RSSAC001 Response for M-Root Operations

About This Document

ICANN RSSAC (Root Server System Advisory Committee) has published RSSAC001 in 2015, which describes service expectations of Root Servers. This document describes the status of how M-Root server, which is jointly operated by WIDE Project and JPRS, meets each item of expectations stated in "3. Expectations of Root server Operators" of RSSAC001.

Note that in this document, "Root-Servers web page" refers the following URL:
https://www.root-servers.org/

while "M-Root web page" refers the following URL:
https://m.root-servers.org/

3.1 Infrastructure

[E.3.1-A] Individual Root Server Operators are to publish or continue to publish operationally relevant details of their infrastructure, including service-delivery locations, addressing information and routing (e.g., origin autonomous system) information.

The operationally relevant details of M-Root is available at the Root-Servers web page, along with other Root Servers information.

M-Root also publishes similar information at M-Root web page.

[E.3.1-B] Individual Root Servers will deliver the service in conformance to IETF standards and requirements as described in RFC 7720 and any other IETF standards-defined Internet Protocol as deemed appropriate.

The operation of M-Root complies with RFC 7720. The DNS service of M-Root complies with IETF standard protocols.

3.2 Service Accuracy

[E.3.2-A] Individual Root Servers will adopt or continue to implement the current DNS protocol and associated best practices through appropriate software and infrastructure choices.

The operation of M-Root complies with current DNS protocol and associated best current practices by using appropriate software and hardware.

[E.3.2-B] Individual Root Servers will serve accurate and current revisions of the root zone.

M-Root is using the root-zone provided by RZM (Root Zone Maintainer) without any modifications. The root-zone is delivered without significant delay by using the notification method from the transfer servers, and the version of the zone serial is monitored to check the synchronization of the data.

[E.3.2-C] Individual Root Servers will continue to provide "loosely coherent" service across their infrastructure.

Each instance of M-Root uses the root-zone transferred from RZM directly or one of other instances who have up-to-date zone. With this structure, M-Root can provide "loosely coherent" service across its infrastructure.

[E.3.2-D] All Root Servers will continue to serve precise, accurate zones as distributed from the Root Zone Maintainer.

By the operation described in E.3.2-A/B/C, M-Root continues to serve precise, accurate zones as distributed from RZM.

3.3 Service Availability

[E.3.3-A] Individual Root Servers are to be deployed such that planned maintenance on individual infrastructure elements is possible without any measurable loss of service availability.

M-Root is using Anycast technology described in RFC 3258. When we perform maintenance work on one location, BGP announcement from the location will be suspended so that the routing system direct the queries to other active locations.

[E.3.3-B] Infrastructure used to deploy individual Root Servers is to be significantly redundant, such that unplanned failures in individual components must not cause the corresponding service to become generally unavailable to the Internet.

With Anycast technology and redundancy within a location, M-Root provides the service when an unplanned failure happens, after a short moment which allows various systems to converge.

[E.3.3-C] Each Root Server Operator shall publish documentation that describes the operator's commitment to service availability through maintenance scheduling and its commitment to the notification of relevant operational events to the Internet community.

M-Root operator publishes the operator's commitment to service availability at "News" section of M-Root web page. This web page includes the maintenance schedule and any relevant events.

3.4 Service Capability

[E.3.4-A] Individual Root Server Operators will make all reasonable efforts to ensure that sufficient capacity exists in their deployed infrastructure to allow for substantial flash crowds or denial of service (DoS) attacks.

Each location of M-Root is designed to have substantial capacity headroom with normal query load. However, there is no guarantee that significant level of DDoS attack won't affect the service such as upstream network congestion.

[E.3.4-B] Each root server operator shall publish documentation on the capacity of their infrastructure, including details of current steady-state load and the maximum estimated capacity available.

M-Root operator publishes the current traffic load in M-Root web page.

Maximum estimated capacity is not published, because we do not intend to give any useful information to the DDoS Attackers.

3.5 Operational Security

[E.3.5-A] Individual Root Server Operators will adopt or continue to follow best practices with regard to operational security in the operation of their infrastructure.

M-Root operator continues to follow the best current practices with regard to operational security by communication with related parties including other Root DNS operators and DNS software developers.

[E.3.5-B] Root Server Operators shall publish high-level business continuity plans with respect to their Root Server infrastructure.

M-Root server is jointly operated by WIDE Project and JPRS. WIDE Project and JPRS are both independent organizations, and have diversity in its operation and organization level. This means that if one organization become unavailable to operate the M-Root, the other organization can keep the service without any service interruption.

3.6 Diversity of Implementation

[E.3.6-A] Each Root Server Operator shall publish documentation that describes key implementation choices (such as the type of DNS software used) to allow interested members of the Internet community to assess the diversity of implementation choices across the system as a whole.

The key implementation choices of M-Root operations are described in M-Root web page.

The implementation information is shared among Root Server Operators to maintain the diversity among the Root Server Operators.

3.7 Monitoring and Measurement

[E.3.7-A] Each Root Server Operator will adopt or continue to follow best current practices with respect to operational monitoring of elements within their infrastructure.

M-Root operator collects operational statistics described in RSSAC002v3, and the data are published in RSSAC002 Statistics page of M-Root web page.

To monitor the infrastructure, M-Root operator uses NOC service and our original monitoring tools. We provide common service monitoring and check the status of zone synchronization by SERIAL information.

[E.3.7-B] Each Root Server Operator will adopt or continue to perform measurements of query traffic received and shall publish statistics based on those measurements.

As described in E.3.7-A, M-Root operator publishes its RSSAC002 statistic data at M-Root web page.

3.8 Communication

[E.3.8.1-A] Individual Root Server Operators will continue to maintain functional communication channels between each other in order to facilitate coordination and maintain functional working relationships between technical staff.

At least one of M-Root operator organizations participated and will participates in all regular face-to-face Root Server Operators meetings. One of the high priority purposes of the meetings is to keep RSS operation stable as a whole, including maintaining availability by avoiding coincidental planned maintenance, for example.

M-Root operator organizations are able to communicate the other Root Operators through multiple communication channels at any moment to deal with emergency situations.

M-Root operator organizations hold weekly conference calls as well as face-to-face meetings several times a year to synchronize various things.

[E.3.8.1-B] All communications channels are to be tested regularly.

M-Root operator organizations are regularly using multiple communication channels with its internal meetings.

Root Server Operators are also regularly using multiple communication channels. In addition, alternative emergency measure is tested in the face-to-face meeting. M-Root operator organizations participate the test.

[E.3.8.2-A] Individual Root Server Operators shall publish administrative and operational contact information to allow users and other interested parties to escalate technical service concerns.

See E.3.1-A.

Version History:

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