

**DEPARTMENT OF COMMERCE**

**National Telecommunications and Information Administration**

**[Docket No. 110207099-1099-01]**

**RIN 0660-XA23**

**Request for Comments on the Internet Assigned Numbers Authority (IANA) Functions**

**AGENCY:** National Telecommunications and Information Administration, U.S. Department of Commerce.

**ACTION:** Notice of Inquiry.

**SUMMARY:** The United States Department of Commerce's National Telecommunications and Information Administration (NTIA) remains committed to preserving a stable and secure Internet Domain Name System (DNS). Critical to the DNS is the continued performance of the Internet Assigned Numbers Authority (IANA) functions. The IANA functions have historically included: (1) the coordination of the assignment of technical Internet protocol parameters; (2) the administration of certain responsibilities associated with Internet DNS root zone management; (3) the allocation of Internet numbering resources; and (4) other services related to the management of the .ARPA and .INT top-level domains. The Internet Corporation for Assigned Names and Numbers (ICANN) currently performs the IANA functions, on behalf of the United States Government, through a contract with NTIA. Given the September 30, 2011 expiration of this contract, NTIA is seeking public comment to enhance the performance of the IANA functions in the development and award of a new IANA functions contract.

**DATES:** Comments are due on or before March 31, 2011.

**ADDRESSES:** Written comments may be submitted by mail to Fiona M. Alexander, Associate Administrator, Office of International Affairs, National Telecommunications and Information Administration, 1401 Constitution Avenue, N.W., Room 4701, Washington, DC 20230. Paper submissions should include a three and one-half inch computer diskette in HTML, ASCII, Word or WordPerfect format (please specify version). Diskettes should be labeled with the name and organizational affiliation of the filer, and the name of the word processing program used to create the document. Alternatively, comments may be submitted electronically to [IANAFunctions@ntia.doc.gov](mailto:IANAFunctions@ntia.doc.gov). Comments provided via electronic mail should also be submitted in one or more of the formats specified above. Comments will be posted to NTIA's website at <http://www.ntia.doc.gov/ntiahome/domainname/IANAFunctions.html>.

**FOR FURTHER INFORMATION CONTACT:** For questions about this Notice contact: Vernita D. Harris, National Telecommunications and Information Administration, U.S. Department of Commerce, 1401 Constitution Avenue, N.W., Room 4701, Washington, DC 20230; telephone: (202) 482-4686; email: [vharris@ntia.doc.gov](mailto:vharris@ntia.doc.gov). Please direct media inquiries to the Office of Public Affairs, NTIA, at (202) 482-7002.

**SUPPLEMENTARY INFORMATION:** The Internet Assigned Numbers Authority (IANA) functions were initially performed under a series of contracts between the Department of Defense's Advanced Research Projects Agency (DARPA) and the University of Southern California (USC), as part of a research project known as the Terranode Network Technology (TNT). As the TNT project and the DARPA/USC contract neared completion, the United States Government recognized the need for the continued performance of the IANA functions as vital to the stability and correct functioning of the Internet. In January 1999, NTIA initiated a

procurement process to fulfill this need.<sup>1</sup> NTIA awarded the IANA functions contract to ICANN in February 2000, and subsequently in March 2001, March 2004, and August 2005.<sup>2</sup> The current contract expires September 30, 2011.<sup>3</sup> Given this impending expiration, NTIA is issuing this Notice of Inquiry (NOI) to seek public comment to inform the procurement process, leading to the award of a new IANA functions contract. We take this opportunity to ask a detailed set of questions on this topic as this is the first time NTIA has undertaken a comprehensive review of the IANA functions contract since the award of the first contract in 2000.

The domain name system (DNS) is a critical component of the Internet that works like an address book, allowing users to reach websites using easy-to-understand domain names (e.g., <http://commerce.gov>) rather than the numeric network server addresses (e.g., <http://170.110.225.168>) necessary to retrieve information on the Internet. It is a hierarchical and globally distributed system in which distinct servers maintain the detailed information for their local domains and pointers for how to navigate the hierarchy to retrieve information from other domains. The accuracy, integrity, and availability of the information supplied by the DNS are essential to the operation of most systems, services, or applications that use the Internet.

Essential to the DNS is the performance of the IANA functions. At a summary level, the IANA functions include: (1) the coordination of the assignment of technical Internet protocol parameters; (2) the administration of certain responsibilities associated with Internet DNS root zone management; (3) the allocation of Internet numbering resources; and (4) other services

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<sup>1</sup>To assist in this transition from the DARPA contract with USC to ICANN, in 1998, ICANN entered into an agreement with the University of Southern California Information Sciences Institute (USC/ISI) to transition certain functions, responsibilities, assets, and personnel to ICANN.

<sup>2</sup>Each contract and modifications are available at <http://www.ntia.doc.gov/ntiahome/domainname/iana.htm>.

<sup>3</sup>The current contract has an option to extend the performance period for an additional six months. If necessary, NTIA will exercise this option in order to complete the contract procurement process. See Contract Clause 1.5 of the current contract, which can be viewed at

[http://www.ntia.doc.gov/ntiahome/domainname/iana/ianacontract\\_081406.pdf](http://www.ntia.doc.gov/ntiahome/domainname/iana/ianacontract_081406.pdf).

related to the management of the .ARPA and .INT top-level domains. A more detailed description of each of the IANA functions follows.

The first of the IANA functions is the coordination of the assignment of technical protocol parameters. This function includes the review and assignment of unique values to numerous parameters (e.g., operation codes, port numbers, object identifiers, protocol numbers) used in various Internet protocols. This function also includes dissemination of listings of assigned parameters through various means (including on-line publication) and the review of technical documents for consistency with assigned values.

The second function is the administration of certain responsibilities associated with Internet DNS root zone management. It includes receiving requests for and making routine updates of the top-level domain contact, nameserver and DS record information. This function also includes receiving delegation and redelegation requests, investigating the circumstances pertinent to those requests, and making recommendations and reporting actions undertaken in connection with processing requests.<sup>4</sup> Additionally, this function involves certain responsibilities related to DNSSEC operation at the root, including management of the root zone Key Signing Key (KSK).<sup>5</sup>

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<sup>4</sup>Performance of this function in relation to country code top level domains (ccTLDs) has evolved over time to address specific issues, one of which has been how best to respect the legitimate interests of governments in the management of their respective ccTLD within the current model.

<sup>5</sup>At present, the process flow for root zone management (see diagram at <http://www.ntia.doc.gov/DNS/CurrentProcessFlow.pdf>) involves three roles that are performed by different entities through two separate legal agreements with NTIA. The process itself includes the following steps: (1) TLD operators submit change requests to the IANA Functions Operator; (2) the IANA Functions Operator processes the request and conducts due diligence in verifying the request; (3) the IANA Functions Operator sends a recommendation regarding the request to the Administrator for verification/authorization; (4) the Administrator verifies that the IANA Functions Operator has followed its agreed upon verification/processing policies and procedures; (5) the Administrator authorizes the Root Zone Maintainer to make the change; (6) the Root Zone Maintainer edits and generates the updated root zone file; and (7) the Root Zone Maintainer distributes the updated root zone file to the thirteen (13) root server operators. Currently, ICANN performs the role of the IANA Functions Operator, NTIA performs the role of Administrator, and VeriSign performs the role of Root Zone Maintainer. NTIA's agreements with ICANN (IANA functions contract) and VeriSign, Inc. (Cooperative Agreement) provide the process through which changes are currently made to the authoritative root zone file.



The third function involves responsibilities for allocated and unallocated IPv4 and IPv6 address space and Autonomous System Number (ASN) space, including the delegation of IP address blocks to Regional Internet Registries (RIRs) for routine allocation. This function also includes reservation and direct allocation of space for special purposes, such as multicast addressing, addresses for private networks and globally specified applications.

Other services related to the performance of the IANA functions include the management of .ARPA and .INT top-level domains.

The responsibilities encompassed within the IANA functions require cooperation and coordination with a variety of technical groups and stakeholder communities. For example, protocol parameters are developed through and overseen by groups such as the Internet Engineering Task Force (IETF) and the Internet Architecture Board (IAB), policies and procedures associated with Internet DNS root zone management are developed by a variety of actors (e.g., the Internet technical community, ccTLD operators, and governments) and continue to evolve, and policies and procedures related to Internet numbering resources are developed within the RIRs. NTIA is cognizant and respectful of the policy and technical standards development roles these organizations, their constituencies, and other relevant Internet community stakeholders play.

NTIA recognizes that the IANA Functions Operator, in the performance of its duties, requires close constructive working relationships with interested and affected parties if it is to ensure quality performance of the IANA functions. Applicable to each of these functions and their performance are relevant policies, technical standards, and procedures developed and administered outside the purview of the IANA functions contract.

Given the importance of the Internet as a global medium supporting economic growth and innovation, continuing to preserve the security and stability of the Internet DNS remains a top priority for NTIA. This is a shared responsibility among all stakeholders in the Internet community. Currently, the IANA Functions Operator is required to operate computing and communications systems in accordance with best business and security practices. This includes utilizing authenticated communications between it and its customers. The IANA Functions Operator is also required to submit annually an IANA functions information security plan. The annual plan addresses controls that the IANA Functions Operator has employed to ensure the confidentiality, integrity and availability of the IANA functions processes and information assets. Additionally, the IANA Functions Operator is required to submit monthly performance reports. The monthly reports contain statistical and narrative information on the performance of the IANA functions (i.e., assignment of technical protocol parameters; administrative functions associated with root zone management; and allocation of internet numbering resources) for the previous 30 days.<sup>6</sup>

**Request for Comment:** The current IANA functions contract will expire on September 30, 2011. Given the impending expiration of this contract, NTIA is seeking public comment to enhance the performance of the IANA functions. These comments will be considered in the procurement process to award a new IANA functions contract.

Comments that contain references, studies, research, and other empirical data that are not widely published should include copies of the referenced materials with the submitted comments.

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<sup>6</sup>For reports on IANA functions activities see: <http://www.iana.org/reports> and <https://charts.icann.org/public/index-iana-main.html>.

1. The IANA functions have been viewed historically as a set of interdependent technical functions and accordingly performed together by a single entity. In light of technology changes and market developments, should the IANA functions continue to be treated as interdependent? For example, does the coordination of the assignment of technical protocol parameters need to be done by the same entity that administers certain responsibilities associated with root zone management? Please provide specific information to support why or why not, taking into account security and stability issues.
2. The performance of the IANA functions often relies upon the policies and procedures developed by a variety of entities within the Internet technical community such as the IETF, the RIRs and ccTLD operators. Should the IANA functions contract include references to these entities, the policies they develop and instructions that the contractor follow the policies? Please provide specific information as to why or why not. If yes, please provide language you believe accurately captures these relationships.
3. Cognizant of concerns previously raised by some governments and ccTLD operators and the need to ensure the stability of and security of the DNS, are there changes that could be made to how root zone management requests for ccTLDs are processed? Please provide specific information as to why or why not. If yes, please provide specific suggestions.
4. Broad performance metrics and reporting are currently required under the contract.<sup>7</sup> Are the current metrics and reporting requirements sufficient? Please provide specific information as to why or why not. If not, what specific changes should be made?

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<sup>7</sup>See Appendix A and Appendix B of the current contract, which can be viewed at [http://www.ntia.doc.gov/ntiahome/domainname/iana/ianacontract\\_081406.pdf](http://www.ntia.doc.gov/ntiahome/domainname/iana/ianacontract_081406.pdf).

5. Can process improvements or performance enhancements be made to the IANA functions contract to better reflect the needs of users of the IANA functions to improve the overall customer experience? Should mechanisms be employed to provide formalized user input and/or feedback, outreach and coordination with the users of the IANA functions? Is additional information related to the performance and administration of the IANA functions needed in the interest of more transparency? Please provide specific information as to why or why not. If yes, please provide specific suggestions.
6. Should additional security considerations and/or enhancements be factored into requirements for the performance of the IANA functions? Please provide specific information as to why or why not. If additional security considerations should be included, please provide specific suggestions.

Dated: February 22, 2011.

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Lawrence E. Strickling,  
Assistant Secretary for Communications and Information.