Passive DNS

A Tool that is Making a Difference in Tracking Down Criminal Activity On The Internet

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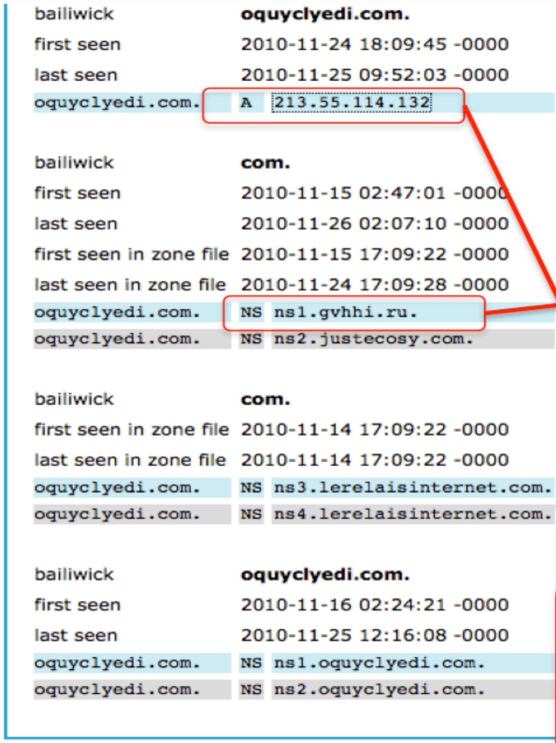
Passive DNS – What Is It?

- Passive DNS replication is a technology invented in 2004 by Florian Weimer
- Inter-server DNS messages are captured by sensors and forwarded to a collection point for analysis
- After being processed, individual DNS records are stored in a database where they can be indexed and queried

Questions that can be answered using a Passive DNS Database

- Where did this domain name point to in the past?
- What domain names are hosted by a given nameserver?
- What domain names point into a given IP network?
- What subdomains exist below a certain domain name?

Passive DNS – Tool to Find the Badness

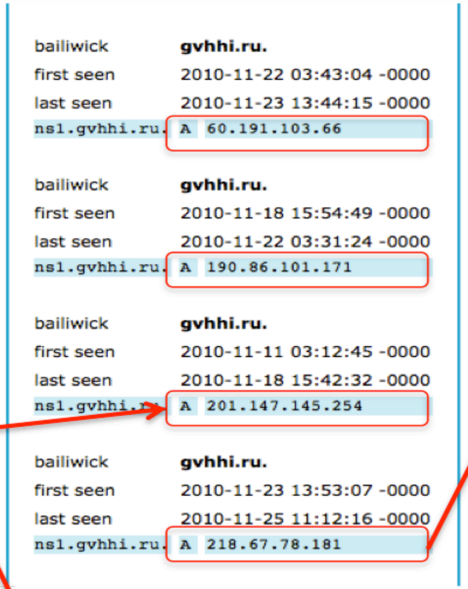


```
bailiwick                oquyclyedi.com.
first seen               2010-11-24 18:09:45 -0000
last seen                2010-11-25 09:52:03 -0000
oquyclyedi.com.     A    213.55.114.132

bailiwick                com.
first seen               2010-11-15 02:47:01 -0000
last seen                2010-11-26 02:07:10 -0000
first seen in zone file  2010-11-15 17:09:22 -0000
last seen in zone file   2010-11-24 17:09:28 -0000
oquyclyedi.com.     NS   ns1.gvhhi.ru.
oquyclyedi.com.     NS   ns2.justecosy.com.

bailiwick                com.
first seen in zone file  2010-11-14 17:09:22 -0000
last seen in zone file   2010-11-14 17:09:22 -0000
oquyclyedi.com.     NS   ns3.lerelaisinternet.com.
oquyclyedi.com.     NS   ns4.lerelaisinternet.com.

bailiwick                oquyclyedi.com.
first seen               2010-11-16 02:24:21 -0000
last seen                2010-11-25 12:16:08 -0000
oquyclyedi.com.     NS   ns1.oquyclyedi.com.
oquyclyedi.com.     NS   ns2.oquyclyedi.com.
```

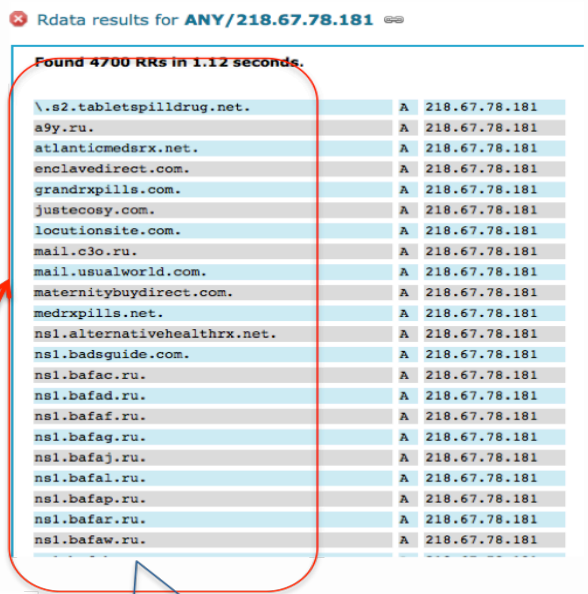


```
bailiwick      gvhhi.ru.
first seen     2010-11-22 03:43:04 -0000
last seen      2010-11-23 13:44:15 -0000
ns1.gvhhi.ru.  A  60.191.103.66

bailiwick      gvhhi.ru.
first seen     2010-11-18 15:54:49 -0000
last seen      2010-11-22 03:31:24 -0000
ns1.gvhhi.ru.  A  190.86.101.171

bailiwick      gvhhi.ru.
first seen     2010-11-11 03:12:45 -0000
last seen      2010-11-18 15:42:32 -0000
ns1.gvhhi.ru.  A  201.147.145.254

bailiwick      gvhhi.ru.
first seen     2010-11-23 13:53:07 -0000
last seen      2010-11-25 11:12:16 -0000
ns1.gvhhi.ru.  A  218.67.78.181
```

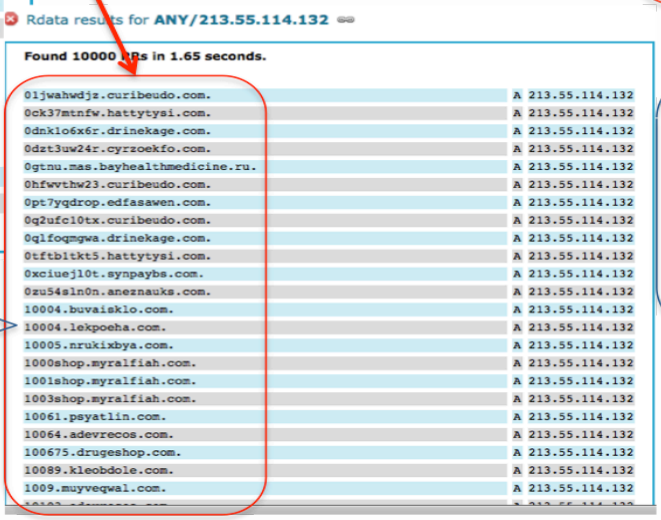


```
Rdata results for ANY/218.67.78.181

Found 4700 RRs in 1.12 seconds.

\.s2.tabletspilldrug.net.        A  218.67.78.181
a9y.ru.                          A  218.67.78.181
atlanticmedsrx.net.              A  218.67.78.181
enclavedirect.com.               A  218.67.78.181
grandrxpills.com.                A  218.67.78.181
justecosy.com.                   A  218.67.78.181
locutionsite.com.                A  218.67.78.181
mail.c3o.ru.                     A  218.67.78.181
mail.usualworld.com.             A  218.67.78.181
maternitybuydirect.com.          A  218.67.78.181
medrxpills.net.                  A  218.67.78.181
ns1.alternativehealthrx.net.     A  218.67.78.181
ns1.badsguide.com.               A  218.67.78.181
ns1.bafac.ru.                    A  218.67.78.181
ns1.bafad.ru.                    A  218.67.78.181
ns1.bafaf.ru.                    A  218.67.78.181
ns1.bafag.ru.                    A  218.67.78.181
ns1.bafaj.ru.                    A  218.67.78.181
ns1.bafal.ru.                    A  218.67.78.181
ns1.bafap.ru.                    A  218.67.78.181
ns1.bafar.ru.                    A  218.67.78.181
ns1.bafaw.ru.                    A  218.67.78.181
```

Criminal Domain Names found via the bad Name Server



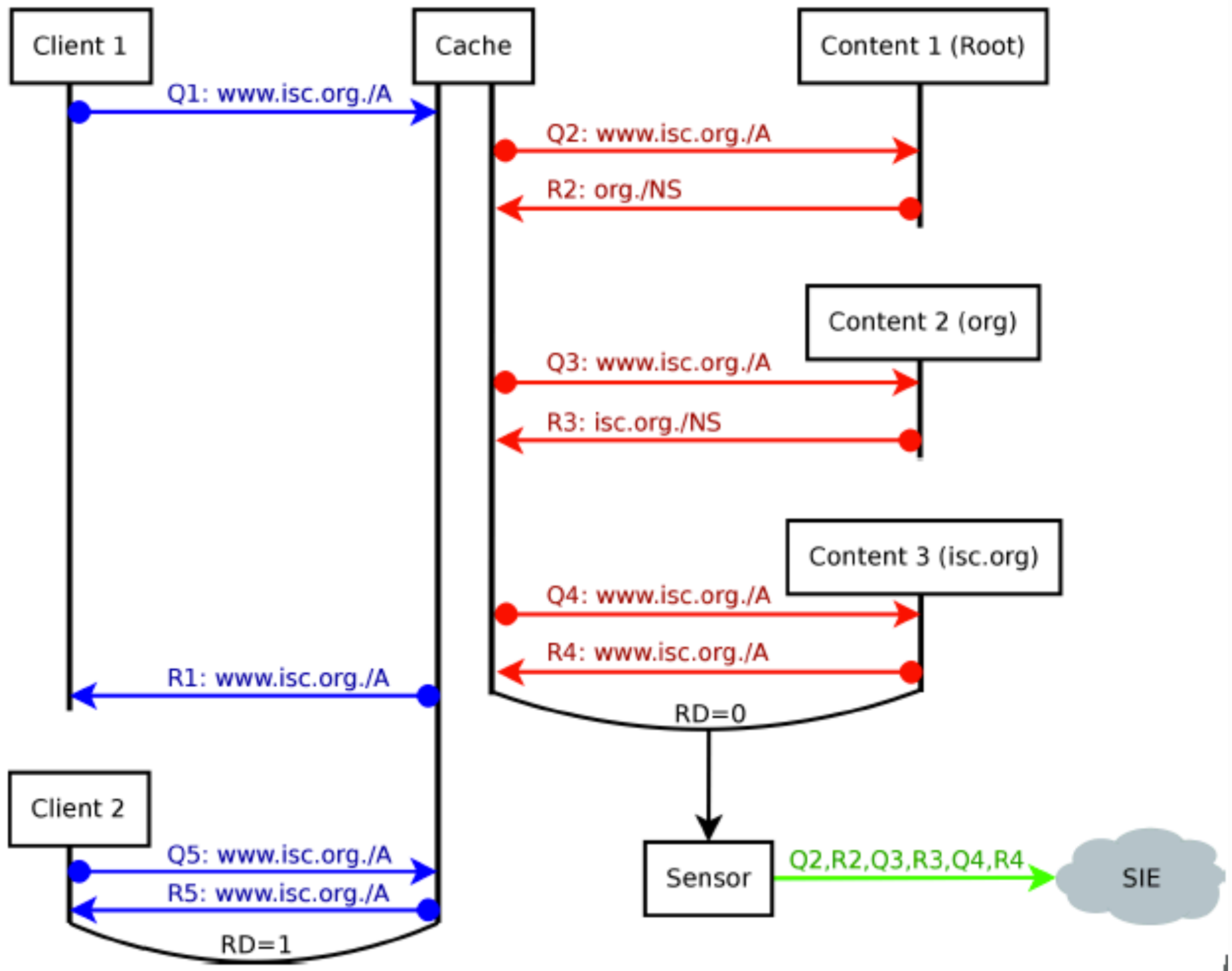
```
Rdata results for ANY/213.55.114.132

Found 10000 RRs in 1.65 seconds.

01jwahwdjz.curibeudo.com.          A  213.55.114.132
0ck37mtnfw.hattytysi.com.          A  213.55.114.132
0dnk1o6x6r.drinekage.com.          A  213.55.114.132
0dzt3uw24r.cyrzoekfo.com.          A  213.55.114.132
0gtnu.mas.bayhealthmedicine.ru.    A  213.55.114.132
0hfwvthw23.curibeudo.com.          A  213.55.114.132
0pt7yqdrop.edfasawen.com.          A  213.55.114.132
0q2ufc10tx.curibeudo.com.          A  213.55.114.132
0qlfoqmgwa.drinekage.com.          A  213.55.114.132
0tftb1tkt5.hattytysi.com.          A  213.55.114.132
0xciuej10t.synpaybs.com.           A  213.55.114.132
0zu54sln0n.aneznauks.com.          A  213.55.114.132
10004.buvaisklo.com.               A  213.55.114.132
10004.lekpoeha.com.                A  213.55.114.132
10005.nrukixbya.com.               A  213.55.114.132
1000shop.myralfiah.com.            A  213.55.114.132
1001shop.myralfiah.com.            A  213.55.114.132
1003shop.myralfiah.com.            A  213.55.114.132
10061.psyatlin.com.                A  213.55.114.132
10064.adevrecos.com.               A  213.55.114.132
100675.drugeshop.com.              A  213.55.114.132
10089.kleobdole.com.               A  213.55.114.132
1009.muyveqwal.com.                A  213.55.114.132
```

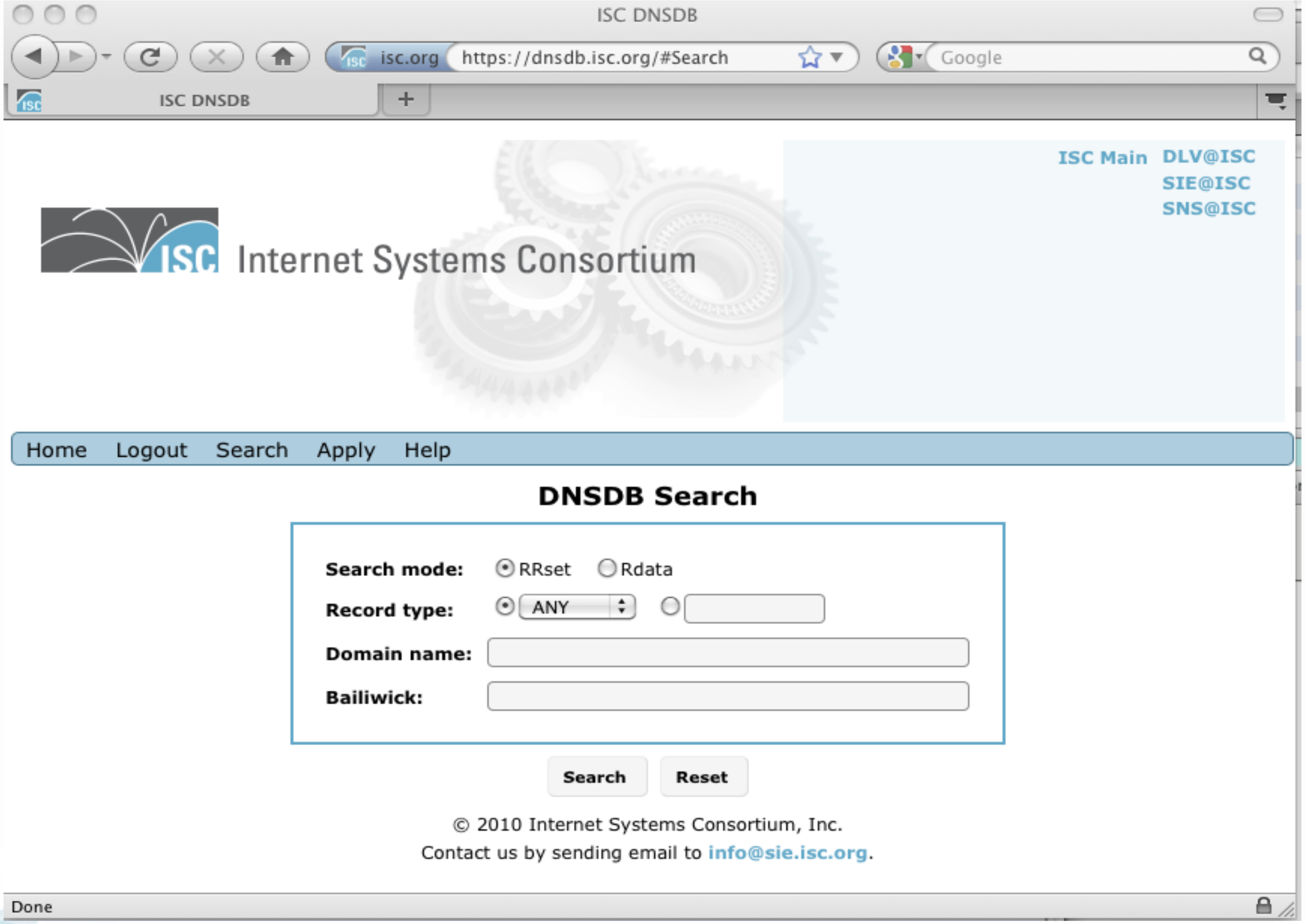
Criminal Domain Names found via the bad A Record

End User & Operator Privacy Protected



Not Collected **Collected**

ISC DNSDB UI



DNSDB Search

Search mode:	● RRset ○ Rdata
Record type:	● ANY ○
Domain name:	
Bailiwick:	

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Who Gets DNSDB Access?

- Two Types of Access
  - DNSDB User Interface
  - DNSDB API
- Who Gets Access
  - Vetted Member of the Operational Security Community
  - Passive DNS Contributors
  - SIE Peers

Participation

- Add a Passive DNS sensors to your DNS infrastructure
  - Only recursive DNS replies from authoritative servers are of interest
  - All data is aggregated, obscuring the source
- Participants get access to the aggregate data for your own investigations
- Contributing to ISC’s Passive DNS
  - Send email to passivedns@isc.org
- Applying for DNSDB access
  - https://dnsdb.isc.org

Questions?