Network Working Group
Request for Comments: 1834
Category: Informational

J. Gargano
K. Weiss
University of California, Davis
August 1995

Whois and Network Information Lookup Service Whois++

Status of this Memo

This memo provides information for the Internet community. This memo does not specify an Internet standard of any kind. Distribution of this memo is unlimited.

I. Introduction

As currently defined, NICNAME/WHOIS [HARR85] service is a TCP transaction based query/response server, running on a few specific central machines, that provides netwide directory service to Internet users. The Network Information Center (NIC) maintains the central NICNAME database and server, defined in RFC 954, providing online look-up of individuals, network organizations, key host machines, and other information of interest to users of the Internet. The usefulness of this service has lead to the development of other distributed directory information servers and information retrieval tools and it is anticipated more will be created. Many sites now maintain local directory servers with information about individuals, departments and services at that specific site.

Typically these directory servers are network accessible. Local development of these services has resulted in wide variations in the type of data stored, access methods, search schemes, and user interfaces. The purpose of the Whois and Network Information Lookup Service Working Group (WNILS) is to expand and define the standard for WHOIS types of services, to resolve issues associated with the variations in access and provide a consistent and predictable service across the network. This memo describes new features for WHOIS to meet these goals.

II. Architecture

The WHOIS service should be provided in a client/server model. There are no restrictions on the design of the client, provided it is capable of passing queries to the server in the proper format, and capturing the server's response in some useful format. Existing WHOIS specifications call for clients to display responses in human-readable form. This more general proposal does not impose that

restriction.

This paper acknowledges the existence of many distributed information servers, and anticipates the creation of many more. To help users locate WHOIS servers, each server should have a nameserver entry in the form "whois.domain", i.e. whois.internic.net.

III. Client Design and Behavior

The client provides the user interface to the WHOIS system and a mechanism for query generation and display of the response. The client is responsible for providing support for paging of long output from the server. All clients must provide this service. The server will not include any special characters, or make any efforts to control output to a screen.

Special search criteria may be specified by the use of keywords or special characters, some of which are defined in RFC 954. Clients should be designed to make support for quoted strings unnecessary.

IV. Server Design and Behavior

The server should return the same information in response to a given query consistently, regardless of the client software or the hardware used to originate the query. Queries should be evaluated on a case-insensitive basis. Spaces should not be considered in searches. A search for "La Russo" should return both "LaRusso" and "La Russo" as matches.

There are three types of data records supported in this proposal: records for people, hosts, and domains.

Individual records

Name	Name of the individual	required
Organization	Name of the organization	required
Organization-type	Type of organization (university, commercial research)	optional
Work-telephone	Work telephone number	optional
Fax-telephone	Fax telephone number	optional
Work-address	Work postal address	optional

Title	Working title or position within an organization	optional
Department	Department	optional
Email-address	Email address in RFC 822 format for this individual	optional
Handle	A unique identifier for this record on the local server	required
Last-record-update	Date this record was last updated	required
Home-telephone	Home telephone number	optional
Home-address	Home postal address	optional

Host records

Hostname	Full domain name	required
IPAddress	Address	required
Sysadmin-name	System administrator name	optional
Sysadmin-phone	System administrator telephone	optional
Sysadmin-address	System administrator address	optional
Sysadmin-email	System admin. e-mail address	optional
Machine-type	Type of machine	optional
OS	Operating system	optional
MX	Mail exchanger	optional
Last-update	Last update	optional
Info	Location of additional information (i.e. anonymous FTP)	optional

Domain records

Domain-name	Domain name registered with the Network Information Center (NIC)	required
Network-address	Network address associated with this domain name	required
Admin-name	Name of the Administrative Contact for this domain	required

Admin-address	Postal address of the Admintistrative Contact for this domain	required
Admin-telephone	Telephone number of the Admintistrative Contact for this domain	required
Admin-email	Electronic mail address in RFC 1822 format for the Administrative Contact for this domain	required
Tech-name	Name of the Technical Contact for this domain	required
Tech-address	Postal address of the Administrative Contact for this domain	required
Tech-telephone	Telephone number of the Technical Contact for this domain	required
Tech-email	Electronic mail address in RFC 822 format for the Administrative Contact for this domain	required
Nameservers	Primary domain nameservers for this domain	optional
Last-update	Last date this record was updated	required

Search Options

A unique handle must be provided for every record in the server database to target specific records for display. For example, if there are three individuals named, respectively, A. La Russo, B. LaRusso, and C. Larusso, then a search for "LA RUSSO" would return all three as matches. However, each record would have a unique handle, i.e. LARUSSO1, LARUSSO2, and LARUSSO3. A search for any one of these handles would return a single match for that particular individual. This is consistent with the RFC 954 query, "whois !SMITH1"

Other search options which should be supported are:

```
whois smith              exact match on last name

whois smith,j            exact match on last name, first name
whois "smith,j"          begins with "J"
whois j. Smith
whois "j. Smith"

whois smith, john        exact match on last and first names
whois "smith, john"
whois john Smith
whois "john Smith"
whois .john Smith
whois "smith..."         all last names beginning
whois smith*             with Smith
whois begins smith

whois smith??            all last names beginning with
                         "Smith" and containing up to two
                         letters after "Smith", i.e. "Smith",
                         "Smithy", "Smithey" and "Smithie"

whois ends smith         all last names ending in "smith"

whois exact A Martinez   exact match for "A Martinez"

whois fuzzy paulson      all last names that sound like or
                         are spelled like "Paulson"

whois first Kazuko       exact match on first name "Kazuko"

whois first begins Art   all first names beginning with "Art"

whois first fuzzy Kasuko  all first names that sound like or are
                          spelled like "Kasuko"

whois hamlet.ucdavis.edu  IP address and other information
whois system hamlet.ucdavis.edu on the computer called
                                hamlet.ucdavis.edu.Could be served
                                by a domain name service querytype
                                (QTYPE) *
```

```
whois system hamlet     IP address and other
                        information on the computer called
                        hamlet with the default domain
                        appended.  Could be served by a
                        domain name service querytype
                        (QTYPE) *

whois 128.120.2.9       domain name and other
whois system 128.120.2.9  information on the computer at
                          specified IP address.  Could be served
                          by a domain name service querytype
                          (QTYPE) PTR.

whois !ucdavis-dom              site contacts and other
whois domain ucdavis.edu        information on the site ucdavis
```

If any keywords are specified in the query, the server will complete that specific query and return the results, even if 0 matches are found. If no keywords are specified, the server will interpret the query based upon the rules above. Optionally, the server may be configured so that if a search yields no matches, the query will automatically be run again, but with the keyword begin inserted.

Servers must support multiple levels of detail in response to queries. A query yielding multiple matches should return a short-form record for each match. A query yielding a single match should return a long-form record. A query yielding no matches should return context-sensitive help on expanding the search criteria.

On-line Help

The client should return a minimal (two line) help message for every query sent to the server. That message should identify the database being searched and provide instructions for the user to obtain more detailed help screens.

Additional help should be provided in special situations. The server should recognize queries that return zero matches, and provide a brief help message explaining how to broaden a search. If a search returns more than 50 matches, the server should take two actions. First, the user should get a message explaining how to narrow searches. Second, the user should be offered the option of re-specifying the search, or receiving all matching responses. When multiple matches are found and returned to the client, the server should add a brief help message explaining how to use handles to narrow the search to a single record.

If the client queries for "help" or "?" then the server should return a complete help file. The help file should contain information in sufficient detail for the user to understand and access all the features of WHOIS service.

V. Extensibility

This RFC defines a limited set of data records and fields for reliable whois queries. Mechanisms exist for whois clients to discover extended data records and query for fields not defined in this memo. It is recommended that Whois clients and servers include this functionality to maximize the extensibility and usefulness of this service.

VI. References

[Harr85] Harrenstein, K., Stahl, M., and E. Feinler, E., "NICNAME/WHOIS", RFC 954, SRI, October 1985.

VII. Security Considerations

Security issues are not discussed in this memo.

VIII. Authors' Addresses

Joan Gargano
Information Technology
Distributed Computing Analysis and Support
University of California
Davis, CA 95616

EMail: jcgargano@ucdavis.edu

Ken Weiss
Information Technology
Distributed Computing Analysis and Support
University of California
Davis, CA 95616

EMail: krweiss@ucdavis.edu