Hands on **DNS** Workshop

Online for **NOMINET**
20-24 September 2021

Who are we?

- **Willem Toorop**
- Developer @

- In Program Committee of DNS-OARC
- Loves doing Hackathons
  cooperating with the other OS DNS vendors on standards dev.
- Standards development, Research, Internet measurements
- Loves his work, and loves talking about it and presenting :)
- All-rounder (but does not skate the 10km)

Who are we?

- **Berry van Halderen**
- Also a Developer @

- Lead on OpenDNSSEC
- Developed on internet.nl
- Also an all-rounder (but also does not skate the 10km)

What is/What does NLNETLABS

- Not-for-profit foundation – since 1999 – subsidies & donations

What is/What does NLNETLABS

- Mission:

  To provide globally recognized innovations and expertise for those technologies that turn a network of networks into an Open Internet for All.

- Objective:

  To develop Open Source software and Open Standards for the benefit of the Internet,

What is/What does NLNETLABS

- Objective:
  - *To develop **Open Source Software** and **Open Standards** for the benefit of the Internet,*

NSD unbound getdns

ROUTINATOR

Krill

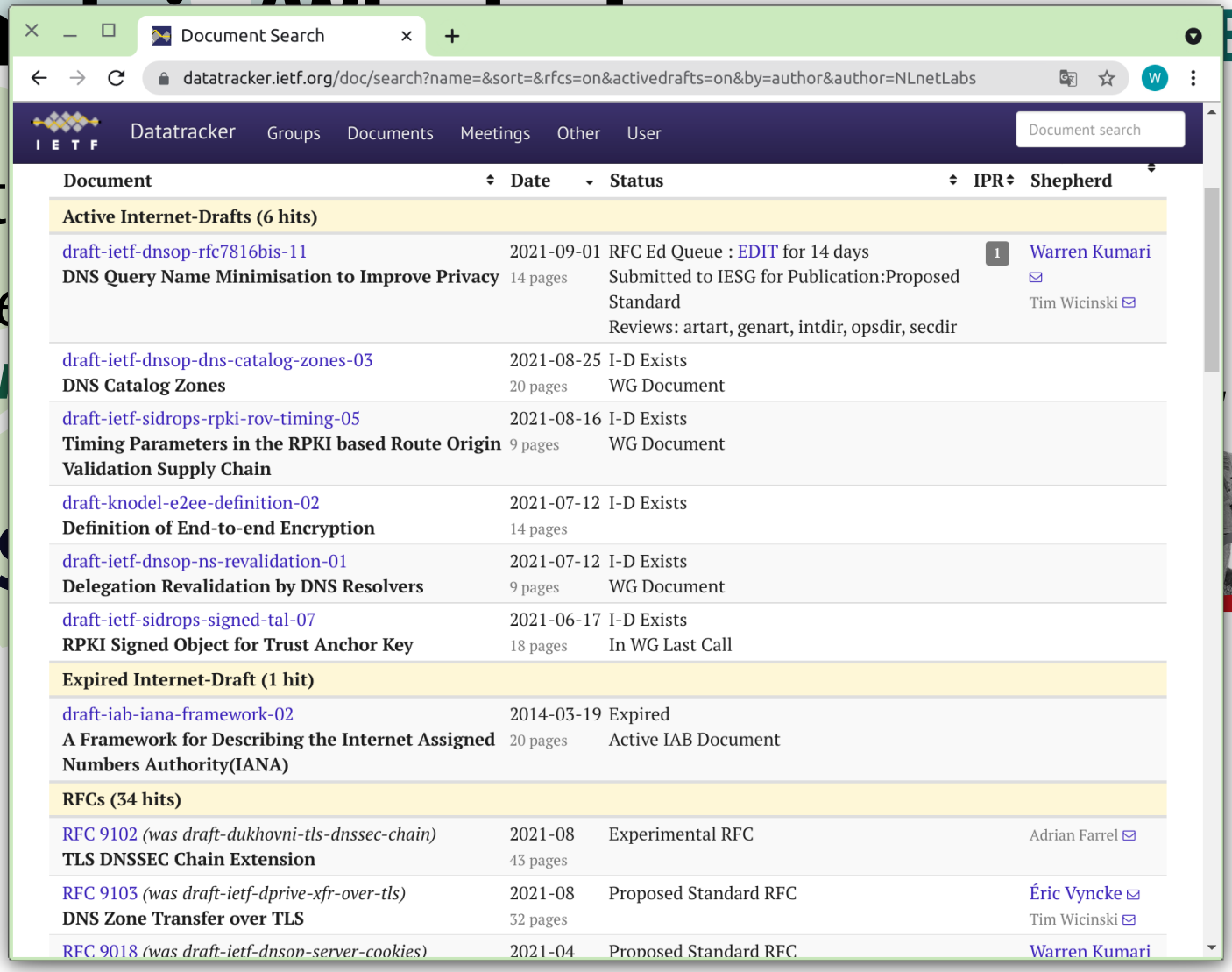
- ldns
- Net::DNS
- Net::DNS::SEC

Wh… BS

- Object…
  - *To de…*

Ope…

NS…



Document	Date	Status	IPR	Shepherd
Active Internet-Drafts (6 hits)				
draft-ietf-dnsop-rfc7816bis-11 **DNS Query Name Minimisation to Improve Privacy**	2021-09-01 14 pages	RFC Ed Queue : EDIT for 14 days Submitted to IESG for Publication:Proposed Standard Reviews: artart, genart, intdir, opsdir, secdir	1	Warren Kumari Tim Wicinski
draft-ietf-dnsop-dns-catalog-zones-03 **DNS Catalog Zones**	2021-08-25 20 pages	I-D Exists WG Document		
draft-ietf-sidrops-rpki-rov-timing-05 **Timing Parameters in the RPKI based Route Origin Validation Supply Chain**	2021-08-16 9 pages	I-D Exists WG Document		
draft-knodel-e2ee-definition-02 **Definition of End-to-end Encryption**	2021-07-12 14 pages	I-D Exists		
draft-ietf-dnsop-ns-revalidation-01 **Delegation Revalidation by DNS Resolvers**	2021-07-12 9 pages	I-D Exists WG Document		
draft-ietf-sidrops-signed-tal-07 **RPKI Signed Object for Trust Anchor Key**	2021-06-17 18 pages	I-D Exists In WG Last Call		
Expired Internet-Draft (1 hit)				
draft-iab-iana-framework-02 **A Framework for Describing the Internet Assigned Numbers Authority(IANA)**	2014-03-19 20 pages	Expired Active IAB Document		
RFCs (34 hits)				
RFC 9102 *(was draft-dukhovni-tls-dnssec-chain)* **TLS DNSSEC Chain Extension**	2021-08 43 pages	Experimental RFC		Adrian Farrel
RFC 9103 *(was draft-ietf-dprive-xfr-over-tls)* **DNS Zone Transfer over TLS**	2021-08 32 pages	Proposed Standard RFC		Éric Vyncke Tim Wicinski
RFC 9018 *(was draft-ietf-dnsop-server-cookies)*	2021-04	Proposed Standard RFC		Warren Kumari

…:SEC

What is/What does NLNETLABS

- Objective:
  - *To develop **Open Source Software** and **Open Standards** for the benefit of the Internet, and furthermore do **all that is directly or indirectly connected in the broadest sense**.*

Research – Internet measurements – Student projects – Participate in Program Committees – Hackathons – Workgroup Chair – Governance – and…

… incidentally do Workshops ☺

What is/What does NLNETLABS

Publications

The Reality of Algorithm Agility: Studying the DNSSEC Algorithm Life-Cycle
Moritz Müller, Willem Toorop, Taejoong Chung, Jelte Jansen, Roland van Rijswijk-Deij – Proceedings of the ACM Internet Measurement Conference, October 2020

https://www.sidnlabs.nl/downloads/yM4hxZABSTDFcoAD2kDTi/60bda65929a1100d3a873507ec7d4eaf/the_reality_of_algorithm_agility.pdf

Roll, Roll, Roll your Root: A Comprehensive Analysis of the First Ever DNSSEC Root
Moritz Müller, Matthew Thomas, Duane Wessels, Wes Hardaker, Taejoong Chung, Willem Toorop, Roland van Rijswijk-Deij – Proceedings of the Internet Measurement Conference, October 2019

https://par.nsf.gov/servlets/purl/10170347

The Impact of Time on DNS Security Aanchal Malhotra, Willem Toorop, Benno Overeinder, Ralph Dolmans, Sharon Goldberg – IACR Cryptol. ePrint Arch., July 2019 https://eprint.iacr.org/2019/788.pdf

A First Look at QNAME Minimization in the Domain Name System Wouter B de Vries, Quirin Scheitle, Moritz Müller, Willem Toorop, Ralph Dolmans, Roland van Rijswijk-Deij – nternational Conference on Passive and Active Network Measurement, March 2019

https://dicht.nlnetlabs.nl/downloads/publications/devries2019.pdf

The Root Canary: Monitoring and Measuring the DNSSEC Root Key Rollover

Who are you?

- Experience? Day job?
  - Unix prompt: huh prompt?
  - make: make what, a pie everyday?
  - unbound: Sorry, I’m married.
  - zones and domains: stay out of my personal space
- Expectations?
  - Is there anything we should pay special attention to?

About the workshop

- Hands-on:
  - Interleave lectures and Do It Yourself
- Start basic DNS and basic DNS services
  - Resolver → Authoritative → Registering zones → Resilience → DNSSEC Validation → Signing → etc.
- Bit of improvisation on our side, and on yours

Lab environment

- Teams of one, two or three persons
- Each team has two cloud provided Linux (Ubuntu 21.04) machines
  (access with ssh or via web based Shell in a Box terminal , Links to web terminal on https://dnslab.uk/teams.shtml)
- dnslab.uk domain for hands-on practice

Lab time!

Photo by Alex Kondratiev on Unsplash

- Hands on: https://dnslab.uk/
- 0. Make Teams & access to machines

VN credentials:

login: root
password: ********