            Finding the Authoritative Registration Data (RDAP) Service
                     draft-ietf-weirds-bootstrap-00.txt

Abstract

   This document specifies a method to find which Registration Data
   Access Protocol (RDAP) server is authoritative to answer queries for
   a requested scope, such as domain names, IP addresses or Autonomous
   System numbers, using data available in IANA registries.

Status of This Memo

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   provisions of BCP 78 and BCP 79.

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   time. It is inappropriate to use Internet-Drafts as reference
   material or to cite them other than as "work in progress."

   This Internet-Draft will expire on July 17, 2014.

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1. Introduction

   Querying and retrieving registration data from registries are defined
   in the Registration Data Access Protocol(RDAP)[I-D.ietf-weirds-rdap-q
   uery][I-D.ietf-weirds-using-http][I-D.ietf-weirds-json-response].
   These documents do not specify where to send the queries. This
   document specifies a method to find which server is authoritative to
   answer queries for the requested scope.

   The proposed mechanism is based on that allocation data for domain
   names and IP addresses are maintained by IANA, are publicly available
   and are in a structured format. The mechanism assumes some data
   structure within these registries and request IANA to modify or
   create these registries for the specific purpose of RDAP use. An
   RDAP client fetches the registries, extract the data and then do a
   match with the query data to find the authoritative registration data
   server and appropriate query base URL.

2. Domain Name RDAP Registry

   The domain names authoritative registration data service is found by
   doing the longest match of the target domain name with the values of
   the Domain column in the IANA Domain Name RDAP registry as defined in
   section Section 9. The value of the "RDAP URL" column is the base
   RDAP url as described in [I-D.ietf-weirds-rdap-query].

   For example, a RDAP query for example.com matches the .com entry in
   the Domain column of the registry. The RDAP server URL for this
   address is located in the corresponding "RDAP URL" column for that
   entry, which could be http://rdap.example.org/rdap. Therefore the

query URL would be: http://rdap.example.org/rdap/domain/example.com.
This example is not normative.

3. Internet Numbers RDAP Registries

3.1. IPv4 Address Space RDAP Registry

The IPv4 address space authoritative registration data service is
found by doing a longest match of the target address with the values
of the Prefix column in the IANA IPv4 address space RDAP registry as
defined in section Section 9. The value of the "RDAP URL" column is
the base RDAP url as described in [I-D.ietf-weirds-rdap-query].

For example, a query for "192.0.2.0/24" matches the "192/8" entry in
the Prefix column of the registry. The RDAP server URL for this
address is located in the corresponding "RDAP URL" column for that
entry, which could be http://rdap.example.org/rdap. Therefore the
query URL would be: http://rdap.example.org/rdap/ip/192.0.2.0/24.
This example is not normative.

3.2. IPv6 Address Space RDAP Registry

The IPv6 address space authoritative registration data service is
found by doing a longest match of the target address with the values
of the Prefix column in the IANA IPv6 address space RDAP registry as
defined in section Section 9. The value of the "RDAP URL" column is
the base RDAP url as described in [I-D.ietf-weirds-rdap-query].

For example, a query for "2001:db8::/32" matches the "2001/16" entry
in the Prefix column of the registry. The RDAP server URL for this
address is located in the corresponding "RDAP URL" column for that
entry, which could be http://rdap.example.org/rdap. Therefore the
query URL would be: http://rdap.example.org/rdap/ip/2001:db8::/32.
This example is not normative.

3.3. Autonomous Systems RDAP Registry

The Autonomous Systems (AS) authoritative registration data service
is found by identifying the range in which the target Autonomous
System is, with the values of the Number column in the IANA
Autonomous Systems (AS) Numbers RDAP registry as defined in section
Section 9. The value of the "RDAP URL" column is the base RDAP url
as described in [I-D.ietf-weirds-rdap-query].

For example, a query for AS 65411 matches the "64512-65534" entry in
the Number column of the registry. The RDAP server URL for this
address is located in the corresponding "RDAP URL" column for that
entry, which could be http://rdap.example.org/rdap. Therefore the

query URL would be: http://rdap.example.org/rdap/autnum/65411. This
example is not normative.

4. Nameserver

TBD

5. Entity

Since there is no global namespace for entities, this document does
not describe how to find the authoritative RDAP server for entities.
It is possible however that, if the entity identifier was received
from a previous query, the same RDAP server could be queried for that
entity.

6. Non-existent Entries or RDAP URL Values

The registries may not contain the requested value or the RDAP URL
value may be empty. In these cases, there is no known RDAP server
for that requested value and the client should provide an appropriate
error message to the user.

7. Deployment Considerations

This method relies on the fact that RDAP clients are fetching the
IANA XML registries. Clients SHOULD not fetch every time the XML
files. If the query data does not match any entry in the already
fetched registry in the client, then the client shall first query the
DNS to see if the respective entry has been recently delegated or if
it is a mistyped information by the user. The DNS query could be to
fetch the NS records for a domain TLD. If the DNS answer is
negative, then there is no need to fetch the new version of the XML
registry. However, if the DNS answer is positive, this means that
the currently cached XML registry is no more current. The client
should fetch the registry, parse and then do the normal matching as
specified above. Clients can also rely on HTTP headers to verify if
the registry has changed since last time it was fetched, without the
need to fetch the whole registry.

IANA should make sure that the service of those registries is able to
cope with a larger demand and should take appropriate measures such
as caching and load balancing.

This specification makes no assumption on how the authorities of
registration data may work together on sharing their information for
a common service.

8. Security Considerations

   By providing a bootstrap method to find RDAP servers, this document
   helps making sure that the end-users will get the RDAP data from
   authoritative source, instead of from rogue sources. The method
   itself has the same security properties as the RDAP protocols
   themselves.

9. IANA Considerations

   IANA is requested to do the following:

   o Create a new registry for IPv4 address space with the following
      columns: the first column is the entries taken from the current
      "IPv4 Address Space" registry[ipv4reg] and and the second column
      is the RDAP server URL. The same registrants for these entries
      are entitled to provide the RDAP URL value for their respective
      space, using the same communication channels already established
      between the registrants and IANA.

   o Create a new registry for IPv6 address space with the following
      columns: the first column is the entries taken from the current
      IPv6 Address Space registries [ipv6regparent][ipv6reg] and the
      second column is the RDAP server URL. The same registrants for
      these entries are entitled to provide the RDAP URL value for their
      respective space, using the same communication channels already
      established between the registrants and IANA.

   o Create a new registry for Autonomous System Number space with the
      following columns: the first column is the entries taken from the
      current "Autonomous System Number Space" registry[asreg] and the
      second column is the RDAP server URL. The same registrants for
      these entries are entitled to provide the RDAP URL value for their
      respective space, using the same communication channels already
      established between the registrants and IANA.

   o Create a new registry of domain names, essentially TLDs, with the
      following columns: Domain and RDAP URL. The content should be
      initially populated by an extract of the Root zone
      database[domainreg]. The same registrants for these entries are
      entitled to provide the RDAP URL value for their respective space,
      using the same communication channels already established between
      the registrants and IANA.

   o A change happening in any of the source registries should trigger
      a change in the corresponding new registry. For example, a new
      IPv6 address block appearing in the source IPv6 address space

registry should trigger the same new entry in the corresponding
RDAP registry.

o IANA shall update its procedures to include the provisioning of
   these values.

o It is envisioned that the entries of each of these registries are
   synched from the source assignment registries. There shall be no
   additional records. If there is a need for additional records,
   then the policy for updating the registry is Standards Track RFC.

10. Acknowledgements

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suggestions to this document.

11. Non-Normative References

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