Limitations of (port-43) WHOIS

- Unformatted
- Not internationalized
- Unauthenticated
- Insecure
- Unable to provide differentiated service
- Non-extensible
- No bootstrapping mechanism
- Lack of standardized redirection/reference

Limitations of (port-43) WHOIS
History on Replacing the WHOIS Protocol

- SSAC’s SAC 051 Advisory (19 Sep 2011):
  
  *The ICANN community should evaluate and adopt a replacement domain name registration data access protocol*

- Board resolution adopting SAC 051 (28 October 2011)

- Roadmap to implement SAC 051 (4 June 2012)

- Registration Data Access Protocol (RDAP) community development within IETF working group started in 2012

- Contractual provisions in .com, .name, .biz, .info, .org, 2012 Registry Agreement (new gTLDs) and 2013 Registrar Accreditation Agreement

- RDAP Request for Comments (RFCs) published in March 2015
Open Questions

- How long after RDAP deployment to turn off (port-43) WHOIS?
- Should the requirement to offer web-based (HTML) RDDS remain?
- **How to map current RDDS (WHOIS) policy and contractual requirements in RDAP?**
Why do we need an RDAP profile?
- RFC must, should, etc…
- RDAP RFCs are transport protocols
  - Do not specify which elements are required
  - What are the details of the elements, etc.
- Evolution from WHOIS to RDAP
- Mapping the WHOIS ICANN requirements (RA, RAA, Advisories) to the new protocol using RDAP features, including updating terminology (RDDS = WHOIS, web + RDAP)
RDAP Profile
gTLD (registry and registrar) implementations MUST be compliant with RFCs 7480, 7481, 7482, 7483, and 7484

MUST support HTTPS only

RDAP extensions, if used, MUST be registered in the IANA RDAP Extensions registry

RDAP services MUST be available over both IPv4 and IPv6 transport

RDAP servers SHOULD avoid inserting JSON members that are not part of a registered extension
IDN RDAP queries MUST be supported if the target TLD supports IDNs

A Registrar/Registry that does not possess the information for a particular query, but knows a party that may have more information, MUST redirect the request to the appropriate party, as described in RFC7480 section 5.2
The top-level "domain" object MUST contain the a-label form of the domain in the “ldhName” member.

The top-level "domain" object MUST contain the internationalized Domain Name in u-label form in the “unicodeName” member, if the domain name is an IDN.

The top-level domain object MUST contain a list of all current domain statuses in the “status” member. The status MUST be valid status types per IANA’s RDAP JSON Values registry.

Contact entities SHOULD use jCard structured addresses.
Registries offering searchable WHOIS service, MUST support RDAP search requests for domains and entities.

Entities MUST be searchable by name search pattern as defined in RFC7482 section 3.2.3 in order to allow for searches by contact name or address.

Binary search capabilities (AND, OR) MUST be supported, when a RFC defining this capability is available.
<table>
<thead>
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<th>Field #</th>
<th>Field Name</th>
<th>Description</th>
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<tr>
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<td>rdap-queries</td>
<td>Number of RDAP queries during the period.</td>
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<td>41</td>
<td>rdap-rate-limit</td>
<td>Number of RDAP queries refused due to rate limiting for the period.</td>
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<td>rdap-search-domain</td>
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<td>44</td>
<td>rdap-search-entity</td>
<td>Number of RDAP entity search queries for the period.</td>
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<td>45</td>
<td>rdap-truncated-auth</td>
<td>Number of RDAP responses truncated due to authorization. Includes both results and object truncation events.</td>
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<td>46</td>
<td>rdap-truncated-load</td>
<td>Number of RDAP responses truncated due to server load. Includes both results and object truncation events.</td>
</tr>
<tr>
<td>47</td>
<td>rdap-truncated-unexpl</td>
<td>Number of RDAP responses truncated due to unexplainable reasons. Includes both results and object truncation events.</td>
</tr>
</tbody>
</table>
RDAP will be another mechanism for accessing RDDS information.

For a period of time: whois/43, whois/http, and RDAP must be working to consider the service to be up.

After a transition period, whois/http? and RDAP must be working to consider the service to be up.
The base URL of RDAP services MUST be registered in the IANA Bootstrap Service Registry for Domain Name Space, as described in RFC7484. A separate entry is required for each TLD.

When the RDAP service base URL needs to be changed, the previous URL and the new one MUST remain in operation until the IANA Bootstrap Registry for Domain Name Space is updated.

The bootstrap service entry MUST be populated only once the RDAP service is available over both IPv4 and IPv6.
The Server Name MUST be specified in the ldhName.

All known glue record IPv4 and IPv6 addresses for the server MUST be listed in the ipAddresses member.

The unicodeName member MAY be present if the nameserver has an IDN name.

The returned object MUST contain an entity with the “registrar” role when registry supports host objects.
The returned domain name object MUST contain registrar entities with the “abuse” roles.

The returned domain name object MAY contain an entity with the “reseller” role.
Other Registry Agreement provisions

- Nameserver object search is optional, but searches for nameserver information by nameserver IP address is required to be supported.

- Registries offering WHOIS contact lookups, MUST support analogous functionality using entities
Remaining issues
Remaining Issues

- Extensible Provisioning Protocol (EPP) status codes not fully mapped into RDAP status codes
  - Draft-gould-epp-rdap-status-mapping suggests to add RDAP codes to have a full mapping
- Lookup by IANA Registrar ID is not defined in base RDAP RFCs
  - To be updated
- Logical operators for search criteria (AND, OR, NOT) are not defined in base RDAP RFCs
  - To be updated
- How to provide Registrar RDAP base URL in the initial Registry RDAP response?
  - To be determined
RDAP Profile necessary for gTLD registry and registrar operators to adhere to existing policies and contractual terms

A few issues have been identified around underspecified topics in RFCs

Open question on when to retire WHOIS and whether to keep web-based (HTML) requirement

Question on how to provide reference to registrar data

RDAP Profile to be posted for Community Review
Questions and Answers