

DNSSEC: worth adding to your cybersecurity strategy

MMNOG6

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Domain Name System Security Extensions (DNSSEC) - Benefits

- Adds security to the DNS by incorporating public key cryptography.
- Provides assurance to users that the DNS data they get is **valid and true**.
- Helps prevent DNS threats and abuses (cache poisoning, redirection to fake destination, etc.) by verifying and confirming authenticity and integrity of DNS data.
- Protects your digital integrity and your business, protects your customers online.
- Complementary to other technologies like SSL widely used to secure web communications.



How does DNSSEC work ?



Two actions are required :

- Registrants (domain name holder) should **sign their domain**: the domain administrator generates and maintains the cryptographic keys and signatures for the domain.
- DNS operators, ISPs, mobile operators, hosting providers, IT services, etc. should **activate DNSSEC validation** (verifies the authenticity and integrity of DNS responses from signed domains) in their recursive resolvers: system administrators should enter the server configuration and turn on the functionality.

Who should implement DNSSEC ?

- Registry operator (TLD): ccTLD and IDN ccTLD Registry Operators.

- Companies and business entities:

Sign your domains or get them signed.

Activate DNSSEC validation on your recursive resolvers.

- ISPs, Mobile Operators, hosting providers etc:

Activate DNSSEC validation on your recursive resolvers.

Sign your domains and the ones you host for your customers.

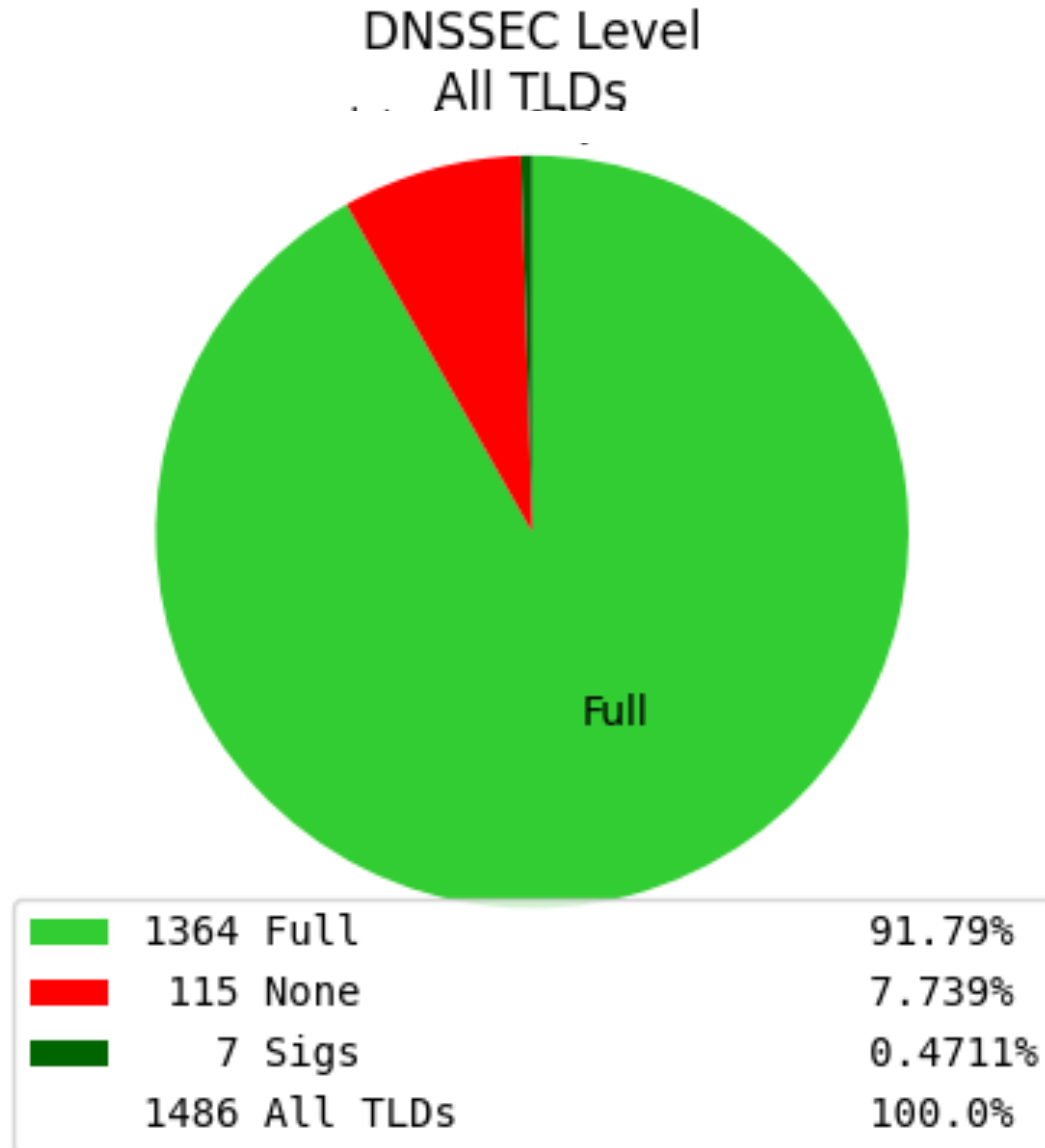
Accept DNSSEC records such as DS and push to the registry (registrars).

- Registrants: sign your domains or get them signed.

DNSSEC Signing: Technical High Level Overview

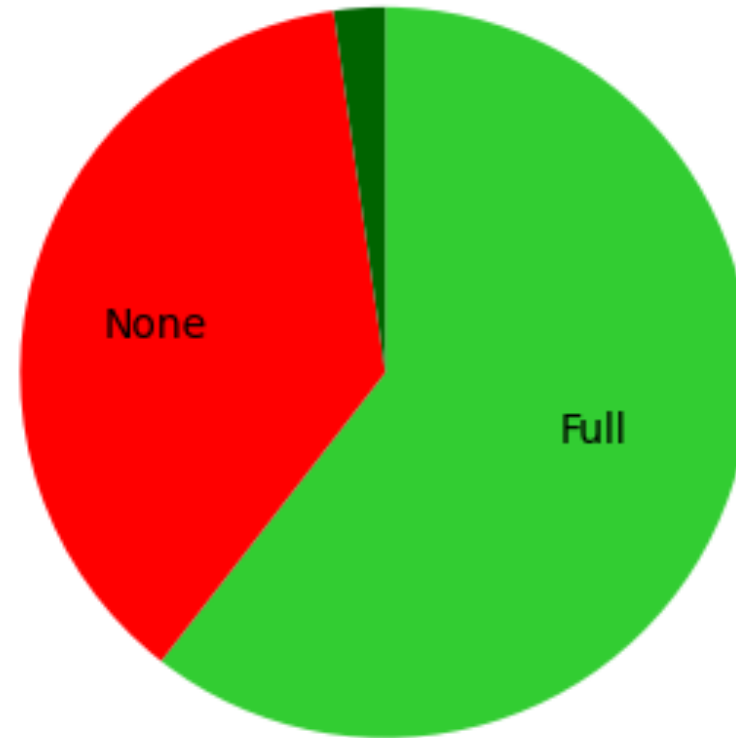
- What/how is the existing DNS infrastructure ?
- Plan and get prepared
- Involve partners: 3rd Party, registrars,
- DNSSEC software solution (OpenDNSSEC, Bind, ...), architecture, signing methodology, key generation and management.
- Generate DNSSEC signing keys.
- Test signing and plan for signing in production.
- Sign and when comfortable, upload DS to parent zone: your zone is officially signed.
- Refresh signatures and keys as per best practices and your operational constraints.
- Update Business Continuity Plans
- Monitor, analyze, improve, implement, monitor.




DNSSEC Deployment - All TLDs



DNSSEC Deployment – ccTLDs

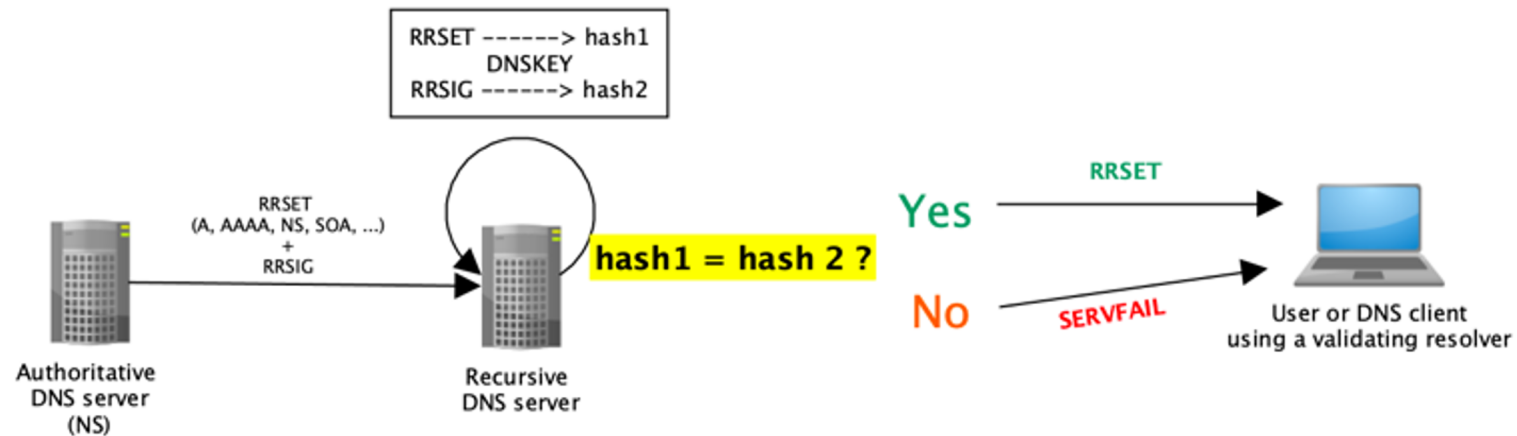
DNSSEC Level
ccTLDs



	187 Full	60.52%
	115 None	37.22%
	7 Sigs	2.265%
	309 ccTLDs	100.0%

DNSSEC Validation: Technical High Level Overview

- The process of **checking the signatures on DNSSEC data** that help to verify authenticity and integrity of signed zones.
- Protects your customers/users from being redirected to a wrong/fake destination (web site, online services etc.)
- Most validation today occurs in recursive resolvers. Can also occur in apps and stub.
- For signed domains, DNSSEC signatures data come alongside with the DNS response.

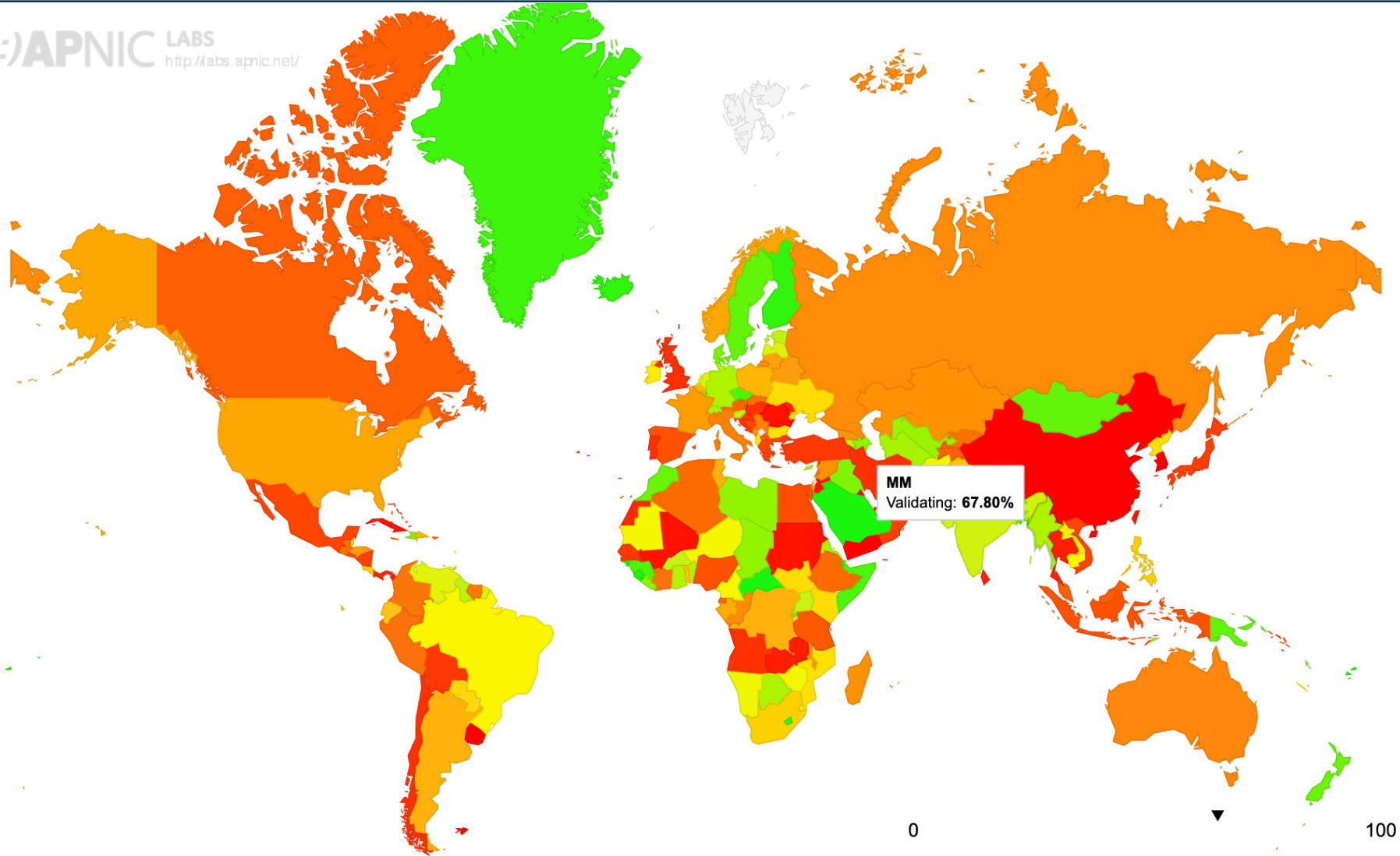


What do you need to enable DNSSEC Validation ?

- If you run your own DNS recursive resolvers (open source or commercial) within your network, activate DNSSEC validation is usually **simple and does not require a new investment**.
- Most software already have it embedded, you just need to perform some verification: **hardware resources**, server **clock** synchronization, correct root **trust anchor**, **EDNS(0)**, **TCP** port 53 should be open.
- If you are using external recursive resolvers, make sure that they are DNSSEC validating. If not, you can refer to their administrators and suggest them to activate it.

State of DNSSEC Validation in Myanmar

(::)APNIC LABS
<http://labs.apnic.net/>



Source: APNIC Labs

State of DNSSEC Validation in Myanmar

ASN	AS Name	DNSSEC Validates
AS13335	CLOUDFLARENET	99.45%
AS150153	AWSCL-AS-AP A W S MYANMAR COMPANY LIMITED	96.00%
AS134840	MCCL-AS-AP Myanmar Country Co., Ltd.	94.13%
AS149024	MSPCL-AS-AP MYANMAR SHWE PYONE COMPANY LIMITED	93.10%
AS132148	HTI-AS-AP HORIZON TELECOM INTERNATIONAL COMPANY LIMITED	92.60%
AS135405	TMHTTWTL-AS-AP WELINK	91.09%
AS134739	AGBC-AS-AP AGB Communication Co.Ltd	90.43%
AS136442	OCEANWAVE-AS-AP Ocean Wave Communication Co., Ltd	89.76%
AS133524	GTCL-AS-AP Global Technology Co., Ltd.	88.24%
AS135589	IMNCL-AS-AP Internet Maekhong Network Company Limited	86.79%
AS45558	MPT-MM-AS-AP MYANMA POSTS AND TELECOMMUNICATIONS	72.17%
AS133384	GTCL-AS-AP Global Technology Co., Ltd.	55.36%
AS136255	TIMCL-AS-AP Telecom International Myanmar Co., Ltd	53.25%
AS141216	GREATGOLDENHORSE-AS-AP GREAT GOLDEN HORSE COMPANY LIMITED	44.83%
AS136210	ITSPECTRUM-AS-AP IT Spectrum Company Limited	37.91%
AS135300	MBTCL-AS-AP Myanmar Broadband Telecom Co., Ltd.	28.80%

ASN	AS Name	DNSSEC Validates
AS136617	FTCL-AS-AP Fortune Telecom Company Limited	0
AS136780	MIHL-AS-AP MYANMAR INFORMATION HIGHWAY LIMITED	0
AS136975	GNET-AS-AP Global Technology	0
AS137259	ILINK-AS-AP i-Link	0
AS137424	ISMC-AS-AP Integral Solutions Myanmar Co.,Ltd.	0
AS137826	ASTCL-AS-AP AST SYSTEM TECHNOLOGY COMPANY LIMITED	0
AS137891	BETHEFIRST-AS-AP Be The First	0
AS137955	MMIX-AS-AP Myanmar Internet Exchange	0
AS138167	TRUENET-AS-AP TrueNET	0
AS138168	APN-AS-AP MyanmarAPN	0
AS138634	MSCL-AS-AP MYNET SOLUTIONS COMPANY LIMITED	0
AS138684	MANAULINKS-AS-AP ManauLinks Co.,Ltd.	0
AS139003	TELCOSPEEDCOLTD-AS-AP Telcospeed	0
AS139595	HTIN-AS-AP HTIN HTIN NETWORK COMPANY LIMITED	0
AS139692	CHEN-AS-AP CHEN GUANG COMPANY LIMITED	0
AS139704	AS-AGBC AGB Communication Co.Ltd	0
AS139719	YARCHANG-AS-AP Yar Chang Company Limited	0
AS139766	PROTOCOL-AS-AP Protocol Technologies Co.,Ltd ta KNET	0
AS139849	ROYALESPRIT-AS-AP Royal Esprit Company Limited	0
AS140091	SHWE-AS-AP SHWE MAHAR MAE KHONG INDUSTRIAL COMPANY LIMITED	0
AS140686	GMUT-AS-AP Golden Myanmar United Telecom	0
AS141199	CLPC-AS-AP Century Link Plus	0
AS141236	MCDC-AS-AP Mandalay City Development Committee	0
AS141704	GALAXIANET-AS-AP Galaxia @ Net	0
AS142644	LINKFAST-AS-AP Link Fast Company Limited	0
AS149487	MCLOCCL-AS-AP MOC COMPANY LIMITED	0
AS149521	FLC-AS-AP Fiber Life Internet	0
AS149810	ACL-AS-AP AnyNet	0
AS150309	ERSTCL-AS-AP E R S TECHNOLOGY	0
AS150692	GD2CL-AS-AP Golden Dragon 2000	0
AS150797	GCL-AS-AP GIGA-NET	0
AS150812	MFGCL-AS-AP StarNET	0
AS151341	THENEXTSUCCESS-AS-AP The Next Success	0
AS151482	MKTN-AS-AP MKTN ENGINEERING GROUP COMPANY LIMITED	0
AS151491	IQI-AS-AP Innovative Quality Internet Company Limited	0
AS151606	MSPAEL-AS-AP MYANMAR SHWE PYI AYE COMPANY LIMITED	0
AS151783	ERU-AS-AP EASTERN ROYAL UNICOM ERU TECHNOLOGY COMPANY LIMITED	0
AS151802	FSAS-AS-MM FIND SOLUTION AND SERVICES CO., LTD.	0
AS151826	FASTSPEED-AS-AP Fast Speed	0
AS152140	YSOMCL-AS-AP YAM Success of Myanmar Co., Ltd.	0
AS209854	CYBERZONEHUB	0

Source: APNIC Labs

Increase DNSSEC Validation in Myanmar

Be introduced to the Subject Matter Experts (system administrators within IT or technical Departments) of those operators and assist them to activate the functionality on their recursive resolvers.

Engage with ICANN – Thank You and Questions



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