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New RDAP Feature Proposals

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Outline

- RDAP Overview
- RDAP: Client Identification and Authentication
 - Client Identification and Authentication Proposal
- RDAP: Query Bootstrapping
 - Query Bootstrapping Proposal
- RDAP: Search
 - Search Proposal

RDAP Overview

- Designed to address WHOIS deficiencies
 - Lack of standardized command structures
 - Lack of standardized output and error structures
 - Lack of support for internationalization and localization
 - Lack of support for user identification, authentication and access control
- Designed to be easy to implement and operate
 - HTTP-based “RESTful” web service
 - JSON-encoded responses
- Published as a series of IETF Proposed Standard RFCs (7480 – 7484) in March 2015
- Deployment and deployment planning in progress

RDAP: Client Identification and Authentication

- Core functionality described in RFC 7481
- MUST implement HTTP basic or digest authentication
 - User name/password based
- Operational Challenge
 - Servers typically have no direct relationship with clients
 - Management of user names and passwords comes at a cost
 - Limited ability to make authorization and access control decisions

Client Identification and Authentication Proposal

- Purpose
 - Add support for federated authentication to RDAP
- Approach
 - Based on OpenID Connect and OAuth
 - Leverage public and private Identity Providers
 - RDAP operators are Relying Parties
 - Use authentication information to make client authorization and access control decisions
- Open Topics
 - Non-browser clients
 - Ongoing policy development
 - IETF working group adoption
- Specification
 - <https://datatracker.ietf.org/doc/draft-hollenbeck-regext-rdap-openid/>

RDAP: Query Bootstrapping

- Core functionality specified in RFC 7484
- Assumption: structure of certain identifier patterns will allow a client to determine the associated server operator
 - Example: verisign.com → Verisign
- Specified service spaces
 - Domain names
 - Autonomous System (AS) numbers
 - IPv4 addresses
 - IPv6 addresses
- Unspecified service spaces
 - Entities
 - Name servers

Query Bootstrapping Proposal

- Purpose

- Add support for bootstrapping of entity queries

- Approach

- Build on existing RIR practice
- Create an IANA registry for entity tags
- Add tags to entity object names
- Associate tags with service URLs

- Open Topics

- IETF working group adoption

- Specification

- <https://datatracker.ietf.org/doc/draft-hollenbeck-regext-rdap-object-tag/>

RDAP: Search

- Core functionality specified in RFC 7482
- Limited to pattern matching of trailing characters
 - Example: verisign*, example*.com
- No support for more sophisticated search patterns
- No support for boolean logic

Search Proposal

- Purpose
 - Expand RDAP search capabilities using a commonly implemented solution
- Approach
 - Add a new search query parameter (searchtype=regex)
 - Specify path segments for search using POSIX extended regular expressions
 - Use base64url encoding for regular expressions
 - Regular expression "e[a-z]ample\.com"
 - <https://example.com/rdap/domains?name=ZVthLXpdYW1wbGVcLmNvbQ&searchtype=regex>
- Open Topics
 - Hex encoding vs. base64url encoding
- Specification
 - <https://datatracker.ietf.org/doc/draft-fregly-regex-rdap-search-regex/>

Questions?



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