New RDAP Feature Proposals
Scott Hollenbeck <shollenbeck@verisign.com>
Registration Operations Workshop #6
May 12, 2017
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-regext-rdap-search-regex/
Questions?