



Internet Corporation for Assigned Names and Numbers

**Root DNSSEC
Crypto Officer Replacement and
Crypto Officer Recovery
Thursday August 13, 2015**

**ICANN KSK Facility@Equinix LA3
1920 East Maple Avenue, El Segundo, CA 90245**

**This operation and maintenance is executed under the
DNSSEC Practices Statement for the Root Zone KSK Operator Version A Revision 1358**

Abbreviations

TEB = Tamper Evident Bag (AMPAC, item #GCS1013, item #GCS0912 small or #GCS1216 large or MMF Industries, item #2362010N20 small or #2362011N20 large)	SO = Security Officer	CO = Crypto Officer
OP = Operator	CA = Ceremony Administrator	IW = Internal Witness
SW = Staff Witness	SSC = Safe Security Controller	EW = External Witness
MC = Master of Ceremony	IKOS = ICANN KSK Operations Security	SA = System Administrator
AUD = Third Party Auditor	RZM = Root Zone Maintainer	HSM = Hardware Security Module
FD = Flash Drive	KSR = Key Signing Request	SKR = Signed Key Response

Participants

Instructions: At the end of the ceremony, participants sign on IW1’s copy. IW1 records time upon completion.

Title	Printed Name	Signature	Date	Time
CA	Francisco Arias / ICANN		13 August 2015	
IW1	Gustavo Lozano / ICANN			
SSC2	Leo Vegoda / ICANN			
CO1 Predecessor	Masato Minda / JP			
CO1 Successor	Rudolph Daniel / VC			
CO6 Successor	Arbogast Fabian / TZ			
SA1	Connor Barthold / ICANN			
SA2	Brian Martin / ICANN			
CA2	Edward Lewis / ICANN			
CA3 / IKOS	Alberto Duero / ICANN			
IW2 / IKOS	Andres Pavez / ICANN			
Locksmith	Rich Bowen / Industrial Lock and Security			

Note: By signing this script, you are declaring that this is a true and accurate record of the Root DNSSEC KSK ceremony to the best of your knowledge.

Note: Dual Occupancy enforced. CA leads ceremony. Only CAs, IWs, or SAs can enter ceremony room and/or escort other participants. Only CA+IW can enter safe room and/or escort other participants. CAs, SAs or IWs may let individuals out of the ceremony room but only when CA+IW remain in the ceremony room. No one may leave when CA+IW are in safe room. Participants must sign in and out of ceremony room and leave any credentials assigned to them (keys, cards) in the ceremony room if leaving before completion of the ceremony. The SA starts filming before the participants enter the room.

Some steps during the ceremony require the participants to tell and/or confirm identifiers composed of numbers and letters. When spelling identifiers, the phonetic alphabet shown below will be used:

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 CO Replacement and CO Recovery

Participants Arrive and Sign into Key Ceremony Room

Step	Activity	Initials	Time
1.	CA confirms with SA that all audit cameras are recording and online streaming is live.		
2.	CA confirms that all participants are signed into the Ceremony Room.		

Emergency Evacuation Procedures and Electronics Policy

Step	Activity	Initials	Time
3.	CA reviews emergency evacuation procedures with participants.		
4.	CA explains the use of personal electronics devices during the ceremony.		

Verify Time and Date

Step	Activity	Initials	Time
5.	<p>IW1 enters UTC date (day/month/year) and time using a reasonably accurate wall clock visible to all in the Ceremony Room:</p> <p>Date and time: _____</p> <p>All entries into this script or any logs should follow this common source of time.</p>		

Confirm the Trusted Community Representatives Declaration

Step	Activity	Initials	Time
6.	IW and CA confirm the <i>Trusted Community Representative Declaration</i> is signed and submitted by the CO1 Successor and CO6 Successor .		

Act 2. Verify and Transfer OP and SO Credentials

Open Credential Safe #2

Step	Activity	Initials	Time
1.	CA and IW1 escort SSC2, CO1 Predecessor and CO1 Successor into the safe room together. CA brings a flashlight when entering the safe room.		
2.	SSC2, while shielding combination from camera, opens Safe #2.		
3.	SSC2 takes out the existing safe log and shows the most current page to the camera. IW1 provides a blank pre-printed safe log to the SSC2. SSC2 appends the new safe log then prints name, date, time, signature, and reason (i.e. "open safe") in safe log. IW1 initials this entry. Note: If log entry is pre-printed, verify the entry, record time of completion and sign.		

CO1 Predecessor and CO1 Successor Verifies the OP and SO Credentials Together

Step	Activity	Initials	Time
4.	<p>CO1 Predecessor checks the OP/SO cards together with the CO1 Successor and retrieves both cards following the steps shown below:</p> <ul style="list-style-type: none"> a) With the assistance of CA (and his/her common key), CO1 Predecessor opens the safe deposit box. # Common Key is bottom lock and CO Key is top lock b) CO1 Predecessor, together with the CO1 Successor verifies integrity of contents by reading out box number and TEB # for OP and SO cards which should match below. c) CO1 Predecessor makes an entry in safe log indicating OP and SO TEB removal with box #, printed name, date, time and signature. Note: If log entry is pre-printed, verify the entry, record time of completion and sign. d) With the assistance of CA (and his/her common key), CO1 Predecessor closes the safe deposit box leaving the keys into the lock. <p>IW1 initials this entry.</p> <p>CO1 Successor: Rudolph Daniel Box # 1788 (Old box) OP TEB # BB21820464 SO TEB # A13004340</p>		

CO1 Successor Receive New Safe Deposit Box Keys and Returns OP and SO Cards

Step	Activity	Initials	Time
5.	<p>CO1 Successor:</p> <ul style="list-style-type: none"> a) Opens the safe deposit box, using one of the keys already in place, with assistance of CA who uses his/her common key, and looks into the box with a flashlight to verify that the box is empty. b) Closes and locks the box and opens and closes it once again to test his/her second key, with the assistance of the CA and his/her common key. c) CO1 Successor makes an entry into the safe log indicating the return of OP and SO card including Box #, TEB #, card type, printed name, date, time, and signature. IW1 initials the entry after verifying contents and integrity of the TEB and comparing TEB#s and card type to his/her script. Note: If log entry is pre-printed, verify the entry, record time of completion and sign. d) CO1 Successor shows the bag to the camera and then places his/her TEB into his/her box and locks the safe deposit box with the help of the CA. e) Enters the box #, printed name, date, time and signature here on IW1's script: <p style="margin-left: 40px;"> Box # 1073 (New box) Printed Name Rudolph Daniel Date August 13, 2015 </p> <p style="margin-left: 40px;"> Time _____ Signature _____ </p>		

Close Credential Safe #2

Step	Activity	Initials	Time
6.	<p>Once all safe deposit boxes are closed and locked, SSC2 makes an entry that includes printed name, date, time and signature into the safe log indicating closing of the safe. IW1 initials this entry. Note: If log entry is pre-printed, verify the entry, record time of completion and sign.</p>		
7.	<p>SSC2 puts log back in safe and locks Safe #2 (spin dial at least two full revolutions each way, counter clock wise then clock wise). CA and IW1 verify that the safe is locked and card reader indicator is green.</p>		
8.	<p>IW1, CA, SSC2, CO1 Predecessor, CO1 Successor leaves the safe room, closing the door behind them.</p>		

Act 3. Drill the Safe Deposit Box Lock, verify the OP and SO Credentials and Safe Deposit Box Maintenance

Open Credential Safe #2

Step	Activity	Initials	Time
1.	After a one (1) minute delay, CA and IW1 escort SSC2, CO6 Successor , and locksmith into the safe room together. CA brings a flashlight and the pre-labeled "SPARE TEB" when entering the safe room. Note: Spare TEB will ONLY be used if the drilled lock's metal shavings damage the existing TEB.		
2.	SSC2, while shielding combination from camera, opens Safe #2.		
3.	SSC2 takes out the existing safe log and prints name, date, time, signature, and reason (i.e. "open safe") in safe log. IW1 initials this entry. Note: If log entry is pre-printed, verify the entry, record time of completion and sign.		

Locksmith Drills the Safe Deposit Box Locks and CO6 Successor verifies the OP and SO credentials

Step	Activity	Initials	Time
4.	CA confirms the safe deposit box number that needs to be drilled. Then Locksmith carefully drills and opens the safe deposit box. Box 1072 (due to Crypto Officer Recovery)		
5.	The CO6 Successor checks the OP/SO cards and retrieves both cards following the steps shown below <ul style="list-style-type: none"> a) Verify integrity of contents by reading out box number and TEB # for OP and SO cards which should match below. b) Makes an entry in safe log indicating OP and SO TEB removal with box #, printed name, date, time and signature. Note: If log entry is pre-printed, verify the entry, record time of completion and sign. IW1 initials this entry. CO6 Successor: Arbogast Fabian Box # 1072 (Old box) OP TEB # BB21368989 SO TEB # BB21907266		

Step	Activity	Initials	Time
6.	<p>Locksmith removes the drilled dual nose Mosler locks from the safe deposit box and installs a new unit leaving the new key into the lock.</p> <p>Box 1072 (due to Crypto Officer Recovery)</p>		

Locksmith Replaces the Safe Deposit Box Locks

Step	Activity	Initials	Time
7.	<p>CA opens the safe deposit box, using one of the keys already in place, with his/her common key, and looks into the box with a flashlight to verify that the box is empty.</p> <p>Then Locksmith removes the dual nose Mosler locks from the safe deposit box and installs new unit leaving the new key into the lock.</p> <p>Box 1788 (due to Crypto Officer Replacement from KSK Ceremony 22) Box 1790 (due to Crypto Officer Replacement from KSK Ceremony 18)</p>		

CO6 Successor Receive New Safe Deposit Box Keys and Return OP and SO Cards

Step	Activity	Initials	Time
8.	<p>CO6 Successor:</p> <ul style="list-style-type: none"> a) Opens the safe deposit box, using one of the keys already in place, with assistance of CA who uses his/her common key, and looks into the box with a flashlight to verify that the box is empty. b) Closes and locks the box and opens and closes it once again to test his/her second key, with the assistance of the CA and his/her common key. c) CO6 Successor makes an entry into the safe log indicating the return of OP and SO card including Box #, TEB #, card type, printed name, date, time, and signature. IW1 initials the entry after verifying contents and integrity of the TEB and comparing TEB# s and card type to his/her script. Note: If log entry is pre-printed, verify the entry, record time of completion and sign. d) CO6 Successor shows the bag to the camera and then places his/her TEB into his/her box and locks the safe deposit box with the help of the CA. e) Enters the box #, printed name, date, time and signature here on IW1's script: <p style="margin-left: 40px;"> Box # 1791 (New box) Printed Name Arbogast Fabian Date August 13, 2015 Time _____ Signature _____ </p>		

Close Credential Safe #2

Step	Activity	Initials	Time
9.	Once all safe deposit boxes are closed and locked, SSC2 makes an entry that includes printed name, date, time and signature into the safe log indicating closing of the safe. IW1 initials this entry. Note: If log entry is pre-printed, verify the entry, record time of completion and sign.		
10.	SSC2 puts log back in safe and locks Safe #2 (spin dial at least two full revolutions each way, counter clock wise then clock wise). CA and IW1 verify that the safe is locked and card reader indicator is green.		
11.	IW1, CA, SSC2, CO6 Predecessor, CO6 Successor and locksmith leaves the safe room, closing the door behind them.		

Participant Signing of IW1’s Script

Step	Activity	Initials	Time
12.	One by one, all participants come to the front of the room, confirms printed name and date. Then, the participant declares that this script is a true and accurate record of the ceremony by signing on IW1’s script coversheet. IW records the completion time once all participants have signed the coversheet. Note: If entry is pre-printed, verify the entry and sign.		
13.	CA reviews IW1’s script and signs it.		

Signing Out of Ceremony Room

Step	Activity	Initials	Time
14.	IW2 ensures that all participants sign out of Ceremony Room log and are escorted out of the Ceremony Room. SA, IW1 and CA remain in the Ceremony Room.		

Filming Stops

Step	Activity	Initials	Time
15.	SA stops filming and makes 2 copies of film, one for on-site and one for off-site storage along with IW1 script copies.		

All remaining participants sign out of ceremony room log and leave.