

# Request for Proposal for an Open-Source Reference Implementation of a RESTful-based Domain Name Registration Data Access Protocol (RESTful Whois)

## 1. Overview

Created in the 1980s, the WHOIS protocol was used by Internet operators to identify individuals or entities responsible for the operation of a network resource on the Internet. The Whois service has since evolved into a tool used for many purposes. However, as usage of the service evolved, few changes have been made to the protocol that supports the service. As a result, there is growing concern that the protocol would not meet the needs of the community.

Beginning in 2002, ICANN's Security and Stability Advisory Committee (SSAC) published various advisories describing the needs for improvement related to the WHOIS protocol, service and data schema, most recently SAC 051: *SSAC Report on Domain Name WHOIS Terminology and Structure*. SAC 051 summarizes the previous advisories, and among other things, recommends that the ICANN community evaluate and adopt a replacement protocol that supports the query and display of Internationalized registration data as well as addressing the relevant recommendations in past SSAC advisories on this topic.

Currently, the Internet Engineering Task Force (IETF) is chartering work to standardize a RESTful-based Registration Data Access Protocol (RDAP) for Domain Registries that will address many of the deficiencies in the original WHOIS protocol. In order to facilitate the evaluation and adoption of the replacement protocol, ICANN is seeking proposals for an open source reference implementation for a Domain Name RESTful RDAP Server via this Request for Proposal (RFP).

## 2. Requirements

2.1. The final product must conform to the relevant RFCs that will be standardized in the IETF Web-based Extensible Internet Registration Data Working Group.

2.2. While the standardization process advances, it is expected to have a number of releases that implement the then current specification. The timing and number of releases will be agreed between ICANN and the provider. The Internet drafts can be found here: <http://tools.ietf.org/id/weirds>.

2.3 The source code should be production quality, ready to be used by registries and registrars.

2.4. The reference implementation should allow for easy integration into the existing registries and registrars infrastructure. To accomplish this, the following factors should be considered:

2.4.1. The reference implementation should be written in a high-level, general-purpose programming language suitable for use by small to medium size name registries and registrars (e.g., Java, Perl, PHP, Python, Ruby). Note that there is no intention to provide a solution for everyone, but to provide, at least, a starting point for those registries and registrars that are least likely to do their own development from scratch.

2.4.2. It is envisioned that registries and registrars may need to modify parts of the implementation to integrate with their existing system. The proposal should identify these integration points, as well as plans to minimize the integration work. For example, separating the presentation layer, from the business logic layer from the data access layer would minimize integration with the registry and registrar database.

2.4.3. The reference implementation, its components and interactions between these components must be clearly documented in the code as well as in a separate PDF document.

2.4.4. The reference implementation should also include a PORT 43 WHOIS server proxy. The proxy server should be able accept client queries that conforms to RFC 3912, with the parameters as dictated by the gTLD registry / registrar policies. The proxy will translate port 43 WHOIS queries into RESTful queries, query the RESTful RDAP Service, and return the plain text results via PORT 43 back to clients.

2.5. The implementation should allow for parameter configuration of policy options, i.e., it should not dictate specific policies, but allow deployments to configure their owns.

2.6. Code contributions from third parties should be allowed, while keeping quality control measures on the code accepted.

2.7. The source code for the implementation will be made available for public distribution and use on a royalty-free basis under a BSD-style open-source license with no or minimal re-use restrictions.

2.8. The successful contractor will be required to set up an open source project at a popular open-source portal and provide on-going support (including accepting bug reports and update code) for a period of one year after delivery of the code.

### 3. Tender Scope

3.1. Taking note of this high level requirement document, proposals from respondents should address the following:

3.1.1. Work Approach. The Work Approach needs to detail the way in which the respondent would meet the requirements specified in section 2.

3.1.2. Schedule and Fees. The proposal should include a work schedule, including key milestone dates and a statement of proposed fees. Fees should be inclusive of related project expenses, including (but not limited to) electronic, postal, and telephone communication; computer hardware, software, and services; and test domain registration.

3.2. Deadline / Requirements: By 15 June, 2012, interested respondents should submit proposals by email to [rws-opensource@icann.org](mailto:rws-opensource@icann.org) to the attention of Steve Sheng, Senior Technical Analyst, or Francisco Arias, gTLD Registry Technical Liaison, ICANN. A confirmation email will be sent for each proposal received.

### 4. RFP Terms and conditions

#### General Terms and Conditions

Submission of a proposal shall constitute Respondent's acknowledgment and acceptance of all the specifications, requirements and terms and conditions in this RFP.

All costs of preparing and submitting its proposal, responding to or providing any other assistance to ICANN in connection with this RFP will be borne by the Respondent.

All submitted proposals including any supporting materials or documentation will become the property of ICANN. If Respondent's proposal contains any proprietary information which should not be disclosed or used by ICANN other than for the purposes of evaluating the proposal, that information should be marked with appropriate confidentiality markings.

#### Discrepancies, Omissions and Additional Information

Respondent is responsible for examining this RFP and all addenda. Failure to do so will be at the sole risk of respondent. Should respondent find discrepancies, omissions, unclear or ambiguous intent or meaning, or should any question arise

concerning this RFP, respondent must notify ICANN of such findings immediately in writing via email no later than three (3) days prior to the deadline for bid submissions. Should such matters remain unresolved by ICANN, in writing, prior to respondent's preparation of its proposal, such matters must be addressed in Respondent's proposal.

ICANN is not responsible for oral statements made by its employees, agents, or representatives concerning this RFP. If Respondent requires additional information, respondent must request that the issuer of this RFP furnish such information in writing.

A respondent's proposal is presumed to represent its best efforts to respond to the RFP. Any significant inconsistency, if unexplained, raises a fundamental issue of the respondent's understanding of the nature and scope of the work required and of its ability to perform the contract as proposed and may be cause for rejection of the proposal. The burden of proof as to cost credibility rests with the respondent.

If necessary, supplemental information to this RFP will be provided to all prospective Respondents receiving this RFP. All supplemental information issued by ICANN will form part of this RFP. ICANN is not responsible for any failure by prospective Respondents to receive supplemental information.

### **Assessment and Award**

ICANN reserves the right, without penalty and at its discretion, to accept or reject any proposal, withdraw this RFP, make no award, to waive or permit the correction of any informality or irregularity and to disregard any non-conforming or conditional proposal.

ICANN may request a Respondent to provide further information or documentation to support Respondent's proposal and its ability to provide the products and/or services contemplated by this RFP.

ICANN is not obliged to accept the lowest priced proposal. Price is only one of the determining factors for the successful award.

ICANN will assess proposals based on compliant responses to the requirements set out in this RFP, any further issued clarifications (if any) and consideration of any other issues or evidence relevant to the Respondent's ability to successfully provide and implement the products and/or services contemplated by this RFP and in the best interests of ICANN.

ICANN reserves the right to enter into contractual negotiations and if necessary, modify any terms and conditions of a final contract with the Respondent whose proposal offers the best value to ICANN.

The exact timing of the award may depend on the IETF standardization process.

## Disclaimer

This RFP shall not be construed in any manner to create an obligation on the part of ICANN to enter into any contract, or to serve as a basis for any claim whatsoever for reimbursement of costs for efforts expended. The scope of this RFP may be revised at the sole option of ICANN at any time. ICANN shall not be obligated by any proposals or by any statements or representations, whether oral or written, that may be made by ICANN. ICANN shall be held free from any liability resulting from the use or implied use of the information submitted in any proposal.

## 5. References

1. Hollenbeck, S. Sheng, S and Arias, F. “*Domain Name Registration Data Access Protocol Query Format*”, IETF Work in Progress (draft-hollenbeck-dnrd-ap-query-01). Available at: <https://datatracker.ietf.org/doc/draft-hollenbeck-dnrd-ap-query/>
2. Newton, A et al. “*Using HTTP for RESTful WHOIS Service by Internet Registries*”, IETF Work in Progress (draft-designteam-weirds-using-http-00), 2012. Available at <http://tools.ietf.org/html/draft-designteam-weirds-using-http>
3. Newton, A., Piscitello, D., Fiorelli, B., and Sheng, S. (2011) *A RESTful Web Service for Internet Names and Address Directory Services*. USENIX ;login, October 2011, Volume 36, Number 5.
4. Richardson, L., and Ruby, S. *Restful Web Services: Web Services for the Real World*. O'Reilly Media, 2007. See <http://shop.oreilly.com/product/9780596529260.do>
5. Sheng, S., Arias, F., Obispo, F. and Kong N. “*A RESTful Web Service for Domain Name Registration Data*”, IETF Work in Progress (draft-sheng-weirds-icann-rws-dnrd-01), 2012. Available at <http://tools.ietf.org/html/draft-sheng-weirds-icann-rws-dnrd>
6. Sun, B. “*A Multi-tier architecture for building RESTful Web Services*”. IBM DeveloperWorks, 2009. Available at <http://www.ibm.com/developerworks/web/library/wa-aj-multitier/>