

Steps of the KSK Roll Already Performed in 2017

ICANN Office of the Chief Technical Officer
27 April 2018



Introduction

The KSK Roll process was initiated in 2016 with the original plan to roll the root KSK on October 2017. Many of the steps of the original plan were fully executed before the process was paused in September 2017. See [KSK Rollover Postponed](#) for a description of the postponement.

This document briefly recaps the planned steps that were performed before the postponement and thus are considered complete.

2017 KSK Roll Systems Test Plan

The [2017 KSK Roll Systems Test Plan](#) listed the actions needed to test changes to the ICANN infrastructure involved in the KSK roll. Performance of the plan was by the IANA Functions Operator, coordinating with the Root Zone Maintainer (RZM). The tests included the interface with the Root Zone Maintainer, handling of the Key Signing Request and Signed Key Response, and generation of files containing the trust anchors to be published via HTTP(S). All tests in that plan were executed successfully.

2017 KSK Roll External Test Plan

This [2017 KSK Roll External Test Plan](#) document covers the preparation of operational test environments, accessed by the general Internet public, to evaluate whether external systems are prepared to participate in the KSK roll. The [Automated Trust Anchor](#)

[Update Testbed](#) allows operators of validating resolvers to test their implementation and confirm its ability to properly follow a KSK roll and update its trust anchor configuration.

ICANN created a “real time 5011 environment” that allows operators of validating resolvers to test whether their systems are likely to work during the KSK rollover if they are using RFC 5011. It has been reported that some distributions of resolver software are misconfigured so that after the 30-day hold down is complete, the new KSK is not written to permanent storage. This testbed allows operators to test their configuration before the the new KSK is installed into the root. The tests take place in test zones far down the DNS hierarchy, and will not affect any of the root zone trust anchors or the signatures on the root zone.

In addition, ICANN provides two extensive sets of instructions for operators of validating resolvers.

The web page [Checking the Current Trust Anchors in DNS Validating Resolvers](#) describes how to be sure they are using the latest trust anchor for DNSSEC validation. The web page [Updating of DNS Validating Resolvers with the Latest Trust Anchor](#) is useful for operators who discover that they do not have the new KSK installed, or whose resolvers are giving errors for all DNS requests after the KSK rollover.

All activities called for in this plan have been completed and therefore this plan document does not need to be updated.

2017 KSK Rollover Back Out Plan

Parts of the [2017 KSK Rollover Back Out Plan](#) are no longer needed because the events that might have necessitated a backout didn't happen have already occurred without incident. A revised version of this plan will be used in 2018.

At the beginning of 2017, there were three type of events that might have required a back out: updating the trust anchor XML file, changing the KSKs in the root DNSKEY RRset, and an increase in the size of DNS responses to priming queries. All three of those events already occurred without noticeable issues. The following critical events were identified:

Event	Date	Slot	Response Size	Description
1	2017-03-08	B8		Add KSK-2017 to TA XML
2	2017-07-11	D2	1139 bytes	Publish KSK-2017 in the DNSKEY RRset
3	2017-09-19	D9	1414 bytes	Response size increase
4	2018-10-11	E2	1139 bytes	KSK-2017 signed the DNSKEY RRset
5	2019-01-11	F2		Set KSK-2010 as not valid in TA XML
6	2019-01-11	F2	1424 bytes	Publish KSK-2010 as revoked
7	2019-03-22	F9	1139 bytes	Remove KSK-2010 from the DNSKEY RRset

Events 1, 2, and 3 already happened. Events 4, 5, 6, and 7 (marked in bold type in the “Date” column) are part of the plan for resuming the root KSK roll, with each date moved one year into the future. The specific details for these events are covered in the updated back out plan for 2018.

2018 KSK Roll Operational Implementation Plan

Because the [2017 KSK Roll Operational Implementation Plan](#) lists many steps that were already completed, the updated 2018 KSK Roll Operational Implementation Plan only amends a small portion of the 2017 plan.

2018 KSK Rollover Monitoring Plan

Parts of the [2017 KSK Rollover Monitoring Plan](#) specified a measurement infrastructure that would be needed for monitoring. That infrastructure was set up.

Outreach for the KSK Roll

In the lead-up to the expected KSK roll in 2017, the ICANN organization communicated its plans with different communities in numerous ways, including:

- Outreach to operators of resolvers to help them be prepared for the roll
 - Presentations at local and regional network operator groups
 - Presentations at local and regional technical conferences
 - Presentations at ICANN meetings

- Discussions with the technical communities about the mechanics of the roll
 - Presentations at IETF meetings
 - Presentations at DNS-OARC meetings
 - Presentations at the Tech Day at ICANN meetings
- Detailed web pages explaining of how operators can configure their systems to be ready for the roll
 - [Checking the Current Trust Anchors in DNS Validating Resolvers](#)
 - [Updating of DNS Validating Resolvers with the Latest Trust Anchor](#)
- General communications to increase community interest
 - Social media announcements
 - Informal mentions to business leaders and government ministers as part of other discussions

A new outreach plan will be used in 2018.