



Draft Implementation Plan for the WHOIS Global Lookup Tool

Please note that this is a discussion draft only. GTLD Registrars and Registries should not rely on any of the proposed details of the contained information until after a Final Implementation Plan is published.

WHOIS Lookup Implementation Plan

Overview

On 8 November 2012, the ICANN Board [approved](#) a series of improvements to the manner in which ICANN carries out its responsibilities for WHOIS (the current gTLD registration data directory service), in response to the [recommendations](#) of the WHOIS Review Team convened under the Affirmation of Commitments (AoC).

The Board's mandate in response to the recommendations of the WHOIS Review Team, calls for ICANN to execute its [Action Plan](#) for improving WHOIS. This Plan describes ICANN's proposed design for creating a common Interface that overhauls the Internic Service to provide enhanced usability for consumers, including the display of full registrant data for all gTLD domain names (whether those gTLDs operate thin or thick WHOIS services). The ICANN WHOIS search interface ("ICANN Lookup Tool") is not intended to replace the WHOIS services offered by ICANN accredited registrars or registries, but is meant to supplement them.

This Implementation Plan is published to provide the ICANN community a high level description of the manner in which ICANN intends to develop the ICANN Lookup Tool. Feedback on this Implementation Plan may be provided by email to: whois@icann.org by 24 February 2014.

More information on the status of the other activities underway to improve WHOIS is available [here](#).

Technical Background

WHOIS is a query/response protocol that is widely used for querying databases in order to determine the registrant or assignee of Internet resources, such as a domain name or an IP address. Using the WHOIS protocol you can obtain information about a specific domain name, TLD or IP address or Autonomous System Number including:

- The object owner and additional contacts.
- The object registrar.
- The name servers assigned to the object.
- The creation and expiration dates.

In general, the final data available in a WHOIS response is not a standard, although some standards can be found in the applicable contracts.¹ The effective availability of the information above depends on the Authority in charge of the object assignation (NIC).

The goals of this implementation for the ICANN Lookup Tool include developing:

- An intuitive user interface to allow users the ability to easily query for an object.

¹ See the [Registrar Accreditation Agreement](#) for more details on the obligations applicable to ICANN accredited registrars.

- An internal API that attempts to guess the right server to query for the specified object.
- A set of parsers to convert raw registry/registrar output into a standardized format.
- An intuitive user interface for displaying results of queries based on the output of the parsers.
- A user friendly interface to explain and understand error messages received.
- A plan and mechanism for alerts when there are necessary changes to be made to a data parser.

High Level System Architecture

The ICANN Lookup Tool system architecture will be composed of two main subsystems that are each responsible for a specific function in the WHOIS query/response process. The two systems are the WHOIS Website and the WHOIS Backend Service.

WHOIS Website

The WHOIS Website is a web application that is implemented using the Drupal content management system that will be publicly and anonymously accessible. The Website serves as the entry point to receive and display WHOIS queries. The Website also prevents users from abusing the service by enforcing rate limits and prevents scripting using best practice.

At this time, it is not intended that WHOIS records will be stored or persisted for a long period of time through the ICANN Lookup Tool. However, there may be a technical need to cache popular searches for a limited time to improve site performance and decrease the load on registries and registrars. While it is difficult to project the volume of queries anticipated through the ICANN Lookup Tool, the current Internic Service is handling 7.4 million queries during a five-day period, or an average of 1.48 million queries per day. In addition, Verisign's monthly reports indicate that .COM receives approximately 1,771,323 monthly lookups, or 59,044 daily WHOIS web lookups.²

WHOIS Backend Service

The WHOIS backend service is responsible for processing the queries that are received from the WHOIS Website. The backend service will apply validation rules, query the registry or registrar WHOIS servers, parse the output and return a WHOIS object response back to the WHOIS Website. A typical flow consist of the following steps:

1. Receive a request from the WHOIS Website.
2. Validate request.
3. Perform WHOIS query to the IANA WHOIS server to identify the registry.

²See the Sept, 2013 .COM [monthly report](#).

4. Perform WHOIS query to the registry WHOIS server.
5. Perform WHOIS query to the registrar WHOIS server (If needed).
6. Return an answer to the WHOIS Website.

The backend service will implement its own rate limiting and caching to ensure that ICANN WHOIS service does not cause noticeable service interruptions for the registries or registrars.

External Systems Dependency

In order to support this service, the ICANN registrars and registries will be asked to cooperate by allowing ICANN's WHOIS Service unrestricted access to the registries and registrars WHOIS server (whitelisting ICANN IPs). ICANN intends to utilize the same IPs whitelisted by Registrars used for ICANN operations for this project.

ICANN's technical team will work together with the registries and registrars to ensure that the service does not cause any service overhead/interruptions for the registries or registrars.

Timeline

Development activities for the first phase commenced 15 December 2013, and will continue until the end of February 2014, with a target release date of 25 March 2014. These dates are subject to change depending on competing priorities and the associated complexities of integrating multiple vendors, which is required in order to complete this work effectively.