DS Updates & (Multi-Signer Coordination) Episode 10

ICANN 76, Cancún

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Two gaps in the DNSSEC protocol specs

- Automation of DS updates
  - Periodic key changes
  - New key in the child's zone requires new parent DS record
  - Registrar has access to parent
    - If Registrar is providing signed DNS service, conveying new DS to parent is easy
  - **But 3rd party DNS provider does not have access to the Registry**

- Multiple DNS Providers
  - Each DNS provider signs with its own keys (RFC 8901 Model 2)
  - Each must include ZSKs from the other providers
  - No defined way to share the keys
  - Needed for:
    - **Capacity and high reliability**
    - **Glitch-free transfer of a signed zone from one DNS Provider to another (Disruptions can be worse than expected)**

Two gaps in the DNSSEC protocol specs

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  - Periodic key changes
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    - If Registrar is providing signed DNS service, conveying new DS to parent is easy
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- Multiple DNS Providers
  - Each DNS provider signs with its own [illegible] 8901 Model 2)
  - Eac[illegible] the oth[illegible]
  - No[illegible] keys
  - Ne[illegible]
    - Capacity and hig[illegible]
    - Glitch-free transfer of a signed zone from one DNS Provider to another (Disruptions can be worse than expected)

Wait until ICANN 77
June 2023
Washington, DC

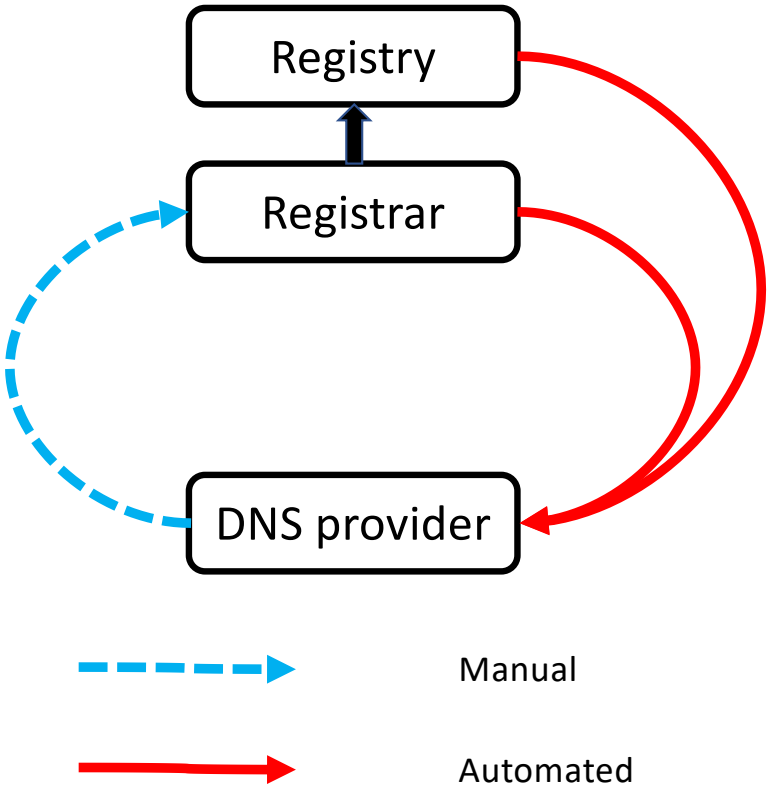
Agenda

#	Title	Speaker
4.1	Overview: DNSSEC Provisioning Automation	Steve Crocker, Edgemoor Research Institute
4.2	DNS child updates in the gTLD space	Francisco Arias, Sr. Director, GDS Technical Services, ICANN org
4.3	GoDaddy DNSSEC CDS to DS Polling Status	Brian Dickson, GoDaddy
4.4	CDS Scanning rollout at CentralNic	Gavin Brown, Technical Fellow, CentralNic Group PLC
4.5	CDNSKEY Support in TANGO Registry Services	Michael Bauland, Knipp Medien und Kommunikation GmbH
4.6	The State of DS Automation: Deployments and Current Work	Peter Thomassen, deSEC/SSE
4.7	The New DNSSEC Deployment Maps and DNSSEC Views	Koushik Sura Bhaskar, George Mason University

DS Updates

Possible Ways to Convey the DS key from 3rd party DNS Provider

	Direction	
Upper Side	Push (Calling) DNS Provider calls API at Ry, Rr	Pull (Polling) DNS Provider publishes CDS and/or CDNSKEY
Registry	1. Requires API	3. RFC 8078
Registrar	2. Requires API	4. RFC 8078



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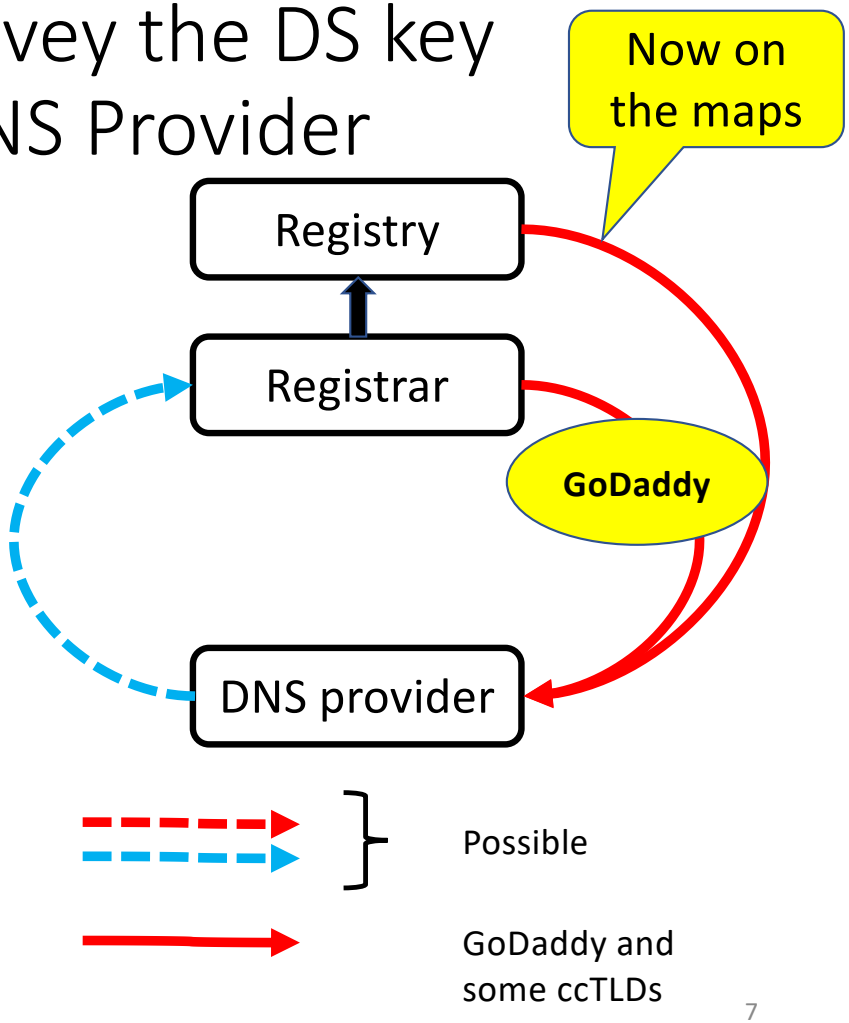
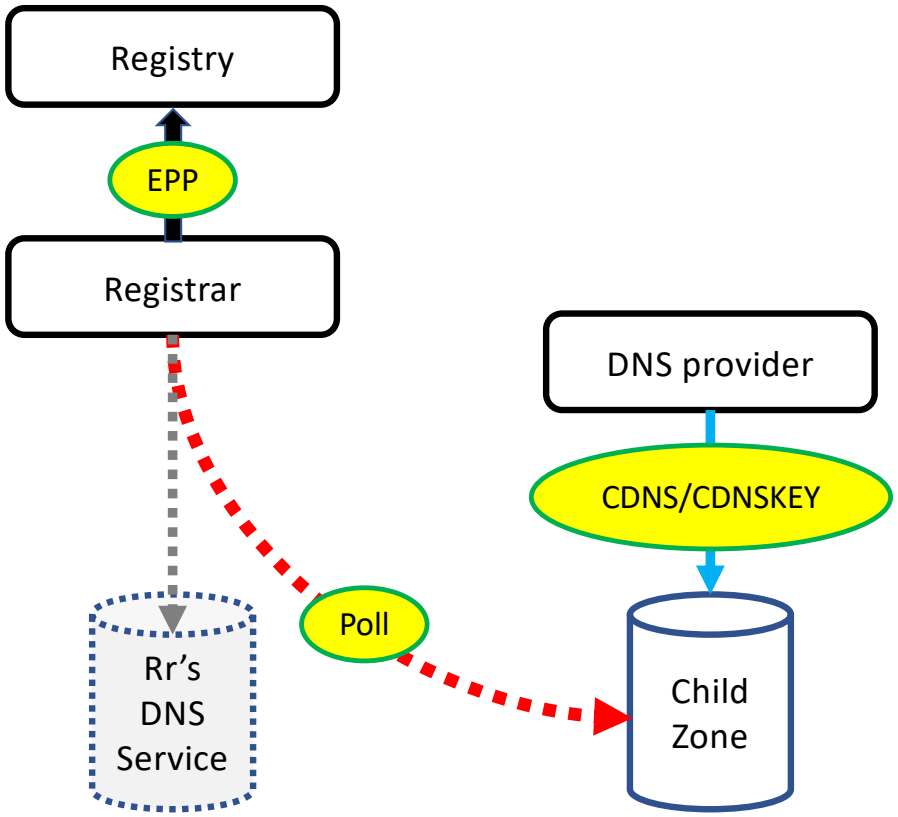


Possible Ways to Convey the DS key from 3rd party DNS Provider

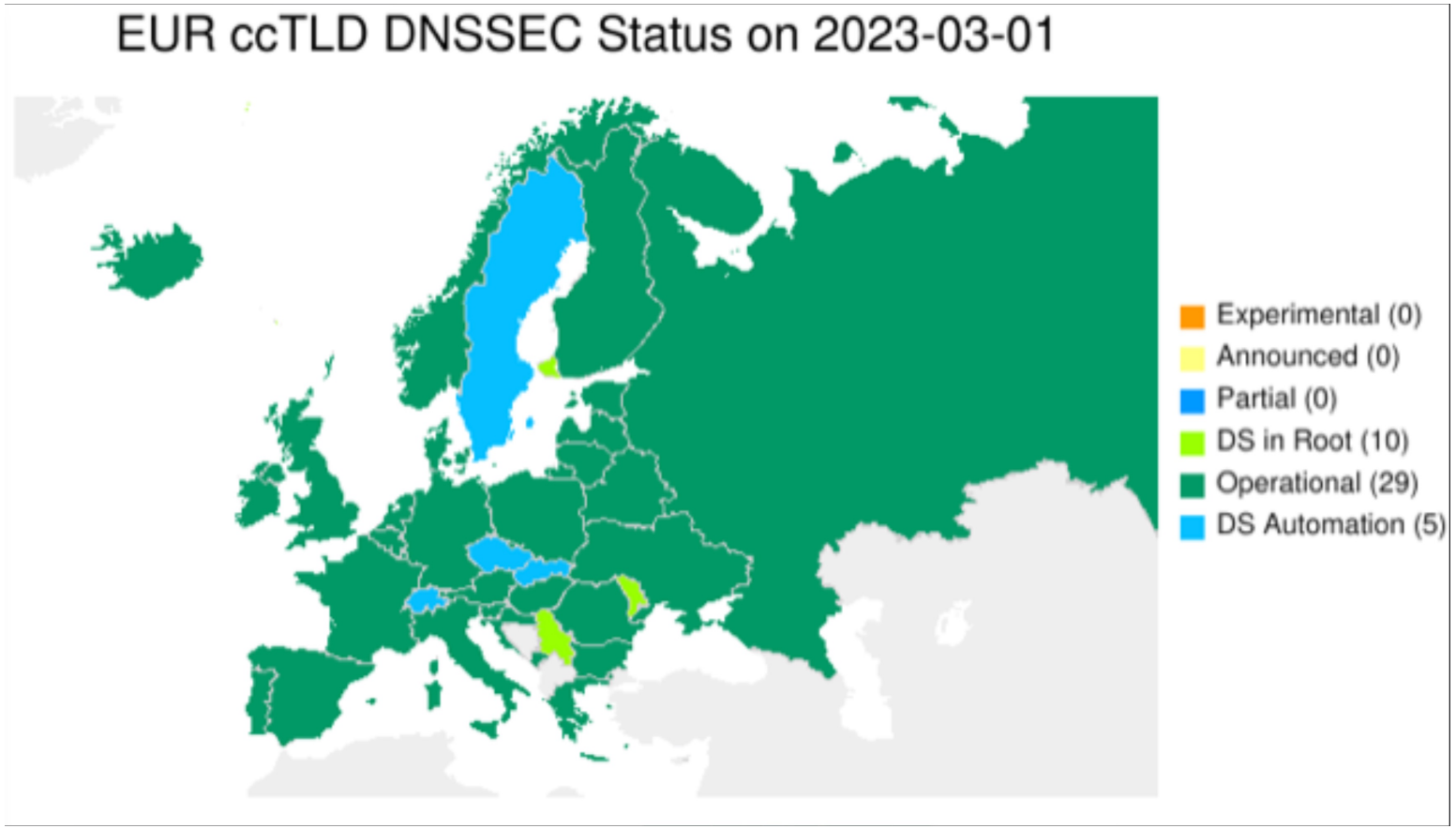
	Direction	
Upper Side	Push (Calling) Call Rr or Rt API	Pull (Polling) Publish CDS/ CDNSKEY
Registry		
Registrar		4. RFC 8078



Registrar polls for CDS/CDNSKEY records.

GoDaddy now testing

ccTLDs now implementing CDS/CDNSKEY Scanning



Maps now at George Mason University CARE/MSL: https://maps.dnssec.gmu.edu/

Actions and Issues

- GoDaddy now testing scanning of customer zones
- Some gTLDs are now scanning customer zones(!)
- SSAC exploring recommendation of DS automation support

- Issue: Scanning is time-consuming. Doesn't scale well

References

DNSSEC Provisioning Automation "Episodes" Standing Panel at ICANN DNSSEC Workshops

Episode	Date	Meeting	DNSSEC Provisioning Automation Sessions
1	11 Mar 2020	ICANN 67 "Cancún"	https://tinyurl.com/5dwxfz2v
2	22 Jun 2020	ICANN 68 "Kuala Lumpur"	https://tinyurl.com/m8eraezu
3	21 Oct 2020	ICANN 69 "Hamburg"	https://tinyurl.com/f8ma6347
4	24 Mar 2021	ICANN 70 "Cancún"	https://tinyurl.com/bj69sn87
5	14 Jun 2021	ICANN 71 "The Hague"	https://tinyurl.com/t2fcefr6
6	27 Oct 2021	ICANN 72 "Seattle"	https://tinyurl.com/32aeptd3
7	9 Mar 2022	ICANN 73 "San Juan"	https://tinyurl.com/yzyb29s9
8	13 Jun 2022	ICANN 74 The Hague	https://tinyurl.com/yn4c45t7
9	21 Sep 2022	ICANN 75 Kula Lumpur	https://tinyurl.com/46fhfkjs

Maps now at George Mason University CARE/MSL: https://maps.dnssec.gmu.edu/

Episode 1: 20 March 2020 “Cancún”

#	Title	Speaker	TinyURL
	Steve Crocker will outline the problems and the space of possible solutions	Steve Crocker, Shinkuro, Inc	https://tinyurl.com/4w2eck8j
	DS Automation		
	Registry:	James Galvin, Afilias; Erwin Lansing, DK; and Gavin Brown, CentralNic for SK	
	Multisigner Project		
	Registrar	Brian Dickson, GoDaddy; Jothan Frakes, PLISK; and Ólafur Guðmundsson, Cloudflare	
	DNS Provider	Ólafur Guðmundsson, Cloudflare	

Episode 2: 22 June 2020 “Kuala Lumpur”

#	Title	Speaker	TinyURL
	DS Updates and Multi-Signer Coordination	Steve Crocker, Shinkuro, Inc	https://tinyurl.com/vzu58xzv
	DS Automation		
	Multi-Signer DNSSEC	Shumon Huque, Salesforce, Inc	https://tinyurl.com/6sche46m
	Multisigner Project		
	Support for Multi-Signer DNSSEC	Paul Ebersman, Neustar	https://tinyurl.com/4kmcxmfw
	GoDaddy DNSSEC Signing and DS Updates	Brian Dickson, GoDaddy	https://tinyurl.com/bev24h6u
	Managing DNSSEC via API	Jothan Frakes, PLISK	https://tinyurl.com/w6ce9mu9
	Automated DNSSEC in CZ	Jaromír Talíř, CZ.NIC	https://tinyurl.com/dphwhby4
	Support for and adoption of CDS in .CH and .LI	Oli Schacher, SWITCH	https://tinyurl.com/22c6t6sn

Episode 3: 21 October 2020 “Hamburg”

#	Title	Speaker	TinyURL
I.	Overview: Framing the Issues	Shumon Huque and Steve Crocker	https://tinyurl.com/44dttx7p
II.	• SE DNSSEC History Present Future	Ulrich Wisser, SIF*	https://tinyurl.com/35m44a67
	• Deploying DNSSEC in a Large Enterprise	Han Zhang & Allison Mankin, Salesforce	https://tinyurl.com/jn8d9cv8
	DS Automation		
III.	• DS Automation	Shumon Huque, Salesforce	https://tinyurl.com/nnma8aau
	• DS Automation: Non-technical Considerations	James Galvin Ph.D., Afilias, Inc	https://tinyurl.com/p692jjzu
	• GoDaddy DNSSEC DS – Current and Proposed DS Update Methods	Brian Dickson, GoDaddy	https://tinyurl.com/8d695va9
	• Gathering the Childrens DS’	Mark Elkins, Posix	https://tinyurl.com/59697hm5
	• Evolving the DNSSEC Deployment Maps	Dan York, Internet Society	https://tinyurl.com/ytz9xw8k
	Multisigner Project		
IV.	• DNSSEC Census: Are DNSKEY Transitions Working?	Eric Osterweil, George Mason Univ	https://tinyurl.com/7tzwr6hr
	• Automating Multiple Signers	Shumon Huque, Salesforce	https://tinyurl.com/va53mwy8
V.	• Action Items:	Steve Crocker	https://tinyurl.com/2zykj7zs

*SIF = The Swedish Internet Foundation

Episode 4: 24 March 2021 “Cancún”

#	Title	Speaker	TinyURL
4.1	Panel Overview	Steve Crocker, Shinkuro, Inc	https://tinyurl.com/msaakbud
	DS Automation		
4.2	DS Automation at GoDaddy	Brian Dickson, GoDaddy	https://tinyurl.com/hwx6hy52
	Multisigner Project		
4.3	Intro to Multisigner Project Foundations	Shumon Huque, Salesforce	https://tinyurl.com/4cwcndrr
4.4	Multisigner Protocols	Ulrich Wisser, SIF*	https://tinyurl.com/v4y727sj
4.5	Multisigner Testbed	Ulrich Wisser, SIF*	https://tinyurl.com/cm3uuhk3
4.6	Multisigner Multisigner support at deSEC	Peter Thomassen, Secure Systems Engineering	https://tinyurl.com/eyymfh2z
4.7	DNSKEY Transition Observatory	Ravichander, Osterweil, GMU	https://tinyurl.com/vdwpj4wp
4.8	Anatomy of DNSSEC Transitions	Osterweil, Tehrani, Schmidt, Waehlisch	https://tinyurl.com/ssfxwr3x

*SIF = The Swedish Internet Foundation

Episode 5: 14 June 2021 “The Hague”

#	Title	Speaker	TinyURL
3.1	DNSSEC Provisioning Automation Overview	Steve Crocker, Shinkuro, Inc	https://tinyurl.com/5a66kvpx
	DS Automation		
3.2	CDS scanning at RIPE NCC	Ondřej Caletka, RIPE NCC	https://tinyurl.com/t673a7px
3.3	The State of DNSSEC Automated Provisioning	Wilco van Beijnum, University of Twente	https://tinyurl.com/ntv5um3k
	Multisigner Project		
3.4	Multi-Signer Project Overview and Status	Ulrich Wisser, SIF*	https://tinyurl.com/4uyvps4u
3.5	BIND DNSSEC Provisioning Interfaces	Matthijs Mekking, Internet Systems Consortium	https://tinyurl.com/56p3pye7
3.6	PowerDNS DNSSEC Provisioning Interfaces	Peter van Dijk, PowerDNS	https://tinyurl.com/vracytyp

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Episode 6: 27 October 2021 “Seattle”

#	Title	Speaker	TinyURL
6.1	DNSSEC Provisioning Automation Overview	Steve Crocker, Shinkuro, Inc	https://tinyurl.com/5n7fccdv
6.2	Recent DNSSEC Automation Developments in .CZ	Jaromír Talíř, CZ.NIC	https://tinyurl.com/2ddcukaj
6.3	CDS & CDNSKEY Verification in Zonemaster	Mats Dufberg, SIF	https://tinyurl.com/4jr3nyzx
6.4	Authentication Bootstrapping of DNSSEC Delegations	Peter Thomassen, deSEC	https://tinyurl.com/mswzz84x
6.5	DNS Resolver Observatory	Pouyan Tehrani, Freie Universität Berlin	https://tinyurl.com/mry4rrmr
6.6	Introduction to CSYNC	Ulrich Wisser, SIF	https://tinyurl.com/yxhf22a5

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Episode 7: 9 March 2022 “San Juan”

#	Title	Speaker	TinyURL
3.1	Overview: DNSSEC Provisioning Automation	Steve Crocker, Shinkuro, Inc.	https://tinyurl.com/4nxjzucn
	DS Automation		
3.2	GoDaddy CDS Support Update	Brian Dickson, GoDaddy	https://tinyurl.com/5n7hs98s
3.3	CSYNC implementation	Ulrich Wisser, SIF	https://tinyurl.com/589m8uw2
3.4	Authenticated Bootstrapping of DNSSEC Delegations	Nils Wisiol, deSEC, Technische Universität Berlin	https://tinyurl.com/5e65sdpp
3.5	SSAC DS Automation Work Party	Steve Crocker, Shinkuro, Inc.	https://tinyurl.com/p9f3auyu
	Multi-Signer Project		
3.6	Making MUSIC with DNSSEC	Johan Stenstam, Roger Murray, SIF	https://tinyurl.com/2turpbuh
3.7	RFC Adjustments for Multi-Signer	Shumon Huque, Salesforce	https://tinyurl.com/3cvuspnp
3.8	DNS(SEC) Views	P.F. Tehrani, et al, Weizenbaum Institute / Fraunhofer FOKUS	https://tinyurl.com/566t57s2

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Episode 8: 13 June 2022 The Hague

#	Title	Speaker	TinyURL
5.1	Overview: DNSSEC Provisioning Automation	Steve Crocker, Shinkuro, Inc.	https://tinyurl.com/bdcwym2c
	DS Automation		
5.2	GoDaddy DNSSEC DS	Brian Dickson, GoDaddy	https://tinyurl.com/bw95csdu
5.3	Updating Secure Delegations in the DNS Root Zone	Kim Davies, ICANN/PTI	https://tinyurl.com/yzkuthnu
5.4	Update on Authenticated DNSSEC Bootstrapping	Peter Thomassen, deSEC/SSE	https://tinyurl.com/ea7vdr4e
5.5	SSAC DS Automation Work Party	Steve Crocker, Shinkuro, Inc.	https://tinyurl.com/5235c7he
	Multi-Signer Project		
5.6	Making Music with DNSSEC: Status Update; The Need to Avoid False Notes	Johan Stenstam, Swedish Internet Foundation	https://tinyurl.com/46bz9yh6
5.7	Provisioning Multi-Signer DNSSEC with Cloudflare	Christian Elmerot, Cloudflare	https://tinyurl.com/4cz36r5b

Episode 9: 21 September 2022 Kuala Lumpur

#	Title	Speaker	TinyURL
3.1	Overview: DNSSEC Provisioning Automation	Steve Crocker, Shinkuro, Inc.	https://tinyurl.com/mry27pd2
	DS Automation		
3.2	GoDaddy DNSSEC DS	Brian Dickson, GoDaddy	https://tinyurl.com/4yu9934p
3.3	Automation of DS Management	Peter Thomassen, deSEC/SSE	https://tinyurl.com/2p9h8wxx
	Multi-Signer Project		
3.4	MUSIC : Multi-Signer Controller - Status Update	Johan Stenstam & Roger Murray , Swedish Internet Foundation	https://tinyurl.com/5h4wr8zj
3.5	Multi-signer DNSSEC with NS1 Managed DNS	Jan Včelák, NS1	https://tinyurl.com/3amn7ekd
3.6	Multi-Signer Testing: Testbeds and Scenarios	Steve Crocker, Shinkuro, Inc.	https://tinyurl.com/ya7kfw3j

Thanks!