations Working Group mailing list (mailto:dnsop@ietf.org), which is archived at https://mailarchive.ietf.org/arch/browse/dnsop/. Subscribe at https://www.ietf.org/mailman/listinfo/dnsop/.

Source for this draft and an issue tracker can be found at https://github.com/https://github.com/hardaker/draft-hardaker-dnsop-root-zone-publication-list-guidelines.

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

Copyright Notice

Table of Contents

1. Introduction

This document describes guidelines for entities that wish to publish a list of URLs from where the contents of the IANA DNS root zone may be obtained. These guidelines are specifically provided as guidance to IANA, but these suggestions may be applicable to any entity wishing to build a list of IANA DNS root zone sources for their own purposes.

When implementing a LocalRoot or similar service, as described in [draft-wkumari-dnsop-localroot-bcp], the contents of the DNS root zone need to be obtained. Because the contents of the IANA DNS root zone are crytographically verifiable, it may be obtained from any source assuming integrity verification has been performed.

Entities, such as IANA, will need to publish a list of acceptable sources that LocalRoot enabled resolvers can use to routinely fetch and serve or cache the contents of the IANA DNS root zone. The guidelines in this document are intended to provide advice to IANA or any other entity wishing to build such a list of sources.

A separate document [draft-hardaker-dnsop-iana-root-zone-publication-points] describes the format of the IANA published list, along with IANA considerations that request the list’s publication.

2. Conventions and Definitions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in BCP 14 [RFC2119] [RFC8174] when, and only when, they appear in all capitals, as shown here.

3. Guidelines for building a IANA DNS root zone publication list

The following describes the community established guidelines when developing a list of IANA DNS root zone publication points:

3.1. Guidelines related to the list of publication points

* the list of publication points must be machine readable.

* the list of publication points must not be limited to a particular size.

* the list of publication points should include publication points hosted from multiple organizations.

* the list of publication points should include a service endpoint from IANA itself.

* the list of publication points must be verifiable as complete through the use of a cryptographic checksum.

* the list of publication points should be cryptographically verifiable as to its origin.

* the list of publication points should include multiple protocols that can be used for fetching the IANA root zone data. Specifically the list should include both https and AXFR based sources.

* each item in the list of publication points must be individually complete and usable in isolation.

* each item in the list of publication points must be a unique URL.

* the publication list should contain a variety of protocols for LocalRoot implementations to make use of based on implementation and operator preference. For example, the list should contain URLs of "http", "https", "axfr", "xot" and "xoh" schemes if possible.

* at least some publication points should offer usage over direct IPv4 and IPv6 addresses rather than DNS based names in order to potentially avoid the need for bootstrapping over regular DNS.

* each item in the list of publication points should be routinely verified as to its functioning status or else removed from the list.

3.2. Guidelines related to entries in the list of publication points

* each publication point should make use of widely geographically distributed service points.

* each publication point must be globally available without imposed source-based or other filtering.

* https based publication points should offer service equivalent to existing Content Delivery Networks (CDNs) today.

* AXFR, IXFR and XoT publication points should be as robust as the existing DNS root servers that offer similar services today.

* each publication point should have a service level agreement, ideally at zero cost, with IANA.

4. Security Considerations

TBD

5. IANA Considerations

IANA may wish to carefully consider the suggestions in this document when building a list of IANA DNS root zone publication points.

6. References

6.1. Normative References

[draft-wkumari-dnsop-localroot-bcp] "Running a Root Server Local to a Resolver", n.d., <draft-hardaker-dnsop-dns-xfr-scheme>.

[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/rfc/rfc2119>.

[RFC3986] Berners-Lee, T., Fielding, R., and L. Masinter, "Uniform Resource Identifier (URI): Generic Syntax", STD 66, RFC 3986, DOI 10.17487/RFC3986, January 2005, <https://www.rfc-editor.org/rfc/rfc3986>.

[RFC4395] Hansen, T., Hardie, T., and L. Masinter, "Guidelines and Registration Procedures for New URI Schemes", RFC 4395, DOI 10.17487/RFC4395, February 2006, <https://www.rfc-editor.org/rfc/rfc4395>.

[RFC5234] Crocker, D., Ed. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF", STD 68, RFC 5234, DOI 10.17487/RFC5234, January 2008, <https://www.rfc-editor.org/rfc/rfc5234>.

[RFC5936] Lewis, E. and A. Hoenes, Ed., "DNS Zone Transfer Protocol (AXFR)", RFC 5936, DOI 10.17487/RFC5936, June 2010, <https://www.rfc-editor.org/rfc/rfc5936>.

[RFC8174] Leiba, B., "Ambiguity of Uppercase vs Lowercase in RFC 2119 Key Words", BCP 14, RFC 8174, DOI 10.17487/RFC8174, May 2017, <https://www.rfc-editor.org/rfc/rfc8174>.

[RFC8499] Hoffman, P., Sullivan, A., and K. Fujiwara, "DNS Terminology", RFC 8499, DOI 10.17487/RFC8499, January 2019, <https://www.rfc-editor.org/rfc/rfc8499>.

[RFC9103] Toorop, W., Dickinson, S., Sahib, S., Aras, P., and A. Mankin, "DNS Zone Transfer over TLS", RFC 9103, DOI 10.17487/RFC9103, August 2021, <https://www.rfc-editor.org/rfc/rfc9103>.

6.2. Informative References

[draft-hardaker-dnsop-iana-root-zone-publication-points] "A format for publishing a list of sources of IANA root zone data", n.d., <https://github.com/hardaker/draft-hardaker-dnsop-iana-root-zone-publication-points>.

[RFC7766] Dickinson, J., Dickinson, S., Bellis, R., Mankin, A., and D. Wessels, "DNS Transport over TCP - Implementation Requirements", RFC 7766, DOI 10.17487/RFC7766, March 2016, <https://www.rfc-editor.org/rfc/rfc7766>.

Acknowledgments

TBD

Authors' Addresses

Wes Hardaker
Google, Inc.
Email: ietf@hardakers.net

Warren Kumari
Google, Inc.
Email: warren@kumari.net

Jim Reid
RTFM llp
St Andrews House
382 Hillington Road, Glasgow Scotland
G51 4BL
United Kingdom
Email: jim@rfc1035.com

Geoff Huston
APNIC
6 Cordelia St
South Brisbane QLD 4101
Australia
Email: gih@apnic.net