ARIN ✚ NANOG

ON THE ROAD

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Automating Your Interactions with ARIN

Mark Kosters
Chief Technology Officer

Why Automate?

- Interact with ARIN faster
- Not dependent on ARIN's systems for user interface issues
- Build a customized system using standards-based technologies
- Improved accuracy
- Integrate multiple services

Why Automate (continued)

- We have a rich set of interfaces
- Focused on reliability and completeness
- Welcome to share your tools with the community at projects.arin.net

REST – Service Summary

- ARIN's RESTful Web Services (RWS)
  - Whois-RWS
    - Provides public Whois data via REST
  - Reg-RWS (or Registration-RWS)
    - Allows ARIN customers to register and maintain data in a programmatic fashion
  - Report Request/Retrieval Automation
    - Permits request and download of various ARIN data (subject to AUP)
  - RPKI using Reg-RWS

What is REST?

- Representational State Transfer

- As applied to web services
  - defines a pattern of usage with HTTP to create, read, update, and delete (CRUD) data
  - "Resources" are addressable in URLs

- Very popular protocol model
  - Amazon S3, Yahoo & Google services, …

The BIG Advantage of REST

- Easily understood
  - Any modern programmer can incorporate it
  - Can look like web pages
- Re-uses HTTP in a simple manner
  - Many, many clients
  - Other HTTP advantages
- This is why it is very, very popular with Google, Amazon, Yahoo, Twitter, Facebook, YouTube, Flickr, …

What does it look like?
Who can use it?

Where the data is.

What type of data it is.

The ID of the data.

http://whois.arin.net/rest/poc/KOSTE-ARIN

It is a standard URL. Anyone can use it.
Go ahead, put it into your browser.

Where can more information on REST be found?

- *RESTful Web Services*
  - O' Reilly Media
  - Leonard Richardson
  - Sam Ruby

Whois-RWS

- Publicly accessible, just like traditional Whois

- Searches and lookups on IP addresses, AS numbers, POCs, Orgs, etc…

- Very popular
  - As of September 2013, constitutes 65% of our query load

- For more information:
  - http://www.arin.net/resources/whoisrws/index.html

Registration RWS (Reg-RWS)

- Programmatic way to interact with ARIN
  - Intended to be used for automation
  - Not meant to be used by humans
- Useful for ISPs that manage a large number of SWIP records
- Requires an investment of time to achieve those benefits

Reg-RWS

- Requires an API Key
  - You generate one in ARIN Online on the "Web Account" page
- Permits you to register and manage your data (ORGs, POCs, NETs, ASes)
  - But only your data
- More information
  - http://www.arin.net/resources/restful-interfaces.html

Anatomy of a RESTful request

- Uses a URL (just like you would type into your browser)
- Uses a request type, known as a "method", of GET, PUT, POST or DELETE
- Usually requires a payload
  - Adheres to a published structure
  - Depends upon the type of data
  - Depends upon the method
- Method, Payload, and XML schema info is found at "RESTful Provisioning Downloads"

Example – Reassign Detailed

- Your automated system issues a PUT command to ARIN using the following URL:

http://www.arin.net/rest/net/NET-10-129-0-0-1/reassign?apikey=API-1234-5678-9ABC-DEFG

The payload contains the following data:

```
<net xmlns="http://www.arin.net/regrws/core/v1" >
    <version>4</version>
    <comment></comment>
    <registrationDate></registrationDate>
    <orgHandle>HW-1</orgHandle>
    <handle></handle>
    <netBlocks>
        <netBlock>
            <type>A</type>
            <description>Reassigned</description>
            <startAddress>10.129.0.0</startAddress>
            <endAddress>10.129.0.255</endAddress>
            <cidrLength>24</cidrLength>
        </netBlock>
    </netBlocks>
    <parentNetHandle>NET-10-129-0-0-1</parentNetHandle>
    <netName>HELLOWORLD</netName>
    <originASes></originASes>
    <pocLinks></pocLinks>
</net>
```

Example – Reassign Detailed

ARIN's web server returns the following to your automated system:

```
<net xmlns="http://www.arin.net/regrws/core/v1" >
    <version>4</version>
    <comment></comment>
    <registrationDate>Tue Jan 25 16:17:18 EST 2011</registrationDate>
    <orgHandle>HW-1</orgHandle>
    <handle>NET-10-129-0-0-2</handle>
    <netBlocks>
        <netBlock>
            <type>A</type>
            <description>Reassigned</description>
            <startAddress>10.129.0.0</startAddress>
            <endAddress>10.129.0.255</endAddress>
            <cidrLength>24</cidrLength>
        </netBlock>
    </netBlocks>
    <parentNetHandle>NET-10-129-0-0-1</parentNetHandle>
    <netName>netName>HELLOWORLD</netName>
    <originASes></originASes>
    <pocLinks></pocLinks>
</net>
```

Reg-RWS Has More Than Templates

- Only programmatic way to do IPv6 Reassign Simple

- Only programmatic way to manage Reverse DNS

- Only programmatic way to access your ARIN tickets

Reg-RWS adoption at ARIN

- In 2012…
  - 1.09 Million transactions processed
    - 375K processed via Reg-RWS (34%)
    - 371K processed via Template (34%)
    - Remainder via ARIN Online

- In 2013…
  - 4.72 Million transactions processed
    - 3.66M processed via Reg-RWS (78%)
    - 488K processed via Template (10%)
    - Remainder via ARIN online

Testing Your Reg-RWS Client

- We offer an Operational Test & Evaluation environment for Reg-RWS
- Your real data, but isolated
  - Helps you develop against a real system without the worry that real data could get corrupted
- For more information:
  - http://www.arin.net/resources/ote.html

Obtaining RESTful Assistance

- http://www.arin.net/resources/restful-interfaces.html
- Pay attention to Method, Payload, and XML schema documents under "RESTful Provisioning Downloads"
- Or use ARIN Online's Ask ARIN feature
- Or use the arin-tech-discuss mailing list
  - Make sure to subscribe
  - Someone on the list will help you ASAP
  - Archives on the web site
- Registration Services Help Desk telephone not a good fit
  - Debugging these problems requires a detailed look at the URL, method, and payload being used

Report Request/Retrieval

- For customer-specific data, access is restricted by user
  - Permits you to request and retrieve reports
  - But only your data
- For public services, you must first sign an AUP or TOU (Bulk Whois, Registered ASNs, WhoWas)
  - ARIN staff may review your need to access this data
- Requires an API Key

New Feature: RPKI thru Reg-RWS

- Delegated – very complex
- Hosted – easy but tedious if managing a large network through the UI
- Solution: Interface to sign ROAs using the RESTful API
  - Ease of Hosted
  - Programmatic way of managing a large number of ROAs

Q&A