



# RSSAC Activities Update

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RSSAC Co-Chairs | ICANN-60 | October 2017

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# **RSSAC Overview**

Brad Verd



# What is RSSAC?

- The role of the Root Server System Advisory Committee ("RSSAC") is to advise the ICANN community and Board on matters relating to the operation, administration, security, and integrity of the Internet's Root Server System.
- (This is a very narrow scope!)

# RSSAC organization

- RSSAC
  - Appointed representatives from the 12 root server operators
  - Alternates to these
  - Liaisons
- RSSAC Caucus
  - Body of volunteer subject matter experts
  - Appointed by RSSAC

# Caucus

- Members
  - 87 DNS and root server system experts
  - Public statements of interest
  - Public credit for individual work
- Purpose
  - Pool of experts
    - Expertise, critical mass, broad spectrum
  - Transparency of who does the work
    - Who, what expertise, which other hats
  - Framework for getting work done
    - Results, leaders, deadlines
- To apply, email [rssac-membership@icann.org](mailto:rssac-membership@icann.org)

# Caucus – Next Meetings



ICANN60  
31 October 2017  
15:15 – 16:45  
Abu Dhabi Time



IETF 100  
12 November 2017  
15:30 – 17:00  
Singapore Time

# RSSAC Administration Update

- Numbering of RSSAC Publications
  - Every RSSAC publication has a number
  - View publications by date or document type
    - advisories, comments, procedures, reports
  - URL at:  
<https://www.icann.org/groups/rssac/documents>



## RSSAC Publications | By Date

The RSSAC may publish advisories, reports, and statements within its mandate of advising the ICANN community and Board as well as documents related to its own administration and work.

**By Date | By Document Type and Date | By Number and Version**

Number	Name	Date
<a href="#">RSSAC022</a>	Response to the GNSO Policy Development Process (PDP) Working Group on the new Generic Top Level Domains (gTLDs) Subsequent Procedures	06 October 2016
<a href="#">RSSAC021</a>	RSSAC Statement Concerning The Impact of the Unavailability of a Single Root Server	08 September 2016
<a href="#">RSSAC000v2</a>	RSSAC Operational Procedures	30 June 2016
<a href="#">RSSAC020</a>	RSSAC Statement on Client Side Reliability of Root DNS Data	28 June 2016
<a href="#">RSSAC019</a>	RSSAC Workshop 2 Report	26 June 2016
<a href="#">RSSAC002v3</a>	Advisory on Measurements of the Root Server System	06 June 2016
<a href="#">RSSAC018</a>	RSSAC Statement on the Transmission of the ICG and CCWG-Accountability Proposals	10 March 2016

# RSSAC Administration Update

- **ISC:** Fred Baker and Jeff Osborn appointed as primary and alternate representatives
- **ICANN:** Terry Manderson appointed as primary representative



# **Recent RSSAC Publications**

# RSSAC Publications since ICANN 59

- RSSAC028: Technical Analysis of the Naming Scheme Used For Individual Root Servers
- RSSAC029: October 2017 Workshop Report
- RSSAC000v3: RSSAC Operational Procedures ver 3

# RSSAC028: Scope of Work

- Consider changes to the current naming scheme, in particular whether the names assigned to individual root servers should be moved into the root zone from the root-servers.net zone;
- Consider the impact on the priming response of including DNSSEC signatures over root server address records;
- Perform a risk analysis;
- Make recommendations on whether changes should be made, and what those changes should be.



# RSSAC028: Naming Schemes Considered

1. The current naming scheme
2. The current naming scheme with DNSSEC
3. In-zone names
4. Shared delegated TLD
5. Names delegated to each operator
6. Single shared label for all operators

# RSSAC028: Maximum Response Sizes

Scheme	Size
Current	1097
Current with DNSSEC	3833
In-zone names	3938
Shared TLD	4093
Per-operator delegations	1133
Single shared name	1485

Tested implementations: BIND 9.10.3, NSD 4.1.13, Knot 2.2.0, Knot 2.3.0

# RSSAC028: Recommendations

1. No changes should be made to the current naming scheme used in the root server system until more studies have been conducted.
2. Understand the current behavior of DNS resolvers and how each naming scheme discussed in this document would affect these behaviors.
3. Understand the feasibility and impact of node re-delegation attacks.
4. Explore options for minimizing the size of a signed priming response.

# RSSAC029: October 2017 Workshop Report

- Advanced the DNS root service governance framework defined through an apolitical mind map
- Focused on identifying/defining:
  - the stakeholders of the DNS root service
  - root server operations group
  - root server association
  - Strategic, architectural and policy function
  - Designation and removal function
  - Performance monitoring and accountability function
  - Financial Function



# **Updates on Current RSSAC Work**



# Current Work: Distribution of Anycast Instances

On 6 October 2016, the RSSAC established a Caucus work party to produce “**Best Practices for the Distribution of Anycast Instances of the Root Name Service**” with the following research questions:

- Given the state of current internet technology, what is the maximum latency a relying party should experience when transacting with the DNS root service as opposed to with a single “root server?”
- Will adding more instances in more topologically diverse locations make the system more resilient to Denial Of Service (DOS) attacks?
- If root operators were to coordinate their deployments of anycast instances, what considerations should be contemplated?
- Are there any regional or global technological risks (or benefits) if only a subset of operators (versus all or the majority of root operators) deploy anycast instances?

# Current Work: Anonymizing Root Query Data

- A Work Party to investigate the harmonization of anonymization procedure for data collecting:
  - Consider whether harmonization of anonymization procedures is something to recommend to the RSO community.
  - If yes, recommend a preferred way to anonymize the data.
  - Consider whether to recommend that anonymization be undertaken by all who share data.

# Current Work: Packet Size Work Party

- Define the set of IP (and ICMP), UDP/TCP and DNS parameters configuration options and on-the-wire outcomes which should be defined, and specified for any host providing root DNS service either stand-alone or in an any-cast configuration.
- Define a registry of this parameter/configuration state which is kept up to date.
- Consider if a defined requirement should exist to set a common MSS/MTU and to define DNS, UDP, TCP, IP, ICMP and ICMPv6 packet size fragmentation and signaling expectations from root server instances, and their connectivity into the global public Internet.

# Current Work: RSSAC Tools (Wes)

- <https://github.com/rssac-caucus>
  - Community catalog of RSSAC002 tools
  - Repositories allocated on request
  - Contact Wes Hardaker <[hardaker@isi.edu](mailto:hardaker@isi.edu)>

# Existing RSSAC Caucus Tools

- RSSAC002-data
  - Perl script to pull RSSAC002 data
  - Collected RSSAC002 data from every root
- RSSAC002-R-API
  - R language interface to RSSAC002 data
- root-server-naming-tests
  - Test suites to study root server renaming scenarios
  - Created as part of RSSAC028 study





# **Community Interaction**

Tripti Sinha

# Transparency - RSSAC

- Minutes of Meetings
  - <https://www.icann.org/resources/pages/rssac-meetings-2014-05-06-en>
- Publications
  - <https://www.icann.org/groups/rssac/documents>
- Root Server System Tutorial
  - <https://icann58copenhagen2017.sched.com/event/9npo/how-it-works-root-server-operations>
- Operational procedures: RSSAC000v3
  - <https://www.icann.org/en/system/files/files/rssac-000-op-procedures-23oct17-en.pdf>

# Transparency – Root Server Operators

- Agendas of Root Operator meetings
  - <http://root-servers.org/>
- RSSAC002 statistics
  - See individual root server sites and also on DNS-OARC
- Public web page and news of the root servers
  - <http://root-servers.org/news.html>
- Individual web pages
- Public letters with IANA
- Collaborative reports on major events
  - E.g., <http://root-servers.org/news/events-of-20160625.txt>
- RSSAC can respond to technical RSS questions
  - [ask-rssac@icann.org](mailto:ask-rssac@icann.org)

# Transparency Feedback

- Were you aware of these transparency items?
- What is missing from these lists?
- How can we further improve our transparency?

# Questions?

## **For more information on the RSSAC see:**

- ⦿ Main webpage: <https://rssac.icann.org/>
- ⦿ Publications:  
<https://www.icann.org/groups/rssac/documents>

## **Interested in joining RSSAC caucus, see:**

- ⦿ Caucus webpage: <https://www.icann.org/groups/rssac-caucus>
- ⦿ Send email to [rssac-membership@icann.org](mailto:rssac-membership@icann.org)





**Thank You**