



# DNSSEC Workshop

Dan York, Internet Society | ICANN 58 | March 2017

# Program Committee

- Steve Crocker, Shinkuro, Inc.
- Mark Elkins, DNS/ZACR
- Jean Robert Hountomey, AfricaCERT
- Jacques Latour, CIRA
- Xiaodong Lee, CNNIC
- Luciano Minuchin, NIC.AR
- Russ Mundy, Parsons
- Ondřej Surý, CZNIC
- Yoshiro Yoneya, JPRS
- Dan York, Internet Society
- Julie Hedlund and Kathy Schnitt, ICANN

# DNSSEC Lunch and Implementer's Gathering Sponsors

- Afilias
- CIRA
- SIDN





# Implementer's Gathering – 14 March 2017





The DNSSEC Workshop and associated activities at ICANN are an organized activity of the:

- **ICANN Security and Stability Advisory Committee (SSAC)**



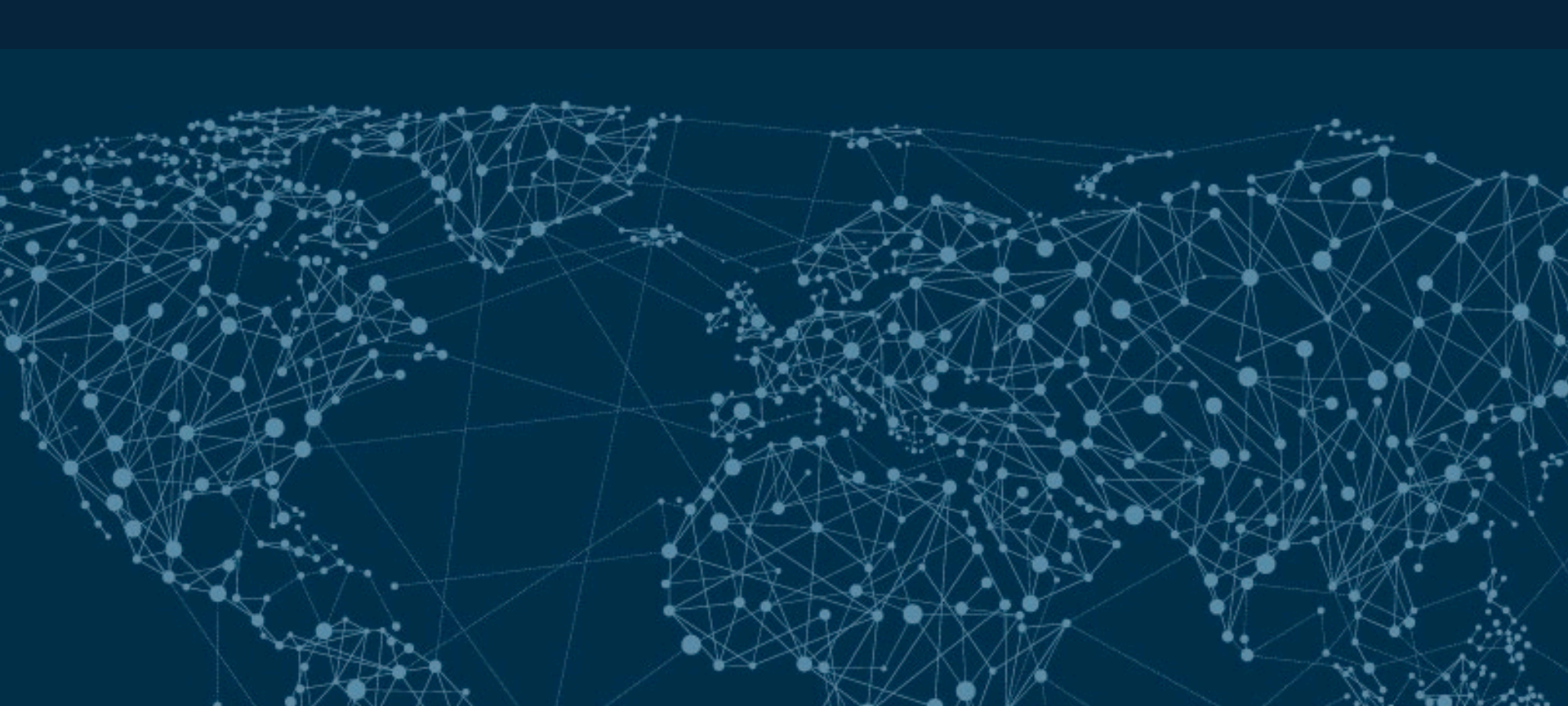
with additional assistance from the:

- **Internet Society  
Deploy360 Programme**



# Program

<b>DNSSEC Workshop – Part I</b>
<b>0900-0930 – Presentation: Dan York, Internet Society -- <i>DNSSEC Workshop Introduction, Program, Deployment Around the World – Counts, Counts, Counts</i></b>
<b>0930-1015 – Panel Discussion: <i>DNSSEC Activities in the European Region</i></b>
Moderator: Dan York, Internet Society
Panelists:
Ondrej Filip, CZNIC
Peter Koch, DENIC – <i>DNSSEC Status Flash for DE</i>
Erwin Lansing, DK Hostmaster – <i>DNSSEC News</i>
Alexander Mayrhofer, NIC.AT – <i>DNSSEC in .at</i>
<b>1015-1030 – Presentation: Dan York, Internet Society -- <i>Update on ISC/IETF DNSSEC Activities</i></b>
<b>[1030-1100: Optional Break]</b>
<b>DNSSEC Workshop – Part II</b>
<b>1030-1045 – Presentation: Matt Larson, ICANN -- <i>Root Key Rollover Update</i></b>
<b>1045-1145 – Panel Discussion: <i>Validation in ISPs -- Root Key Rollover Preparation</i></b>
Moderator: Dan York, Internet Society
Panelists:
Paul Ebersman, Comcast
Torbjörn Eklöv, Interlan – <i>ICANN DNSSEC Validation</i>
Ondrej Filip, CZNIC
Erwin Lansing, DK Hostmaster
Roland Van Rijswijk, Surfnet – <i>Root KSK Rollover Operator Actions and Measuring the Impact</i>
<b>1145-1215 – Demonstration, Paul Wouters, Red Hat -- <i>Opportunistic IPsec using DNSSEC</i></b>
<b>1215-1245 – Presentation: Roland Van Rijswijk, Surfnet – <i>ECDSA Adoption in DNSSEC</i></b>
<b>1245-1345 Lunch Break – TICKETS REQUIRED</b>
<b>1245-1300 – The Great DNSSEC/DNS Quiz – Wes Hardaker, USC/ISI</b>
<b>DNSSEC Workshop – Part III</b>
<b>1345-1415 – Presentation: Vittorio Bertola, Open-xchange -- <i>Trusted Email Services</i></b>
<b>1415-1445 – Demonstration: Patrick Ben Koetter and Carsten Strotmann – <i>SMILLA: Automatic S/MIME Encryption</i></b>
<b>1445-1500 – Presentation: Dan York, Internet Society -- <i>DNSSEC How Can I Help?</i></b>



# DNSSEC Deployment Around the World: Counts, Counts, Counts

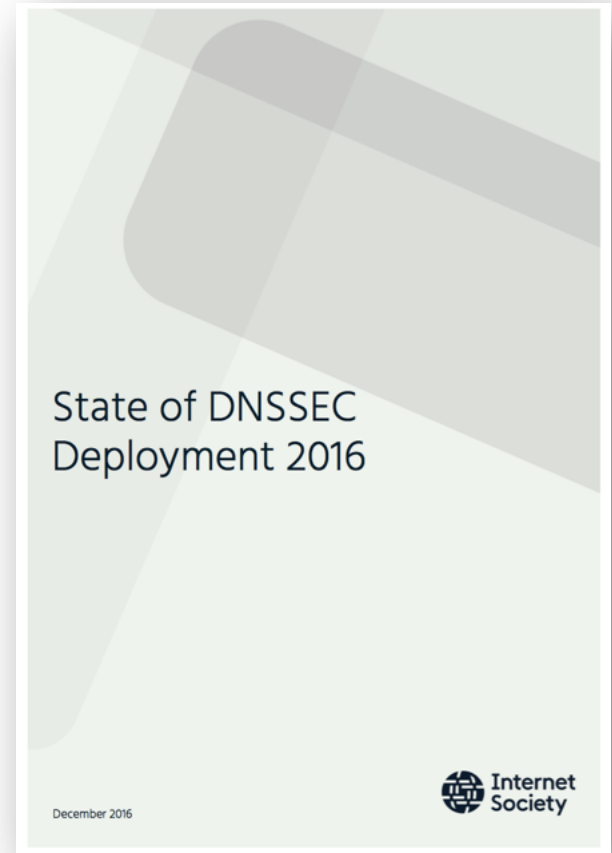
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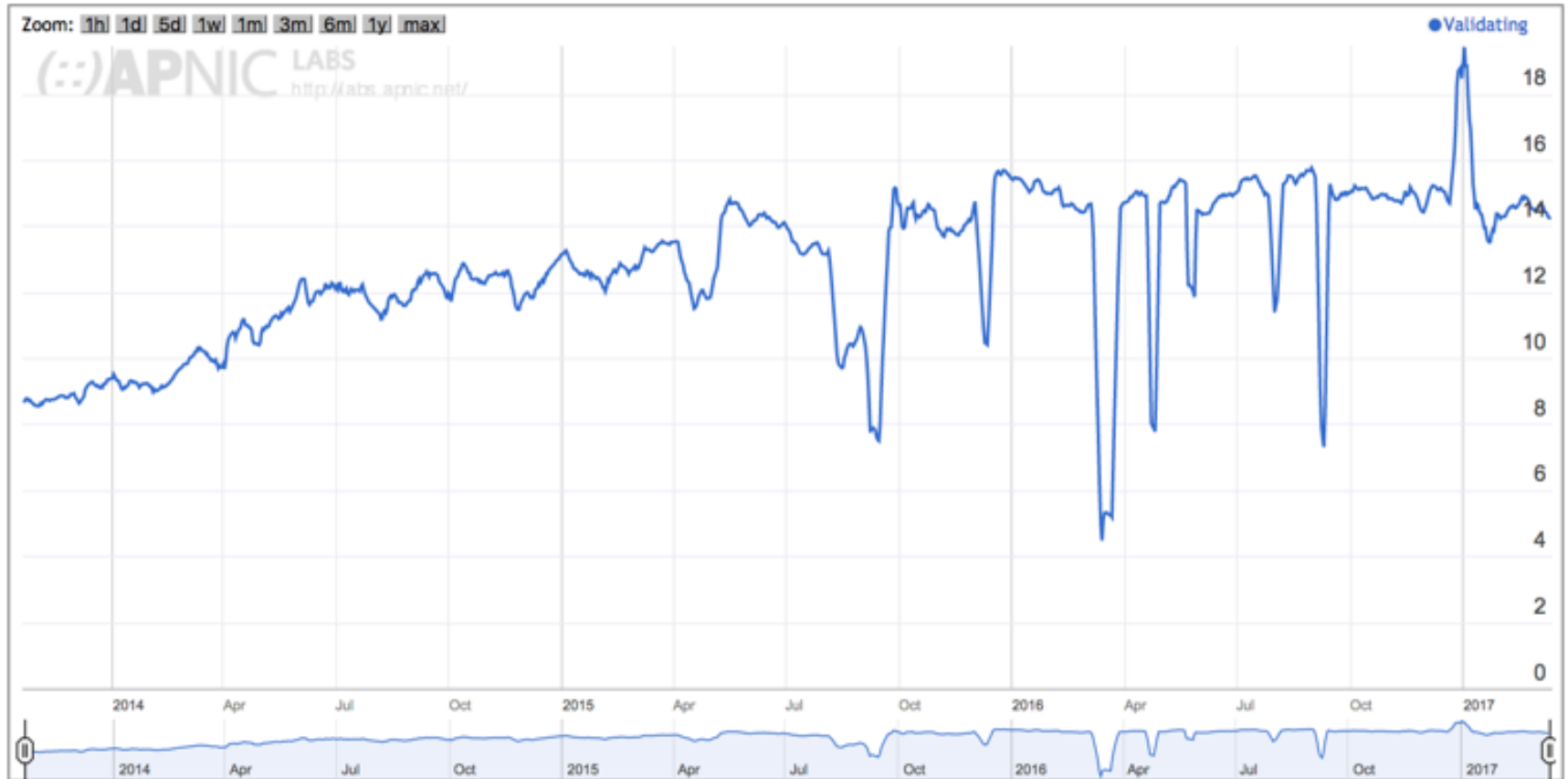
# State of DNSSEC Deployment 2016

Detailed report on global deployment. Available for download now.

<https://www.internetsociety.org/doc/state-dnssec-deployment-2016>



## Use of DNSSEC Validation for World (XA)



<http://stats.labs.apnic.net/dnssec/XA?c=XA&x=1&g=0&r=0&w=7&r=1>

Code	SubRegion	DNSSEC Validates	Uses Google PDNS
QQ	Melanesia, Oceania	30.40%	32.78%
XH	Eastern Africa, Africa	30.04%	33.85%
XK	Southern Africa, Africa	29.38%	18.13%
QO	Western Europe, Europe	24.60%	6.89%
XQ	Northern America, Americas	24.38%	9.19%
QP	Australia and New Zealand, Oceania	24.13%	3.54%
XP	South America, Americas	23.92%	16.21%
XW	Eastern Europe, Europe	23.74%	13.73%
QM	Northern Europe, Europe	21.75%	4.24%
XT	Southern Asia, Asia	18.29%	22.13%
XI	Middle Africa, Africa	16.55%	34.71%
XN	Caribbean, Americas	14.90%	17.44%
QR	Micronesia, Oceania	13.65%	27.85%
QN	Southern Europe, Europe	12.78%	10.57%
XV	Western Asia, Asia	12.45%	12.15%
XU	South-Eastern Asia, Asia	12.13%	17.70%
XR	Central Asia, Asia	10.04%	15.82%
XO	Central America, Americas	8.13%	15.84%
XJ	Northern Africa, Africa	8.01%	18.63%
XL	Western Africa, Africa	7.41%	32.60%
QS	Polynesia, Oceania	3.28%	11.84%
XS	Eastern Asia, Asia	2.55%	5.59%

<http://stats.labs.apnic.net/dnssec/XA?c=XA&x=1&g=1&r=0&w=7&r=1>



CC	Country	DNSSEC Validates	Uses Google PDNS
FO	Faroe Islands, Northern Europe, Europe	86.29%	4.80%
SE	Sweden, Northern Europe, Europe	82.22%	5.57%
IS	Iceland, Northern Europe, Europe	77.34%	9.01%
NO	Norway, Northern Europe, Europe	71.69%	5.85%
EE	Estonia, Northern Europe, Europe	60.32%	6.80%
LI	Liechtenstein, Western Europe, Europe	57.31%	26.35%
SI	Slovenia, Southern Europe, Europe	55.34%	8.02%
DK	Denmark, Northern Europe, Europe	52.79%	6.34%
RO	Romania, Eastern Europe, Europe	48.38%	12.65%
CZ	Czech Republic, Eastern Europe, Europe	38.62%	13.84%
LU	Luxembourg, Western Europe, Europe	37.72%	4.98%
MK	The former Yugoslav Republic of Macedonia, Southern Europe, Europe	36.92%	29.67%
PL	Poland, Eastern Europe, Europe	34.35%	13.59%
BA	Bosnia and Herzegovina, Southern Europe, Europe	32.61%	12.87%
AX	Aland Islands, Northern Europe, Europe	31.89%	51.11%
FR	France, Western Europe, Europe	31.12%	2.51%
RS	Serbia, Southern Europe, Europe	30.61%	13.67%
PT	Portugal, Southern Europe, Europe	30.54%	8.04%
BY	Belarus, Eastern Europe, Europe	29.82%	9.14%
DE	Germany, Western Europe, Europe	26.80%	10.98%
LV	Latvia, Northern Europe, Europe	26.67%	21.30%
IE	Ireland, Northern Europe, Europe	23.60%	6.55%
UA	Ukraine, Eastern Europe, Europe	23.38%	20.50%
GR	Greece, Southern Europe, Europe	20.36%	12.66%
RU	Russian Federation, Eastern Europe, Europe	18.80%	13.22%
VA	Holy See, Southern Europe, Europe	16.05%	20.21%
JE	Jersey, Northern Europe, Europe	15.35%	29.37%
AL	Albania, Southern Europe, Europe	15.06%	17.16%

Note: Minimal use of Google PDNS (this means DNSSEC support by local ISPs)

<http://stats.labs.apnic.net/dnssec/XA?c=XA&x=1&g=1&r=0&w=7&r=1>

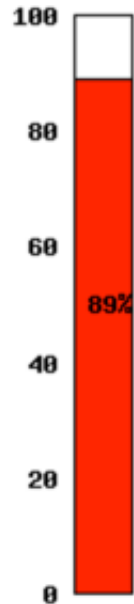
# DNSSEC Deployment Report

Mon Mar 13 23:13:07 UTC 2017

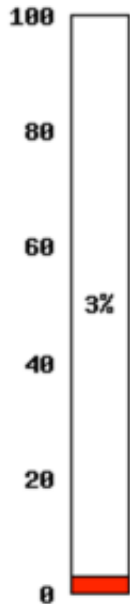
Total TLDs: 1530 / Signed TLDs in root: 1376 / Recently added: tel. (03/03/2017)

Trend

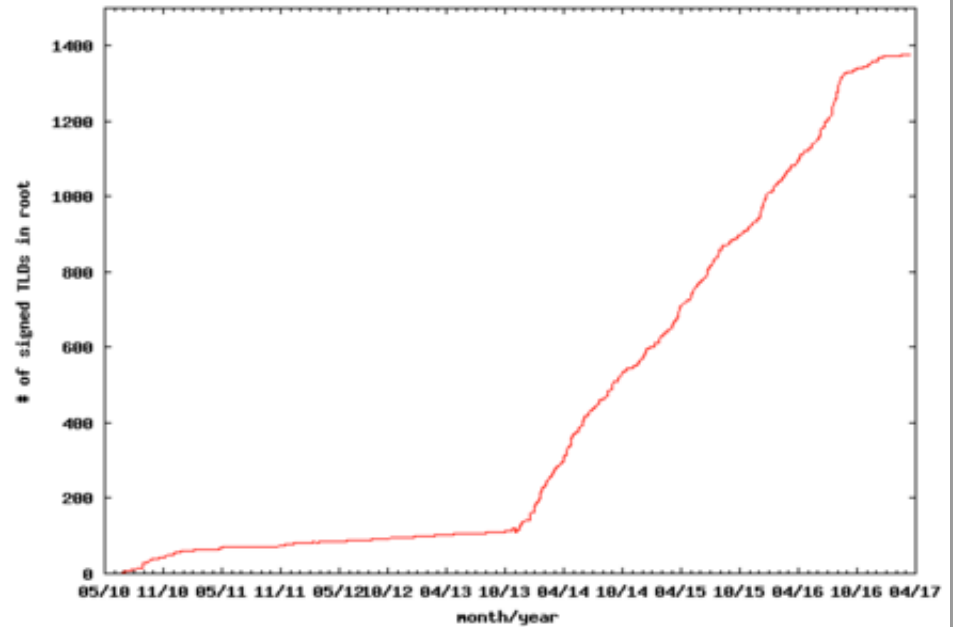
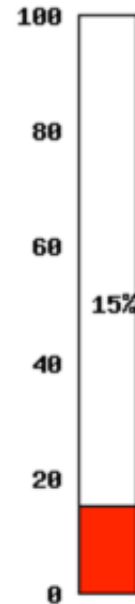
% of TLDs signed in root












Approx % of these 2LDs signed



Approx\* % Users Validating



<https://rick.eng.br/dnssecstat/>

TLD		Description	DS Date	% Signed	Signed/Total
<a href="#">nl.</a>		SIDN (Stichting Internet Domeinregistratie Nederland)	11-NOV-2010	44.92	2546766/5669950
<a href="#">br.</a>		Comite Gestor da Internet no Brasil	23-JUN-2010	24.29	938803/3865706
<a href="#">se.</a>		The Internet Infrastructure Foundation	27-AUG-2010	51.45	683787/1329070
<a href="#">cz.</a>		CZ.NIC, z.s.p.o	24-JUN-2010	51.66	669348/1295758
<a href="#">com.</a>		VeriSign Global Registry Services	31-MAR-2011	0.52	662727/126973273
<a href="#">no.</a>		UNINETT Norid A/S	15-NOV-2014	58.02	420973/725594
<a href="#">net.</a>		VeriSign Global Registry Services	9-DEC-2010	0.71	106635/15020951
<a href="#">nu.</a>		The IUSN Foundation	25-SEP-2010	26.89	83584/310828
<a href="#">org.</a>		Public Interest Registry (PIR)	22-JUL-2010	0.72	75672/10455325
<a href="#">info.</a>		Afilias Limited	4-SEP-2010	0.54	28414/5260391
<a href="#">ovh.</a>		OVH SAS	19-JUN-2014	38.03	18094/47581
<a href="#">biz.</a>		Neustar, Inc.	7-AUG-2010	0.84	17288/2068316
<a href="#">xyz.</a>		XYZ.COM LLC	19-FEB-2014	0.10	6401/6140994
<a href="#">amsterdam.</a>		Gemeente Amsterdam	25-DEC-2014	23.44	5959/25421

Note: Only includes the TLDs for which Rick Lamb can get statistics. (Example, .GOV is not listed.)

<https://rick.eng.br/dnssecstat/>



### TLD Breakdown

new gTLD	Domains	% Share
1. .ovh	17,321	15.14%
2. .xyz	7,375	6.44%
3. .amsterdam	5,674	4.96%
4. .webcam	4,770	4.17%
5. .top	3,789	3.31%
6. .fr	3,605	3.15%
7. .paris	2,963	2.59%
8. .bank	2,930	2.56%
9. .online	2,406	2.10%
10. .shop	1,339	1.17%
11. .club	1,075	0.94%
12. .cloud	1,066	0.93%
13. .immo	1,013	0.89%
14. .email	1,005	0.88%
15. .bzh	959	0.84%

Note that .BANK has 100% signed, as does .INSURANCE.

<https://ntldstats.com/dnssec>

# TLD DNSSEC Implementation Status

**Experimental – internal experiments**

**Announced – Public commitment to deploy**

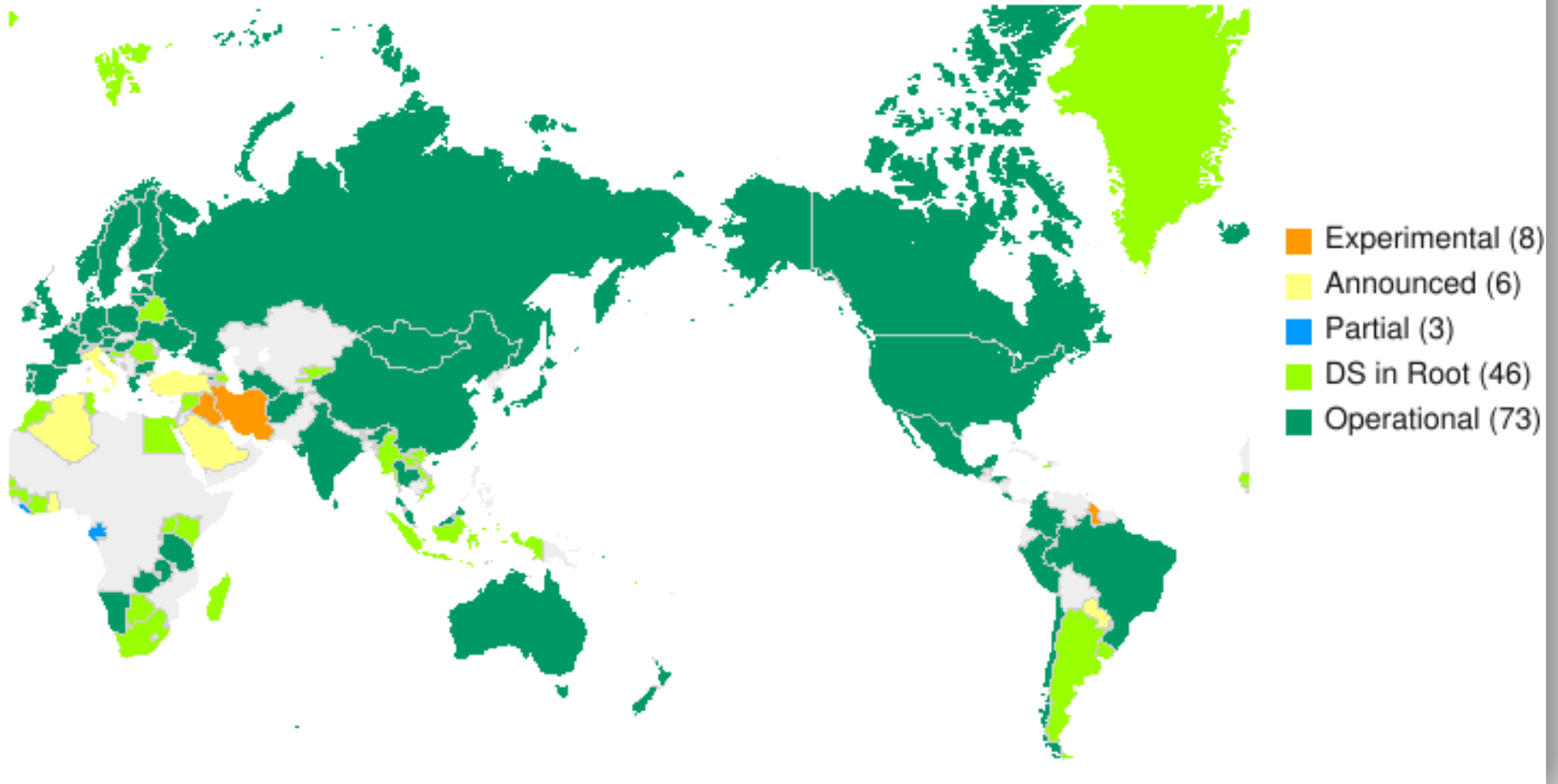
**Partial – Zone is signed but not in operation**

**DS in Root**

**Operational – Accepting signed delegations**

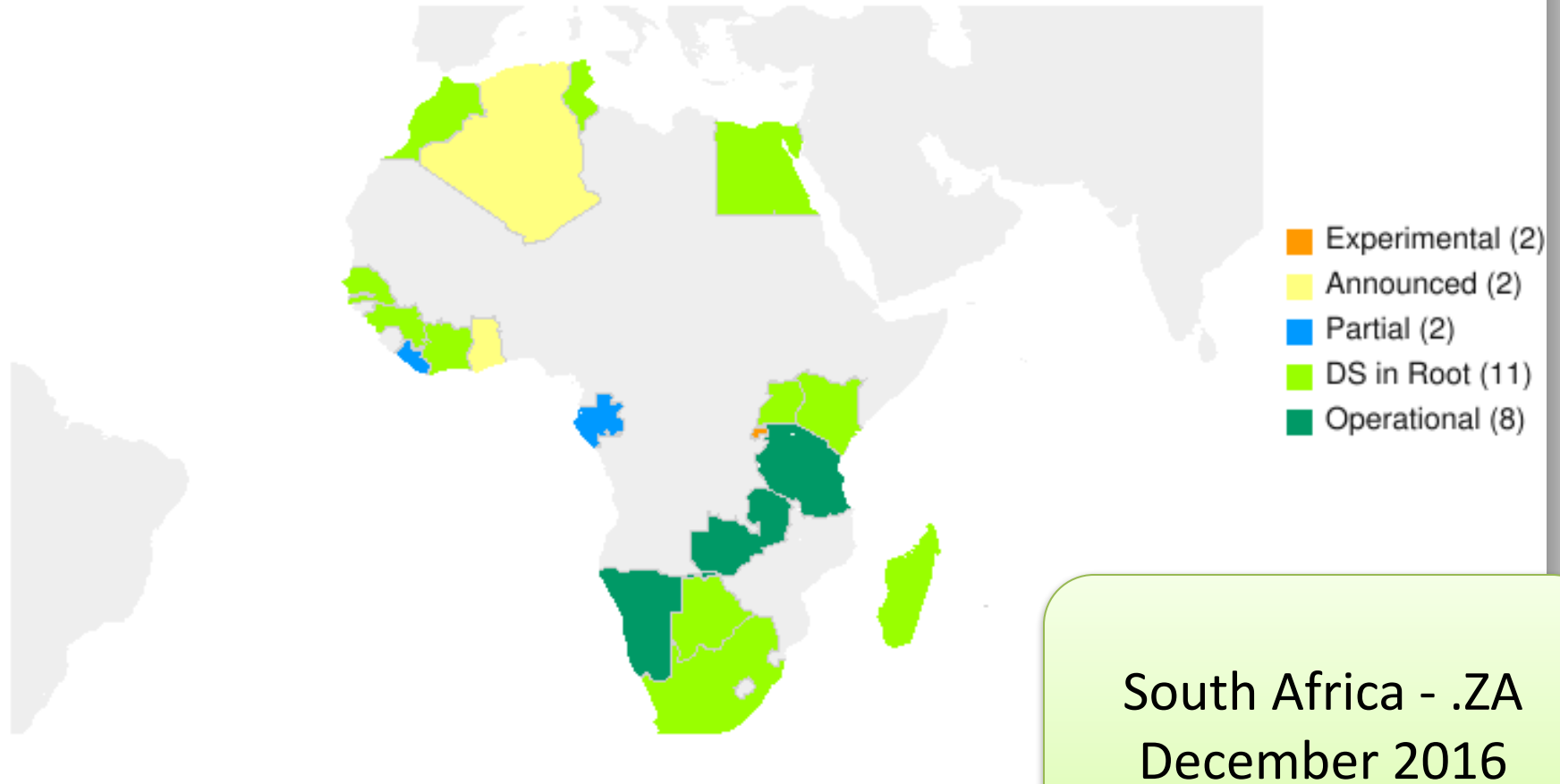


# ccTLD DNSSEC Status on 2017-03-13

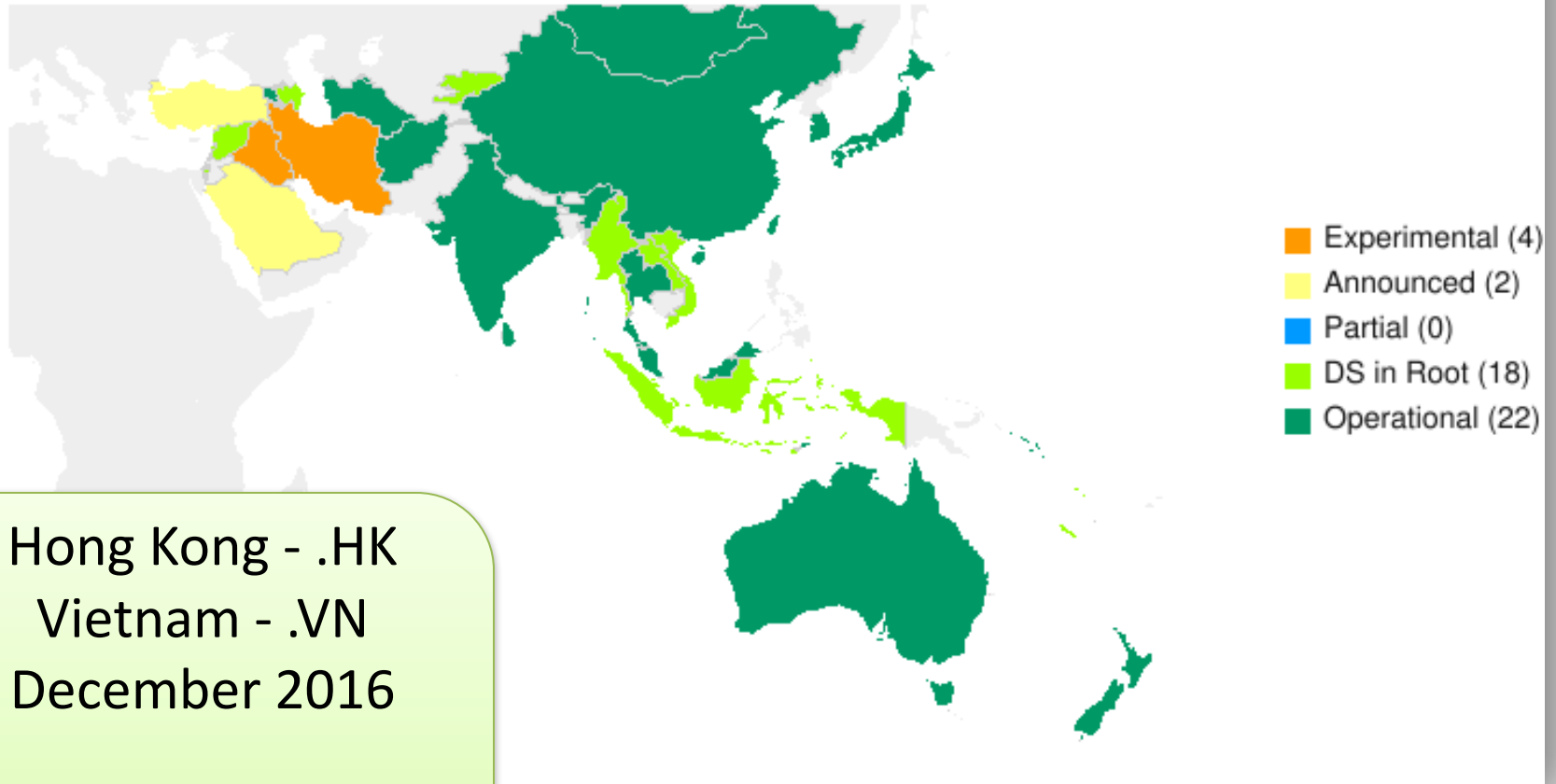




## AF ccTLD DNSSEC Status on 2017-03-13



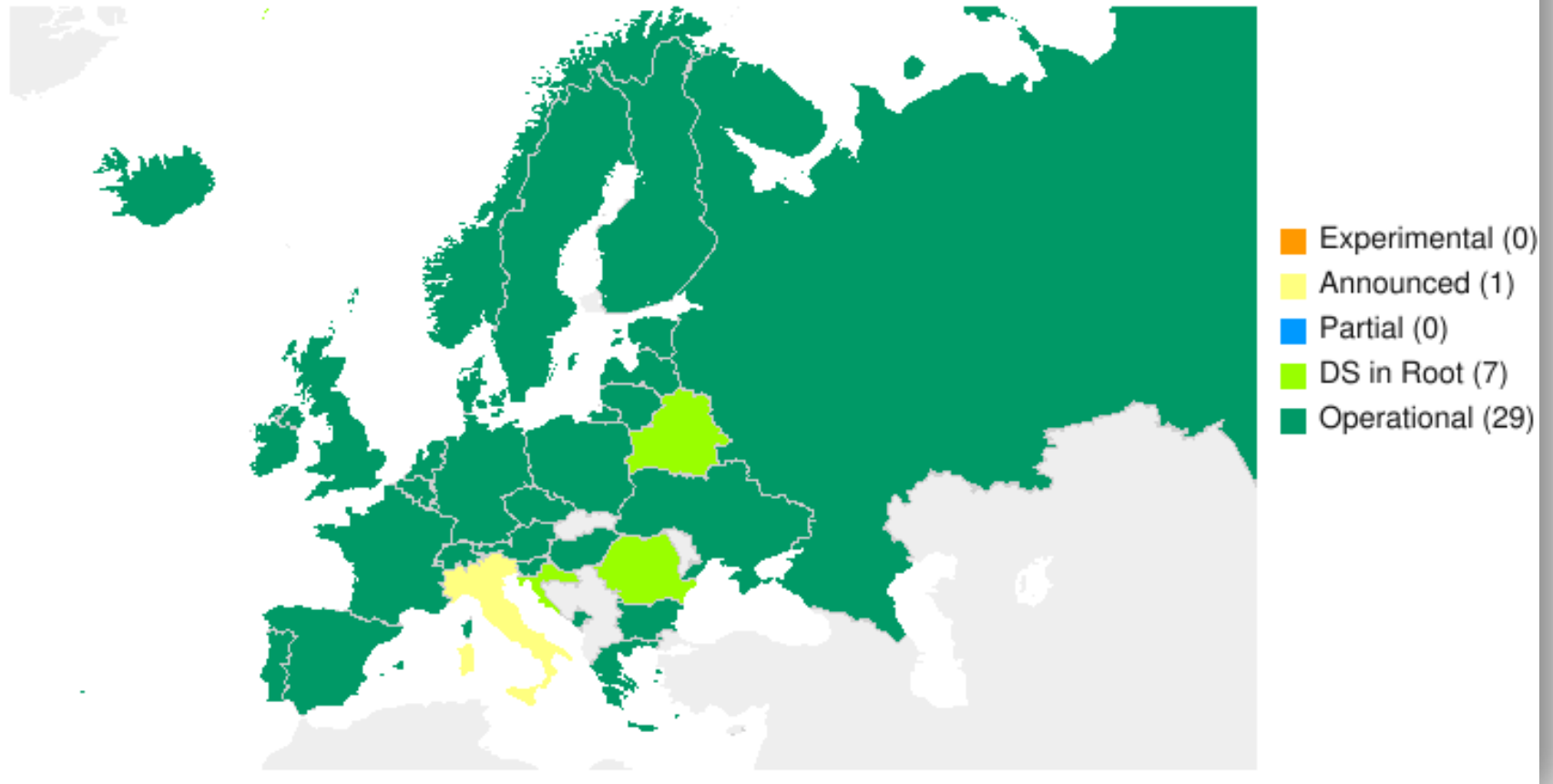
## AP ccTLD DNSSEC Status on 2017-03-13



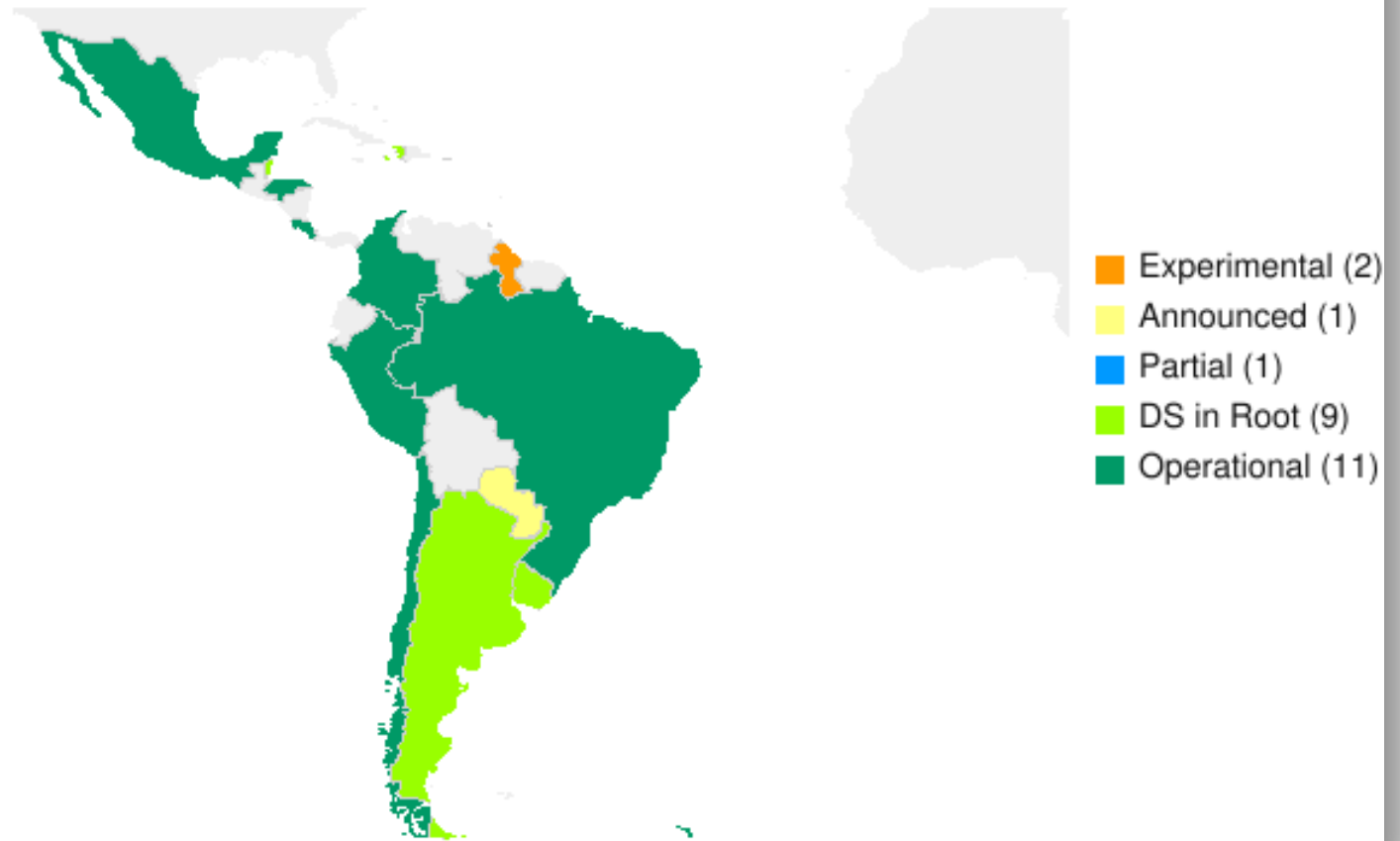
Hong Kong - .HK  
Vietnam - .VN  
December 2016

Samoa - .WS  
January 2017

# EUR ccTLD DNSSEC Status on 2017-03-13

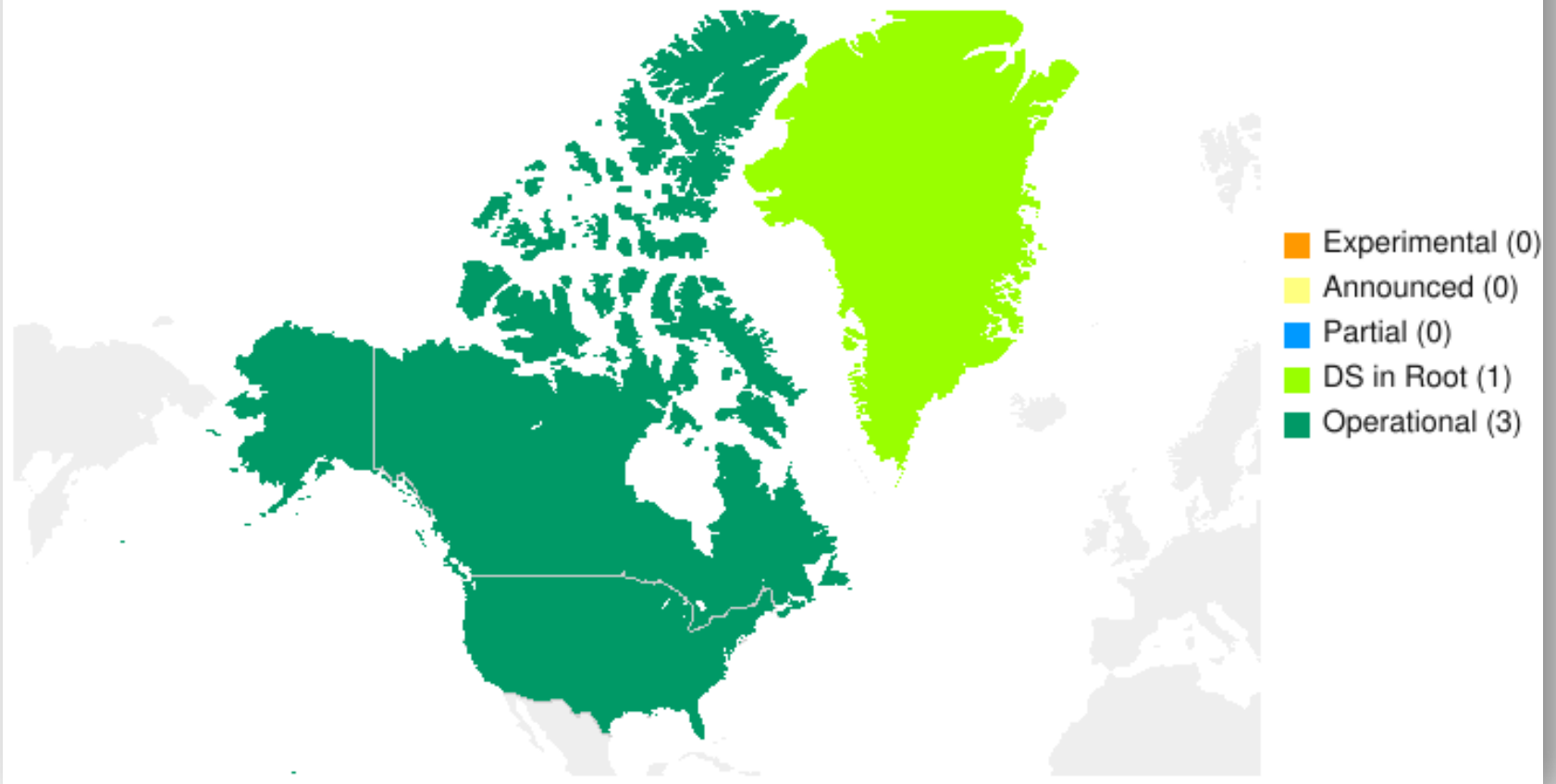


## LAC ccTLD DNSSEC Status on 2017-03-13





# NA ccTLD DNSSEC Status on 2017-03-13



# Receiving the DNSSEC Deployment Maps

The DNSSEC Deployment Maps are published via email every Monday morning through the Internet Society Deploy360 Programme.

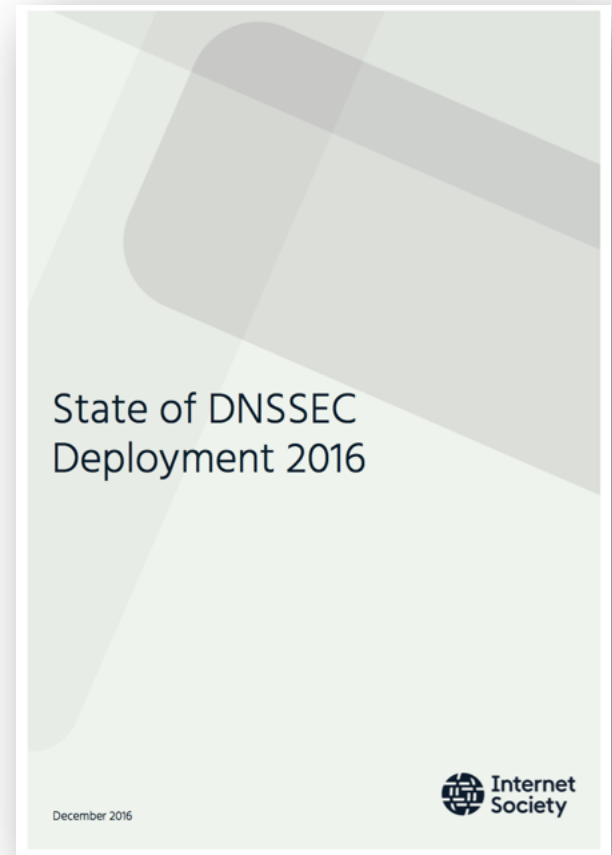
To subscribe, visit:

**[www.internetsociety.org/deploy360/dnssec/maps/](http://www.internetsociety.org/deploy360/dnssec/maps/)**

# State of DNSSEC Deployment 2016

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<https://www.internetsociety.org/doc/state-dnssec-deployment-2016>



# DNSSEC History Project

The DNSSEC History Project is an ongoing project to collect and record the history of the work that went into bringing about the deployment of DNSSEC. To view – or to contribute – please see:

[https://wiki.tools.isoc.org/DNSSEC\\_History\\_Project](https://wiki.tools.isoc.org/DNSSEC_History_Project)





Thank you and Questions