

# Results from project DNS

**IETF 113**  
**19-20 March 2022**  
**Vienna, Austria**

# Hack

- Extended DNS Errors [[RFC8914](#)]
- While implementing More situations came up

Domain Name System (DNS) Parameters - Chromium


Domain Name System (DNS) x +

iana.org/assignments/dns-param...

## Extended DNS Error Codes

**Reference**  
[\[RFC8914\]](#)

**Available Formats**

  
csv

Range	Registration Procedures
0-49151	First Come First Served
49152-65535	Private Use

INFO-CODE	Purpose	Reference
0	Other Error	<a href="#">[RFC8914, Section 4.1]</a>
1	Unsupported DNSKEY Algorithm	<a href="#">[RFC8914, Section 4.2]</a>
2	Unsupported DS Digest Type	<a href="#">[RFC8914, Section 4.3]</a>
3	Stale Answer	<a href="#">[RFC8914, Section 4.4]</a> <a href="#">[RFC8767]</a>
4	Forged Answer	<a href="#">[RFC8914, Section 4.5]</a>
5	DNSSEC Indeterminate	<a href="#">[RFC8914, Section 4.6]</a>
6	DNSSEC Bogus	<a href="#">[RFC8914, Section 4.7]</a>
7	Signature Expired	<a href="#">[RFC8914, Section 4.8]</a>
8	Signature Not Yet Valid	<a href="#">[RFC8914, Section 4.9]</a>

# Hackathon Plan

- Extended DNS Errors [[RFC8914](#)]
  - While implementing –  
More situations for an EDE info-code emerged
  - Registry if First Come First Served
  - [Draft-carpay-extra-edecodes-dnssec-bogus](#)
- Discussed between Tom Carpay, Petr Špaček, Libor Peltan, and \*

# Hackathon Plan

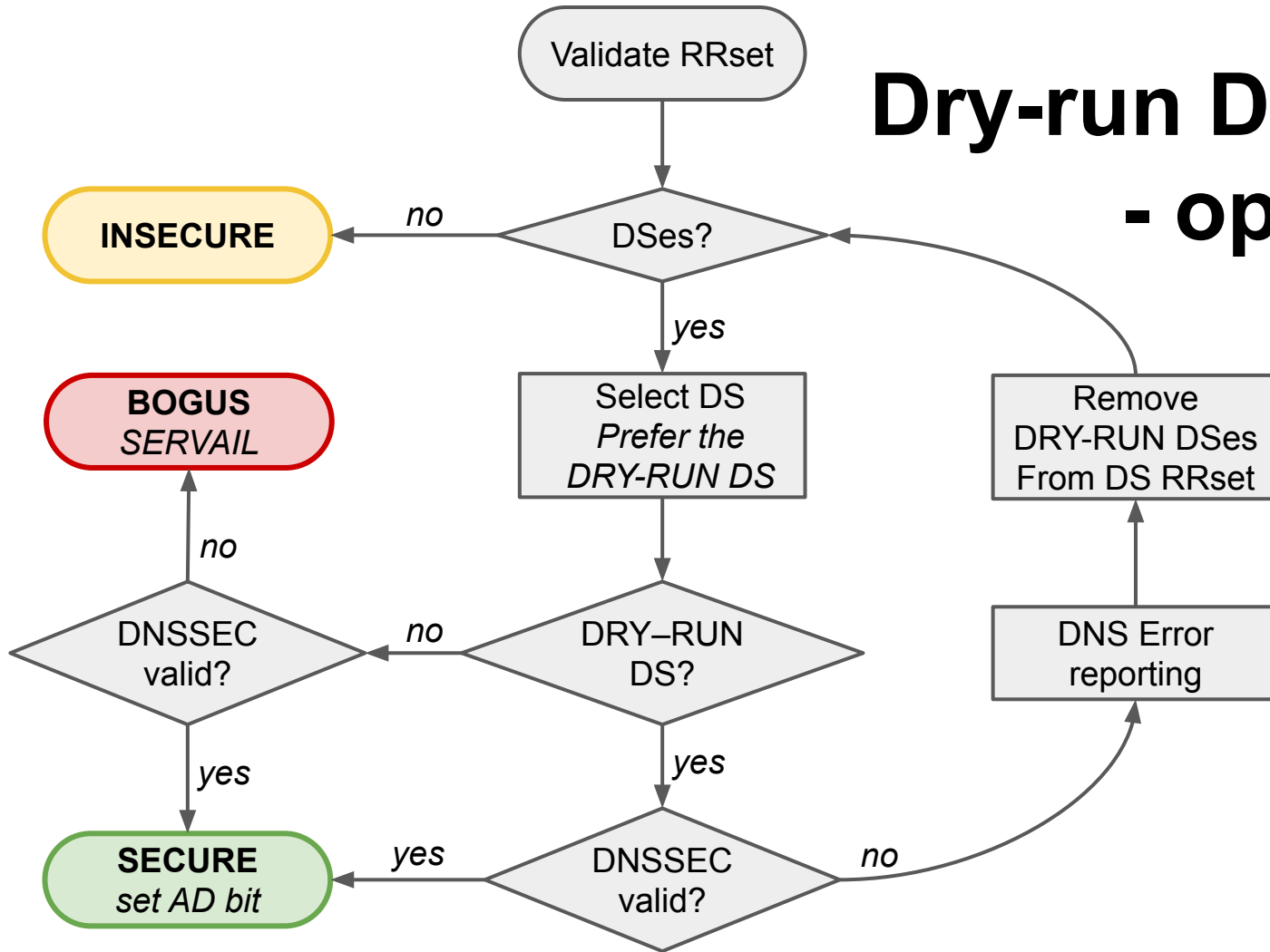
- Dry-run DNSSEC
- Try out DNSSEC for your zone first, before going live
- [draft-yorgos-dnsop-dry-run-dnssec-00](#)

```

                                1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 3 3
      0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|           Key Tag           | Algorithm | DRY-RUN |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
| Digest Type |                                                    /
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
/                                                    /
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+

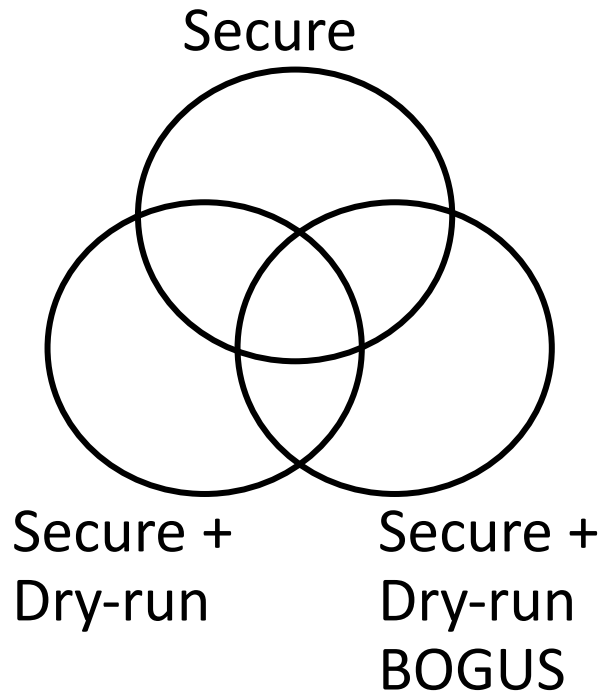
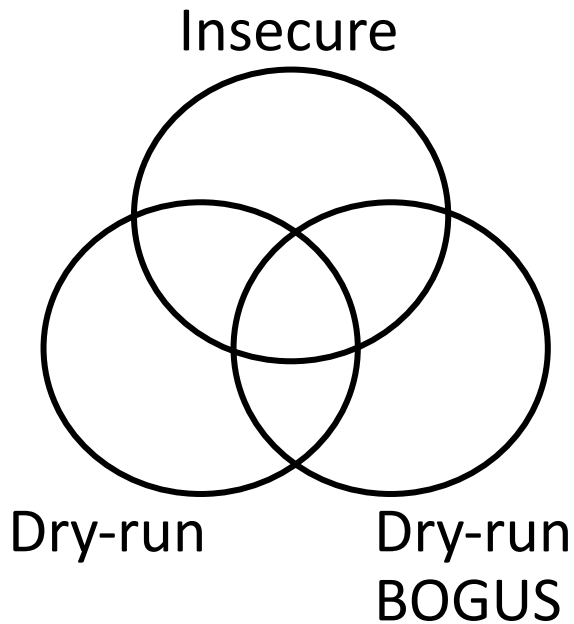
```

# Dry-run DNSSEC - operation




# Dry-run DNSSEC

- RIPE Atlas measurements to measure backwards compatibility by Tom Carpay



# Hackathon Plan

- DNS Catalog Zones
  - [draft-ietf-dnsop-dns-catalog-zones-05](#)
- Interoperability testing
-  **New!** BIND implementation for draft version!
- Petr Špaček, Libor Peltan, Willem Toorop

113hackathon/catalog-zones – Meeting Wiki - Chromium

113hackathon/catalog-zo x +

trac.ietf.org/trac/ietf/meeting/wiki/113hackathon/catalog-zones

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Your changes have been saved in version 6. [close](#)

VM	IPv6	(outside) IPv4	(inside) IPv4	implementation	producing	consuming
ns1.zones.cat	2a05:d014:d33:2020::ca11	18.158.147.216	172.31.47.136	NSD	catalog1	
ns2.zones.cat	2a05:d014:d33:2020::ca12	3.122.223.241	172.31.34.139	NSD		catalog1 catalog3
ns3.zones.cat	2a05:d014:d33:2020::ca13	18.184.237.45	172.31.46.147	Knot		
ns4.zones.cat	2a05:d014:d33:2020::ca14	54.93.97.83	172.31.43.201	PowerDNS		
ns5.zones.cat	2a05:d014:d33:2020::ca15	3.120.238.22	172.31.32.247	BIND		catalog1. catalog3.
ns6.zones.cat	2a05:d014:d33:2020::ca16	3.122.254.99	172.31.47.17	Knot	catalog3.	
ns7.zones.cat	2a05:d014:d33:2020::ca17	3.68.72.20	3.68.72.20	NSD	catalog4.	

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# Hackathon Plan

- DNS Dynamic Update over Encrypted Transport (QUIC / TLS)
  - a. SERVER SIDE: *BIND 9.18* with DoT + *quiqdoq* as DoQ proxy
  - b. CLIENT:
    - *Trust DNS* (Rust impl) - Success using DoT
    - *Dnsjava* - Success using DoT
    - Efforts to integrate QUIC libraries hit problems
- Allison Mankin, Benjamin Fry, Han Zhang, John Dickinson, Pallavi Aras, Sara Dickinson, Shane Kerr, Sidan Qi, Sile Yang

# Hackath

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- Allison Mankin, Benjamin Fry, Han  
Sara Dickinson, Shane Kerr, Sidan C

Slack | dns-update-over-tls | Sinodun IT

Search Sinodun IT

dns-update-over-tls 12

Thread dns-update-over-tls

Benjamin Fry Yesterday  
Thank you for the help! very close now.

Benjamin Fry 9:13 PM  
@here Dynamic DNS with DoT is working. This repo has the testing instructions and a `Makefile` to run the tests: <https://github.com/bluejekyll/dyn-dns-over-tls>

GitHub  
GitHub - bluejekyll/dyn-dns-over-tls: Demo of dynamic DNS over TLS or other security mechanism  
Demo of dynamic DNS over TLS or other security mechanism - GitHub - bluejekyll/dyn-dns-over-tls:  
Demo of dynamic DNS over TLS or other security mechanism (142 kB)

bluejekyll/dyn-dns-over-tls  
Demo of dynamic DNS over TLS or other security mechanism

Allison 11:16 PM  
Message @ dns-update-over-tls

6 replies

Benjamin Fry 16 hours ago  
Here's the TLS proof:

```
====> Testing connection to  
doq.sinodun.com. and updates  
dns -p tls -n  
18.198.201.187:853 -t  
doq.sinodun.com
```

# qp-trie for NSD

- patches by Tony Finch, July 2021
- small fast DNS name lookup data structure
- discussion between Tony and NLnetLabs
- updated notes on experimental branches

# What got done

- Lots and lots of excellent conversation!
- Open Source DNS Software developers align! (Extra EDEs)
- Developers align with operators!

# What we learned

- **You can't beat an in person hackathon!**

# Wrap Up

## Team members:

Tom Carpay  
Petr Špaček  
Libor Peltan  
Willem Toorop  
Allison Mankin  
Benjamin Fry  
Han Zhang  
John Dickinson  
Pallavi Arres

John Dickinson  
Pallavi Arres  
Sara Dickinson  
Shane Kerr  
Shivan Kaul Sahib  
Sidan Qi  
Sile Yang  
Benno Overeinder  
more...