



VERISIGN®

Self-Service Open Resolver Scanning



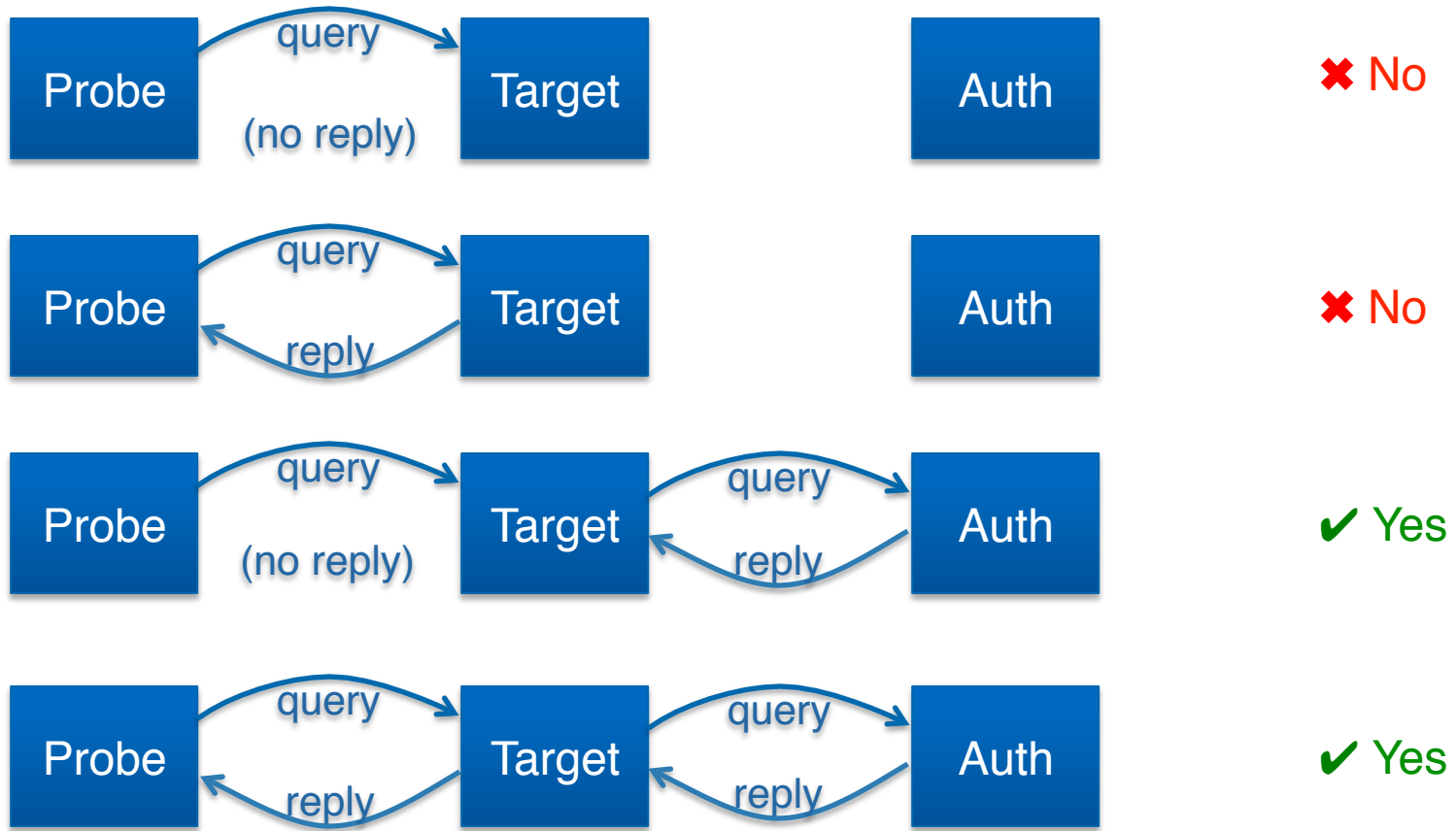
Duane Wessels

DNS-OARC Workshop Dublin

May 12, 2013

What Is An Open DNS Resolver?

Duane's definition: An Open Resolver is a DNS server which accepts queries from outside of its administrative domain and attempts to *resolve* the query by forwarding it to other name servers.





Open Resolver Awareness

- Recent increased awareness of open resolvers thanks to record-breaking DDoS attacks and Jared's Open DNS Resolver Project
- Other Surveys/data by:
- Team Cymru
- The Measurement Factory



Open Resolver Surveys

- Updated on surveyor's schedule
- Want to provide data to address space owners, but keep it away from the bad guys
 - TMF selects email addresses from whois data and handles other inquiries manually.
 - Cymru always validates manually?
 - openresolverproject limits searches to IPv4 /22 and others validated manually.
- Surveyor might receive some abuse complaint emails.
- IPv6 surveys unrealistic.

Self-Service Scanning?

- On the user's schedule.
- Probes initiated by the user from addresses of their choosing.
 - Offers some motivation to not scan other's address space.
- IPv6 a possibility.
 - The user knows which addresses are in use.
- But: no public pressure (shaming).



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How Does It Work?





Overview

- Register for an account.
- Create a “token” for some chunk of address space.
 - Token valid for 7 days.
- Run the scanner tool.
 - Sends queries to coded names in orscan.verisignlabs.com
- Authoritative name server validates and logs received queries.
- Authoritative name server *does not reply!*
- Login to view scan results.



Why Tokens?

- Identify an instance of a scan
- Some crypto to prevent simple spoofing
- Time-limited (one week) to prevent replays
- Restrict the scope of scanning
 - IPv4 /8
 - IPv6 /64



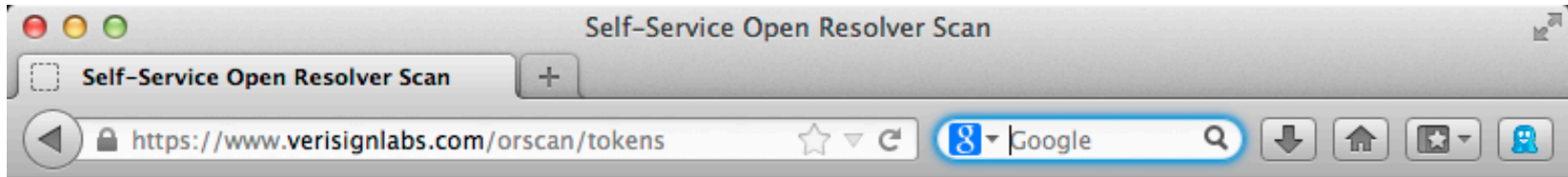
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Step-by-Step Example





Login



Self-Service Open Resolver Scan

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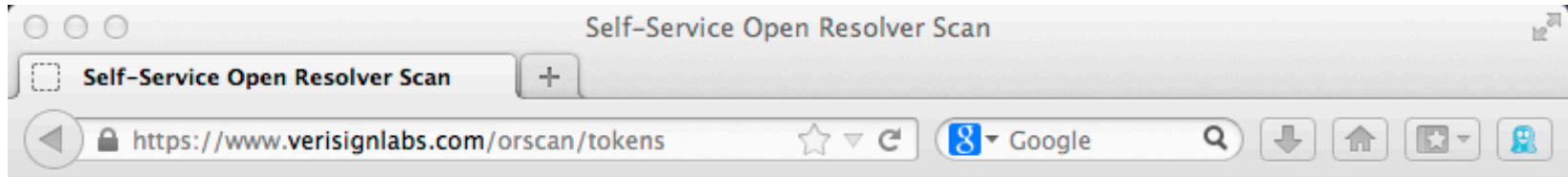
[Logout](#)

Your Tokens

prefix	token	good through	scan results	first probed
<input type="text"/>	<input type="button" value="add new"/>			

After getting a token or two, download [the scanner tool](#) to perform a scan for open resolvers.

Create a Token



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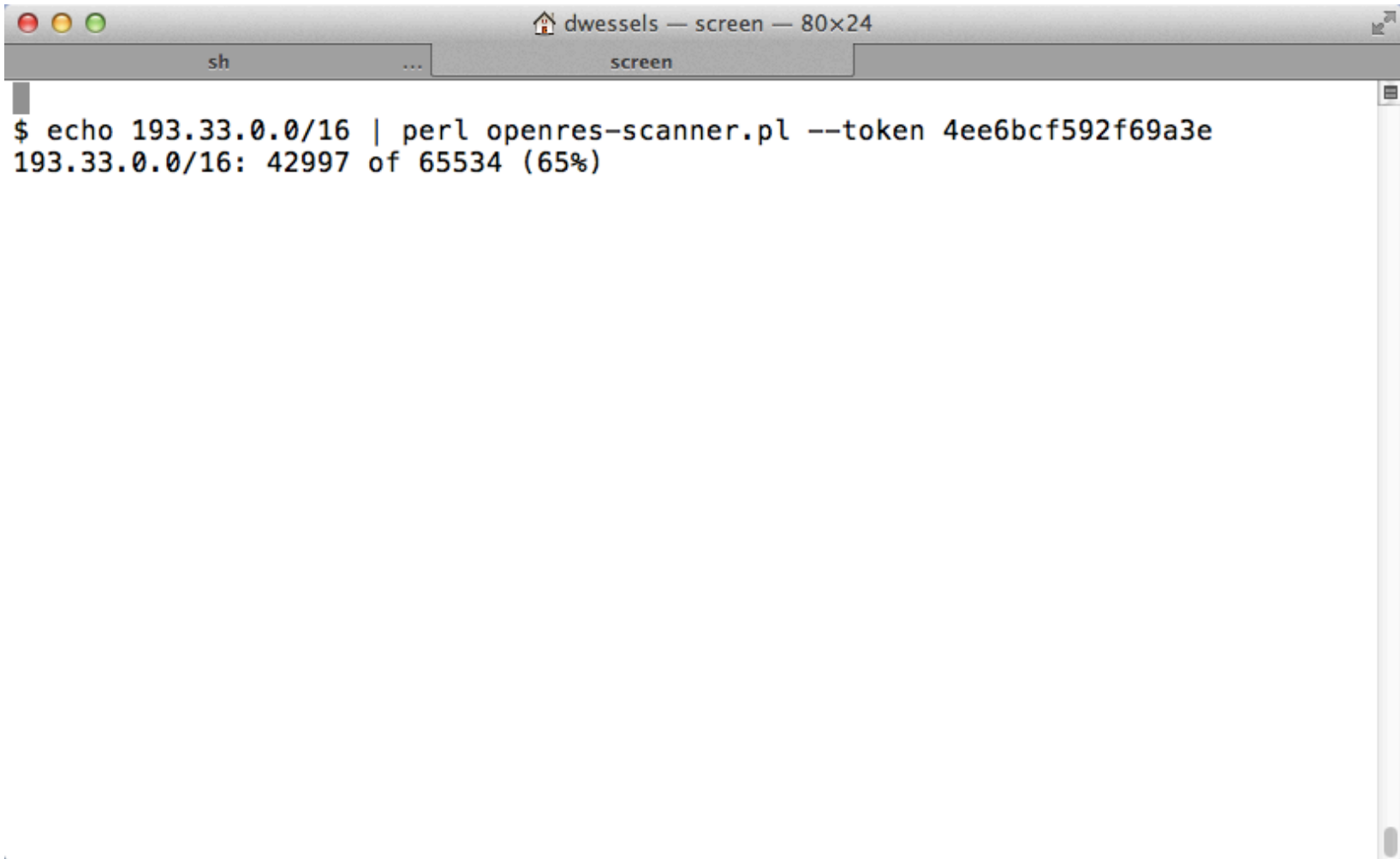
[Logout](#)

Your Tokens

prefix	token	good through	scan results	first probed
193.33.0.0/16	4ee6bcf592f69a3e	2013-05-16	0	
<input type="text" value="193.33.0.0/16"/>	<input type="button" value="add new"/>			

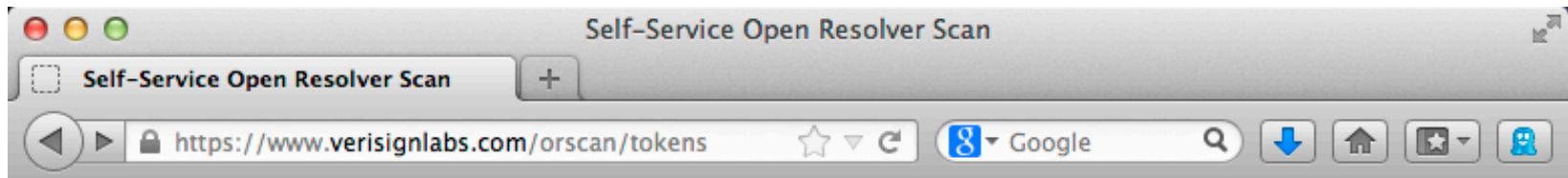
After getting a token or two, download [the scanner tool](#) to perform a scan for open resolvers.

Run the Scan



```
dwessels — screen — 80x24
sh
$ echo 193.33.0.0/16 | perl openres-scanner.pl --token 4ee6bcf592f69a3e
193.33.0.0/16: 42997 of 65534 (65%)
```

Check Results



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Your Tokens

prefix	token	good through	scan results	first probed
193.33.0.0/16	4ee6bcf592f69a3e	2013-05-16	412	2013-05-09 20:06:37.825683
<input type="text"/>	<input type="button" value="add new"/>			

After getting a token or two, download [the scanner tool](#) to perform a scan for open resolvers.

Detailed Results

Self-Service Open Resolver Scan

Self-Service Open Resolver Scan

https://www.verisignlabs.com/orscan/results/4ee6bcf5

Google

Results for 4ee6bcf592f69a3e

target	received via	timestamp
193.33.8.70	74.125.189.22	2013-05-09 20:07:12.107241
193.33.8.80	193.33.8.6	2013-05-09 20:06:41.171067
193.33.8.81	193.33.9.6	2013-05-09 20:07:46.636575
193.33.8.83	193.33.9.6	2013-05-09 20:07:56.852234
193.33.8.138	195.26.76.34	2013-05-09 20:07:17.122335
193.33.8.150	193.33.9.6	2013-05-09 20:06:55.668734
193.33.8.158	74.125.189.16	2013-05-09 20:07:00.347155
193.33.8.163	193.33.9.6	2013-05-09 20:07:35.571361
193.33.9.27	193.33.8.6	2013-05-09 20:06:46.520175
193.33.9.192	74.125.189.23	2013-05-09 20:07:11.143106
193.33.9.194	74.125.189.18	2013-05-09 20:07:06.881441



Feedback Welcomed!

<https://www.verisignlabs.com/orscan/>



Thank You



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