



DNSSEC Key Ceremony 10 Script Wednesday, March 26, 2014 Singapore


Sign In to Facility

Step	Activity	Initial	Time (SGT)
1	FO has all participants sign in on Facility Sign-In Sheet before entering the Key Management Facility	<i>[Signature]</i>	14 29
2	FO reviews emergency evacuation procedures and other relevant information with participants	<i>[Signature]</i>	14 30
3	FO collects cell phones, laptops, etc. Cameras are permitted in the Key Management Facility.	<i>[Signature]</i>	14 31
4	SA verifies the functioning of audio and video recording.	<i>[Signature]</i>	14 31


Enter the Key Management Facility

Step	Activity	Initial	Time (SGT)
5	<p>As the participants enter the Key Management Facility, the EW verifies the identity of each by examining a government-issued photo identification, notes the type and number of each piece of identification, and the participant's entry time on the Participant Signature Sheet.</p> <p>Note that participants do not sign the sheet until the end of the ceremony.</p> <p>As the participants are identified, the EW distributes their role identification placards, for them to wear.</p>	<i>[Signature]</i>	<i>[Signature]</i> 14 06: 41



Ground Rules



Step	Activity	Initial	Time (SGT)
6	CA previews ground rules and break procedures with participants.		14.44

Verify Time and Date


Step	Activity	Initial	Time (SGT)
7	EW reads aloud and records the date (month/day/year) and time (UTC) using an NTP-synchronized clock visible to all. Participants verify that the time is correct. Date: <u>3/26/2014</u> Time: <u>06:45</u> This and all subsequent entries into this script and any associated logs should follow this common source of time.		1445

Remove Equipment from Safe




Step	Activity	Initial	Time (UTC)
8	SC opens safe and makes entry in log sheet indicating opening of safe.		0655
9	SC collects the following items from the safe: - KSK-HSM-01-SIN HSM - boot-DVD - laptop - KSK-HSM-01-SIN HSMFD and any other items that may be scheduled for removal indicating removal of each with corresponding TEB number of safe log. SC also provides any necessary power supplies and cables. Equipment is placed on table visible to all participants.		0659.






10	<p>CA reads out KSK-HSM-01-SIN HSM TEB and serial number while EW checks that it matches the TEB # recorded in the script from the previous key ceremony.</p> <p>TEB# A3112531</p> <p>Serial# K1011055</p>		0659
11	<p>CA similarly reads out boot-DVD, laptop, and HSMFD TEB numbers while EW checks that they match the TEB # in the script from the previous key ceremony.</p> <p>DVD TEB# A19204866</p> <p>Laptop TEB# A3112532</p> <p>HSMFD KSK-HSM-01-SIN TEB# A19204865</p>		0701

Collect OP Cards


Step	Activity	Initial	Time (UTC)
12	<p>CA collects OP cards from COs, reading out and comparing TEB numbers with those recorded in the prior ceremony, reproduced for convenience in the appendices of this document. Different COs may appear on different pages. Note any discrepancies. CA places the OP cards in plain view on the table, removing cards from TEBs, discarding used TEBs but saving warning slips for reuse.</p>		0718

Set Up Laptop



Step	Activity	Initial	Time (UTC)
13	<p>CA places the boot-DVD and laptop on the table; connects laptop power to grid (or UPS if available) and external monitor or projector and boots laptop from DVD.</p> <p>Bootting from CD may generate warnings of kernel crash, which can be ignored if it keeps on bootting.</p>		0727
14	<p>CA logs in as root.</p>		0728
15	<p>CA opens a terminal window.</p>		0728

16	<p>CA verifies the time zone, date, and time on the laptop and synchronizes it if necessary.</p> <p>Display the current time and timezone:</p> <pre>date</pre> <p>If the timezone is not set to UTC:</p> <pre>cd /etc/ rm localtime ln -s /usr/share/zoneinfo/UTC localtime</pre> <p>Set time to match the wall clock:</p> <pre>date mmddHHMMYYYY</pre> <p>Verify:</p> <pre>date</pre>		0731
17	CA disables screen saver by using the GUI menu.		0732
18	<p>CA calculates sha256 checksum of the boot-DVD. CA may proceed with additional steps while this process completes (approx 9 minutes). When the checksum is complete, CA reads it aloud, four digits at a time. Then closes the terminal window.</p> <pre>sha256sum /dev/cdrom</pre>		0741
19	<p>EW records the sixty-four digit boot-DVD checksum</p> <pre>7DE4 31F9 C33D DFEF 9089 AB56 13A3 8126 708A 3AC1 A784 38A7 B9C9 2A4F 52A1 FB7C.</pre> <p style="text-align: center;">8 M</p> <p>Other participants may compare this with the boot-DVD checksum calculated during Key Ceremony 1, reproduced for convenience in the appendices of this document.</p>		0750
20	CA connects USB hub to laptop.		
21	CA removes HSMFD KSK-HSM-01-SIN from TEB, connects it to the laptop, and waits for O/S to recognize the FD. CA lets participants view contents of HSMFD then closes FD window.		0739



Start Logging Terminal Session

Step	Activity	Initial	Time (UTC)
22	CA opens new terminal window. CA changes the default directory to the HSMFD and starts capture of terminal output to a file: <code>cd /media/HSMFD</code> <code>script script-20140326.log</code>		0752






Start Logging HSM Output

Step	Activity	Initial	Time (UTC)
23	CA connects the HSM to the laptop using a serial cable.		0753
24	CA opens a second terminal screen and ensures its default directory is also /media/HSMFD and executes: <code>ttyaudit /dev/ttyUSB0</code> to start logging HSM serial port output. Note: DO NOT unplug USB serial port adaptor from laptop as this causes logging to stop.		0756




Connecting offline HSM (KSK-HSM-01B-S¹IC)

Step	Activity	Initial	Time (UTC)
25	CA inspects the HSM TEB for tamper evidence and removes it from TEB; discards TEB and plugs ttyUSB0 null modem serial adaptor and cable to the back.		0756
26	CA connects power to HSM. Status information should appear on the serial logging screen and after self test the HSM display should say "Set Online" indicating the HSM is in the initialized state.		0756


Activate HSM

Step	Activity	Initial	Time (UTC)
27	CA sets HSM online using the "Set Online" menu item and three (3) OP cards. The "Ready" LED should illuminate. Use OP cards 3, 6, and 7, and PIN 11223344.		0758 -
28	CA connects Ethernet cable between laptop and HSM and tests network connectivity between laptop and HSM by entering <code>ping 192.168.0.2</code> on the laptop terminal window and looking for responses. Ctrl-C to exit program.		0759 .
29	CA inserts flash drive labeled "SCRIPTS" into a free USB slot and waits for O/S to recognize the FD.		0800
30	CA copies the compressed scripts from the drive labeled "SCRIPTS". <code>cp -p /media/SCRIPTS/scripts-20140326.tar.gz .</code>		0800
31	CA calculates sha256 checksum of the compressed scripts on the drive labeled "SCRIPTS" and reads it aloud, four digits at a time. <code>sha256sum scripts-20140326.tar.gz</code> EW records the sixty-four digit checksum of the file "scripts-20140326.tar.gz". <u>748A B5FA BF31 0588</u> <u>C92C EB94 06^{4C} 841E</u> <u>059F 9BBB 7956 B2A6</u> <u>6B24 4492 060E 3BFD .</u>		0803


Start generating Keys and Keybundles

Step	Activity	Initial	Time (UTC)
32	<p>CA copies shell scripts that will be used to generate new keys and bundles by executing:</p> <pre>ls /media/SCRIPTS tar -xzvof /media/SCRIPTS/scripts-20140326.tar.gz cp -p makeallhsmfiles /opt/dccom cp -p exkey /opt/dccom cp -p keybundle-generate.20120530 /opt/dccom mkdir /tmp/pch cp -p 20140326.kc_script_gen.out /tmp/pch cp -p /opt/dnssec/aep.hsmconfig /tmp/pch</pre>		0901
33	<p>CA creates encrypted backups of the ZSKs by executing:</p> <pre>cd /tmp/pch makeallhsmfiles</pre>		0904.
34	<p>CA starts key and signature generation by executing:</p> <pre>keybundle-generate.20120530 < 20140326.kc_script_gen.out</pre> <p>The data file contains a line for each zone for which ZSKs will be rolled or a new zone will be generated. This will take a long time generating ZSKs and KSKs as necessary and creating keybundles (KSK signed DNSKEY RRsets). KSKs and ZSKs will automatically be backed up in encrypted form and deleted from HSM as each zone is completed.</p> <p>This step is complete when the CA has issued the command above.</p>		0904

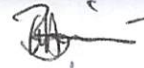





Re-Package OP Cards

Step	Activity	Initial	Time (UTC)
35	CA places each OP card with pre-printed warning slip in its own new TEB and records the TEB # in the EW's copy of the smart card sign out sheet below, reading it aloud for verification and giving the TEB tear-off strip to the EW.		0844

Re-Distribution of Cards

Step	Activity	Initial	Time (UTC)
36	CA calls each CO to retrieve their smartcards. As each CO receives and inspects their cards, they verify, date and sign the EW's copy of the sign out sheet below and EW initials their entry.		0845







Smart Card Sign Out Sheet

CO#	Card Type	TEB #	Printed Name	Signature	Date	Time	EW
CO3	OP 3 of 7	Jaap AKKERHUIS	A28410778		3/26/14	0846	
CO6	OP 6 of 7	LIM Choon Sai	A28410777		3/26/14	0846	
CO7	OP 7 of 7	Gaurab UPADHAYA	A28410779		3/26/14	0846	


Optionally leave facility


Step	Activity	Initial	Time (UTC)
37	Optionally, all participants can now leave the room if the room is closed and sealed until everyone's return.		

Pack and store Keys and Keybundles

Step	Activity	Initial	Time (UTC)
38	CA waits for key generation script to complete.		0917
39	CA generates the archive destined for the signers by executing: <pre>tar czfv /media/HSMFD/20140326.kb.tar.gz zsk*.hsm *.keybundle.tar.gz *.keybundle.tar.gz.sha256</pre>		0930
40	CA archives all results including encrypted KSKs for future use by executing: <pre>tar czfv /media/HSMFD/20140326.session.tar.gz .</pre>		0930
41	CA executes: <pre>cd /media/HSMFD ls</pre> to return to HSMFD and list contents.		0931
42	CA creates a snapshot of any changes to DB files by executing: <pre>tar czf 20140326.KSK-HSM-01-SIN.db.tar.gz *.db</pre>		0932
43	CA zeroizes SCRIPTS FD and unmounts by executing: <pre>rm -rf /media/SCRIPTS/* umount /media/SCRIPTS</pre> and removes the SCRIPTS FD for reuse.		0932

Return HSM to a Tamper Evident Bag




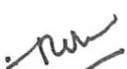
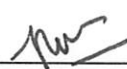


Step	Activity	Initial	Time (UTC)
44	CA presses RESTART button and waits for self test to complete. CA then disconnects HSM from power and laptop (serial and Ethernet), placing HSM into a new TEB and seals.		0935




45	CA reads out TEB # and HSM serial #, shows item to participants while EW records TEB # and HSM serial # here. TEB# <u>A3112588</u> HSM Serial#: <u>K1011055</u>		0937.
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Stop Recording Serial Port Activity


Step	Activity	Initial	Time (UTC)
46	CA terminates HSM serial output capture by disconnecting USB serial adaptors from laptop. CA then exits out of serial output terminal window.		0937

Backup HSM Flash Drive Contents



Step	Activity	Initial	Time (UTC)
47	CA displays contents of HSMFD by executing <code>ls -ltr</code>		0938
48	CA plugs a blank FD labeled "HSMFD KSK-HSM-01-SIN" into the laptop waits for it to be recognized by the O/S as HSMFD_ and copies the contents of the HSMFD to the blank drive for backup by executing <code>cp -Rp * /media/HSMFD_</code>		0939.
49	CA unmounts new FD using <code>umount /media/HSMFD_</code> and removes HSMFD_ from the laptop.		0940
50	CA repeats this activity a second time to create a second backup.		0941
51	CA repeats this activity a third time to create a third backup.		0942
52	CA repeats this activity a fourth time to create a fourth backup.		0942.
53	CA places first backup HSMFD_ in a new TEB and seals; reads out TEB # and shows item to participants while EW records TEB # here. TEB# <u>A28410783</u>		0945

54	CA places second backup HSMFD_ in a new TEB and seals; reads out TEB # and shows item to participants while EW records TEB # here. TEB# <u>A 28410784</u>		0945.
55	CA places third backup HSMFD_ in a new TEB and seals; reads out TEB # and shows item to participants while EW records TEB # here. TEB# <u>A 28410785</u>		0946.
56	CA places fourth backup HSMFD_ in a new TEB and seals; reads out TEB # and shows item to participants while EW records TEB # here. TEB# <u>A 28410782</u>		0948.



Stop Logging Terminal Output

Step	Activity	Initial	Time (UTC)
57	CA stops logging terminal output by entering "exit" in remaining terminal window		0948.


Return HSMFD to a Tamper Evident Bag

Step	Activity	Initial	Time (UTC)
58	CA unmounts HSMFD by executing <code>cd /tmp</code> then <code>umount /media/HSMFD</code>		0948.
59	CA removes HSMFD and places it in new TEB and seals; reads out TEB # and shows item to participants. EW records TEB # here. TEB# <u>A 28410765</u>		0950


Return Boot-DVD to a Tamper Evident Bag



Step	Activity	Initial	Time (UTC)
60	CA executes: <code>shutdown -h now</code> removes DVD and turns off laptop.		0951
61	CA places boot-DVD in new TEB and seals; reads out TEB # and shows item to participants. EW records TEB # here. TEB# <u>A 28410786</u>		0952

Return Laptop to a Tamper Evident Bag




Step	Activity	Initial	Time (UTC)
62	CA disconnects power, and any other connections from laptop and puts laptop in new TEB and seals; reads out TEB #; shows item to participants. EW records TEB # here. TEB# <u>A311 2589</u>		0953

Return Power Supplies, USB Hub, and Cables


Step	Activity	Initial	Time (UTC)
63	CA places HSM and laptop power supplies, USB hub, USB serial adapter, power and networking cables in a bag. This need not be a TEB as it is only used for convenient packaging.		0953

64	<p>SC returns items to the safe. SC records return of each item on the safe log with TEB #, printed name, date, time, and signature with a second participant initialing each entry.</p> <ul style="list-style-type: none"> - KSK-HSM-01-SIN HSM - laptop - original HSMFD above - fourth HSMFD backup - DVD <p>Power supplies and cables need not go in the safe, but can be stored separately.</p>		<p>0957</p>
65	<p>SC closes safe. EW verifies it is locked.</p>		<p>0958</p>


Sign-Out on Participant Signature Sheet

Step	Activity	Initial	Time (UTC)
66	<p>All participants leave the Key Management Facility, sign the Participant Signature Sheet, and note their exit time.</p>		<p>0959.</p>
67	<p>CA reviews EWs script and signs it. CA Signature </p>		<p>1005.</p>


Sign Out of Facility

Step	Activity	Initial	Time (PDT)
68	<p>FO returns phones, laptops, and other items to participants and logs their exit times. Participants return identification vests to the SC. Participants are now free to depart.</p>		<p>1205 1806</p>

Stop Audio-Visual Recording

Step	Activity	Initial	Time (PDT)
69	<p>SA stops audio and video recording.</p>		<p>1806 1806</p>


Copy and Store the Script

Step	Activity	Initial	Time (PDT)
70	<p>EW makes at least 2 copies of his or her script: one for off-site audit bundle, one for on-site audit bundle, copies for other participants as requested, and delivering the original and all copies to the SC.</p> <p>The two audit bundles each contain:</p> <ul style="list-style-type: none"> - output of signer system - HSMFD - copy of EWs key ceremony script - audio-visual recording - logs from the Facility Physical Access Control - SC attestation (A.2 below) - the EW attestation (A.1 below) <p>all in a TEB labeled "Key Ceremony 03/26/2014", dated and signed by EW and CA. One bundle will be stored by the SC along with equipment. The second bundle will be kept securely offsite.</p> <p>CA keeps any remaining materials (e.g. extra HSMFD) for next key ceremony preparation and analysis.</p>		<p>1807</p>

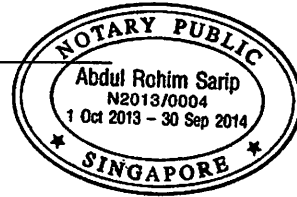
Appendix A:
Key Ceremony Script Attestation
(by EW)

I hereby attest that the Key Ceremony was conducted in accordance with this script and that any excpetions which may have occurred were accurately and properly documented on the attached Script Exception Forms.

Printed Name: ABDUL ROHIM SARIP

Signature: 

Date: 26.3.2014.



Insert Notary Acknowledgement Here

WTE NOTARY ACK
BUTAN

Appendix B:
Access Control System Attestation
(by SC)

I have reviewed the physical access control system and not found any discrepancies or anything else out of the ordinary.

Printed Name: WILLIAM EDWARD WOODCOCK IV

Signature: 

Date: MARCH 26, 2014 18:09 SGT



Singapore DNSSEC KSK Facility Sign-In Sheet

Role	Name	Signature	Date	Entry Time SGT	Exit Time SGT
FO	Nelson Wong GONG Wei		3/26/14	14:26	18:04
CA	Robert MARTIN-LEGENE		3/26/14	14:29	18:04
EW	Abdul Rohim SARIP		3/26/14	14:25	18:04
CO3	Jaap AKKERHUIS acting on behalf of Kim DAVIES		3/26/14	14:25	16:50
CO6	LIM Choon Sai		3/26/14	14:29	16:50
CO7	Gaurab UPADHAYA		3/26/14	14:26	18:04
SA	Kabindra SHRESTHA		3/26/14	14:26	18:04
SC	Bill WOODCOCK		3/26/14	14:29	18:04

Appendix C:

Abbreviations Used in This Document

Roles

CA	Ceremony Administrator
EW	External Witness
SA	System Administrator
CO	Crypto Officer
SC	Security Controller
FO	Facility Operator
R	Registry Representative

Other Abbreviations

TEB	Tamper Evident Bag (MMF Industries, item #2362010N20 small or #2362011N20 large)
HSM	Hardware Security Module
FD	Flash Drive
AAK	Adapter Authorization Key
SMK	Storage Master Key
OP	Operator
SO	Security Operator

Appendix D:

Letter and Number Pronunciations

Character	Call Sign	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

Appendix: E

Card Distribution from Key Ceremony 1

Step	Activity	Initial	Time
103	Due to limited number of personnel at this key ceremony, cards will be distributed in groups that maintain multi-person control requirements. A subsequent key ceremony will redistribute cards to their final holders. Each group of cards shall be placed in another TEB whose numbers are recorded below on the EW's script.	<i>JF</i>	8:37PM
104	SMK1, SD1, OP1 TEB# <u>A21094986</u> go to CO1, Steve FELDMAN.	<i>JF</i>	8:39PM
105	SMK5, SO5, OP5 TEB# <u>A21094983</u> are entrusted to CO1, Steve FELDMAN, for conveyance to CO5, Stephan SOMOGYI	<i>JF</i>	8:43PM
106	SMK2, SO2, OP2 TEB# <u>A21094985</u> go to CO2, Michael SINATRA.	<i>JF</i>	8:45PM
107	SMK3, SO3, OP3 TEB# <u>A21094984</u> go to CO3, Kim DAVIES.	<i>JF</i>	8:46PM
108	SMK6, SO6, OP6 TEB# <u>A21094982</u> are entrusted to CO3, Kim DAVIES, for conveyance to CO6, LEONG Keng Thai.	<i>JF</i>	8:48PM
109	SMK 4, SO4, OP4 TEB# <u>A21094980</u> go to CO4, Jonny MARTIN.	<i>JF</i>	8:49PM
110	SMK7, SO7, OP7 TEB# <u>A21094981</u> are entrusted to CO4, Jonny MARTIN, for conveyance to CO7, Gaurab UPADHAYA.	<i>JF</i>	8:50PM

Appendix: F

Smart Card Sign Out Sheet from Key Ceremony 1

Tuesday, April 28, 2011

Smart Card Sign Out Sheet

COI	Card Type	TEB #	Printed Name	Signature	Date	Time	EW
CO1	CP 1 # 7	A21095013	Shaw FELDMAN	<i>[Signature]</i>	4/25/11	10:28	/
CO1	SO 1 # 7	A21095012	Shaw FELDMAN	<i>[Signature]</i>	4/25/11	10:51	/
CO1	SMK 1 # 7	A21095011	Shaw FELDMAN	<i>[Signature]</i>	4/25/11	10:56	/
CO2	CP 2 # 7	A21095010	MORAN SMATHIA	<i>[Signature]</i>	4/25/11	20:55	/
CO2	SO 2 # 7	A21095009	MORAN SMATHIA	<i>[Signature]</i>	4/25/11	20:55	/
CO2	SMK 2 # 7	A21095008	MORAN SMATHIA	<i>[Signature]</i>	4/25/11	20:55	/
CO8	CP 3 # 7	A21095007	KIM DAVES	<i>[Signature]</i>	4/25/11	8:52	/
CO8	SO 3 # 7	A21095006	KIM DAVES	<i>[Signature]</i>	4/25/11	8:52	/
CO8	SMK 3 # 7	A21095004	KIM DAVES	<i>[Signature]</i>	4/25/11	8:52	/
CO4	CP 4 # 7	A21095005	JONG MARTIN	<i>[Signature]</i>	4/25/11	8:58	/
CO4	SO 4 # 7	A21095003	JONG MARTIN	<i>[Signature]</i>	4/25/11	8:58	/
CO4	SMK 4 # 7	A21095002	JONG MARTIN	<i>[Signature]</i>	4/25/11	8:58	/
CO5	CP 5 # 7	A21095001	Shaw FELDMAN	<i>[Signature]</i>	4/25/11	10:50	/
CO5	SO 5 # 7	A21095000	Shaw FELDMAN	<i>[Signature]</i>	4/25/11	10:56	/
CO5	SMK 5 # 7	A21094999	Shaw FELDMAN	<i>[Signature]</i>	4/25/11	10:58	/
CO8	CP 6 # 7	A21094998	KIM DAVES	<i>[Signature]</i>	4/25/11	8:53	/
CO8	SO 6 # 7	A21094997	KIM DAVES	<i>[Signature]</i>	4/25/11	8:53	/
CO8	SMK 6 # 7	A21094996	KIM DAVES	<i>[Signature]</i>	4/25/11	8:53	/
CO1	CP 7 # 7	A21094995	JONG MARTIN	<i>[Signature]</i>	4/25/11	8:58	/
CO1	SO 7 # 7	A21094994	JONG MARTIN	<i>[Signature]</i>	4/25/11	8:58	/
CO1	SMK 7 # 7	A21094993	JONG MARTIN	<i>[Signature]</i>	4/25/11	8:58	/

Appendix: G

Smart Card Sign Out Sheet from Key Ceremony 2

DNSSEC Key Ceremony Script Monday, May 30, 2011

Smart Card Sign Out Sheet

CO#	Card Type	TES #	Printed Name	Signature	Date	Time	EW
A19204943	CO1 OP 1 of 7	A19204935	Steve FELDMAN	<i>[Signature]</i>	5/30/11	0047	<input checked="" type="checkbox"/>
	CO1 SO 1 of 7	A19204934	Steve FELDMAN	<i>[Signature]</i>	5/30/11	0047	<input checked="" type="checkbox"/>
	CO1 SMK 1 of 7		Steve FELDMAN		5/30/11		
A19204942	CO2 OP 2 of 7	A19204933	Michael SHATRA	<i>[Signature]</i>	5/30/11	0049	<input checked="" type="checkbox"/>
	CO2 SO 2 of 7	A19204931	Michael SHATRA	<i>[Signature]</i>	5/30/11	0049	<input checked="" type="checkbox"/>
	CO2 SMK 2 of 7		Michael SHATRA		5/30/11		
A19204944	CO4 OP 4 of 7	A19204932	Jonny MARTIN	<i>[Signature]</i>	5/30/11	0050	<input checked="" type="checkbox"/>
	CO4 SO 4 of 7	A19204930	Jonny MARTIN	<i>[Signature]</i>	5/30/11	0050	<input checked="" type="checkbox"/>
	CO4 SMK 4 of 7		Jonny MARTIN		5/30/11		
A19204944	CO5 OP 5 of 7	A19204929	Steve SOMOGYI	<i>[Signature]</i>	5/30/11	0051	<input checked="" type="checkbox"/>
	CO5 SO 5 of 7	A19204928	Steve SOMOGYI	<i>[Signature]</i>	5/30/11	0051	<input checked="" type="checkbox"/>
	CO5 SMK 5 of 7		Steve SOMOGYI		5/30/11		
	CO7 OP 7 of 7		Jonny MARTIN		5/30/11		
	CO7 SO 7 of 7		Jonny MARTIN		5/30/11		
	CO7 SMK 7 of 7		Jonny MARTIN		5/30/11		

A19204944 - CO4
 A19204943 - CO1
 A19204942 - CO2
 A19204941 - CO5

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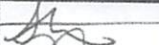



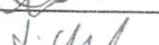





Appendix: H

Smart Card Sign Out Sheet from Key Ceremony 3

DNSSEC Key Ceremony Script

Monday, June 20, 2011

Smart Card Sign Out Sheet

CO#	Card Type	TEB #	Printed Name	Signature	Date	Time	EW
CO1	OP 1 of 7	A19204876	Steve FELDMAN		6/20/11	07:51	
CO3	OP 3 of 7	A19204874	Kim DAVIES		6/20/11	07:51	
CO4	OP 4 of 7	A19204872	Jonny MARTIN		6/20/11	07:49	
CO6	OP 6 of 7	A19204870	LIM Choon Sai		6/20/11	07:50	
CO7	OP 7 of 7	A19204869	Gaurab UPADHAYA		6/20/11	07:49	

ENCLOSING BAGS:

CO1: A19204875

CO3: A19204873

CO4: A19204871

CO6: A19204869

CO7: A19204867

Appendix: I

Smart Card Sign Out Sheet from Key Ceremony 4

DNSSEC Key Ceremony Script

Friday, January 20, 2012

Re-Package OP Cards

Step	Activity	Initial	Time (UTC)
60	CA places each OP card with instruction slip in its own new TEB and records the number in the smart card sign out sheet below.	TF	20:43

Re-Distribution of Cards

Step	Activity	Initial	Time (UTC)
61	CA calls each CO to return their smartcards. As each CO receives and inspects their cards, they fill out the sign out sheet below and EW initials their entry. Note new outer bags in sheet below.	TF	20:51

Smart Card Sign Out Sheet

CO#	Card Type	TEB #	Printed Name	Signature	Date	Time	EW
CO2	OP 2 of 7	A19204950	Michael SINATRA	<i>Michael S. Sinatra</i>	1/20/12	2051	TF
CO2	SO 2 of 7	A19204952	Michael SINATRA	<i>Michael S. Sinatra</i>	1/20/12	2051	TF
CO4	OP 4 of 7	A19204949	Jonny MARTIN	<i>Jonny Martin</i>	1/20/12	2049	TF
CO4	SO 4 of 7	A19204953	Jonny MARTIN	<i>Jonny Martin</i>	1/20/12	2049	TF
CO5	OP 5 of 7	A19204951	Stephan SOMOGYI	<i>Stephan Somogyi</i>	1/20/12	2046	TF
CO5	^{outside} SO 5 of 7 BAG	A19204954	Stephan SOMOGYI	<i>Stephan Somogyi</i>	1/20/12	2046	TF

OUTSIDE BAG

Appendix: J

Smart Card Sign Out Sheet from Key Ceremony 5

DNSSEC Key Ceremony Script

Friday, April 27, 2012

Smart Card Sign Out Sheet

CO#	Card Type	TEB #	Printed Name	Signature	Date	Time	EW
CO1	OP 1 of 7	A19204955	Steve FELDMAN		4/27/12	18:44	
CO1	^{Outer} OP 1 of 7 _{bag}	3112567	Steve FELDMAN		4/27/12	18:44	
CO3	OP 3 of 7	A3112566	Kim DAVIES		4/27/12	18:46	
CO3	^{Outer} OP 3 of 7 _{Bag}	A3112572	Kim DAVIES		4/27/12	18:46	
CO4	OP 4 of 7	A3112565	Jonny MARTIN		4/27/12	18:47	
CO4	^{Outer} OP 4 of 7 _{bag}	A3112593	Jonny MARTIN		4/27/12	18:47	

Sign-Out on Participant Signature Sheet

Step	Activity	Initial	Time (UTC)
60	All participants leave the Key Management Facility, sign the Participant Signature Sheet, and note their exit time.		18:50
61	CA reviews EWS script and signs it. CA Signature		18:52

Sign Out of Facility

Step	Activity	Initial	Time (UTC)
62	FO returns phones, laptops, and other items to participants and logs their exit times. Participants are now free to depart.		18:53

Stop Audio-Visual Recording

Step	Activity	Initial	Time (UTC)
63	SA stops audio and video recording.		18:53

Appendix: K

Smart Card Sign Out Sheet from Key Ceremony 5-1

DNSSEC Key Ceremony Script

Wednesday, May 30, 2012

Re-Distribution of Cards

Step	Activity	Initial	Time (UTC)
63	CA calls each CO to return their smartcards. As each CO receives and inspects their cards, they fill out the sign out sheet below and EW initials their entry. Note new outer bags in sheet below.	1/	19:14

Smart Card Sign Out Sheet

CO#	Card Type	TFB #	Printed Name	Signature	Date	Time	EW
CO1	OP 1 of 7	A28410829	Steve FELDMAN	<i>[Signature]</i>	5/30/12	19:11	1/
CO1	outer SO 1 of 7	A28410826	Steve FELDMAN	<i>[Signature]</i>	5/30/12	19:11	1/
CO2	OP 2 of 7	A28410828	Michael SINATRA	<i>[Signature]</i>	5/30/12	19:12	1/
CO2	outer SO 2 of 7	A28410825	Michael SINATRA	<i>[Signature]</i>	5/30/12	19:12	1/
CO4	OP 4 of 7	A28410827	Jonny MARTIN	<i>[Signature]</i>	5/30/12	19:14	1/
CO4	outer SO 4 of 7	A28410823	Jonny MARTIN	<i>[Signature]</i>	5/30/12	19:14	1/

Appendix: L

Smart Card Sign Out Sheet from Key Ceremony 6

DNSSEC Key Ceremony Script

Friday, July 27, 2012

Re-Distribution of Cards

Step	Activity	Initial	Time (UTC)
67	CA calls each CO to return their smartcards. As each CO receives and inspects their cards, they fill out the sign out sheet below and EW initials their entry. Note new outer bags in sheet below.	TH	20:20

Smart Card Sign Out Sheet

CO#	Card Type	TEB #	Printed Name	Signature	Date	Time	EW
CO1	OP 1 of 7	A28410816	Steve FELDMAN	<i>[Signature]</i>	7/27/12	2019	TH
CO1	Outer 1 of 7		Steve FELDMAN		7/27/12		
CO4	OP 4 of 7	A28410814	Jonny MARTIN	<i>[Signature]</i>	7/27/12	2019	TH
CO4	Outer 4 of 7		Jonny MARTIN		7/27/12		
CO5	OP 5 of 7	A28410817	Stephan SOMOGYI	<i>[Signature]</i>	7/27/12	2019	TH
CO5	Outer 5 of 7		Stephan SOMOGYI		7/27/12		

Appendix: M

Smart Card Sign Out Sheet from Key Ceremony 7

DNSSEC Key Ceremony Script

Friday, December 14, 2012

Re-Package OP Cards

Step	Activity	Initial	Time (UTC)
65	The CA places each OP card with pre-printed warning slip in its own new TEB and seals TEB, hands the EW the tear-off strip from the TEB to record.	TF	20:44

Re-Distribution of Cards


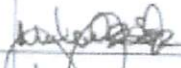


Step	Activity	Initial	Time (UTC)
66	The CA calls each CO to return their smartcards. As each CO receives and inspects their cards, they fill out the sign out sheet below and the EW initials their entry.	TF	20:46

Smart Card Sign Out Sheet

CO#	Card Type	TEB #	Printed Name	Signature	Date	Time	EW
CO1	OP 1 of 7	A28410805	Steve FELDMAN	<i>[Signature]</i>	12/14/12	2045	TF
CO2	OP 2 of 7	A28410804	Michael SINATRA	<i>[Signature]</i>	12/14/12	2046	TF
CO4	OP 4 of 7	A28410803	Jonny MARTIN	<i>[Signature]</i>	12/14/12	2046	TF



Appendix: N

Smart Card Sign Out Sheet from Key Ceremony 8

DNSSEC Key Ceremony Script		Thursday, September 12, 2013					
Re-Distribution of Cards							
Step	Activity	Initial	Time (UTC)				
63	CA calls each CO to retrieve their smartcards. As each CO receives and inspects their cards, they verify, date and sign the EW's copy of the sign out sheet below and EW initials their entry.	JF	18:20				
Smart Card Sign Out Sheet							
CO#	Card Type	TEB #	Printed Name	Signature	Date	Time	EW
CO1	OP 1 of 7	A28410802	Steve FELDMAN		9/12/13	1812	JF
CO2	OP 2 of 7	A28410801	Michael SINATRA		9/12/13	1816	JF
CO3	OP 3 of 7	A28410800	Kim DAVIES		9/12/13	1819	JF
Sign-Out on Participant Signature Sheet							
Step	Activity	Initial	Time (UTC)				
64	All participants leave the Key Management Facility, sign the Participant Signature Sheet, and note their exit time.	JF	22:53				
65	CA reviews EWs script and signs it. CA Signature 	JF	22:55				
Sign Out of Facility							
Step	Activity	Initial	Time (PDT)				
66	FO returns phones, laptops, and other items to participants and logs their exit times. Participants return identification vests to the FO. Participants are now free to depart.	JF	3:58 PM				
Stop Audio-Visual Recording							
Step	Activity	Initial	Time (PDT)				
67	SA stops audio and video recording.	JF	4:00 PM				
Packet Clearing House		Page 12 of 29					


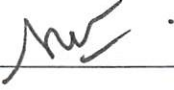
Note that the smart-card sign-out sheet from KC9 is not needed for KC10, as none of the same smart-cards were used between the two ceremonies.

PCH DNSSEC Key Ceremony Script Exception Form

Step	Activity	Initial	Time
1	EW Describes exception and action here: Tab # A3112534 was opened containing key ceremony 3.		0709
2	EW notes date and time of key ceremony exception and signs here: Signature: 		



*** End of DNSSEC Key Ceremony Script Exception ***

PCH DNSSEC Key Ceremony Script Exception Form

Step	Activity	Initial	Time
1	EW Describes exception and action here: step 20 mentioning USB hub and all other references to USB hub are to be ignored.		0735
2	EW notes date and time of key ceremony exception and signs here: Signature: 		



*** End of DNSSEC Key Ceremony Script Exception ***

PCH DNSSEC Key Ceremony Script Exception Form

Step	Activity	Initial	Time
1	EW Describes exception and action here: step 19 - we use checksum in key ceremony #3 .		0751
2	EW notes date and time of key ceremony exception and signs here: Signature: 		



*** End of DNSSEC Key Ceremony Script Exception ***

PCH DNSSEC Key Ceremony Script Exception Form

Step	Activity	Initial	Time
1	<p>EW Describes exception and action here:</p> <p>TWO FILES, "EKKEY" AND "KEY/BUNDLES-GENERATE.20120530" WERE MISSING FROM SCRIPTS FD. A NEW TARFILE WAS CREATED WITH THE CHECKSUM: 98B1 2014 B9AA FB70 83B0 LB5A 2278 DDE7 1C8C 9AGF 23E5 957A 454B 99D8 6F75 3BF7 WHICH WAS UNTARRED INTO THE HSMFD.</p>		<p>0858</p>
2	<p>EW notes date and time of key ceremony exception and signs here:</p> <p>Signature: _____</p> 		

*** End of DNSSEC Key Ceremony Script Exception ***

PCH DNSSEC Key Ceremony Entry/Exit Log

	Name	Enter	Exit	Initial	Time
1	UPADHAYA Anurag	9:24	9:09		9:09
2	A. Rohini	9:24	9:09		09:09
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Strike out unused lines when done.

Participant Signature Sheet

Role	Name	Citizen ship	Signature	Form of Identification	Identification Number	Date	Entry Time UTC	Exit Time UTC
CA	Robert MARTIN-LEGÈNE	DK		Denmark passport	207065741	3/26/14	06:38	09:58
EW	Abdul Rohim SARIP	SG		Singapore passport	E28540090	3/26/14	06:38	09:58
CO3	Jaap AKKERHUIS acting on behalf of Kim DAVIES	NL		Dutch passport	EA3365063	3/26/14	06:40	09:50
CO6	LIM Choon Sai	SG		Singapore NRIC	500986282	3/26/14	06:39	09:47
CO7	Gaurab UPADHAYA	NP		Nepal passport	06121163	3/26/14	06:38	9:59
SA	Kabindra SHRESTHA	NP		Nepal passport	4768872	3/26/14	06:40	10:03
SC	Bill WOODCOCK	US		US passport	464406862	3/26/14	06:37	9:58