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Root DNSSEC KSK
Administrative Ceremony 59
Safe #2 Credentials Safe Deposit Box Lock Assembly
Programming
Wednesday 12 November 2025

Root Zone KSK Operator Key Management Facility
18155 Technology Drive, Culpeper, VA 22701, USA

This ceremony is executed in accordance with the DNSSEC Practice Statement for the Root Zone KSK Operator 8th Edition (2025-04-14)

Abbreviations

AUD = Third Party Auditor	CA = Ceremony Administrator	CO = Crypto Officer
EW = External Witness	FD = Flash Drive	HSM = Hardware Security Module
IW = Internal Witness	KMF = Key Management Facility	KSR = Key Signing Request
MC = Master of Ceremonies	OP = Operator	PTI = Public Technical Identifiers
RKSH = Recovery Key Share Holder	RKOS = RZ KSK Operations Security	RZM = Root Zone Maintainer
SA = System Administrator	SKR = Signed Key Response	SMK = Storage Master Key
SO = Security Officer	SSC = Safe Security Controller	STM = Secure Transport Mode
SW = Staff Witness	TCR = Trusted Community Representative	
TEB = Tamper Evident Bag (AMPAC: #GCS1013, #GCS0912, #GCS1216 or MMF Industries: #2362010N20, #2362011N20)		

Participants

Key Ceremony roles are described on <https://www.iana.org/help/key-ceremony-roles>

Instructions: At the end of the ceremony, participants sign IW's script. IW records time of completion.

Title / Roles	Printed Name	Signature	Date	Time
CA	Andres Pavez / PTI		2025 Nov —	
IW	Aaron Foley / PTI			
TCR1	George Michaelson			
TCR2	Pia Gruvö			
TCR4	Rob Seastrom			
TCR6	Hugo Salgado			
TCR7	Dileepa Lathsara			

By signing this script, you are declaring that this document is a true and accurate record of the Root DNSSEC KSK ceremony to the best of your knowledge, and you agree that your personal data will be processed in accordance with the ICANN Privacy Policy available at <https://www.icann.org/privacy/policy>

Instructions for a Root DNSSEC KSK Administrative Ceremony

The Root DNSSEC Key Signing Key (KSK) Administrative Ceremony is a scripted meeting where individuals with specific roles perform tasks related to support the operation of the root zone KSK. Administrative Ceremonies include all ceremonies that do not require use of the private key component of the root zone DNSSEC KSK, such as enrollment or replacement of a trusted role, media deposit or extraction, equipment acceptance testing or maintenance, etc. The process is audited by a third party firm for compliance with SOC 3 framework. The script and recordings are published online for the wider Internet community to review.

Ceremony Guidelines:

- The CA leads the ceremony
- Only a CA, IW, or SA can enter and escort other participants into Tier 4 (Key Ceremony Room)
- Dual Occupancy is enforced. IW with CA or SA must remain inside Tier 4 (Key Ceremony Room) if participants are present in the room
- During a ceremony a CA, IW, or SA may escort participants out of Tier 4 (Key Ceremony Room) at the CA's discretion if Tier 5 (Safe Room) is not occupied
- All participants are required to sign in and out of Tier 4 (Key Ceremony Room) using the visitor log located in Tier 3
- The SA begins recording with the audit cameras shortly before the ceremony begins
- Ceremony participants follow the script step by step in order to attest to the ceremony's proper performance
- The CA reads each step aloud prior to its performance
- Upon the successful completion of a step, the IW will announce and record its time of completion, and initials that step in their script
- A ceremony participant who has cause for concern or detects an issue is encouraged to interrupt the ceremony for discussion. The issue is brought to resolution before the ceremony resumes
- Questions and suggestions for improvement are welcome and can be discussed at any time or after the ceremony during the ceremony debrief

Unplanned events (**exceptions**) during the ceremony are evaluated, documented, and acted upon. It is the CA's sole responsibility to decide on proper actions after consulting with the IW. In either case, an exception is regarded as an incident, and incident handling procedures are enacted.

Key Management Facility Tiers:

- Tiers 1-3: Consist of the facility areas between the outside environment and the Key Ceremony Room
- Tier 4: Consists of the Key Ceremony Room and is subject to Dual Occupancy
- Tier 5: Consists of the Safe Room (a cage only accessible from the Key Ceremony Room) and is subject to Dual Occupancy
- Tier 6: Consists of Safe #1 (Equipment Safe) and Safe #2 (Credentials Safe)
- Tier 7: Consists of the HSMs stored in Safe #1 (Equipment Safe) and the safe deposit boxes installed in Safe #2 (Credentials Safe)

Some steps during the ceremony may require the participants to recite and/or confirm identifiers comprised of numbers and letters. When spelling identifiers, the phonetic alphabet shown below should be used:

Character	Code Word	Pronunciation
A	Alfa	AL-FAH
B	Bravo	BRAH-VOH
C	Charlie	CHAR-LEE
D	Delta	DELL-TAH
E	Echo	ECK-OH
F	Foxtrot	FOKS-TROT
G	Golf	GOLF
H	Hotel	HOH-TEL
I	India	IN-DEE-AH
J	Juliet	JEW-LEE-ETT
K	Kilo	KEY-LOH
L	Lima	LEE-MAH
M	Mike	MIKE
N	November	NO-VEM-BER
O	Oscar	OSS-CAH
P	Papa	PAH-PAH
Q	Quebec	KEH-BECK
R	Romeo	ROW-ME-OH
S	Sierra	SEE-AIR-RAH
T	Tango	TANG-GO
U	Uniform	YOU-NEE-FORM
V	Victor	VIK-TAH
W	Whiskey	WISS-KEY
X	Xray	ECKS-RAY
Y	Yankee	YANG-KEY
Z	Zulu	ZOO-LOO
1	One	WUN
2	Two	TOO
3	Three	TREE
4	Four	FOW-ER
5	Five	FIFE
6	Six	SIX
7	Seven	SEV-EN
8	Eight	AIT
9	Nine	NIN-ER
0	Zero	ZEE-RO

Act 1: Initiate Ceremony

The CA initiates the ceremony by performing the steps below:

- Verify that the audit cameras are recording
- Confirm that all of the ceremony attendees have signed in using the visitor log in Tier 3
- Review emergency evacuation procedures
- Explain the use of personal devices and the purpose of this ceremony
- Verify the time and date so that all entries into the script follow a common time source
- Explain the purpose of the ceremony along with a high-level list of tasks to be completed

Initiate and Summarize the Ceremony

Step	Activity	Initials	Time
1.1	CA confirms that required audit cameras are recording.		1505
1.2	CA welcomes all participants to Administrative Ceremony 59 on Wednesday 12 November 2025 and summarizes the purpose of the ceremony.		1507
1.3	CA confirms that all participants are signed into Tier 4 (Key Ceremony Room) log, then performs a roll call using the participants list on page 2.		1508
1.4	CA asks that any first-time ceremony participants in the room introduce themselves.		1509

Emergency Evacuation Procedures and Electronics Policy

Step	Activity	Initials	Time
1.5	CA reviews emergency evacuation procedures with onsite participants.		1509
1.6	CA explains the use of personal electronic devices during the ceremony.		1511

Verify the Time and Date

Step	Activity	Initials	Time
1.7	IW enters UTC date (YYYY-MM-DD) and time (HH:MM) using a reasonably accurate clock visible to all in Tier 4 (Key Ceremony Room) within +/- 15 seconds: Date and time: <u>2025-11-12 T 1512</u> Note: All entries into this script or any logs should follow this common source of time.		1512

Act 2: Safe Deposit Box Lock Assembly Programming

The CA, with assistance from IW, performs the safe deposit box lock assembly programming by executing the following steps:

- Remove the new lock assemblies from their factory packaging, then inspect them for tamper/ functionality
- Follow the procedure to program each lock assembly with the required guard key
- Test each lock assembly for adequate functionality
- Install required key covers
- Place each lock assembly in a tamper-evident bag for future use

Safe Deposit Box Lock Preparation and Inspection

Step	Activity	Initials	Time
2.1	CA and IW remove the safe deposit box lock assemblies from the packaging in which they shipped. Each lock assembly is inspected for any signs of damage or tampering, then placed on the ceremony table in view of ceremony participants and far enough from operating audit cameras to avoid exposing any key blades.	RS	1505 1514

Safe Deposit Box Lock Programming

Step	Activity	Initials	Time
2.2	CA and IW will program and test each individual safe deposit box lock assembly with the guard key east, ensuring functionality for both the guard key and copies, as well as the supplied tenant keys and copies with the following procedure: A) Remove the lock assembly from the packaging, then place the lock assembly so the bolt is facing up or away from you for proper orientation of forthcoming steps. B) Insert the neutral key into the lower guard key lock cylinder with the key blade facing down, then operate it counter-clockwise 90 degrees. C) Insert the tenant key into the upper tenant key lock cylinder with the key blade facing up, then operate it clockwise 135 degrees until the bolt retracts. D) Return the neutral key to its initial position, then remove it from the lower guard key lock cylinder. E) Insert the guard key into the lower guard key lock cylinder. F) Repeatedly operate the guard key counter-clockwise and clockwise 90 degrees to ensure adequate programming. 15-20 times should be sufficient. G) Exercise both keys throughout their ranges to test the lock. Remove and reinstall the keys between tests and repeat until consistent smooth operation is achieved. Test duplicate key copies as well. H) Discard any safe deposit box lock assembly that fails to smoothly operate. I) Place the programmed safe deposit box lock assemblies ready for production on the designated area of the ceremony table with one of the tenant keys in the tenant key lock in preparation of the forthcoming step. J) Repeat these steps until all safe deposit box lock assemblies have been programmed and are deemed ready for production use.		1600

Safe Deposit Box Lock Assembly Packaging

Step	Activity	Initials	Time
	CA performs the following steps for each safe deposit box lock assembly to be stored: A) Install a key cover on one of the tenant keys and swap the key ring for the two tenant keys with a heavy duty version. B) CA asks the IW for the TEB, then read aloud the TEB number and description. C) Place the safe deposit box lock assembly and tenant keys into the TEB. D) IW inspects the TEB, confirms the TEB number with the list below, then initials it with a ballpoint pen. E) CA and IW repeat steps until all safe deposit box lock assemblies are stored in TEBs.		1626
2.3	BB02638227 / Safe Deposit Box Lock Assembly 01 ✓ BB02638226 / Safe Deposit Box Lock Assembly 02 ✓ BB02638225 / Safe Deposit Box Lock Assembly 03 ✓ BB02638224 / Safe Deposit Box Lock Assembly 04 ✓ BB02638223 / Safe Deposit Box Lock Assembly 05 ✓ BB02638222 / Safe Deposit Box Lock Assembly 06 ✓ BB02638221 / Safe Deposit Box Lock Assembly 07 ✓ BB02638220 / Safe Deposit Box Lock Assembly 08 ✓ BB02638219 / Safe Deposit Box Lock Assembly 09 ✓ BB02638218 / Safe Deposit Box Lock Assembly 10 ✓ BB02638217 / Safe Deposit Box Lock Assembly 11 ✓ BB02638216 / Safe Deposit Box Lock Assembly 12 ✓ BB02638215 / Safe Deposit Box Lock Assembly 13 ✓ BB02638214 / Safe Deposit Box Lock Assembly 14 ✓ BB02638213 / Safe Deposit Box Lock Assembly 15 ✓		

Act 3: Close the Administrative Ceremony

The CA will finish the ceremony by performing the following steps:

- Read any exceptions that occurred during the ceremony
- Call the ceremony participants to sign the IW's script
- Stop the video recording
- Ensure that all participants are signed out of Tier 4 (Key Ceremony Room) log and escorted out
- Prepare the audit bundle materials

Participants Sign IW's Script

Step	Activity	Initials	Time
3.1	CA reads all exceptions that occurred during the ceremony.		1626
3.2	CA calls each in-person attendee not seated at the ceremony table to sign the IW's participant list. All signatories declare to the best of their knowledge that this script is a true and accurate record of the ceremony.		
3.3	CA reviews IW's script, then signs the participants list.		
3.4	IW signs the list and records the completion time.		

Stop Recording

Step	Activity	Initials	Time
3.5	CA stops the audit camera video recording.		

Appendix A: Kaba Mas X-10 Lock Symbol Guide



Blank Display
Lock is powered down



OP
Open Right



Lightning Bolt
Incorrect Combination Dialed



Lightning Bolt with Error Count
Incorrect

Combination Dialed xx times.
(The error count is only displayed when there have been 3 or more consecutive unsuccessful attempts.)



Flashing Lighting Bolts Lock in Penalty Mode.
(Timed Lock Out)



UL
Unlocked



LU
Lock Up



Key
Change Key Symbol (The Change Key has

been inserted and the lock is in Change Combination Mode.)



SL
Select Mode of Operation



EC
Enter Change Combination



PO
Pull Out Change Key



CC
Confirm Combination or Combination(s)



C1
Enter first Combination



C2
Enter second Combination



Low Power
Dial to the left faster



Low Power
Dial to the right faster



Firmware level



Firmware Date

Appendix B: Audit Bundle Checklist

1. Administrative Ceremony Script (by IW)

Hard copies of the IW's administrative ceremony script, including notes and attestation. See Appendix C: Administrative Ceremony Script (by IW) on page 11.

2. Audio-Visual Recordings from the Administrative Ceremony (by CA)

One set for the audit bundle.

3. Audit Bundle Information

All TEBs are labeled **Root DNSSEC KSK Ceremony 59**, dated and initialed by IW and CA. An off-site audit bundle is delivered to an off-site storage.

Appendix C: Administrative Ceremony Script (by IW)

I hereby attest that the Administrative Ceremony was conducted in accordance to this script.
Any exceptions that occurred were accurately and properly documented.

IW: **Aaron Foley**

Signature:

Date: 2025 Nov __