

RSSAC Statement on Identification of Root Server Operators DD Month 2020

As described in RSSAC023 (History of the Root Server System),¹ both the organizations operating root servers, and the way in which they are identified, has evolved over time. As capacity demands grew, new operators and new root servers were added. In 1995, to accommodate further growth, a consistent nomenclature was adopted, which remains in use today. For example, Verisign currently operates A.ROOT-SERVERS.NET, which has the IPv4 address 198.41.0.4 and IPv6 address 2001:503:ba3e::2:30.

An outcome of the 1995-era growth is that it became common to refer to root server operators (RSOs) with “letters” (i.e., the leftmost label in the host name). These letters are simply abbreviated technical identifiers (e.g., A-root, B-root). However, their use as metonyms for operators over the years has led to misconceptions within the global community in how root servers are architected, and unnecessarily detracted from the organizations responsible for providing the service.

One such misconception is that increasing the number of root server identities (RSIs) is the best way to scale the root server system (RSS). While this may have been true in the past, the reality today is that the use of anycast technology has significantly changed service architectures, and the growth of the RSS is no longer correlated with more technical identifiers (names and addresses).

Another misconception, commonly held by well-meaning organizations in which root server instances are hosted, is that it is important to “collect” (i.e., host) a *letter* from as many RSOs as possible. In general, the RSOs prefer to spread instances around geographically and topologically, rather than place multiple instances from different RSIs in the same location.

Through the evolution of the RSS the technical identifiers have also evolved, as was the case in 1995. In 2017 the RSSAC Caucus investigated the naming scheme for the root server labels in the root zone.² The investigations were inconclusive. However, maintaining a hold on the current metonyms presumes to keep the status quo in the face of future technical review and recommendations.

Finally, future architectures may reduce the number of identifiers without impacting the number of anycast instances deployed.

To prevent any misunderstanding that a fixed relationship exists between RSIs and RSOs:

¹ See RSSAC023: History of the Root Server System. Available at:
<https://www.icann.org/en/system/files/files/rssac-023-04nov16-en.pdf>

² See RSSAC028: Technical Analysis of the Naming Scheme Used For Individual Root Servers. Available at:
<https://www.icann.org/en/system/files/files/rssac-028-03aug17-en.pdf>

The RSSAC advises that letters no longer be used to identify operators, as they no longer have the same relevance in growing RSS capacity, architecture decisions, or ensure the appropriate focus and attribution to the operators.

The best way to identify an RSO is to use the organization's name. For technical discussions the full label (e.g., A.ROOT-SERVERS.NET), and if necessary the associated IPv4 and IPv6 addresses, can be used to maintain clarity.

The RSSAC recommends that changes be made to presentations and websites maintained or produced by individual root server operators, root-servers.org, the RSSAC and its Caucus, and the community.

IANA maintains an up-to-date list of operators, the identifiers they operate and the associated IP addresses at <https://www.iana.org/domains/root/servers>.