Internet Corporation for Assigned Names and Numbers

Root DNSSEC KSK Ceremony 22

Thursday August 13, 2015

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

This ceremony 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	1957
IW1	Gustavo Lozano / ICANN			
SSC1	Marilia Hirano / ICANN			
SSC2	Leo Vegoda / ICANN			
CO1	Arbogast Fabian / TZ			
CO2	Dmitry Burkov / RU			
CO4	Carlos Martinez / UY			
CO5	Olafur Gudmundsson / IS			
CO7	Subramanian Moonesamy / MU			
RZM	Alejandro Bolivar / Verisign			
RZM	Andrew Kim / Verisign			
RZM	Trevor Davis / Verisign			
AUD	Tyson Thomas / PricewaterhouseCoopers			
AUD	Rafael Menchaca / PricewaterhouseCoopers			
SA1	Connor Barthold / ICANN			
SA2	Brian Martin / ICANN			
CA2	Edward Lewis / ICANN			
CA3 / IKOS	Alberto Duero / ICANN			
IW2 / IKOS	Andres Pavez / ICANN			
Staff Witness	Owen Smigelski / ICANN			
Staff Witness	Jonathan Denison / ICANN			
Staff Witness	Shaunte Anderson / ICANN			
Staff Witness	Yuko Green / ICANN			
EW1	Masato Minda / JP			
EW2	Tomofumi Okubo / Verisign			

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 Ceremony and Retrieve Equipments

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.	GL	20:01
2.	CA confirms that all participants are signed into the Ceremony Room.	GL	20:02

Emergency Evacuation Procedures and Electronics Policy

Step	Activity	Initials	Time
3.	CA reviews emergency evacuation procedures with participants.	GL	20:02
4.	CA explains the use of personal electronics devices during ceremony.	GL	20:03

Verify Time and Date

Step	Activity	Initials	Time
5.	IW1 enters UTC date (day/month/year) and time using a reasonably accurate wall clock visible to all in the Ceremony Room: Date and time: 13/08/2015 20:04 All entries into this script or any logs should follow this common source of time.	GL	20:04

Open Credential Safe #2

Step	Activity	Initials	Time
6.	CA and IW1 escorts SSC2, COs into the safe room together. CA brings a flashlight when entering the safe room.	GL	20:06
7.	SSC2, while shielding combination from camera, opens Safe #2.	GL	20:07
8.	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.**	GL	20:08

COs Extract Credentials From the Safe Deposit Boxes

Step	Activity	Initials	Time
9.	One by one, the selected COs retrieves required OP cards and SO cards following the steps shown below. a) With the assistance of CA (and his/her common key), opens her/his safe deposit box. **# Common Key is bottom lock and CO Key is top lock** b) Verifies integrity of contents by reading out box number and TEB # for OP and SO cards which should match below. c) Retains OP TEB and SO TEB and locks box. d) Makes an entry in safe log indicating OP TEB 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.** Repeat these steps until all required cards are removed. IW1 initials this entry when all COs have finished. **CO 1: Arbogast Fabian** **Box # 1791** **OP TEB # BB21820464 (Retain)** **SO TEB # A13004340 (Retain)** **CO 2: Dmitry Burkov** **Box # 1793** **OP TEB # BB21907182 (Retain)** **SO TEB # BB21907262 (Retain)** **CO 4: Carlos Martinez** **Box # 1068** **OP TEB # BB21907184 (Retain)** **SO TEB # BB21820435 (Retain)** **CO 5: Olafur Gudmundsson** **Box # 1789** **OP TEB # BB21907273 (Retain)** **SO TEB # BB21907198 (Retain)** **CO 7: Subramanian Moonesamy** **Box # 1792** **OP TEB # BB21907259 (Retain)** **SO TEB # BB21907268 (Retain)**	SL	2018

Close Credential Safe #2

Step	Activity	Initials	Time
10.	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.**	GL	2019
11.	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.	GL	20:19
12.	IW1, CA, SSC2, and COs leave safe room, with OP cards and SO cards (if applicable) in TEBs, closing the door behind them.	GL	20:20

Open Equipment Safe #1

Step	Activity	Initials	Time
13.	After a one (1) minute delay, CA, IW1 and SSC1 enter the safe room with an empty equipment cart.	GL	20:22
14.	SSC1, while shielding combination from camera, opens Safe #1.	GL	20:23
15.	SSC1 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 SSC1. SSC1 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.**	GL	20:24

Remove Equipment from Safe #1

Step	Activity	Initials	Time
16.	**CA CAREFULLY removes HSM2, HSM3 and HSM4 (in TEB) from the safe and completes the entry in the safe log indicating HSM Removal, TEB # and serial number, printed name, date, time, and signature. CA places the item on the equipment cart. IW1 initials this entry.** **Note: If log entry is pre-printed, verify the entry, record time of completion and sign.** **HSM2: TEB# BB24646600** **HSM3: TEB# BB24646668** **HSM4: TEB# BB24646667** Verify the integrity of the other HSM that will not be used this time and return it to the safe. **HSM1: TEB# BB24646605 / serial # K6002020 (last used)**	GL	20:29
17.	CA takes out the items listed below from the safe and completes the entry in the safe log indicating each item, TEB#, serial number if available. Printed name, date, time and signature. CA places the item on the equipment cart. IW1 initials this entry. **Note: If log entry is pre-printed, verify the entry, record time of completion and sign.** **Laptop1 (Dell ATG6400): TEB# BB24646594** **O/S DVD (Rev600) + HSMFD: TEB# BB21368991** **APP. Key: TEB# A13004296** Verify the integrity of the other Laptop that will not be used this time and return it to the safe. **Laptop2 (Dell ATG6400): TEB# BB24646591 / serial# 7292928457**	GL	20:31

Close Equipment Safe #1 and exit safe room

Step	Activity	Initials	Time
18.	SSC1 makes an entry including printed name, date, time and signature into the safe log indicating, "Close safe". IW1 initials this entry. **Note: If log entry is pre-printed, verify the entry, record time of completion and sign.**	GL	20:32
19.	SSC1 puts log back in safe and locks Safe #1 (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 door indicator light is green.	GL	20:33
20.	CA, SSC1 and IW1 leave the safe room with the equipment cart, closing the door to the safe room securely behind them.	GL	20:33

Act 2. Confirm, Sign the Key Signing Request and Issue Temporal Adapter Authorization Key (AAK) and Storage Master Key (SMK) Cards

Set Up Laptop

Step	Activity	Initials	Time
1.	CA inspects the laptop TEB for tamper evidence; reads out TEB # and serial # while IW1 observes and matches it to the prior entry in most recent key ceremony or acceptance script for this site. IW1 confirms the TEB # and serial # below. **Laptop1 (Dell ATG6400): TEB# BB24646594 / serial # 37240147333**	GL	20:35
2.	CA inspects the O/S DVD + HSMFD TEB for tamper evidence; reads out TEB # while IW1 observes and matches it to the prior entry in most recent key ceremony script for this site. IW1 confirms the TEB # below. **O/S DVD (Rev600) + HSMFD: TEB# BB21368991**	GL	20:46
3.	CA takes the laptop, HSMFD and O/S DVD out of TEB placing it on key ceremony table; discards TEBs; connects laptop power, external display, USB Expander, printer and boots laptop from O/S DVD.	GL	20:52
4.	CA sets up the laptop by following the steps below. a) CA presses "CTRL+ALT+F2" to get a console prompt and logs in as root. b) CA executes `system-config-display --noui` c) CA executes `killall Xorg` d) CA confirms that external display works. e) CA logs in as root	GL	20:54
5.	CA confirms that the printer is connected then configures printer as default and prints test page by going to **System > Administration > Printing** And follow the steps below: a) Click the **New Printer** icon (left side), leave everything default and then click the button **Forward** b) Under "Select Connection" choose the first device "**HP Laserjet xxxx**" and then click the button **Forward** c) (Note: The xxxx is the Printer Model) d) Select **HP** and click the button **Forward** e) Under "Models" scroll up and select **"Laserjet"**, and then click the button **Forward** f) To finish click the button **Apply** g) Under "Local Printers" from the left menu, select "**printer**" h) Click the button **"Make Default Printer"** and "**Print Test Page**"	GL	20:58

ICANN DNSSEC Script Exception

1

Abbreviations

TEB = Tamper Evident Bag
HSM = Hardware Security Module
FD = Flash Drive
CA = Ceremony Administrator
IW = Internal Witness
SA = System Administrator
SSC = Safe Security Controller

Instructions: Initial each step that has been completed below. Note time.

Note Exception Time

Step	Activity	Initials	Time
1.	IW1 notes date and time of key ceremony exception and signs here: 13/08/2015 20:42	AL	20:42
2.	IW1 Describes exception and action below.	AL	20:42

The copy of KSK 20 ceremony script in the desk did not match (Laptop 1, TEB)a

We verified the posted copy on the IANA web site and it matches.

We will continue with the ceremony

This exception is invalid. because we may loosing at the current cer.

– End of DNSSEC Script Exception –

Step	Activity	Initials	Time
6.	CA opens a terminal window and maximizes its size for visibility by going to **Applications > Accessories > Terminal** Follow the additional steps to maximize the terminal window: a) Click the **View** menu and select **Zoom In** b) Repeat the step above as necessary	GL	20:58
7.	CA checks and fixes the date and time on the laptop while referencing the laptop wall clock. On the laptop terminal windows, CA executes: `cp /usr/share/zoneinfo/UTC /etc/localtime` When "`cp: overwrite `/etc/localtime'?`" is displayed, type "`y`" and press enter. then `date -s "20150813 HH:MM:00"` where HH is two digit Hour, MM is two digit Minutes and 00 is Zero Seconds CA the executes `date` using the Terminal window to confirm the date is properly configured.	GL	21:00

Format and label blank FD

Step	Activity	Initials	Time

8.	CA plugs a new FD into the laptop, then waits for it to be recognized by the O/S, closes the file system popup window and formats the drive by executing
	`df`
	to confirm the drive letter that is assigned to the blank USB drive (e.g. sda, sdb, sdc),
	`umount /dev/sda1`
	to unmounts the drive (change drive letter and partition if necessary),
	`mkfs.vfat -n HSMFD -I /dev/sda1`
	to execute a FAT32 format and label it as HSMFD.
	CA unplugs the FD.
		GL	21:02

9.	CA repeats step 8 for the 2nd blank FD	GL	21:02
10.	CA repeats step 8 for the 3rd blank FD	GL	21:03
11.	CA repeats step 8 for the 4th blank FD	GL	21:03
12.	CA repeats step 8 for the 5th blank FD	GL	21:04

Connect HSMFD

Step	Activity	Initials	Time
13.	CA plugs the previous HSMFD used in the **ceremony 20** into the free USB slot on the laptop (NOT USB EXPANDER) and waits for O/S to recognize the FD. CA lets participants view file names in the HSMFD then closes the file system window.	GL	21:05

Step	Activity	Initials	Time

14.	Calculate the sha256 hash of the contents on the copied HSMFD.
	`find -P /media/HSMFD -type f -print0 | sort -z | xargs -0 cat | sha256sum`
	IW confirms that the result matches the sha256 hash of the HSMFD that is on the annotated script from the **Ceremony 20**.
	Previous hash should read as below (image from Ceremony 20 annotated script).
	`0493b8c556dc54d66da8e19fa549673dd2444e43d29e72114a7b3aa92d3c301a`
	Note: The CA should assign some attendees to confirm the hash displayed on the TV screen and the rest will confirm the hash written on the ceremony script.
		GL	21:08

Start Logging Terminal Session

Step	Activity	Initials	Time
15.	CA changes the default directory to the HSMFD by executing `cd /media/HSMFD`	GL	21:08
16.	CA executes `script script-20150813.log` to start a capture of terminal output.	GL	21:08

Start Logging HSM Output

Step	Activity	Initials	Time
17.	CA connects a serial to USB null modem cable to laptop.	GL	21:09

18.	CA opens a second terminal window and maximizes its size for visibility by going to **Applications > Accessories > Terminal.**
	Follow the additional steps to maximize the terminal window:
	a) Click the **View** menu and select **Zoom In**
	b) Repeat the step above as necessary
	and executes
	`cd /media/HSMFD`
	and executes
	`ttyaudit /dev/ttyUSB0`
	to start logging HSM serial port outputs. Note: **DO NOT** unplug USB serial port from laptop as this causes logging to stop.
		GL	21:10

HSM2: Power Up

Step	Activity	Initials	Time
19.	CA inspects the HSM2 TEB for tamper evidence; reads out TEB # and serial # while IW1 observes and matches it to the prior script entry. IW1 confirms TEB # and serial # below. **HSM2: TEB# BB24646600 / serial # K6002018**	GL	21:12
20.	CA removes HSM2 from TEB; discards TEB and plugs ttyUSB0 null modem serial cable to the back.	GL	21:13
21.	CA switches to the ttyaudit terminal window and connects power to HSM2. Status information should appear on the serial logging screen. IW1 matches displayed HSM2 serial number with below. (Time and date in the HSM2 may not match the time used for the ceremony logs, but there is no need to change it because the laptop does the script logging and timestamp.) **HSM2: Serial # K6002018** **Note: The HSM2 date and time was set from the factory.**	GL	21:15

HSM2: Enable/Activate

Step	Activity	Initials	Time
22.	One by one, CA calls each COs listed below to inspect the TEB for tamper evidence, opens the TEB and hands the OP and SO cards to the CA who places the cards in cardholder visible to all. **CO 1: Arbogast Fabian** **OP TEB # BB21820464** **SO TEB # A13004340** **CO 2: Dmitry Burkov** **OP TEB # BB21907182** **SO TEB # BB21907262** **CO 4: Carlos Martinez** **OP TEB # BB21907184** **SO TEB # BB21820435** **CO 5: Olafur Gudmundsson** **OP TEB # BB21907273** **SO TEB # BB21907198** **CO 7: Subramanian Moonesamy** **OP TEB # BB21907259** **SO TEB # BB21907268**	GL	21:24

Step	Activity	Initials	Time
23.	CA will perform the following steps to activate the HSM2: a) Utilize the HSM's keyboard and scroll through menu using <> key b) Select **"1.Set Online"** hit **ENT** to confirm c) When **"Set Online?"** is displayed, hit **ENT** to confirm d) When **"Insert Card OP #?"** is displayed, insert OP card from the cardholder e) When **"PIN?"** is displayed, enter **"11223344"** and hit **ENT** f) When **"Remove Card?"** is displayed, remove card g) Repeat steps d) to f) for the 2nd and 3rd OP cards Confirm the **"READY"** led on the HSM is **ON.** IW1 records the used cards below. Each card is returned to cardholder after use. 1st OP card 1 of 7 2nd OP card 5 of 7 3rd OP card 7 of 7	GL	21:27

HSM2: Check Network Connectivity

Step	Activity	Initials	Time
24.	CA connects HSM2 to laptop using Ethernet cable.	GL	21:28
25.	CA tests network connectivity between laptop and HSM by entering `ping 192.168.0.2` on the laptop terminal window and looking for responses. Ctrl-C to exit program.	GL	21:28

Insert Copy of KSR to be signed

Step	Activity	Initials	Time
26.	The KSR is downloaded to the KSRFD and transferred to the facility by the IKOS. CA plugs FD labeled "KSR" with KSR to be signed into the USB expander of the laptop and waits for the O/S to recognize the FD. CA points out the KSR file to be signed then closes the file system window.	GL	21:29

Execute KSR signer

Step	Activity	Initials	Time
27.	CA identifies the KSR to be signed and runs, in the terminal window `ksrsigner Kjqmt7v /media/KSR/ksr-root-2015-q4-0.xml`	GL	21:30
28.	The KSR signer will ask whether the HSM is activated or not as below. `Activate HSM prior to accepting in the affirmative!! (y/N):` CA confirms that the HSM2 is online and then enters "y" to proceed to verification. Note: **DO NOT** enter "y" for the "Is this correct y/n?" yet.	GL	21:31

Final Verification of the Hash (validity) of the KSR

Step	Activity	Initials	Time
29.	When the program requests verification of the KSR hash, CA asks the Root Zone Maintainer (RZM) representative to identify him/herself, present identification document for IW1 to retain and read out the SHA256 hash in PGP wordlist format for the KSR previously sent to ICANN. IW1 enters RZM representative's name here: Andrew Jung-Soo Kim	GL	21:31
30.	Participants match the hash read out with that displayed on the terminal. CA asks, "are there any objections"?	GL	21:32
31.	CA then enters `"y"` in response to `"Is this correct y/n?"` to complete KSR signing operation. Sample output should look like Figure 1. The signed KSR (SKR) will be found in `/media/KSR/skr-root-2015-q4-0.xml`	GL	21:33

VERISIGN

12061 Bluemont Way
Reston, Va. 20190
T: 703-948-3200
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VerisignInc.com

July 28th, 2015

To Whom It May Concern:

This is a letter of Verification of Employment for Andrew Jung-Soo Kim. Verisign, Inc. has employed Andrew Jung-Soo Kim full-time since September 29th 2014, currently as an Engineer I - CBO in our Operations department.

Verisign is the trusted provider of Internet infrastructure services for the networked world. Billions of times each day our identity protection and registry services allow companies and consumers all over the world to engage in trusted communications and commerce.

For over 10 years, Verisign Internet infrastructure has been at the very heart of the Internet, enabling key transactions and protecting valuable data. Verisign facilitates as many as 31 billion authoritative Domain Name System (DNS) queries a day, and has been providing this service since 1998 with 100% availability. Over the years the Verisign Internet infrastructure has scaled quickly and dramatically, and has the capacity to scale just as dramatically in the coming years, as the world moves to Internet-based transactions. Verisign's Network Intelligence and Availability team helps protect against distributed denial of service or DDoS attacks through an in-the-cloud monitoring and mitigation services. Verisign's iDefense Security Intelligence Services help identify and track vulnerabilities, malicious code, threats, and helps provide comprehensive intelligence to enable customers to proactively manage risk.

Should you have further questions, please contact me at the number below.

Sincerely,

David Carney
HR Specialist | Verisign, Inc. | 703-948-4143 | dcarney@verisign.com

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VerisignInc.com

13 August, 2015

The SHA256 hash of the 2015 Q4 KSR file is:

ca991cbed34c67def89e24e039724bf5ea008ee95ba0a12d6defc78b8d231b78

The PGP wordlist for the hash above is:

spellbind nebula befriend racketeer stapler disbelief freedom telephone Vulcan onlooker bluebird tobacco classroom holiness dragnet visitor Trojan adroitness orca ultimate erase Orlando ratchet clergyman goggles unravel soybean Medusa optic cannonball beeswax indigo

Attested on behalf of VeriSign by:

Andrew J Kim
Cryptographic Engineer
Cryptographic Business Operations
VeriSign, Inc.

```
$ ksrsigner Kjqmt7v ksr-root-2010-q4-1.xml

Starting: ksrsigner Kjqmt7v /media/KSR/ksr-root-2010-q4-1.xml (at Mon Jul 12 22:44:26 2010 UTC)
Use HSM /opt/dnssec/aep.hsmconfig?
Activate HSM prior to accepting in the affirmative!! (y/N): y

HSM /opt/dnssec/aep.hsmconfig activated.
[debug] setenv KEYPER_LIBRARY_PATH=/opt/dnssec
[debug] setenv PKCS11_LIBRARY_PATH=/opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07
Found 1 slots on HSM /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07
HSM slot 0 included
Loaded /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07 Slot=0
HSM Information:
    Label:          ICANNKSK
    ManufacturerID: AEP Networks
    Model:          Keyper Pro 0405
    Serial:         K6002018

Validating last SKR with HSM...
#  Inception           Expiration          ZSK Tags      KSK Tag(CKA_LABEL)
1  2010-07-01T00:00:00 2010-07-15T23:59:59 55138,41248  19036
2  2010-07-11T00:00:00 2010-07-25T23:59:59 41248         19036
3  2010-07-21T00:00:00 2010-08-04T23:59:59 41248         19036
4  2010-07-31T00:00:00 2010-08-14T23:59:59 41248         19036
5  2010-08-10T00:00:00 2010-08-24T23:59:59 41248         19036
6  2010-08-20T00:00:00 2010-09-03T23:59:59 41248         19036
7  2010-08-30T00:00:00 2010-09-13T23:59:59 41248         19036
8  2010-09-09T00:00:00 2010-09-24T00:00:00 41248         19036
9  2010-09-20T00:00:00 2010-10-05T23:59:59 40288,41248  19036
...VALIDATED.

Validate and Process KSR /media/KSR/ksr-root-2010-q4-1.xml...
#  Inception           Expiration          ZSK Tags      KSK Tag(CKA_LABEL)
1  2010-10-01T00:00:00 2010-10-15T23:59:59 40288,41248
2  2010-10-11T00:00:00 2010-10-25T23:59:59 40288
3  2010-10-21T00:00:00 2010-11-04T23:59:59 40288
4  2010-10-31T00:00:00 2010-11-14T23:59:59 40288
5  2010-11-10T00:00:00 2010-11-24T23:59:59 40288
6  2010-11-20T00:00:00 2010-12-04T23:59:59 40288
7  2010-11-30T00:00:00 2010-12-14T23:59:59 40288
8  2010-12-10T00:00:00 2010-12-25T00:00:00 40288
9  2010-12-21T00:00:00 2011-01-05T23:59:59 21639,40288
...PASSED.

SHA256 hash of KSR:
A17E539793B2611112C4F591A06AF4FBC2221DDDD71794BC72D5AEE910C72543
>> ratchet insurgent dwelling mosquito playhouse pioneer fallout Babylon atlas reproduce vapor miracle
ragtime hamburger upshot Wichita snapshot candidate Belfast tambourine stopwatch bookseller Pluto
pyramid highchair specialist robust ultimate assume retraction bombast decimal <<
Is this correct (y/N)? y

Generated new SKR in /media/KSR/skr-root-2010-q4-1.xml
#  Inception           Expiration          ZSK Tags      KSK Tag(CKA_LABEL)
1  2010-10-01T00:00:00 2010-10-15T23:59:59 40288,41248  19036
2  2010-10-11T00:00:00 2010-10-25T23:59:59 40288         19036
3  2010-10-21T00:00:00 2010-11-04T23:59:59 40288         19036
4  2010-10-31T00:00:00 2010-11-14T23:59:59 40288         19036
5  2010-11-10T00:00:00 2010-11-24T23:59:59 40288         19036
6  2010-11-20T00:00:00 2010-12-04T23:59:59 40288         19036
7  2010-11-30T00:00:00 2010-12-14T23:59:59 40288         19036
8  2010-12-10T00:00:00 2010-12-25T00:00:00 40288         19036
9  2010-12-21T00:00:00 2011-01-05T23:59:59 40288,21639   19036

SHA256 hash of SKR:
00CC341B7B3BAEE2E62B1AA6A58DEF07F02E4950E959E6A6ACBD7CEFF2741257
>> aardvark revolver choking bravado kickoff councilman robust tomorrow tracker Cherokee beehive
paragon reindeer microscope uncut amusement unearth coherence deckhand embezzle treadmill examine
tracker paragon ribcage quantity kiwi unravel uproot hydraulic atlas Eskimo <<
Unloaded /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07 Slot=0

********** Log output in ./ksrsigner-20100712-224426.log **********
```

Figure 1

Print Copies of the Operation for Participants

Step	Activity	Initials	Time
32.	CA prints out a sufficient number of copies for participants using `for i in $(seq X); do printlog ksrsigner-20150813-*.log; done` where ksrsigner-**20150813**-*.log is replaced by log output file displayed by program. This example generates **X** copies and hands copies to participants.	GL	21:37
33.	IW1 attaches a copy to his/her script and writes **"HSM2 SKR"**.	GL	21:37

Backup Newly Created SKR

Step	Activity	Initials	Time
34.	CA copies the contents of the KSR FD by running `cp -p /media/KSR/* .` for posting back to RZM. Confirm overwrite by entering "y" when prompted.	GL	21:39

35.	CA lists contents of KSR FD which should now have an SKR by running
	`ls -ltr /media/KSR`
	flushes the system buffers:
	`sync`
	and then unmounts the KSR FD using
	`umount /media/KSR`
		GL	21:40

36.	CA removes **KSR** FD containing SKR and gives it to the RZM representative.	GL	21:40

HSM2: Disable/Deactivate

Step	Activity	Initials	Time
37.	CA will press the **RESTART** button on HSM2 to make it OFFLINE and waits for SELF TEST to complete. Confirm the **"READY"** led on the HSM is **OFF.**	GL	21:41

SL
HSM2 SKR

```
Starting: ksrsigner Kjqmt7v /media/KSR/ksr-root-2015-q4-0.xml (at Thu Aug 13 21:30:57 2
015 UTC)
Use HSM /opt/dnssec/aep.hsmconfig?
HSM /opt/dnssec/aep.hsmconfig activated.
setenv KEYPER_LIBRARY_PATH=/opt/dnssec
setenv PKCS11_LIBRARY_PATH=/opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07
Found 1 slots on HSM /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07
HSM slot 0 included
Loaded /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07 Slot=0
HSM Information:
    Label:           ICANNKSK
    ManufacturerID:  AEP Networks
    Model:           Keyper Pro 0405
    Serial:          K6002018

Validating last SKR with HSM...
#  Inception           Expiration          ZSK Tags      KSK Tag(CKA_LABEL)
1  2015-07-01T00:00:00 2015-07-15T23:59:59  01518,48613   19036
2  2015-07-11T00:00:00 2015-07-25T23:59:59  01518         19036
3  2015-07-21T00:00:00 2015-08-04T23:59:59  01518         19036
4  2015-07-31T00:00:00 2015-08-14T23:59:59  01518         19036
5  2015-08-10T00:00:00 2015-08-24T23:59:59  01518         19036
6  2015-08-20T00:00:00 2015-09-03T23:59:59  01518         19036
7  2015-08-30T00:00:00 2015-09-13T23:59:59  01518         19036
8  2015-09-09T00:00:00 2015-09-24T00:00:00  01518         19036
9  2015-09-20T00:00:00 2015-10-05T23:59:59  62530,01518   19036
...VALIDATED.

Validate and Process KSR /media/KSR/ksr-root-2015-q4-0.xml...
#  Inception           Expiration          ZSK Tags      KSK Tag(CKA_LABEL)
1  2015-10-01T00:00:00 2015-10-15T23:59:59  62530,01518
2  2015-10-11T00:00:00 2015-10-25T23:59:59  62530
3  2015-10-21T00:00:00 2015-11-04T23:59:59  62530
4  2015-10-31T00:00:00 2015-11-14T23:59:59  62530
5  2015-11-10T00:00:00 2015-11-24T23:59:59  62530
6  2015-11-20T00:00:00 2015-12-04T23:59:59  62530
7  2015-11-30T00:00:00 2015-12-14T23:59:59  62530
8  2015-12-10T00:00:00 2015-12-25T00:00:00  62530
9  2015-12-21T00:00:00 2016-01-05T23:59:59  54549,62530
...PASSED.

SHA256 hash of KSR:
CA991CBED34C67DEF89E24E039724BF5EA008EE95BA0A12D6DEFC78B8D231B78
>> spellbind nebula befriend racketeer stapler disbelief freedom telephone Vulcan onloo
ker bluebird tobacco classroom holiness dragnet visitor Trojan adroitness orca ultimate
 erase Orlando ratchet clergyman goggles unravel soybean Medusa optic cannonball beeswa
x indigo <<

Generated new SKR in /media/KSR/skr-root-2015-q4-0.xml
#  Inception           Expiration          ZSK Tags      KSK Tag(CKA_LABEL)
1  2015-10-01T00:00:00 2015-10-15T23:59:59  62530,01518   19036
```

GL

HSM2 SKR

2	2015-10-11T00:00:00	2015-10-25T23:59:59	62530	19036
3	2015-10-21T00:00:00	2015-11-04T23:59:59	62530	19036
4	2015-10-31T00:00:00	2015-11-14T23:59:59	62530	19036
5	2015-11-10T00:00:00	2015-11-24T23:59:59	62530	19036
6	2015-11-20T00:00:00	2015-12-04T23:59:59	62530	19036
7	2015-11-30T00:00:00	2015-12-14T23:59:59	62530	19036
8	2015-12-10T00:00:00	2015-12-25T00:00:00	62530	19036
9	2015-12-21T00:00:00	2016-01-05T23:59:59	54549,62530	19036

SHA256 hash of SKR:
6A2851B01BBC21E533751209122806E0ED38FA0721E6150F53EC95679C6BE70A
>> Geiger cellulose drunken phonetic beeswax pyramid blackjack travesty chisel impartia
l atlas applicant atlas cellulose afflict tobacco tunnel consulting wallet amusement bl
ackjack trombonist backfield atmosphere dwelling unicorn preclude graduate python Hamil
ton transit Apollo <<
Unloaded /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07 Slot=0

HSM2: Issuing Temporary Storage Master Key (SMK) Cards

Step	Activity	Initials	Time
38.	CA makes sure to utilize **3 SO cards** from the **same set** to make **Storage Master key (SMK)** cards: a) Utilize the HSM's keyboard and scroll through menu using <> key b) Select **"5.Key Mgmt"** hit **ENT** to confirm c) When **"Key Mgmt?"** is displayed, hit **ENT** to confirm d) When **"Insert Card SO #?"** is displayed, insert the SO card from the cardholder e) When **"PIN?"** is displayed, enter **"11223344"** and hit **ENT** f) When **"Remove Card?"** is displayed, remove card g) Repeat steps d) to f) for 2nd and 3rd SO cards h) Select **"1.SMK"** hit **ENT** to confirm i) Select **"2.Backup SMK"** hit **ENT** to confirm j) When **"Backup SMK?"** is displayed, hit **ENT** to confirm k) When **"Num Cards?"** is displayed, enter **"4"** and press **ENT** to confirm l) When **"Num Req Cards?"** is displayed, enter **"2"** and press **ENT** to confirm m) When **"Insert Card #?"** is displayed, insert the proper sequence of **SMK** card from the cardholder n) When **"Remove Card?"** is displayed, remove card o) Repeat steps m) to n) for the 2nd, 3rd and 4th cards p) When **"SMK Backed Up"** Is displayed, hit **ENT** to confirm q) Hit **CLR** to return to the previous menu IW1 records the used cards below. Each card is returned to cardholder after use. Set # 1 1st SO card 1 of 7 2nd SO card 2 of 7 3rd SO card 4 of 7	GL	21:49

HSM2: Issuing Temporary Adapter Authorization Key (AAK) Cards

Step	Activity	Initials	Time
39.	CA makes sure to utilize the **same set** of **3 SO cards** to make **Adapter Authorization key (AAK)** cards: a) Utilize the HSM's keyboard and scroll through menu using <> key b) Select **"5.Key Mgmt"** hit **ENT** to confirm c) When **"Key Mgmt?"** is displayed, hit **ENT** to confirm d) When **"Insert Card SO #?"** is displayed, insert the SO card from the cardholder e) When **"PIN?"** is displayed, enter **"11223344"** and hit **ENT** f) When **"Remove Card?"** is displayed, remove card g) Repeat steps d) to f) for 2nd and 3rd SO cards h) Select **"3.AAK"** hit **ENT** to confirm i) Select **"1.Backup AAK"** hit **ENT** to confirm j) When **"Backup AAK?"**, is displayed, hit **ENT** to confirm k) When **"Num Cards?"** is displayed, enter **"2"** and press **ENT** to confirm l) When **"Insert Card #?"** is displayed, insert the proper sequence of **AAK** card from the cardholder m) When **"Remove Card?"** is displayed, remove card n) Repeat steps l) to m) for the 2nd AAK card o) When **"AAK Exported"** Is displayed, hit **ENT** to confirm p) Hit **CLR** to return to the previous menu IW1 records the used cards below. Each card is returned to cardholder after use. Set # 1 1st SO card 5 of 7 2nd SO card 7 of 7 3rd SO card 1 of 7	GL	21:53

HSM2: Return to a TEB

Step	Activity	Initials	Time
40.	CA disconnects HSM2 from power and laptop (serial and Ethernet) if connected.	GL	21:54
41.	CA places the HSM2 into a prepared TEB and seals it.	GL	21:55
42.	CA reads out TEB # and HSM2 serial #, shows item to participants and IW1 confirms TEB # and HSM2 serial # below. **HSM2: TEB# BB24646669 / serial # K6002018** IW1 and CA initials the TEB and keeps the sealing strip for later inventory. CA places item on equipment cart.	GL	21:56

HSM2: Stop Recording Serial Port Activity

Step	Activity	Initials	Time
43.	**Closing ttyaudit terminal window** CA terminates the HSMs serial output capture by disconnecting the USBs serial adaptors from laptop. CA then exits out of **ttyaudit terminal window** by typing "exit".	GL	21:58

Act. 3 HSMs Replacement

Start Logging HSM Output

Step	Activity	Initials	Time
1.	CA connects two (2) serial to USB null modem cable to laptop. Note that the first USB cable connected will be "ttyUSB0", the second will be "ttyUSB1".	GL	22:00

2.	CA opens a second terminal window and maximizes its size for visibility by going to **Applications > Accessories > Terminal.**
	Follow the additional steps to maximize the terminal window:
	a) Click the **View** menu and select **Zoom In**
	b) Repeat the step above as necessary
	and executes
	`cd /media/HSMFD`
	`stty -F /dev/ttyUSB0 115200`
	`stty -F /dev/ttyUSB1 115200`
	`ttyaudit /dev/ttyUSB0 /dev/ttyUSB1`
	to start logging HSM serial port outputs. Note: **DO NOT** unplug USB serial port from laptop as this causes logging to stop.
		GL	22:01

HSM3: Power Up

Step	Activity	Initials	Time
3.	CA inspects the HSM3 TEB for tamper evidence; reads out TEB # and serial #. IW1 confirms TEB # and serial # below. **HSM3: TEB# BB24646668 / serial # H1403033**	GL	22:03
4.	CA removes HSM3 from TEB; discards TEB and plugs ttyUSB0 null modem serial cable to the back.	GL	22:04
5.	CA switches to the ttyaudit terminal window, connects power to HSM3 and turns on by pressing the power switch behind it. Status information should appear on the serial logging screen and after self test the HSM3 display should say **"Important Read Manual"** indicating the HSM3 is in the initialized state. IW1 matches displayed HSM3 serial number with below. **HSM3: Serial # H1403033**	GL	22:08

HSM3: Importing the AAK

Step	Activity	Initials	Time
6.	CA will perform the following steps to import the **AAK**: a) Utilize the HSM's keyboard and scroll through menu using <> key b) Select **"2.Restore AAK"** hit **ENT** to confirm c) When **"Restore AAK?"** is displayed, hit **ENT** to confirm d) When **"Insert Card #?"** is displayed, insert the proper sequence of AAK card from the cardholder e) When **"Remove Card?"** is displayed, remove card f) Repeat steps d) to e) for the 2nd AAK card g) When **"AAK Imported"** is displayed, hit **ENT** to confirm As each card is used the CA places it in the cardholder.		

HSM3: Switching to Secure State

Step	Activity	Initials	Time
7.	CA makes sure to utilize the **same set of 3 SO cards** to set the **HSM3 to Secure State**: a) Utilize the HSM's keyboard and scroll through menu using <> key b) Select **"3.Secure"** hit **ENT** to confirm c) When **"Secure?"** is displayed, hit **ENT** to confirm d) When **"Insert Card SO #?"** is displayed, insert the SO card from the cardholder e) When **"PIN?"** is displayed, enter **"11223344"** and hit **ENT** f) When **"Remove Card?"** is displayed, remove card g) Repeat steps d) to f) for the 2nd and 3rd SO card h) When **"SMK AES Triple DES?"** is displayed, hit **CLR** to skip i) When **"SMK AES"** is displayed, hit **CLR** to confirm j) When **"Set HSM Port?"** is displayed, hit **CLR** to skip k) When **"Enable IPv4/IPv6?"** is displayed, hit **CLR** to skip l) When **"Set IPv4 Address?"** is displayed, hit **CLR** to skip m) When **"Set IPv4 NetMask?"** is displayed, hit **CLR** to skip n) When **"Set IPv4 Gateway?"** is displayed, hit **CLR** to skip o) When **"Set IPv6 Address?"** is displayed, hit **CLR** to skip p) When **"Set IPv6 NetMask?"** is displayed, hit **CLR** to skip q) When **"Set IPv6 Gateway?"** is displayed, hit **CLR** to skip r) When **"Change Clock?"** is displayed, hit **CLR** to skip s) When **"Import Config.?"** is displayed, hit **CLR** to skip t) When **"FIPS Mode On Disable?"** is displayed, hit **CLR** to skip u) When **"FIPS Mode On"** is displayed, hit **CLR** to confirm v) When **"Global Key Export Enabled"** is displayed, hit **CLR** to confirm **Done Rebooting Device** will be displayed and confirm that the **HSM3 is in Secured State.** IW1 records the used cards below. Each card is returned to cardholder after use. Set # 2 1st SO card 1 of 7 2nd SO card 2 of 7 3rd SO card 4 of 7	AL	22:15

HSM4: Power Up

Step	Activity	Initials	Time
8.	CA inspects the HSM4 TEB for tamper evidence; reads out TEB # and serial #. IW1 confirms TEB # and serial # below. **HSM4: TEB# BB24646667 / serial # H1411006**	GL	22:15
9.	CA removes HSM4 from TEB; discards TEB and plugs ttyUSB1 null modem serial cable to the back.	GL	22:15
10.	CA connects power to HSM4 and turns on by pressing the power switch behind it. Status information should appear on the terminal window and after the SELF TEST the HSM4 display should indicate **"Important Read Manual"** indicating the HSM4 is in the initialized state. IW1 matches the displayed HSM4 serial number with below **HSM4: Serial # H1411006**	GL	22:17

HSM4: Importing the AAK

Step	Activity	Initials	Time
11.	CA will perform the following steps to import the **AAK**: a) Utilize the HSM's keyboard and scroll through menu using <> key b) Select **"2.Restore AAK"** hit **ENT** to confirm c) When **"Restore AAK?"** is displayed, hit **ENT** to confirm d) When **"Insert Card #?"** is displayed, insert the proper sequence of AAK card from the cardholder e) When **"Remove Card?"** is displayed, remove card f) Repeat steps d) to e) for the 2nd AAK card g) When **"AAK Imported"** Is displayed, hit **ENT** to confirm As each card is used the CA places it in the cardholder.	GL	22:18

HSM4: Switching to Secure State

Step	Activity	Initials	Time
12.	CA makes sure to utilize the **same set** of **3 SO cards** to set the **HSM4 to Secure State**: a) Utilize the HSM's keyboard and scroll through menu using <> key b) Select **"3.Secure"** hit **ENT** to confirm c) When **"Secure?"** is displayed, hit **ENT** to confirm d) When **"Insert Card SO #?"** is displayed, insert the SO from the cardholder e) When **"PIN?"** is displayed, enter **"11223344"** and hit **ENT** f) When **"Remove Card?"** is displayed, remove card g) Repeat steps d) to f) for the 2nd and 3rd SO card h) When **"SMK AES Triple DES?"** is displayed, hit **CLR** to skip i) When **"SMK AES"** is displayed, hit **CLR** to confirm j) When **"Set HSM Port?"** is displayed, hit **CLR** to skip k) When **"Enable IPv4/IPv6?"** is displayed, hit **CLR** to skip l) When **"Set IPv4 Address?"** is displayed, hit **CLR** to skip m) When **"Set IPv4 NetMask?"** is displayed, hit **CLR** to skip n) When **"Set IPv4 Gateway?"** is displayed, hit **CLR** to skip o) When **"Set IPv6 Address?"** is displayed, hit **CLR** to skip p) When **"Set IPv6 NetMask?"** is displayed, hit **CLR** to skip q) When **"Set IPv6 Gateway?"** is displayed, hit **CLR** to skip r) When **"Change Clock?"** is displayed, hit **CLR** to skip s) When **"Import Config.?"** is displayed, hit **CLR** to skip t) When **"FIPS Mode On/Disable?"** is displayed, hit **CLR** to skip u) When **"FIPS Mode On"** is displayed, hit **CLR** to confirm v) When **"Global Key Export Enabled"** is displayed, hit **CLR** to confirm **Done Rebooting Device** will be displayed and confirm that the **HSM4 is in Secured State** IW1 records the used cards below. Each card is returned to cardholder after use. Set # 2 1st SO card 5 of 7 2nd SO card 7 of 7 3rd SO card 1 of 7	GL	22:21

HSM:4 Clear and Destroy AAK Cards

Step	Activity	Initials	Time
13.	CA makes sure to utilize the **same set** of **3 SO cards** to clear **AAK** cards: a) Utilize the HSM's keyboard and scroll through menu using <> key b) Select **"7.Role Mgmt"** hit **ENT** to confirm c) When **"Insert Card SO #?"** is displayed, insert the SO card from the cardholder d) When **"PIN?"** is displayed, enter **"11223344"** and hit **ENT** e) When **"Remove Card?"** is displayed, remove card f) Repeat steps c) to e) for the 2nd and 3rd SO card g) Select **"5.Clear AAK Card"** hit **ENT** to confirm h) When **"Clear AAK Card?"** is displayed, hit **ENT** to confirm i) When **"Num Cards?"** is displayed, enter **"2"** and hit **ENT** to confirm j) When **"Insert Card AAK #?"** is displayed, take the proper sequence of the **AAK** card form the cardholder, show the **AAK** card to the audit camera and then insert the **AAK** into the HSM's card reader k) When **"Remove Card?"** is displayed, remove card l) Repeat steps j) to k) for the 2nd AAK cards m) Hit **CLR** to return to the main menu **"Secured"** IW1 records the used cards below. Set # 1 1st SO card 7 of 7 2nd SO card 2 of 7 3rd SO card 4 of 7 CA uses the shredder to destroy the cleared AAK cards.	AL	22:26

HSM4: Issuing Crypto Officer (CO) Cards

Step	Activity	Initials	Time
14.	CA makes sure to utilize the **same set** of **3 SO cards** to create **Crypto Officer (CO)** cards: a) Utilize the HSM's keyboard and scroll through menu using <> key b) Select **"7.Role Mgmt"** hit **ENT** to confirm c) When **"Insert Card SO #?"** is displayed, insert the SO card from the cardholder d) When **"PIN?"** is displayed, enter **"11223344"** and hit **ENT** e) When **"Remove Card?"** is displayed, remove card f) Repeat steps c) to e) for the 2nd and 3rd SO card g) Select **"1.Issue Cards"** hit **ENT** to confirm h) Select **"1.Issue CO Cards"** hit **ENT** to confirm i) When **"Issue CO Cards?"** is displayed, hit **ENT** to confirm j) When **"Num Cards?"** is displayed, enter **"3"** and hit **ENT** to confirm k) When **"Num Req Cards?"** is displayed, enter **"2"** and hit **ENT** to confirm l) When **"Insert Card #?"** is displayed, insert the proper sequence of **CO** card from the cardholder m) When **"PIN?"** is displayed, enter **"11223344"** and hit **ENT** n) When **"Remove Card?"** is displayed, remove card o) Repeat steps l) to n) for the 2nd and 3rd CO cards p) When **"CO Cards Issued"** Is displayed, hit **ENT** to confirm q) Hit **CLR twice** to return to the main menu **"Secured"** IW1 records the used cards below. Each card is returned to cardholder after use. Set # 2 1st SO card 7 of 7 2nd SO card 4 of 7 3rd SO card 2 of 7		

HSM4: Change and Verify API Settings

Step	Activity	Initials	Time
15.	CA will perform the following steps to change the API settings: a) Utilize the HSM's keyboard and scroll through menu using <> key b) Select **"5.Key Mgmt"** hit **ENT** to confirm c) When **"Insert Card CO #?"** is displayed, insert the CO card from the cardholder d) When **"PIN?"** is displayed, enter **"11223344"** and hit **ENT** e) When **"Remove Card?"** is displayed, remove card f) Repeat steps c) to e) for the 2nd CO card g) Select **"5. API Settings"** hit **ENT** to confirm h) Select **"1.Key Import"** hit **ENT** to confirm i) When **"Key Import On Disable?"** is displayed, hit **ENT** to confirm j) Select **"2.Key Export"** hit **ENT** to confirm k) When **"Key Export On Disable?"** is displayed, hit **ENT** to confirm l) Select **"5.Sym Key Der"** hit **ENT** to confirm m) When **"Sym Key Der On Disable?"** is displayed, hit **ENT** to confirm n) Hit **CLR twice** to return to the main menu **"Secured"** ~~As each card is created the CA places it in the cardholder.~~	GL	22:36

Step	Activity	Initials	Time

16.	CA will perform the following steps to dumps the status of the HSM:
	a) Utilize the HSM's keyboard and scroll through menu using <> key
	b) Select **"4.HSM Info"** hit **ENT** to confirm
	c) Select **"8.Output Info"** hit **ENT** to confirm
	d) When **"Output Info?"** is displayed, hit **ENT** to confirm
	e) Hit **CLR** to return to the main menu **"Secured"**
	
	CA switches to the ttyaudit terminal window to confirm with IW the output of the HSM configuration matches with the list below:
	
	`Modes: (1=Enabled 0=Disabled)`
	`Global Key Export 1`
	`App Key Import 0`
	`App Key Export 0`
	`Asymmetric Key Gen 1`
	`Symmetric Key Gen 1`
	`Symmetric Key Derive 0`
	`Signing 1`
	`Signature Verify 1`
	`MAC Generation 1`
	`MAC Verification 1`
	`Encrypt / Decrypt 1`
	`Delete Asym Key 1`
	`Delete Sym Key 1`
	`Output Key Details 1`
	`Output Key Summary 1`
	`Suite B Algorithms 1`
	`Non Suite B Algs 1`
	`Auto Online 0`
	`AES SMK`
	`FIPS Mode`
		GL	22:39

ICANN DNSSEC Script Exception

Abbreviations

TEB = Tamper Evident Bag
HSM = Hardware Security Module
FD = Flash Drive
CA = Ceremony Administrator
IW = Internal Witness
SA = System Administrator
SSC = Safe Security Controller

Instructions: Initial each step that has been completed below. Note time.

Note Exception Time

Step	Activity	Initials	Time
1.	IW1 notes date and time of key ceremony exception and signs here: 13/08/22 15 2245	SC	22:45
2.	IW1 Describes exception and action below.	SC	22:45

The temperature sensor was activated because it was warm (90°F) in the room after 1045 The HSMs (1 and 2), and the SA turned off the humidity sensor.

-- End of DNSSEC Script Exception --

HSM4: Importing the SMK

Step	Activity	Initials	Time
17.	CA will perform the following steps to import the **Storage Master Key (SMK)** cards in to the **HSM#**: a) Utilize the HSM's keyboard and scroll through menu using <> key b) Select **"5.Key Mgmt"** hit **ENT** to confirm c) When **"Insert Card CO #?"** is displayed, insert the CO card from the cardholder d) When **"PIN?"** is displayed, enter **"11223344"** and hit **ENT** e) When **"Remove Card?"** is displayed, remove card f) Repeat steps c) to e) for the 2nd CO card g) Select **"4.SMK"** hit **ENT** to confirm h) Select **"3.Restore SMK"** hit **ENT** to confirm i) When **"Restore SMK?"** is displayed, hit **ENT** to confirm j) When **"Insert Card SMK #?"** is displayed, insert the SMK card from the cardholder k) When **"Remove Card?"** is displayed, remove card l) Repeat steps j) to k) for the 2nd SMK card m) When **"SMK Restored"** is displayed, hit **ENT** to confirm n) Hit **CLR twice** to return to the main menu **"Secured"** ~~As each card is used the CA places it in the cardholder.~~	GL	12:49

ICANN

ICANN DNSSEC Script Exception

Abbreviations

TEB = Tamper Evident Bag
HSM = Hardware Security Module
FD = Flash Drive
CA = Ceremony Administrator
IW = Internal Witness
SA = System Administrator
SSC = Safe Security Controller

2

Instructions: Initial each step that has been completed below. Note time.

Note Exception Time

Step	Activity	Initials	Time
1.	IW1 notes date and time of key ceremony exception and signs here: 13/03/2015 22:41	GC	22:41
2.	IW1 Describes exception and action below.	GC	22:41

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The SMK is imported to HSM4.

There is a typo HSM3, it should be HSM4

-- End of DNSSEC Script Exception --

HSM3: Change and Verify API Settings

Step	Activity	Initials	Time
18.	CA will perform the following steps to change the API settings: a) Utilize the HSM's keyboard and scroll through menu using <> key b) Select **"5.Key Mgmt"** hit **ENT** to confirm c) When **"Insert Card CO #?"** is displayed, insert the CO card from the cardholder d) When **"PIN?"** is displayed, enter **"11223344"** and hit **ENT** e) When **"Remove Card?"** is displayed, remove card f) Repeat steps c) to e) for the 2nd CO card g) Select **"5. API Settings"** hit **ENT** to confirm h) Select **"1.Key Import"** hit **ENT** to confirm i) When **"Key Import On Disable?"** is displayed, hit **ENT** to confirm j) Select **"2.Key Export"** hit **ENT** to confirm k) When **"Key Export On Disable?"** is displayed, hit **ENT** to confirm l) Select **"5.Sym Key Der"** hit **ENT** to confirm m) When **"Sym Key Der On Disable?"** is displayed, hit **ENT** to confirm n) Hit **CLR twice** to return to the main menu **"Secured"** ~~As each card is created the CA places it in the cardholder.~~		

Step	Activity	Initials	Time

19.	CA will perform the following steps to dump the status of the HSM:
	a) Utilize the HSM's keyboard and scroll through menu using <> key
	b) Select **"4.HSM Info"** hit **ENT** to confirm
	c) Select **"8.Output Info"** hit **ENT** to confirm
	d) When **"Output Info?"** is displayed, hit **ENT** to confirm
	e) Hit **CLR** to return to the main menu **"Secured"**
	
	CA switches to the ttyaudit terminal window to confirm with IW the output of the HSM configuration matches with the list below:
	
	`Modes: (1=Enabled 0=Disabled)`
	`Global Key Export 1`
	`App Key Import 0`
	`App Key Export 0`
	`Asymmetric Key Gen 1`
	`Symmetric Key Gen 1`
	`Symmetric Key Derive 0`
	`Signing 1`
	`Signature Verify 1`
	`MAC Generation 1`
	`MAC Verification 1`
	`Encrypt / Decrypt 1`
	`Delete Asym Key 1`
	`Delete Sym Key 1`
	`Output Key Details 1`
	`Output Key Summary 1`
	`Suite B Algorithms 1`
	`Non Suite B Algs 1`
	`Auto Online 0`
	`AES SMK`
	`FIPS Mode`		

HSM3: Importing the SMK

Step	Activity	Initials	Time
20.	CA will perform the following steps to import the **Storage Master Key (SMK)** cards in to the **HSM3**: o) Utilize the HSM's keyboard and scroll through menu using <> key p) Select **"5.Key Mgmt"** hit **ENT** to confirm q) When **"Insert Card CO #?"** is displayed, insert the CO card from the cardholder r) When **"PIN?"** is displayed, enter **"11223344"** and hit **ENT** s) When **"Remove Card?"** is displayed, remove card t) Repeat steps c) to e) for the 2nd CO card u) Select **"4.SMK"** hit **ENT** to confirm v) Select **"3.Restore SMK"** hit **ENT** to confirm w)When **"Restore SMK?"** is displayed, hit **ENT** to confirm x) When **"Insert Card SMK #?"** is displayed, insert the SMK card from the cardholder y) When **"Remove Card?"** is displayed, remove card z) Repeat steps j) to k) for the 2nd SMK card aa) When **"SMK Restored"** Is displayed, hit **ENT** to confirm bb) Hit **CLR twice** to return to the main menu **"Secured"** ~~As each card is used the CA places it in the cardholder.~~		

HSM:3 Clear and Destroy SMK Cards

Step	Activity	Initials	Time
21.	CA will perform the following steps to clear **SMK** cards: a) Utilize the HSM's keyboard and scroll through menu using <> key b) Select **"5.Key Mgmt"** hit **ENT** to confirm c) When **"Insert Card CO #?"** is displayed, insert the CO card from the cardholder d) When "**PIN?**" is displayed, enter **"11223344"** and hit **ENT** e) When "**Remove Card?**" is displayed, remove card f) Repeat steps c) to e) for the 2nd CO card g) Select **"4.SMK"** hit **ENT** to confirm h) Select **"4.Clear Cards"** hit **ENT** to confirm i) When **"Clear Card?"** is displayed, hit **ENT** to confirm j) When **"Insert Card SMK 1?"** is displayed, take the **SMK #1** card from the cardholder, show the **SMK #1** card to the audit camera and then insert the **SMK #1** card into the HSM's card reader k) When **"Num Cards?"** is displayed, enter "**4**" and hit **ENT** to confirm l) When **"Remove Card?"** is displayed, remove card m) When **"Insert Card SMK #?"** is displayed, take the proper sequence of the **SMK** card form the cardholder, show the **SMK** card to the audit camera and then insert the **SMK** into the HSM's card reader n) When **"Remove Card?"** is displayed, remove card o) Repeat steps m) to n) for the 3rd and 4th SMK cards p) Hit **CLR twice** to return to the main menu **"Secured"** CA uses the shredder to destroy the cleared SMK cards.	SL	2303

HSM3: Importing APP. Key

Step	Activity	Initials	Time
22.	CA inspects the APP. Key TEB for tamper evidence; reads out TEB #. IW1 confirms the TEB # below. **APP. Key: TEB# A13004296**		
23.	CA opens the TEB; discards TEB and place the cards and the initial HSMFDs in the cardholder.		
24.	CA will perform the following steps to import the **Application Key (APP. Key)** card: a) Utilize the HSM's keyboard and scroll through menu using <> key b) Select **"5.Key Mgmt"** hit **ENT** to confirm c) When **"Insert Card CO #?"** is displayed, insert the CO card from the cardholder d) When **"PIN?"** is displayed, enter **"11223344"** and hit **ENT** e) When **"Remove Card?"** is displayed, remove card f) Repeat steps c) to e) for the 2nd CO card g) Select **"3.App Keys"** hit **ENT** to confirm h) Select **"2.Restore"** hit **ENT** to confirm i) When **"Restore?"** is displayed, hit **ENT** to confirm j) When **"Which Media?"** is displayed, select **"2. From Card"** and hit **ENT** to confirm k) When **"Insert Card #?"** is displayed, insert the proper card from the cardholder l) When "**Remove Card?**" is displayed, remove card m) When **"Restore Complete"** is displayed, hit **ENT** to confirm n) Hit **CLR twice** to return to the main menu **"Secured"** As card is used the CA places it in the cardholder.		

HSM4: Importing APP. Key

Step	Activity	Initials	Time
25.	CA makes sure to utilize the APP. Key card that was NOT used in the HSM3. CA will perform the following steps to import the **Application Key (APP. Key)** card: a) Utilize the HSM's keyboard and scroll through menu using <> key b) Select **"5.Key Mgmt"** hit **ENT** to confirm c) When **"Insert Card CO #?"** is displayed, insert the CO card from the cardholder d) When **"PIN?"** is displayed, enter **"11223344"** and hit **ENT** e) When **"Remove Card?"** is displayed, remove card f) Repeat steps c) to e) for the 2nd CO card g) Select **"3.App Keys"** hit **ENT** to confirm h) Select **"2.Restore"** hit **ENT** to confirm i) When **"Restore?"** is displayed, hit **ENT** to confirm j) When **"Which Media?"** is displayed, select **"2. From Card"** and hit **ENT** to confirm k) When **"Insert Card #?"** is displayed, insert the proper card from the cardholder l) When "**Remove Card?**" is displayed, remove card m) When **"Restore Complete"** is displayed, hit **ENT** to confirm n) Hit **CLR twice** to return to the main menu **"Secured"** As card is used the CA places it in the cardholder.	AL	23:12

Returning APP. Key Cards to a TEB

Step	Activity	Initials	Time
26.	CA places the APP Key cards in a plastic case and the initial HSMFDs into a prepared TEB and seals; reads out TEB # and shows item to participants and IW1 confirms TEB # below. **APP. Key: TEB # BB46584332** IW1 and CA initials the TEB and keep the sealing strips for later inventory. CA places item on equipment cart.	AL	23:15

HSM:4 Clear and Destroy CO Cards

Step	Activity	Initials	Time
27.	CA makes sure to utilize the **same set of 3 SO cards** to clear **Crypto Officer (CO)** cards: a) Utilize the HSM's keyboard and scroll through menu using <> key b) Select **"7.Role Mgmt"** hit **ENT** to confirm c) When **"Insert Card SO #?"** is displayed, insert the SO card from the cardholder d) When **"PIN?"** is displayed, enter **"11223344"** and hit **ENT** e) When **"Remove Card?"** is displayed, remove card f) Repeat steps c) to e) for the 2nd and 3rd SO card g) Select **"4.Clear RoleCard"** hit **ENT** to confirm h) When **"Clear Card?"** is displayed, hit **ENT** to confirm i) When **"Num Cards?"** is displayed, enter **"3"** and hit **ENT** to confirm j) When **"Insert Card #?"** is displayed, take the proper sequence of the **CO** card form the cardholder, show the **CO** card to the audit camera and then insert the **CO** into the HSM's card reader k) When **"PIN?"** is displayed, enter **"11223344"** and hit **ENT** l) When **"Remove Card?"** is displayed, remove card m) Repeat steps j) to l) for the 2nd and 3rd CO cards n) Hit **CLR** to return to the main menu **"Secured"** CA uses the shredder to destroy the cleared CO cards.		

Ceremony Break

Step	Activity	Initials	Time
28.	CA initiates the ceremony break and requests for IKOS to bring the facility security guard in the ceremony room to ensure that the cryptographic materials are protected from unauthorized access.	AL	23:25
29.	CA divides the participants that require ceremony break in groups and ensures the following: • Remaining participants are sufficient to maintain dual occupancy for the ceremony room • At least (2) Crypto Officers and (1) Auditor should remain in the ceremony room when each group is escorted for ceremony break • Audit Cameras are never obstructed IKOS will escort each group of participants out of the ceremony room for ceremony break.	AL	23:25
30.	Once all the groups returned to the ceremony room from break, CA ensures that all participants are present and resumes the ceremony.	AL	27:59

ICANN DNSSEC Script Exception

5

Abbreviations

TEB = Tamper Evident Bag
HSM = Hardware Security Module
FD = Flash Drive
CA = Ceremony Administrator
IW = Internal Witness
SA = System Administrator
SSC = Safe Security Controller

Instructions: Initial each step that has been completed below. Note time.

Note Exception Time

Step	Activity	Initials	Time
1.	IW1 notes date and time of key ceremony exception and signs here: 14/08/2015 00:00	AC	0:00
2.	IW1 Describes exception and action below.	AC	0:00

in tier 3

The security guard opened the door without presenting a proximity card.

The alarm was activated.

– End of DNSSEC Script Exception –

HSM3: Enable/Activate

Step	Activity	Initials	Time
31.	CA will perform the following steps to activate the **HSM3**: a) Utilize the HSM's keyboard and scroll through menu using <> key b) Select **"1.Set Online"** hit **ENT** to confirm c) When **"Set Online?"** is displayed, hit **ENT** to confirm d) When **"Insert Card OP #?"** is displayed, insert the OP card from the cardholder e) When **"PIN?"** is displayed, enter **"11223344"** and hit **ENT** f) When **"Remove Card?"** is displayed, remove card g) Repeat steps d) to f) for the 2nd and 3rd OP card Confirm the **"READY"** led on the **HSM3** is **ON.** IW1 records the used cards below. Each card is returned to cardholder after use. 1st OP card 1 of 7 2nd OP card 2 of 7 3rd OP card 4 of 7	GL	0:03

HSM3: Check Network Connectivity between Laptop and HSM3

Step	Activity	Initials	Time
32.	CA connects HSM3 to laptop using Ethernet cable in **LAN** port.	GL	0:03
33.	CA tests network connectivity between laptop and HSM by entering `ping 192.168.0.2` on the laptop terminal window and looking for responses. Ctrl-C to exit program.	GL	0:04

Insert Copy of KSR to be signed

Step	Activity	Initials	Time
34.	CA plugs FD labeled **"KSR_COPY"** that contains a copy of the KSR to be signed into the laptop and waits for the O/S to recognize the FD. CA points out the KSR file to be signed then closes the file system window.	GL	0:04

Execute KSR signer

Step	Activity	Initials	Time
35.	CA identifies the KSR to be signed and runs, in the terminal window `ksrsigner Kjqmt7v /media/KSR_COPY/ksr-root-2015-q4-0.xml`	GL	0:05
36.	The KSR signer will ask whether the HSM is activated or not as below. `Activate HSM prior to accepting in the affirmative!! (y/N):` CA confirms that the HSM3 is online and then enters "y" to proceed to verification. Note: DO NOT enter "y" for the "Is this correct y/n?" yet.	GL	0:05

Verification of the Hash (validity) of the KSR Copy

Step	Activity	Initials	Time
37.	When the program requests verification of the KSR hash, CA asks the Root Zone Maintainer (RZM) representative to read out the SHA256 hash in PGP wordlist format for the KSR previously sent to ICANN.	GL	0:06
38.	Participants match the hash read out with that displayed on the terminal. CA asks, "are there any objections"?	GL	0:06
39.	CA then enters `"y"` in response to `"Is this correct y/n?"` to complete KSR signing operation. Sample output should look like Figure 1. The signed KSR (SKR) will be found in `/media/KSR_COPY/skr-root-2015-q4-0.xml`	GL	0:06

Print Copies of the Operation for Participants

Step	Activity	Initials	Time
40.	CA prints out a sufficient number of copies for participants using `for i in $(seq X); do printlog $(ls -tr ksrsigner-20150813-*.log | tail -n 1); done` This example generates X copies and hands copies to participants.	GL	0:08
41.	IW1 attaches a copy to his/her script and writes **"HSM3 SKR"**.	GL	0:09

Verification of the Hash (validity) of the SKR Copy

Step	Activity	Initials	Time
42.	CA read out the SHA256 hash in PGP wordlist format for the generated **HSM3 SKR** and the ceremony participants match the hash with the previous **HSM2 SKR**.	GL	0:12

HSM3 SKR

GC

```
Starting: ksrsigner Kjqmt7v /media/KSR_COPY/ksr-root-2015-q4-0.xml (at Fri Aug 14 00:05
:17 2015 UTC)
Use HSM /opt/dnssec/aep.hsmconfig?
HSM /opt/dnssec/aep.hsmconfig activated.
setenv KEYPER_LIBRARY_PATH=/opt/dnssec
setenv PKCS11_LIBRARY_PATH=/opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07
Found 1 slots on HSM /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07
HSM slot 0 included
Loaded /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07 Slot=0
HSM Information:
    Label:           ICANNKSK
    ManufacturerID:  AEP Networks
    Model:           Keyper 9860-2
    Serial:          H1403033

Validating last SKR with HSM...
#  Inception           Expiration          ZSK Tags      KSK Tag(CKA_LABEL)
1  2015-07-01T00:00:00 2015-07-15T23:59:59  01518,48613   19036
2  2015-07-11T00:00:00 2015-07-25T23:59:59  01518         19036
3  2015-07-21T00:00:00 2015-08-04T23:59:59  01518         19036
4  2015-07-31T00:00:00 2015-08-14T23:59:59  01518         19036
5  2015-08-10T00:00:00 2015-08-24T23:59:59  01518         19036
6  2015-08-20T00:00:00 2015-09-03T23:59:59  01518         19036
7  2015-08-30T00:00:00 2015-09-13T23:59:59  01518         19036
8  2015-09-09T00:00:00 2015-09-24T00:00:00  01518         19036
9  2015-09-20T00:00:00 2015-10-05T23:59:59  62530,01518   19036
...VALIDATED.

Validate and Process KSR /media/KSR_COPY/ksr-root-2015-q4-0.xml...
#  Inception           Expiration          ZSK Tags      KSK Tag(CKA_LABEL)
1  2015-10-01T00:00:00 2015-10-15T23:59:59  62530,01518
2  2015-10-11T00:00:00 2015-10-25T23:59:59  62530
3  2015-10-21T00:00:00 2015-11-04T23:59:59  62530
4  2015-10-31T00:00:00 2015-11-14T23:59:59  62530
5  2015-11-10T00:00:00 2015-11-24T23:59:59  62530
6  2015-11-20T00:00:00 2015-12-04T23:59:59  62530
7  2015-11-30T00:00:00 2015-12-14T23:59:59  62530
8  2015-12-10T00:00:00 2015-12-25T00:00:00  62530
9  2015-12-21T00:00:00 2016-01-05T23:59:59  54549,62530
...PASSED.

SHA256 hash of KSR:
CA991CBED34C67DEF89E24E039724BF5EA008EE95BA0A12D6DEFC78B8D231B78
>> spellbind nebula befriend racketeer stapler disbelief freedom telephone Vulcan onloo
ker bluebird tobacco classroom holiness dragnet visitor Trojan adroitness orca ultimate
 erase Orlando ratchet clergyman goggles unravel soybean Medusa optic cannonball beeswa
x indigo <<

Generated new SKR in /media/KSR_COPY/skr-root-2015-q4-0.xml
#  Inception           Expiration          ZSK Tags      KSK Tag(CKA_LABEL)
1  2015-10-01T00:00:00 2015-10-15T23:59:59  62530,01518   19036
```

HSM3 SKR
GC

2	2015-10-11T00:00:00	2015-10-25T23:59:59	62530	19036
3	2015-10-21T00:00:00	2015-11-04T23:59:59	62530	19036
4	2015-10-31T00:00:00	2015-11-14T23:59:59	62530	19036
5	2015-11-10T00:00:00	2015-11-24T23:59:59	62530	19036
6	2015-11-20T00:00:00	2015-12-04T23:59:59	62530	19036
7	2015-11-30T00:00:00	2015-12-14T23:59:59	62530	19036
8	2015-12-10T00:00:00	2015-12-25T00:00:00	62530	19036
9	2015-12-21T00:00:00	2016-01-05T23:59:59	54549,62530	19036

SHA256 hash of SKR:
6A2851B01BBC21E533751209122806E0ED38FA0721E6150F53EC95679C6BE70A
>> Geiger cellulose drunken phonetic beeswax pyramid blackjack travesty chisel impartia
l atlas applicant atlas cellulose afflict tobacco tunnel consulting wallet amusement bl
ackjack trombonist backfield atmosphere dwelling unicorn preclude graduate python Hamil
ton transit Apollo <<
Unloaded /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07 Slot=0

HSM3: Remove SKR Copy FD

Step	Activity	Initials	Time

43.	CA lists contents of KSR FD which should now have an SKR by running
	`ls -ltr /media/KSR_COPY`
	flushes the system buffers:
	`sync`
	and then unmounts the KSR FD using
	`umount /media/KSR_COPY`		

44.	CA removes **KSR_COPY** FD containing SKR copy and retain for audit purpose.		

HSM3: Disable/Deactivate

Step	Activity	Initials	Time
45.	CA will press the **RESTART** button on HSM3 to make it OFFLINE and waits for SELF TEST to complete. Confirm the "**READY**" led on the HSM is **OFF.**		

HSM3: Return to a TEB

Step	Activity	Initials	Time
46.	CA turns off the HSM3 by pressing the power switch behind it. Then CA disconnects HSM3 from power and laptop (serial and Ethernet) if connected.	AL	0:14
47.	CA places the HSM3 into a prepared TEB and seals it.	AL	0:16
48.	CA reads out TEB # and HSM3 serial #, shows item to participants and IW1 confirms TEB # and HSM3 serial # below. **HSM3: TEB# BB24646665 / serial # H1403033** IW1 and CA initials the TEB and keep the sealing strips for later inventory. CA places item on equipment cart.	AL	0:17

Stop Recording Serial Port Activity

Step	Activity	Initials	Time
49.	CA terminates the **HSM3** serial output capture by disconnecting the USB serial adaptor from laptop. Note: **DO NOT** close the terminal windows	AL	0:18

HSM4: Enable/Activate

Step	Activity	Initials	Time
50.	CA will perform the following steps to activate the **HSM4**: a) Utilize the HSM's keyboard and scroll through menu using <> key b) Select **"1.Set Online"** hit **ENT** to confirm c) When **"Set Online?"** is displayed, hit **ENT** to confirm d) When **"Insert Card OP #?"** is displayed, insert the OP card from the cardholder e) When **"PIN?"** is displayed, enter **"11223344"** and hit **ENT** f) When **"Remove Card?"** is displayed, remove card g) Repeat steps d) to f) for the 2nd and 3rd OP card Confirm the **"READY"** led on the **HSM4** is **ON**. IW1 records the used cards below. Each card is returned to cardholder after use. 1st OP card 5 of 7 2nd OP card 7 of 7 3rd OP card 1 of 7	GL	0:19

HSM4: Check Network between Laptop and HSM4

Step	Activity	Initials	Time
51.	CA connects HSM4 to laptop using Ethernet cable in **LAN** port.	GL	0:20
52.	CA tests network connectivity between laptop and HSM by entering `ping 192.168.0.2` on the laptop terminal window and looking for responses. Ctrl-C to exit program.	GL	0:20

Insert Copy of KSR to be signed

Step	Activity	Initials	Time
53.	CA plugs FD labeled **"KSR_COPY"** that contains a copy of the KSR to be signed into the laptop and waits for the O/S to recognize the FD. CA points out the KSR file to be signed then closes the file system window.		

Execute KSR signer

Step	Activity	Initials	Time
54.	CA identifies the KSR to be signed and runs, in the terminal window `ksrsigner Kjqmt7v /media/KSR_COPY/ksr-root-2015-q4-0.xml`		
55.	The KSR signer will ask whether the HSM is activated or not as below. `Activate HSM prior to accepting in the affirmative!! (y/N):` CA confirms that the HSM4 is online and then enters "y" to proceed to verification. Note: **DO NOT** enter "y" for the "Is this correct y/n?" yet.		

Verification of the Hash (validity) of the KSR Copy

Step	Activity	Initials	Time
56.	When the program requests verification of the KSR hash, CA asks the Root Zone Maintainer (RZM) representative to read out the SHA256 hash in PGP wordlist format for the KSR previously sent to ICANN.		
57.	Participants match the hash read out with that displayed on the terminal. CA asks, "are there any objections"?		
58.	CA then enters `"y"` in response to `"Is this correct y/n?"` to complete KSR signing operation. Sample output should look like Figure 1. The signed KSR (SKR) will be found in `/media/KSR_COPY/skr-root-2015-q4-0.xml`		

Print Copies of the Operation for Participants

Step	Activity	Initials	Time
59.	CA prints out a sufficient number of copies for participants using `for i in $(seq X); do printlog $(ls -tr ksrsigner-20150813-*.log | tail -n 1); done` This example generates X copies and hands copies to participants.		
60.	IW1 attaches a copy to his/her script and writes **"HSM4 SKR"**.		

HSM 4 SKR
SC

```
Starting: ksrsigner Kjqmt7v /media/KSR_COPY/ksr-root-2015-q4-0.xml (at Fri Aug 14 00:21
:23 2015 UTC)
Use HSM /opt/dnssec/aep.hsmconfig?
HSM /opt/dnssec/aep.hsmconfig activated.
setenv KEYPER_LIBRARY_PATH=/opt/dnssec
setenv PKCS11_LIBRARY_PATH=/opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07
Found 1 slots on HSM /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07
HSM slot 0 included
Loaded /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07 Slot=0
HSM Information:
    Label:           ICANNKSK
    ManufacturerID:  AEP Networks
    Model:           Keyper 9860-2
    Serial:          H1411006

Validating last SKR with HSM...
#  Inception            Expiration           ZSK Tags      KSK Tag(CKA_LABEL)
1  2015-07-01T00:00:00 2015-07-15T23:59:59  01518,48613   19036
2  2015-07-11T00:00:00 2015-07-25T23:59:59  01518         19036
3  2015-07-21T00:00:00 2015-08-04T23:59:59  01518         19036
4  2015-07-31T00:00:00 2015-08-14T23:59:59  01518         19036
5  2015-08-10T00:00:00 2015-08-24T23:59:59  01518         19036
6  2015-08-20T00:00:00 2015-09-03T23:59:59  01518         19036
7  2015-08-30T00:00:00 2015-09-13T23:59:59  01518         19036
8  2015-09-09T00:00:00 2015-09-24T00:00:00  01518         19036
9  2015-09-20T00:00:00 2015-10-05T23:59:59  62530,01518   19036
...VALIDATED.

Validate and Process KSR /media/KSR_COPY/ksr-root-2015-q4-0.xml...
#  Inception            Expiration           ZSK Tags      KSK Tag(CKA_LABEL)
1  2015-10-01T00:00:00 2015-10-15T23:59:59  62530,01518
2  2015-10-11T00:00:00 2015-10-25T23:59:59  62530
3  2015-10-21T00:00:00 2015-11-04T23:59:59  62530
4  2015-10-31T00:00:00 2015-11-14T23:59:59  62530
5  2015-11-10T00:00:00 2015-11-24T23:59:59  62530
6  2015-11-20T00:00:00 2015-12-04T23:59:59  62530
7  2015-11-30T00:00:00 2015-12-14T23:59:59  62530
8  2015-12-10T00:00:00 2015-12-25T00:00:00  62530
9  2015-12-21T00:00:00 2016-01-05T23:59:59  54549,62530
...PASSED.

SHA256 hash of KSR:
CA991CBED34C67DEF89E24E039724BF5EA008EE95BA0A12D6DEFC78B8D231B78
>> spellbind nebula befriend racketeer stapler disbelief freedom telephone Vulcan onloo
ker bluebird tobacco classroom holiness dragnet visitor Trojan adroitness orca ultimate
 erase Orlando ratchet clergyman goggles unravel soybean Medusa optic cannonball beeswa
x indigo <<

Generated new SKR in /media/KSR_COPY/skr-root-2015-q4-0.xml
#  Inception            Expiration           ZSK Tags      KSK Tag(CKA_LABEL)
1  2015-10-01T00:00:00 2015-10-15T23:59:59  62530,01518   19036
```

HSM4 SKR
GC

2	2015-10-11T00:00:00	2015-10-25T23:59:59	62530	19036
3	2015-10-21T00:00:00	2015-11-04T23:59:59	62530	19036
4	2015-10-31T00:00:00	2015-11-14T23:59:59	62530	19036
5	2015-11-10T00:00:00	2015-11-24T23:59:59	62530	19036
6	2015-11-20T00:00:00	2015-12-04T23:59:59	62530	19036
7	2015-11-30T00:00:00	2015-12-14T23:59:59	62530	19036
8	2015-12-10T00:00:00	2015-12-25T00:00:00	62530	19036
9	2015-12-21T00:00:00	2016-01-05T23:59:59	54549,62530	19036

SHA256 hash of SKR:
6A2851B01BBC21E533751209122806E0ED38FA0721E6150F53EC95679C6BE70A
>> Geiger cellulose drunken phonetic beeswax pyramid blackjack travesty chisel impartia
l atlas applicant atlas cellulose afflict tobacco tunnel consulting wallet amusement bl
ackjack trombonist backfield atmosphere dwelling unicorn preclude graduate python Hamil
ton transit Apollo <<
Unloaded /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07 Slot=0

Verification of the Hash (validity) of the SKR Copy

Step	Activity	Initials	Time
61.	CA read out the SHA256 hash in PGP wordlist format for the generated **HSM4 SKR** and the ceremony participants match the hash with the previous **HSM2 SKR**.		

HSM4: Remove SKR Copy FD

Step	Activity	Initials	Time

62.	CA lists contents of KSR FD which should now have an SKR by running
	`ls -ltr /media/KSR_COPY`
	flushes the system buffers:
	`sync`
	and then unmounts the KSR FD using
	`umount /media/KSR_COPY`		

63.	CA removes **KSR_COPY** FD containing SKR copy and retain for audit purpose.		

HSM4: Disable/Deactivate

Step	Activity	Initials	Time
64.	CA will press the **RESTART** button on HSM3 to make it OFFLINE and waits for SELF TEST to complete. Confirm the **"READY"** led on the HSM is **OFF.**		

ICANN DNSSEC Script Exception

3

Abbreviations

TEB = Tamper Evident Bag
HSM = Hardware Security Module
FD = Flash Drive
CA = Ceremony Administrator
IW = Internal Witness
SA = System Administrator
SSC = Safe Security Controller

Instructions: Initial each step that has been completed below. Note time.

Note Exception Time

Step	Activity	Initials	Time
1.	IW1 notes date and time of key ceremony exception and signs here: 14/05/2015 00:28	GC	00:28
2.	IW1 Describes exception and action below.	GC	00:28

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there is a typo in the script, it should be HSM4 instead of HSM3

-- End of DNSSEC Script Exception --

HSM:4 Return to a TEB

Step	Activity	Initials	Time
65.	CA turns off the HSM4 by pressing the power switch behind it. Then CA disconnects HSM4 from power and laptop (serial and Ethernet) if connected.	GL	00:30
66.	CA places the HSM4 into a prepared TEB and seals it.	GL	00:31
67.	CA reads out TEB # and HSM4 serial #, shows item to participants and IW1 confirms TEB # and HSM4 serial # below. **HSM4: TEB# BB24646664 / serial # H1411006** IW1 and CA initials the TEB and keep the sealing strips for later inventory. CA places item on equipment cart.	GL	00:32

Act. 4 Close the Ceremony

Stop Recording Serial Port Activity and Logging Terminal Output

Step	Activity	Initials	Time
1.	**Closing ttyaudit terminal window** CA terminates the HSM4 serial output capture by disconnecting the USB serial adaptor from laptop. CA then exits out of **ttyaudit terminal window** by typing "exit".	hc	00:33
2.	**Terminating the logging script** CA stops logging terminal output by entering "exit" in the other terminal window. This only stops the script logging and will **NOT** close window.	hc	00:34

Backup HSMFD Contents

Step	Activity	Initials	Time
3.	Set dotglob by executing `shopt -s dotglob` This allows copying everything in the original HSMFD.	GL	00:35
4.	Calculate the sha256hash of the contents on the original HSMFD. `find -P /media/HSMFD -type f -print0 | sort -z | xargs -0 cat | sha256sum`	GL	00:36
5.	Copy and paste the sha256hash and paste it on Text Editor by going to **Applications > Accessories > Text Editor**	GL	00:37
6.	Print two copies. One for the audit bundle and the other for the HSMFD package.	GL	00:37
7.	CA displays contents of HSMFD by executing `ls -ltr`	GL	00:37
8.	CA plugs a blank FD labeled HSMFD into the laptop (**Not the USB Expander**), then 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 `cp -Rp * /media/HSMFD_`	GL	00:38
9.	CA displays contents of HSMFD_ by executing `ls -ltr /media/HSMFD_`	GL	00:39
10.	Calculate the sha256hash of the contents on the copied HSMFD. `find -P /media/HSMFD_ -type f -print0 | sort -z | xargs -0 cat | sha256sum` Confirm that it matches the sha256hash of the original HSMFD	GL	00:40
11.	CA unmounts new FD using `umount /media/HSMFD_`	GL	00:40
12.	CA removes **HSMFD_** and places it on the table.	GL	00:40
13.	CA repeats step 8 to 12 for the 2nd copy	GL	00:41
14.	CA repeats step 8 to 12 for the 3rd copy	GL	00:42
15.	CA repeats step 8 to 12 for the 4th copy	GL	00:43
16.	CA repeats step 8 to 12 for the 5th copy	GL	00:44

Print Logging Information

Step	Activity	Initials	Time

17.	CA prints out a hard copy of logging information by executing
	`enscript -2Gr -# 1 script-20150813.log`
	`enscript -Gr -# 1 --font="Courier8" ttyaudit-ttyUSB*-20150813-*.log`
	for attachment to IW1 script.
	Note: Ignore the error regarding non-printable characters if prompted.
		GL	00:47

a3fac3770fc75ee69e48b9d40389d4717ab0f8b111e77bf8d65981a32fe0eb8b

```
Script started on Thu 13 Aug 2015 09:08:47 PM UTC
\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# ping 192.168.0.2
PING 192.168.0.2 (192.168.0.2) 56(84) bytes of data.
64 bytes from 192.168.0.2: icmp_seq=1 ttl=255 time=1.41 ms
64 bytes from 192.168.0.2: icmp_seq=2 ttl=255 time=0.258 ms
64 bytes from 192.168.0.2: icmp_seq=3 ttl=255 time=0.254 ms

--- 192.168.0.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 1999ms
rtt min/avg/max/mdev = 0.254/0.643/1.419/0.549 ms
\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# ksrsigner Kjqmt7v /media
\033[K/k033[KKSR/ksr-root-2015-q4-0.xml
Starting: ksrsigner Kjqmt7v /media/KSR/ksr-root-2015-q4-0.xml (at Thu Aug 13 21:30:57
2015 UTC)
Use HSM /opt/dnssec/aep.hsmconfig?
Activate HSM prior to accepting in the affirmative!! (y/N): y

HSM /opt/dnssec/aep.hsmconfig activated.
[debug] setenv KEYPER_LIBRARY_PATH=/opt/dnssec
[debug] setenv PKCS11_LIBRARY_PATH=/opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07
Found 1 slots on HSM /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07
HSM slot 0 included
Loaded /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07 Slot=0
HSM Information:
    Label:           ICANNKSK
    ManufacturerID:  AEP Networks
    Model:           Keyper Pro 0405
    Serial:          K6002018

Validating last SKR with HSM...
#  Inception           Expiration           ZSK Tags      KSK Tag(CKA_LABEL)
1  2015-07-01T00:00:00 2015-07-15T23:59:59  01518,48613   19036
2  2015-07-11T00:00:00 2015-07-25T23:59:59  01518         19036
3  2015-07-21T00:00:00 2015-08-04T23:59:59  01518         19036
4  2015-07-31T00:00:00 2015-08-14T23:59:59  01518         19036
5  2015-08-10T00:00:00 2015-08-24T23:59:59  01518         19036
6  2015-08-20T00:00:00 2015-09-03T23:59:59  01518         19036
7  2015-08-30T00:00:00 2015-09-13T23:59:59  01518         19036
8  2015-09-09T00:00:00 2015-09-24T00:00:00  01518         19036
9  2015-09-20T00:00:00 2015-10-05T23:59:59  62530,01518   19036
...VALIDATED.

Validate and Process KSR /media/KSR/ksr-root-2015-q4-0.xml...
#  Inception           Expiration           ZSK Tags      KSK Tag(CKA_LABEL)
1  2015-10-01T00:00:00 2015-10-15T23:59:59  62530,01518
2  2015-10-11T00:00:00 2015-10-25T23:59:59  62530
3  2015-10-21T00:00:00 2015-11-04T23:59:59  62530
4  2015-10-31T00:00:00 2015-11-14T23:59:59  62530
5  2015-11-10T00:00:00 2015-11-24T23:59:59  62530
6  2015-11-20T00:00:00 2015-12-04T23:59:59  62530
7  2015-11-30T00:00:00 2015-12-14T23:59:59  62530
8  2015-12-10T00:00:00 2015-12-25T00:00:00  62530
9  2015-12-21T00:00:00 2016-01-05T23:59:59  54549,62530
...PASSED.

SHA256 hash of KSR:
CA991CBED34C67DEF89E24E039724BF5EA008EE95BA0A12D6DEFC78B8D231B78
>> spellbind nebula befriend racketeer stapler disbelief freedom telephone Vulcan onlo
oker bluebird tobacco classroom holiness dragnet visitor Trojan adroitness orca ultima
te erase Orlando ratchet clergyman goggles unravel soybean Medusa optic cannonball bee
swax indigo <<
Is this correct (y/N)? y
```

```
Generated new SKR in /media/KSR/skr-root-2015-q4-0.xml
#  Inception           Expiration           ZSK Tags      KSK Tag(CKA_LABEL)
1  2015-10-01T00:00:00 2015-10-15T23:59:59  62530,01518   19036
2  2015-10-11T00:00:00 2015-10-25T23:59:59  62530         19036
3  2015-10-21T00:00:00 2015-11-04T23:59:59  62530         19036
4  2015-10-31T00:00:00 2015-11-14T23:59:59  62530         19036
5  2015-11-10T00:00:00 2015-11-24T23:59:59  62530         19036
6  2015-11-20T00:00:00 2015-12-04T23:59:59  62530         19036
7  2015-11-30T00:00:00 2015-12-14T23:59:59  62530         19036
8  2015-12-10T00:00:00 2015-12-25T00:00:00  62530         19036
9  2015-12-21T00:00:00 2016-01-05T23:59:59  54549,62530   19036

SHA256 hash of SKR:
6A2851B01BBC21E533751209122806E0ED38FA0721E6150F53EC95679C6BE70A
>> Geiger cellulose drunken phonetic beeswax pyramid blackjack travesty chisel imparti
al atlas applicant atlas cellulose afflict tobacco tunnel consulting wallet amusement
blackjack trombonist backfield atmosphere dwelling unicorn preclude graduate python Ha
milton transit Apollo <<
Unloaded /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07 Slot=0

********** Log output in ./ksrsigner-20150813-213057.log **********
\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# for i in $(seq 16); do p
omatlog ksrsigner\007-2015081\033[K3-*.log; d
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
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[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# cp -p /media/KSR/* .
cp: overwrite './skr.xml'? y
\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# ls -ltr /media/KSR/
\033[00mtotal 76
-rwxr-xr-x 1 root root 18314 Jul 29 01:49 \033[00;32mskr.xml.20150813213057\033[00m
-rwxr-xr-x 1 root root 15369 Jul 29 01:49 \033[00;32mksr-root-2015-q4-0.xml\033[00m
```

```
-rwxr-xr-x 1 root root 18314 Aug 13 21:33 \033[00;32mskr.xml\033[00m
-rwxr-xr-x 1 root root 18314 Aug 13 21:33 \033[00;32mskr-root-2015-q4-0.xml\033[00m
\033[m\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# sync
\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# umount /d\033[K\033[Kmedi
a/KSR
\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# o\033[K\033[Kping 192.168
.0.2
PING 192.168.0.2 (192.168.0.2) 56(84) bytes of data.
64 bytes from 192.168.0.2: icmp_seq=1 ttl=255 time=1.54 ms
64 bytes from 192.168.0.2: icmp_seq=2 ttl=255 time=0.367 ms
64 bytes from 192.168.0.2: icmp_seq=3 ttl=255 time=0.526 ms
64 bytes from 192.168.0.2: icmp_seq=4 ttl=255 time=0.378 ms
64 bytes from 192.168.0.2: icmp_seq=5 ttl=255 time=0.367 ms

--- 192.168.0.2 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 3999ms
rtt min/avg/max/mdev = 0.367/0.637/1.549/0.460 ms
\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# ksrsigner Kjqmt7v /media
/KSR_COPY/ksr-root-2015-q4-0.xml
Starting: ksrsigner Kjqmt7v /media/KSR_COPY/ksr-root-2015-q4-0.xml (at Fri Aug 14 00:0
5:17 2015 UTC)
Use HSM /opt/dnssec/aep.hsmconfig?
Activate HSM prior to accepting in the affirmative!! (y/N): y

HSM /opt/dnssec/aep.hsmconfig activated.
[debug] setenv KEYPER_LIBRARY_PATH=/opt/dnssec
[debug] setenv PKCS11_LIBRARY_PATH=/opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07
Found 1 slots on HSM /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07
HSM slot 0 included
Loaded /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07 Slot=0
HSM Information:
    Label:          ICANNKSK
    ManufacturerID: AEP Networks
    Model:          Keyper 9860-2
    Serial:         H1403033

Validating last SKR with HSM...
#  Inception           Expiration          ZSK Tags      KSK Tag(CKA_LABEL)
1  2015-07-01T00:00:00 2015-07-15T23:59:59  01518,48613   19036
2  2015-07-11T00:00:00 2015-07-25T23:59:59  01518         19036
3  2015-07-21T00:00:00 2015-08-04T23:59:59  01518         19036
4  2015-07-31T00:00:00 2015-08-14T23:59:59  01518         19036
5  2015-08-10T00:00:00 2015-08-24T23:59:59  01518         19036
6  2015-08-20T00:00:00 2015-09-03T23:59:59  01518         19036
7  2015-08-30T00:00:00 2015-09-13T23:59:59  01518         19036
8  2015-09-09T00:00:00 2015-09-24T00:00:00  01518         19036
9  2015-09-20T00:00:00 2015-10-05T23:59:59  62530,01518   19036
...VALIDATED.

Validate and Process KSR /media/KSR_COPY/ksr-root-2015-q4-0.xml...
#  Inception           Expiration          ZSK Tags      KSK Tag(CKA_LABEL)
1  2015-10-01T00:00:00 2015-10-15T23:59:59  62530,01518
2  2015-10-11T00:00:00 2015-10-25T23:59:59  62530
3  2015-10-21T00:00:00 2015-11-04T23:59:59  62530
4  2015-10-31T00:00:00 2015-11-14T23:59:59  62530
5  2015-11-10T00:00:00 2015-11-24T23:59:59  62530
6  2015-11-20T00:00:00 2015-12-04T23:59:59  62530
7  2015-11-30T00:00:00 2015-12-14T23:59:59  62530
8  2015-12-10T00:00:00 2015-12-25T00:00:00  62530
9  2015-12-21T00:00:00 2016-01-05T23:59:59  54549,62530
...PASSED.

SHA256 hash of KSR:
CA991CBED34C67DEF89E24E039724BF5EA008EE95BA0A12D6DEFC78B8D231B78
>> spellbind nebula befriend racketeer stapler disbelief freedom telephone Vulcan onlo
oker bluebird tobacco classroom holiness dragnet visitor Trojan adroitness orca ultima
te erase Orlando ratchet clergyman goggles unravel soybean Medusa optic cannonball bee
swax indigo <<
Is this correct (y/N)? y

Generated new SKR in /media/KSR_COPY/skr-root-2015-q4-0.xml
#  Inception           Expiration          ZSK Tags      KSK Tag(CKA_LABEL)
1  2015-10-01T00:00:00 2015-10-15T23:59:59  62530,01518   19036
2  2015-10-11T00:00:00 2015-10-25T23:59:59  62530         19036
3  2015-10-21T00:00:00 2015-11-04T23:59:59  62530         19036
4  2015-10-31T00:00:00 2015-11-14T23:59:59  62530         19036
5  2015-11-10T00:00:00 2015-11-24T23:59:59  62530         19036
6  2015-11-20T00:00:00 2015-12-04T23:59:59  62530         19036
7  2015-11-30T00:00:00 2015-12-14T23:59:59  62530         19036
8  2015-12-10T00:00:00 2015-12-25T00:00:00  62530         19036
9  2015-12-21T00:00:00 2016-01-05T23:59:59  54549,62530   19036

SHA256 hash of SKR:
6A2851B01BBC21E533751209122806E0ED38FA0721E6150F53EC95679C6BE70A
>> Geiger cellulose drunken phonetic beeswax pyramid blackjack travesty chisel imparti
al atlas applicant atlas cellulose afflict tobacco tunnel consulting wallet amusement
blackjack trombonist backfield atmosphere dwelling unicorn preclude graduate python Ha
milton transit Apollo <<
Unloaded /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07 Slot=0

********** Log output in ./ksrsigner-20150814-000517.log **********
\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# ksrsigner Kjqmt7v /media
[illegible]
```

```
C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C~000517.1o
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
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3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# ls -ltr /media/KSR_COPY/
\033[00mtotal 76
-rwxr-xr-x 1 root root 18314 Jul 29 02:17 \033[00;32mskr.xml.20150814000517\033[00m
-rwxr-xr-x 1 root root 15369 Jul 29 02:17 \033[00;32mksr-root-2015-q4-0.xml\033[00m
-rwxr-xr-x 1 root root 18314 Aug 14 00:06 \033[00;32mskr.xml\033[00m
-rwxr-xr-x 1 root root 18314 Aug 14 00:06 \033[00;32mskr-root-2015-q4-0.xml\033[00m
\033[m\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# sync
\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# umount /media\033[K/KSR_
COPY/
\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# umount /media/KSR_COPY/KSR
20)ccdate\033[A\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[2Pksrsigner Kjqmt7v /media/KSR_COPY/ksr-root-2015-q4-0.xm
l
\033[K\033[A\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
.
```

```
                                          for i in $(seq 20)
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[Cping 192.168.0.2\033[K
PING 192.168.0.2 (192.168.0.2) 56(84) bytes of data.
64 bytes from 192.168.0.2: icmp_seq=1 ttl=255 time=1.06 ms
64 bytes from 192.168.0.2: icmp_seq=2 ttl=255 time=0.355 ms
64 bytes from 192.168.0.2: icmp_seq=3 ttl=255 time=0.533 ms
64 bytes from 192.168.0.2: icmp_seq=4 ttl=255 time=0.361 ms

--- 192.168.0.2 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 2999ms
rtt min/avg/max/mdev = 0.355/0.579/1.067/0.290 ms
\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# umount /media/KSR_COPY/KSR
ccdate\033[A\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[2Pksrsigner Kjqmt7v /media/KSR_COPY/ksr-root-2015-q4-0.xm
l
\033[K\033[A\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
Starting: ksrsigner Kjqmt7v /media/KSR_COPY/ksr-root-2015-q4-0.xml (at Fri Aug 14 00:2
1:23 2015 UTC)
Use HSM /opt/dnssec/aep.hsmconfig?
Activate HSM prior to accepting in the affirmative!! (y/N): y

HSM /opt/dnssec/aep.hsmconfig activated.
[debug] setenv KEYPER_LIBRARY_PATH=/opt/dnssec
[debug] setenv PKCS11_LIBRARY_PATH=/opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07
Found 1 slots on HSM /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07
HSM slot 0 included
Loaded /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07 Slot=0
HSM Information:
    Label:           ICANNKSK
    ManufacturerID:  AEP Networks
    Model:           Keyper 9860-2
    Serial:          H1411006

Validating last SKR with HSM...
#  Inception           Expiration           ZSK Tags      KSK Tag(CKA_LABEL)
1  2015-07-01T00:00:00 2015-07-15T23:59:59  01518,48613   19036
2  2015-07-11T00:00:00 2015-07-25T23:59:59  01518         19036
3  2015-07-21T00:00:00 2015-08-04T23:59:59  01518         19036
4  2015-07-31T00:00:00 2015-08-14T23:59:59  01518         19036
5  2015-08-10T00:00:00 2015-08-24T23:59:59  01518         19036
6  2015-08-20T00:00:00 2015-09-03T23:59:59  01518         19036
7  2015-08-30T00:00:00 2015-09-13T23:59:59  01518         19036
8  2015-09-09T00:00:00 2015-09-24T00:00:00  01518         19036
9  2015-09-20T00:00:00 2015-10-05T23:59:59  62530,01518   19036
...VALIDATED.

Validate and Process KSR /media/KSR_COPY/ksr-root-2015-q4-0.xml...
#  Inception           Expiration           ZSK Tags      KSK Tag(CKA_LABEL)
1  2015-10-01T00:00:00 2015-10-15T23:59:59  62530,01518
2  2015-10-11T00:00:00 2015-10-25T23:59:59  62530
3  2015-10-21T00:00:00 2015-11-04T23:59:59  62530
4  2015-10-31T00:00:00 2015-11-14T23:59:59  62530
5  2015-11-10T00:00:00 2015-11-24T23:59:59  62530
6  2015-11-20T00:00:00 2015-12-04T23:59:59  62530
7  2015-11-30T00:00:00 2015-12-14T23:59:59  62530
8  2015-12-10T00:00:00 2015-12-25T00:00:00  62530
9  2015-12-21T00:00:00 2016-01-05T23:59:59  54549,62530
...PASSED.
```

```
SHA256 hash of KSR:
CA991CBED34C67DEF89E24E039724BF5EA008EE95BA0A12D6DEFC78B8D231B78
>> spellbind nebula befriend racketeer stapler disbelief freedom telephone Vulcan onlo
oker bluebird tobacco classroom holiness dragnet visitor Trojan adroitness orca ultima
te erase Orlando ratchet clergyman goggles unravel soybean Medusa optic cannonball bee
swax indigo <<
Is this correct (y/N)? y

Generated new SKR in /media/KSR_COPY/skr-root-2015-q4-0.xml
#  Inception            Expiration           ZSK Tags      KSK Tag(CKA_LABEL)
1  2015-10-01T00:00:00  2015-10-15T23:59:59  62530,01518   19036
2  2015-10-11T00:00:00  2015-10-25T23:59:59  62530         19036
3  2015-10-21T00:00:00  2015-11-04T23:59:59  62530         19036
4  2015-10-31T00:00:00  2015-11-14T23:59:59  62530         19036
5  2015-11-10T00:00:00  2015-11-24T23:59:59  62530         19036
6  2015-11-20T00:00:00  2015-12-04T23:59:59  62530         19036
7  2015-11-30T00:00:00  2015-12-14T23:59:59  62530         19036
8  2015-12-10T00:00:00  2015-12-25T00:00:00  62530         19036
9  2015-12-21T00:00:00  2016-01-05T23:59:59  54549,62530   19036

SHA256 hash of SKR:
6A2851B01BBC21E53375120912280 6E0ED38FA0721E6150F53EC95679C6BE70A
>> Geiger cellulose drunken phonetic beeswax pyramid blackjack travesty chisel imparti
al atlas applicant atlas cellulose afflict tobacco tunnel consulting wallet amusement
blackjack trombonist backfield atmosphere dwelling unicorn preclude graduate python Ha
milton transit Apollo <<
Unloaded /opt/Keyper/PKCS11Provider/pkcs11.GCC4.0.2.so.4.07 Slot=0

********** Log output in ./ksrsigner-20150814-002123.log **********
\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# ksrsigner Kjqmt7v /media
XBSR[C0PYZksr0336c\0035eq033[2m033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[Cping 192.168.0.2\033[KKR_CO
edeq\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[A\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[35Pls -ltr /med
ia/KSR_COPY/
\033[K\033[A\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[Cjqmt7v /media/KSR_COPY/ksr-root-2015-q
4063[m\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[K\007\007ls \033[K033
[K033[CK033[K\033ksrsigner Kjqmt7v /media/KSR_COPY/ksr-root-2015-q4-0.xml\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[Cping 1ksrsigner 2Kjqmt7v /m
edia/KSR_COPY/ksr-root-2015-q4-0.xml\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[Cping 192.168.0.2\033[KKR_CO
edeq\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C;
\033[1Pdone\033[A\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[¢ d\033[1Pone\033[A\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[¢ do\033[1Pne\033[A\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[¢ don\033[1Pe\033[A\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[¢ done\033[K
\033[A\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[K\033[A\033[C\033[C\033[C\033[C\033[C\033[C\033[¢ done\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
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\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
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\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
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\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
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\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[033[1P
\033[K\033[A\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[033[1P033[1P033[1P\033[1@4\033[1@-\033
[1@00; done \033[A\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
&033[CA033[C033[C033[C033[C033[C033[C033[C033[C033[C033[C033[Cdone[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C1; done\033[A\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C2; done\033[A\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C3; done\033[A
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
```

```
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C.; done\033[A\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C@done
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
[ 2 pages * 1 copy ] sent to printer
3 lines were wrapped
\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# for i in $(seq 20); do p
dgntdogek\033[A\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[2Pksrsigner Kjqmt7v /media/KSR_COPY/ksr-root-2015-q4-0.xm
l
\033[K\033[A\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[Cping 192.168.0.2\033[KKSR_CO
ediaPKSR_COPY/
\033[00mtotal 76
-rwxr-xr-x 1 root root 18314 Jul 29 02:16 \033[00;32mskr.xml.20150814002123\033[00m
-rwxr-xr-x 1 root root 15369 Jul 29 02:16 \033[00;32mksr-root-2015-q4-0.xml\033[00m
-rwxr-xr-x 1 root root 18314 Aug 14 00:22 \033[00;32mskr.xml\033[00m
-rwxr-xr-x 1 root root 18314 Aug 14 00:22 \033[00;32mskr-root-2015-q4-0.xml\033[00m
\033[m\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# sync
\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# for i in /media/KSR_COPY
dgntdogek\033[A\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[2Pksrsigner Kjqmt7v /media/KSR_COPY/ksr-root-2015-q4-0.xm
l
\033[K\033[A\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C
\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[C\033[Cping 192.168.0.2\033[KKSR_CO
PY/
\033]0;root@localhost:/media/HSMFD\007[root@localhost HSMFD]# exit
exit

Script done on Fri 14 Aug 2015 12:34:20 AM UTC
```

```
2015-08-13T21:14:26+0000        ttyUSB0 Application Boot Loader - Feb 25 2010 11:08:16
2015-08-13T21:14:26+0000        ttyUSB0
2015-08-13T21:14:27+0000        ttyUSB0
2015-08-13T21:14:27+0000        ttyUSB0 Battery OK!
2015-08-13T21:14:27+0000        ttyUSB0
2015-08-13T21:14:27+0000        ttyUSB0
2015-08-13T21:14:27+0000        ttyUSB0 No Tamper Counts in BBRAM!
2015-08-13T21:14:27+0000        ttyUSB0
2015-08-13T21:14:27+0000        ttyUSB0  Loading Application (APP)
2015-08-13T21:14:27+0000        ttyUSB0
2015-08-13T21:14:29+0000        ttyUSB0  Starting loaded code.
2015-08-13T21:14:29+0000        ttyUSB0
2015-08-13T21:14:29+0000        ttyUSB0 \000Application - Feb 25 2010 11:08:02
2015-08-13T21:14:29+0000        ttyUSB0
2015-08-13T21:14:30+0000        ttyUSB0 wdog started
2015-08-13T21:14:30+0000        ttyUSB0
2015-08-13T21:14:33+0000        ttyUSB0
2015-08-13T21:14:33+0000        ttyUSB0
2015-08-13T21:14:33+0000        ttyUSB0 Running DES POST Test
2015-08-13T21:14:33+0000        ttyUSB0
2015-08-13T21:14:33+0000        ttyUSB0 DES POST Test Passed
2015-08-13T21:14:33+0000        ttyUSB0
2015-08-13T21:14:33+0000        ttyUSB0 Running Triple DES POST Test
2015-08-13T21:14:33+0000        ttyUSB0
2015-08-13T21:14:33+0000        ttyUSB0 Triple DES POST Test Passed
2015-08-13T21:14:33+0000        ttyUSB0
2015-08-13T21:14:33+0000        ttyUSB0 Running AES POST Test
2015-08-13T21:14:33+0000        ttyUSB0
2015-08-13T21:14:33+0000        ttyUSB0 AES POST Test Passed
2015-08-13T21:14:33+0000        ttyUSB0
2015-08-13T21:14:33+0000        ttyUSB0 Running SHA1 POST Test
2015-08-13T21:14:33+0000        ttyUSB0
2015-08-13T21:14:33+0000        ttyUSB0 SHA1 POST Test Passed
2015-08-13T21:14:33+0000        ttyUSB0
2015-08-13T21:14:33+0000        ttyUSB0 Running SHA2 POST Test
2015-08-13T21:14:33+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 SHA2 POST Test Passed
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 Running RandomGen SHA1 POST Test
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 Randomgen SHA1 POST Test Passed
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 Running RSA POST Test
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 RSA POST Test Passed
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 Running DSA POST Test
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 DSA POST Test Passed
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 Running RandomGen POST Test
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 RandomGen POST Test Passed
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 Additional RandomGen POST Test Passed
```

```
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 13/8/2015 at 19:11:57
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0  0x100008
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 App Details Response:
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:34+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:14:34+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0 Part Number: Keyper Pro 0405
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0 Serial Number: Serial K6002018
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0 App Build Number: App 020
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0 ABL Build Number: ABL 029
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0 AL Build Number: AL 02A
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0 CS Build Number: CS 029
2015-08-13T21:14:35+0000        ttyUSB0
```

```
2015-08-13T21:14:35+0000        ttyUSB0 Total Private Memory 4173377
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0 Free Private Memory 4173377
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0 Total Dynamic Memory 14569472
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0 Free Dynamic Memory 14569472
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0 Date and Time: 19:11:57 on 13/08/2015
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0 Created socket 1 on port 3000.
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0 13/8/2015 at 19:11:58
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:14:35+0000        ttyUSB0  0x100003
2015-08-13T21:14:35+0000        ttyUSB0
2015-08-13T21:26:17+0000        ttyUSB0
2015-08-13T21:26:17+0000        ttyUSB0
2015-08-13T21:26:17+0000        ttyUSB0 13/8/2015 at 19:23:40
2015-08-13T21:26:17+0000        ttyUSB0
2015-08-13T21:26:17+0000        ttyUSB0  0x200023 0A400000B706296E
2015-08-13T21:26:17+0000        ttyUSB0
2015-08-13T21:26:48+0000        ttyUSB0
2015-08-13T21:26:48+0000        ttyUSB0
2015-08-13T21:26:48+0000        ttyUSB0 13/8/2015 at 19:24:11
2015-08-13T21:26:48+0000        ttyUSB0
2015-08-13T21:26:48+0000        ttyUSB0  0x200023 0A4000009D86296E
2015-08-13T21:26:48+0000        ttyUSB0
2015-08-13T21:27:16+0000        ttyUSB0
2015-08-13T21:27:16+0000        ttyUSB0
2015-08-13T21:27:16+0000        ttyUSB0 13/8/2015 at 19:24:39
2015-08-13T21:27:16+0000        ttyUSB0
2015-08-13T21:27:17+0000        ttyUSB0  0x200023 0A400000B7C6296E
2015-08-13T21:27:17+0000        ttyUSB0
2015-08-13T21:27:19+0000        ttyUSB0
2015-08-13T21:27:19+0000        ttyUSB0
2015-08-13T21:27:19+0000        ttyUSB0
2015-08-13T21:27:19+0000        ttyUSB0
2015-08-13T21:27:19+0000        ttyUSB0 Created socket 1 on port 5000.
2015-08-13T21:27:19+0000        ttyUSB0
2015-08-13T21:27:19+0000        ttyUSB0 13/8/2015 at 19:24:42
2015-08-13T21:27:19+0000        ttyUSB0
2015-08-13T21:27:19+0000        ttyUSB0  0x100002
2015-08-13T21:27:19+0000        ttyUSB0
2015-08-13T21:31:08+0000        ttyUSB0
2015-08-13T21:31:08+0000        ttyUSB0
2015-08-13T21:31:09+0000        ttyUSB0 Accepted connection on address 180.80.192.168.0.1.
2015-08-13T21:31:09+0000        ttyUSB0
2015-08-13T21:31:09+0000        ttyUSB0
2015-08-13T21:31:09+0000        ttyUSB0
2015-08-13T21:31:09+0000        ttyUSB0 ============================================================
2015-08-13T21:31:09+0000        ttyUSB0
2015-08-13T21:31:09+0000        ttyUSB0 Free memory down from 14569472 to 11843072 (last mechanism 0)!
```

```
2015-08-13T21:31:09+0000        ttyUSB0
2015-08-13T21:31:09+0000        ttyUSB0 19:28:31 on 13-08-2015
2015-08-13T21:31:09+0000        ttyUSB0
2015-08-13T21:31:09+0000        ttyUSB0 ================================================================================
2015-08-13T21:31:09+0000        ttyUSB0
2015-08-13T21:33:21+0000        ttyUSB0
2015-08-13T21:33:21+0000        ttyUSB0
2015-08-13T21:33:21+0000        ttyUSB0 Closing connection on address 180.80.192.168.0.1.
2015-08-13T21:33:21+0000        ttyUSB0
2015-08-13T21:41:05+0000        ttyUSB0 Application Boot Loader - Feb 25 2010 11:08:16
2015-08-13T21:41:05+0000        ttyUSB0
2015-08-13T21:41:06+0000        ttyUSB0
2015-08-13T21:41:06+0000        ttyUSB0 Battery OK!
2015-08-13T21:41:06+0000        ttyUSB0
2015-08-13T21:41:06+0000        ttyUSB0
2015-08-13T21:41:06+0000        ttyUSB0 No Tamper Counts in BBRAM!
2015-08-13T21:41:06+0000        ttyUSB0
2015-08-13T21:41:06+0000        ttyUSB0  Loading Application (APP)
2015-08-13T21:41:06+0000        ttyUSB0
2015-08-13T21:41:08+0000        ttyUSB0  Starting loaded code.
2015-08-13T21:41:08+0000        ttyUSB0
2015-08-13T21:41:08+0000        ttyUSB0 \000Application - Feb 25 2010 11:08:02
2015-08-13T21:41:08+0000        ttyUSB0
2015-08-13T21:41:09+0000        ttyUSB0 wdog started
2015-08-13T21:41:09+0000        ttyUSB0
2015-08-13T21:41:12+0000        ttyUSB0
2015-08-13T21:41:12+0000        ttyUSB0
2015-08-13T21:41:12+0000        ttyUSB0 Running DES POST Test
2015-08-13T21:41:12+0000        ttyUSB0
2015-08-13T21:41:12+0000        ttyUSB0 DES POST Test Passed
2015-08-13T21:41:12+0000        ttyUSB0
2015-08-13T21:41:12+0000        ttyUSB0 Running Triple DES POST Test
2015-08-13T21:41:12+0000        ttyUSB0
2015-08-13T21:41:12+0000        ttyUSB0 Triple DES POST Test Passed
2015-08-13T21:41:12+0000        ttyUSB0
2015-08-13T21:41:12+0000        ttyUSB0 Running AES POST Test
2015-08-13T21:41:12+0000        ttyUSB0
2015-08-13T21:41:12+0000        ttyUSB0 AES POST Test Passed
2015-08-13T21:41:12+0000        ttyUSB0
2015-08-13T21:41:12+0000        ttyUSB0 Running SHA1 POST Test
2015-08-13T21:41:12+0000        ttyUSB0
2015-08-13T21:41:12+0000        ttyUSB0 SHA1 POST Test Passed
2015-08-13T21:41:12+0000        ttyUSB0
2015-08-13T21:41:12+0000        ttyUSB0 Running SHA2 POST Test
2015-08-13T21:41:12+0000        ttyUSB0
2015-08-13T21:41:12+0000        ttyUSB0 SHA2 POST Test Passed
2015-08-13T21:41:12+0000        ttyUSB0
2015-08-13T21:41:12+0000        ttyUSB0 Running RandomGen SHA1 POST Test
2015-08-13T21:41:12+0000        ttyUSB0
2015-08-13T21:41:12+0000        ttyUSB0 Randomgen SHA1 POST Test Passed
2015-08-13T21:41:12+0000        ttyUSB0
2015-08-13T21:41:12+0000        ttyUSB0 Running RSA POST Test
2015-08-13T21:41:12+0000        ttyUSB0
2015-08-13T21:41:12+0000        ttyUSB0 RSA POST Test Passed
2015-08-13T21:41:12+0000        ttyUSB0
```

```
2015-08-13T21:41:12+0000        ttyUSB0 Running DSA POST Test
2015-08-13T21:41:12+0000        ttyUSB0
2015-08-13T21:41:12+0000        ttyUSB0 DSA POST Test Passed
2015-08-13T21:41:12+0000        ttyUSB0
2015-08-13T21:41:12+0000        ttyUSB0 Running RandomGen POST Test
2015-08-13T21:41:12+0000        ttyUSB0
2015-08-13T21:41:12+0000        ttyUSB0 RandomGen POST Test Passed
2015-08-13T21:41:12+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0 13/8/2015 at 19:38:35
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0  0x100008
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0 App Details Response:
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:13+0000        ttyUSB0 Additional RandomGen POST Test Passed
2015-08-13T21:41:13+0000        ttyUSB0
2015-08-13T21:41:14+0000        ttyUSB0 Part Number: Keyper Pro 0405
2015-08-13T21:41:14+0000        ttyUSB0
2015-08-13T21:41:14+0000        ttyUSB0 Serial Number: Serial K6002018
```

```
2015-08-13T21:41:14+0000        ttyUSB0
2015-08-13T21:41:14+0000        ttyUSB0 App Build Number: App 020
2015-08-13T21:41:14+0000        ttyUSB0
2015-08-13T21:41:14+0000        ttyUSB0 ABL Build Number: ABL 029
2015-08-13T21:41:14+0000        ttyUSB0
2015-08-13T21:41:14+0000        ttyUSB0 AL Build Number: AL 02A
2015-08-13T21:41:14+0000        ttyUSB0
2015-08-13T21:41:14+0000        ttyUSB0 CS Build Number: CS 029
2015-08-13T21:41:14+0000        ttyUSB0
2015-08-13T21:41:14+0000        ttyUSB0 Total Private Memory 4173393
2015-08-13T21:41:14+0000        ttyUSB0
2015-08-13T21:41:14+0000        ttyUSB0 Free Private Memory 4173393
2015-08-13T21:41:14+0000        ttyUSB0
2015-08-13T21:41:14+0000        ttyUSB0 Total Dynamic Memory 14569472
2015-08-13T21:41:14+0000        ttyUSB0
2015-08-13T21:41:14+0000        ttyUSB0 Free Dynamic Memory 14569472
2015-08-13T21:41:14+0000        ttyUSB0
2015-08-13T21:41:14+0000        ttyUSB0 Date and Time: 19:38:35 on 13/08/2015
2015-08-13T21:41:14+0000        ttyUSB0
2015-08-13T21:41:14+0000        ttyUSB0 Created socket 1 on port 3000.
2015-08-13T21:41:14+0000        ttyUSB0
2015-08-13T21:41:14+0000        ttyUSB0
2015-08-13T21:41:14+0000        ttyUSB0
2015-08-13T21:41:14+0000        ttyUSB0 13/8/2015 at 19:38:37
2015-08-13T21:41:14+0000        ttyUSB0
2015-08-13T21:41:14+0000        ttyUSB0  0x100003
2015-08-13T21:41:14+0000        ttyUSB0
2015-08-13T21:43:51+0000        ttyUSB0
2015-08-13T21:43:51+0000        ttyUSB0
2015-08-13T21:43:51+0000        ttyUSB0 13/8/2015 at 19:41:13
2015-08-13T21:43:51+0000        ttyUSB0
2015-08-13T21:43:51+0000        ttyUSB0  0x200023 0A400000B906296E
2015-08-13T21:43:51+0000        ttyUSB0
2015-08-13T21:44:20+0000        ttyUSB0
2015-08-13T21:44:20+0000        ttyUSB0
2015-08-13T21:44:21+0000        ttyUSB0 13/8/2015 at 19:41:43
2015-08-13T21:44:21+0000        ttyUSB0
2015-08-13T21:44:21+0000        ttyUSB0  0x200023 0A400000B946296E
2015-08-13T21:44:21+0000        ttyUSB0
2015-08-13T21:44:49+0000        ttyUSB0
2015-08-13T21:44:49+0000        ttyUSB0
2015-08-13T21:44:49+0000        ttyUSB0 13/8/2015 at 19:42:11
2015-08-13T21:44:49+0000        ttyUSB0
2015-08-13T21:44:49+0000        ttyUSB0  0x200023 0A400000B8C6296E
2015-08-13T21:44:49+0000        ttyUSB0
2015-08-13T21:46:02+0000        ttyUSB0
2015-08-13T21:46:02+0000        ttyUSB0
2015-08-13T21:46:02+0000        ttyUSB0 13/8/2015 at 19:43:24
2015-08-13T21:46:02+0000        ttyUSB0
2015-08-13T21:46:02+0000        ttyUSB0  0x20002d 4780000087AD2972
2015-08-13T21:46:02+0000        ttyUSB0
2015-08-13T21:46:41+0000        ttyUSB0
2015-08-13T21:46:41+0000        ttyUSB0
2015-08-13T21:46:41+0000        ttyUSB0 13/8/2015 at 19:44:04
2015-08-13T21:46:41+0000        ttyUSB0
```

```
2015-08-13T21:46:41+0000        ttyUSB0  0x20002d 4780000086ED2972
2015-08-13T21:46:41+0000        ttyUSB0
2015-08-13T21:47:15+0000        ttyUSB0
2015-08-13T21:47:15+0000        ttyUSB0
2015-08-13T21:47:15+0000        ttyUSB0 13/8/2015 at 19:44:38
2015-08-13T21:47:15+0000        ttyUSB0
2015-08-13T21:47:15+0000        ttyUSB0  0x20002d 4780000087ED2972
2015-08-13T21:47:15+0000        ttyUSB0
2015-08-13T21:47:49+0000        ttyUSB0
2015-08-13T21:47:49+0000        ttyUSB0
2015-08-13T21:47:49+0000        ttyUSB0 13/8/2015 at 19:45:12
2015-08-13T21:47:49+0000        ttyUSB0
2015-08-13T21:47:49+0000        ttyUSB0  0x20002d 47800000882D2972
2015-08-13T21:47:49+0000        ttyUSB0
2015-08-13T21:48:02+0000        ttyUSB0
2015-08-13T21:48:02+0000        ttyUSB0
2015-08-13T21:48:02+0000        ttyUSB0 13/8/2015 at 19:45:25
2015-08-13T21:48:02+0000        ttyUSB0
2015-08-13T21:48:02+0000        ttyUSB0  0x200007 47800000882D2972
2015-08-13T21:48:02+0000        ttyUSB0
2015-08-13T21:50:33+0000        ttyUSB0
2015-08-13T21:50:33+0000        ttyUSB0
2015-08-13T21:50:33+0000        ttyUSB0 13/8/2015 at 19:47:56
2015-08-13T21:50:33+0000        ttyUSB0
2015-08-13T21:50:33+0000        ttyUSB0  0x200023 0A400000B806296E
2015-08-13T21:50:33+0000        ttyUSB0
2015-08-13T21:51:20+0000        ttyUSB0
2015-08-13T21:51:20+0000        ttyUSB0
2015-08-13T21:51:20+0000        ttyUSB0 13/8/2015 at 19:48:43
2015-08-13T21:51:20+0000        ttyUSB0
2015-08-13T21:51:20+0000        ttyUSB0  0x200023 0A400000B786296E
2015-08-13T21:51:20+0000        ttyUSB0
2015-08-13T21:51:46+0000        ttyUSB0
2015-08-13T21:51:46+0000        ttyUSB0
2015-08-13T21:51:46+0000        ttyUSB0 13/8/2015 at 19:49:09
2015-08-13T21:51:46+0000        ttyUSB0
2015-08-13T21:51:46+0000        ttyUSB0  0x200023 0A400000B906296E
2015-08-13T21:51:46+0000        ttyUSB0
2015-08-13T21:52:31+0000        ttyUSB0
2015-08-13T21:52:31+0000        ttyUSB0
2015-08-13T21:52:31+0000        ttyUSB0 13/8/2015 at 19:49:54
2015-08-13T21:52:31+0000        ttyUSB0
2015-08-13T21:52:31+0000        ttyUSB0  0x20002c 47800000872D2972
2015-08-13T21:52:31+0000        ttyUSB0
2015-08-13T21:53:04+0000        ttyUSB0
2015-08-13T21:53:04+0000        ttyUSB0
2015-08-13T21:53:05+0000        ttyUSB0 13/8/2015 at 19:50:27
2015-08-13T21:53:05+0000        ttyUSB0
2015-08-13T21:53:05+0000        ttyUSB0  0x20002c 47800000876D2972
2015-08-13T21:53:05+0000        ttyUSB0
2015-08-13T21:53:18+0000        ttyUSB0
2015-08-13T21:53:18+0000        ttyUSB0
2015-08-13T21:53:18+0000        ttyUSB0 13/8/2015 at 19:50:40
2015-08-13T21:53:18+0000        ttyUSB0
2015-08-13T21:53:18+0000        ttyUSB0  0x200010 47800000876D2972
```

2015-08-13T21:53:18+0000 ttyUSB0

```
2015-08-13T22:08:19+0000        ttyUSB0 ÿÿ
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 H1403033 011397 BBL 010 : Factory Software Verification Key : CPLD version 1.9
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 BBL CRC32: 0x757574CA
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 Running applicationBootLoader at 0xEFDC0000
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 H1403033 011403 ABL 011 : Tamper Challenge Response Key
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 ABL CRC32: 0xE7E0FA6A
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 ####################################
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 ###     ABL tamper records       ###
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 ####################################
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 Current Tamper Counts (decimal 0-255):
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 ====================================
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 vextoosTamperCount:     0
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 vintoosTamperCount:     41
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 vbboosTamperCount:      0
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 maxstrtempTamperCount:  0
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 minstrtempTamperCount:  0
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 meshTamperCount:        0
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 extampSMKTamperCount:   0
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 extampIMKTamperCount:   0
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 tempdiffTamperCount:    0
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 pfTamperCount:          41
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 restartTamperCount:     133
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 Current tamper bitmaps:
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 ======================
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 currentTamper bitmap:   0x0000 0b .... .... .... ....
```

```
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 lastTamper bitmap:      0x0080 0b .... .... 1... ....  |EXT_POWER_DOWN
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 Bitmapped Change Record (most recent first):
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0 ========================================
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:19+0000        ttyUSB0
2015-08-13T22:08:20+0000        ttyUSB0 Running cryptoApplication at 0xEBF00000
2015-08-13T22:08:20+0000        ttyUSB0
2015-08-13T22:08:20+0000        ttyUSB0 Jumping to startup @ 0x001037B4
2015-08-13T22:08:20+0000        ttyUSB0
2015-08-13T22:08:20+0000        ttyUSB0 Board is P2020RDB
2015-08-13T22:08:20+0000        ttyUSB0
2015-08-13T22:08:20+0000        ttyUSB0 board_smp_init: 2 cpu
2015-08-13T22:08:20+0000        ttyUSB0
2015-08-13T22:08:20+0000        ttyUSB0
2015-08-13T22:08:20+0000        ttyUSB0
2015-08-13T22:08:20+0000        ttyUSB0 Cpu_clk=1000000000, Sys_clk=100000000, CCB=500000000
2015-08-13T22:08:20+0000        ttyUSB0
2015-08-13T22:08:21+0000        ttyUSB0
2015-08-13T22:08:21+0000        ttyUSB0
2015-08-13T22:08:21+0000        ttyUSB0 System page at phys:0000b000 user:0000b000 kern:0000b000
2015-08-13T22:08:21+0000        ttyUSB0
2015-08-13T22:08:21+0000        ttyUSB0 Starting next program at v0015183c
2015-08-13T22:08:21+0000        ttyUSB0
2015-08-13T22:08:21+0000        ttyUSB0 Starting K-Series Kernel
2015-08-13T22:08:21+0000        ttyUSB0
2015-08-13T22:08:21+0000        ttyUSB0 Copyright AEP Networks Ltd. All Rights Reserved.
2015-08-13T22:08:21+0000        ttyUSB0
2015-08-13T22:08:21+0000        ttyUSB0 Thu Aug 13 22:01:10 2015
2015-08-13T22:08:21+0000        ttyUSB0
2015-08-13T22:08:21+0000        ttyUSB0 Starting auditd v2.0 ... started.
2015-08-13T22:08:21+0000        ttyUSB0
2015-08-13T22:08:22+0000        ttyUSB0 Interface 0 configured for IPv6.
2015-08-13T22:08:22+0000        ttyUSB0
2015-08-13T22:08:22+0000        ttyUSB0 Interface 0 configured for IPv4.
2015-08-13T22:08:22+0000        ttyUSB0
2015-08-13T22:08:23+0000        ttyUSB0 route: writing to routing socket: Network is unreachable
2015-08-13T22:08:23+0000        ttyUSB0
2015-08-13T22:08:23+0000        ttyUSB0 add net default: gateway ::: Network is unreachable
2015-08-13T22:08:23+0000        ttyUSB0
2015-08-13T22:08:23+0000        ttyUSB0 route: writing to routing socket: Network is unreachable
2015-08-13T22:08:23+0000        ttyUSB0
2015-08-13T22:08:23+0000        ttyUSB0 add net default: gateway 0.0.0.0: Network is unreachable
2015-08-13T22:08:23+0000        ttyUSB0
2015-08-13T22:08:23+0000        ttyUSB0 Starting USB driver...
2015-08-13T22:08:23+0000        ttyUSB0
2015-08-13T22:08:23+0000        ttyUSB0 9860 v2.3 Keyper Application - Nov  8 2013 13:17:33
2015-08-13T22:08:23+0000        ttyUSB0
2015-08-13T22:08:23+0000        ttyUSB0
2015-08-13T22:08:23+0000        ttyUSB0
```

```
2015-08-13T22:08:24+0000        ttyUSB0
2015-08-13T22:08:24+0000        ttyUSB0
2015-08-13T22:08:24+0000        ttyUSB0 Running DES POST Test
2015-08-13T22:08:24+0000        ttyUSB0
2015-08-13T22:08:24+0000        ttyUSB0 DES POST Test Passed
2015-08-13T22:08:24+0000        ttyUSB0
2015-08-13T22:08:24+0000        ttyUSB0 Running Triple DES POST Test
2015-08-13T22:08:24+0000        ttyUSB0
2015-08-13T22:08:24+0000        ttyUSB0 Triple DES POST Test Passed
2015-08-13T22:08:24+0000        ttyUSB0
2015-08-13T22:08:24+0000        ttyUSB0 Running AES POST Test
2015-08-13T22:08:24+0000        ttyUSB0
2015-08-13T22:08:24+0000        ttyUSB0 AES POST Test Passed
2015-08-13T22:08:24+0000        ttyUSB0
2015-08-13T22:08:24+0000        ttyUSB0 Running SHA1 POST Test
2015-08-13T22:08:24+0000        ttyUSB0
2015-08-13T22:08:24+0000        ttyUSB0 SHA1 POST Test Passed
2015-08-13T22:08:24+0000        ttyUSB0
2015-08-13T22:08:24+0000        ttyUSB0 Running SHA2 POST Test
2015-08-13T22:08:24+0000        ttyUSB0
2015-08-13T22:08:24+0000        ttyUSB0 SHA2 POST Test Passed
2015-08-13T22:08:24+0000        ttyUSB0
2015-08-13T22:08:25+0000        ttyUSB0 Running RandomGen POST Test
2015-08-13T22:08:25+0000        ttyUSB0
2015-08-13T22:08:25+0000        ttyUSB0 RandomGen POST Test Passed
2015-08-13T22:08:25+0000        ttyUSB0
2015-08-13T22:08:25+0000        ttyUSB0 Running RSA POST Test
2015-08-13T22:08:25+0000        ttyUSB0
2015-08-13T22:08:25+0000        ttyUSB0 RSA POST Test Passed
2015-08-13T22:08:25+0000        ttyUSB0
2015-08-13T22:08:25+0000        ttyUSB0 Running DSA POST Test
2015-08-13T22:08:25+0000        ttyUSB0
2015-08-13T22:08:25+0000        ttyUSB0 DSA POST Test Passed
2015-08-13T22:08:25+0000        ttyUSB0
2015-08-13T22:08:25+0000        ttyUSB0 Running ECC POST Test
2015-08-13T22:08:25+0000        ttyUSB0
2015-08-13T22:08:25+0000        ttyUSB0 ECC POST Test Passed
2015-08-13T22:08:25+0000        ttyUSB0
2015-08-13T22:08:25+0000        ttyUSB0 Audit on 13/8/2015 22:01:13 00100008
2015-08-13T22:08:25+0000        ttyUSB0
2015-08-13T22:08:25+0000        ttyUSB0
2015-08-13T22:08:25+0000        ttyUSB0
2015-08-13T22:08:25+0000        ttyUSB0
2015-08-13T22:08:25+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0 Keyper 9860-2  Serial Number H1403033
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0 Memory Usage:
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0 RAM (free/total)        197Mb/256Mb
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0 Flash (free/total)      127Mb/128Mb
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0    black store          44b
```

```
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0    statistics           112b
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0    other                116b
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0 RedStore (free/total)   109Kb/128Kb
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0 Network Configuration:
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0 IPv4: enabled
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0 IPv6: enabled
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0 MAC/IP address(es): 00:E0:06:C0:B2:40 / 192.168.0.2/24 , 2001::2e0:6ff:fec0:b240/64
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0 HSM Port: 05000
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0 HSM Gateway(s): 0.0.0.0 ::
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0 Software Versions:
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0 BBL 010 ABL 011 App 023
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0 CPLD Version:
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0 1.9
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0 SCR Firmware Version:
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0 OROS-R2.99-R1.20
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:08:26+0000        ttyUSB0 Audit on 13/8/2015 22:01:14 00100001
2015-08-13T22:08:26+0000        ttyUSB0
2015-08-13T22:09:54+0000        ttyUSB0 Audit on 13/8/2015 22:02:42 00200035 47800000872D2972
2015-08-13T22:09:54+0000        ttyUSB0
2015-08-13T22:10:17+0000        ttyUSB0 Audit on 13/8/2015 22:03:05 00200035 47800000876D2972
2015-08-13T22:10:17+0000        ttyUSB0
2015-08-13T22:10:17+0000        ttyUSB0 Audit on 13/8/2015 22:03:05 0020000e 47800000876D2972
2015-08-13T22:10:17+0000        ttyUSB0
2015-08-13T22:11:52+0000        ttyUSB0 Audit on 13/8/2015 22:04:40 00200023 0A400000DB06296E
2015-08-13T22:11:52+0000        ttyUSB0
2015-08-13T22:12:23+0000        ttyUSB0 Audit on 13/8/2015 22:05:08 00200023 0A400000DB46296E
2015-08-13T22:12:23+0000        ttyUSB0
2015-08-13T22:12:48+0000        ttyUSB0 Audit on 13/8/2015 22:05:37 00200023 0A400000B6C6296E
2015-08-13T22:12:48+0000        ttyUSB0
```

```
2015-08-13T22:13:39+0000        ttyUSB0
2015-08-13T22:13:39+0000        ttyUSB0
2015-08-13T22:13:39+0000        ttyUSB0 HmcListener: Created IPv4 socket 7 on port 3000.
2015-08-13T22:13:39+0000        ttyUSB0
2015-08-13T22:13:39+0000        ttyUSB0
2015-08-13T22:13:39+0000        ttyUSB0
2015-08-13T22:13:39+0000        ttyUSB0 HmcListener: Created IPv6 socket 9 on port 3000.
2015-08-13T22:13:39+0000        ttyUSB0
2015-08-13T22:13:39+0000        ttyUSB0 Audit on 13/8/2015 22:06:27 00100003
2015-08-13T22:13:39+0000        ttyUSB0
2015-08-13T22:13:39+0000        ttyUSB0 Shutting down daemons...
2015-08-13T22:13:39+0000        ttyUSB0
2015-08-13T22:13:39+0000        ttyUSB0 AuditBuffer rx'd [-1] (3)
2015-08-13T22:13:39+0000        ttyUSB0
2015-08-13T22:13:39+0000        ttyUSB0 shutting down audit service.
2015-08-13T22:13:39+0000        ttyUSB0
2015-08-13T22:13:40+0000        ttyUSB0 Terminated
2015-08-13T22:13:40+0000        ttyUSB0
2015-08-13T22:13:40+0000        ttyUSB0 HmcListener::accept(): No such process
2015-08-13T22:13:40+0000        ttyUSB0
2015-08-13T22:13:40+0000        ttyUSB0 Shutting down filesystems...
2015-08-13T22:13:40+0000        ttyUSB0
2015-08-13T22:13:41+0000        ttyUSB0
2015-08-13T22:13:41+0000        ttyUSB0
2015-08-13T22:13:41+0000        ttyUSB0 H1403033 011397 BBL 010 : Factory Software Verification Key : CPLD version 1.9
2015-08-13T22:13:41+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 BBL CRC32: 0x757574CA
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 Running applicationBootLoader at 0xEFDC0000
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 H1403033 011403 ABL 011 : Tamper Challenge Response Key
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 ABL CRC32: 0xE7E0FA6A
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 ####################################
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 ###     ABL tamper records       ###
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 ####################################
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 Current Tamper Counts (decimal 0-255):
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 ====================================
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 vextoosTamperCount:     0
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 vintoosTamperCount:     41
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 vbboosTamperCount:      0
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 maxstrtempTamperCount:  0
```

```
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 minstrtempTamperCount:  0
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 meshTamperCount:        0
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 extampSMKTamperCount:   0
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 extampIMKTamperCount:   0
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 tempdiffTamperCount:    0
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 pfTamperCount:          41
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 restartTamperCount:     133
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 Current tamper bitmaps:
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 ======================
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 currentTamper bitmap:   0x0000 0b .... .... .... ....
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 lastTamper bitmap:      0x0080 0b .... .... 1... ....  [EXT_POWER_DOWN
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 Bitmapped Change Record (most recent first):
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0 ============================================
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:42+0000        ttyUSB0
2015-08-13T22:13:43+0000        ttyUSB0 Running cryptoApplication at 0xEBF00000
2015-08-13T22:13:43+0000        ttyUSB0
2015-08-13T22:13:43+0000        ttyUSB0 Jumping to startup @ 0x001037B4
2015-08-13T22:13:43+0000        ttyUSB0
2015-08-13T22:13:43+0000        ttyUSB0 Board is P2020RDB
2015-08-13T22:13:43+0000        ttyUSB0
2015-08-13T22:13:43+0000        ttyUSB0 board_smp_init: 2 cpu
2015-08-13T22:13:43+0000        ttyUSB0
2015-08-13T22:13:43+0000        ttyUSB0
2015-08-13T22:13:43+0000        ttyUSB0
2015-08-13T22:13:43+0000        ttyUSB0 Cpu_clk=1000000000, Sys_clk=100000000, CCB=500000000
2015-08-13T22:13:43+0000        ttyUSB0
2015-08-13T22:13:44+0000        ttyUSB0
2015-08-13T22:13:44+0000        ttyUSB0
2015-08-13T22:13:44+0000        ttyUSB0 System page at phys:0000b000 user:0000b000 kern:0000b000
2015-08-13T22:13:44+0000        ttyUSB0
2015-08-13T22:13:44+0000        ttyUSB0 Starting next program at v0015183c
2015-08-13T22:13:44+0000        ttyUSB0
2015-08-13T22:13:44+0000        ttyUSB0 Starting K-Series Kernel
2015-08-13T22:13:44+0000        ttyUSB0
2015-08-13T22:13:44+0000        ttyUSB0 Copyright AEP Networks Ltd. All Rights Reserved.
2015-08-13T22:13:44+0000        ttyUSB0
```

```
2015-08-13T22:13:44+0000        ttyUSB0 Thu Aug 13 22:06:33 2015
2015-08-13T22:13:44+0000        ttyUSB0
2015-08-13T22:13:44+0000        ttyUSB0 Starting auditd v2.0 ... started.
2015-08-13T22:13:44+0000        ttyUSB0
2015-08-13T22:13:45+0000        ttyUSB0 Interface 0 configured for IPv6.
2015-08-13T22:13:45+0000        ttyUSB0
2015-08-13T22:13:45+0000        ttyUSB0 Interface 0 configured for IPv4.
2015-08-13T22:13:45+0000        ttyUSB0
2015-08-13T22:13:46+0000        ttyUSB0 route: writing to routing socket: Network is unreachable
2015-08-13T22:13:46+0000        ttyUSB0
2015-08-13T22:13:46+0000        ttyUSB0 add net default: gateway ::: Network is unreachable
2015-08-13T22:13:46+0000        ttyUSB0
2015-08-13T22:13:46+0000        ttyUSB0 route: writing to routing socket: Network is unreachable
2015-08-13T22:13:46+0000        ttyUSB0
2015-08-13T22:13:46+0000        ttyUSB0 add net default: gateway 0.0.0.0: Network is unreachable
2015-08-13T22:13:46+0000        ttyUSB0
2015-08-13T22:13:46+0000        ttyUSB0 Starting USB driver...
2015-08-13T22:13:46+0000        ttyUSB0
2015-08-13T22:13:46+0000        ttyUSB0 9860 v2.3 Keyper Application - Nov  8 2013 13:17:33
2015-08-13T22:13:46+0000        ttyUSB0
2015-08-13T22:13:46+0000        ttyUSB0
2015-08-13T22:13:46+0000        ttyUSB0
2015-08-13T22:13:47+0000        ttyUSB0
2015-08-13T22:13:47+0000        ttyUSB0
2015-08-13T22:13:47+0000        ttyUSB0 Running DES POST Test
2015-08-13T22:13:47+0000        ttyUSB0
2015-08-13T22:13:47+0000        ttyUSB0 DES POST Test Passed
2015-08-13T22:13:47+0000        ttyUSB0
2015-08-13T22:13:47+0000        ttyUSB0 Running Triple DES POST Test
2015-08-13T22:13:47+0000        ttyUSB0
2015-08-13T22:13:47+0000        ttyUSB0 Triple DES POST Test Passed
2015-08-13T22:13:47+0000        ttyUSB0
2015-08-13T22:13:47+0000        ttyUSB0 Running AES POST Test
2015-08-13T22:13:47+0000        ttyUSB0
2015-08-13T22:13:47+0000        ttyUSB0 AES POST Test Passed
2015-08-13T22:13:47+0000        ttyUSB0
2015-08-13T22:13:47+0000        ttyUSB0 Running SHA1 POST Test
2015-08-13T22:13:47+0000        ttyUSB0
2015-08-13T22:13:47+0000        ttyUSB0 SHA1 POST Test Passed
2015-08-13T22:13:47+0000        ttyUSB0
2015-08-13T22:13:47+0000        ttyUSB0 Running SHA2 POST Test
2015-08-13T22:13:47+0000        ttyUSB0
2015-08-13T22:13:47+0000        ttyUSB0 SHA2 POST Test Passed
2015-08-13T22:13:47+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 Running RandomGen POST Test
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 RandomGen POST Test Passed
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 Running RSA POST Test
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 RSA POST Test Passed
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 Running DSA POST Test
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 DSA POST Test Passed
```

```
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 Running ECC POST Test
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 ECC POST Test Passed
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 Keyper 9860-2  Serial Number H1403033
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 Memory Usage:
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 RAM (free/total)        197Mb/256Mb
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 Flash (free/total)      127Mb/128Mb
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0    black store          192b
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0    statistics           112b
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0    other                116b
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 RedStore (free/total)   109Kb/128Kb
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 Network Configuration:
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 IPv4: enabled
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 IPv6: enabled
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 MAC/IP address(es): 00:E0:06:C0:B2:40 / 192.168.0.2/24 , 2001::2e0:6ff:fec0:b240/64
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 HSM Port: 05000
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 HSM Gateway(s): 0.0.0.0 ::
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 Software Versions:
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 BBL 010 ABL 011 App 023
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 CPLD Version:
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0 1.9
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:48+0000        ttyUSB0
```

```
2015-08-13T22:13:48+0000        ttyUSB0 SCR Firmware Version:
2015-08-13T22:13:48+0000        ttyUSB0
2015-08-13T22:13:49+0000        ttyUSB0 OROS-R2.99-R1.20
2015-08-13T22:13:49+0000        ttyUSB0
2015-08-13T22:13:49+0000        ttyUSB0
2015-08-13T22:13:49+0000        ttyUSB0
2015-08-13T22:13:49+0000        ttyUSB0
2015-08-13T22:13:49+0000        ttyUSB0
2015-08-13T22:13:49+0000        ttyUSB0 HmcListener: Created IPv4 socket 7 on port 3000.
2015-08-13T22:13:49+0000        ttyUSB0
2015-08-13T22:13:49+0000        ttyUSB0
2015-08-13T22:13:49+0000        ttyUSB0
2015-08-13T22:13:49+0000        ttyUSB0 HmcListener: Created IPv6 socket 8 on port 3000.
2015-08-13T22:13:49+0000        ttyUSB0
2015-08-13T22:13:49+0000        ttyUSB0 Audit on 13/8/2015 22:06:37 00100003
2015-08-13T22:13:49+0000        ttyUSB0
2015-08-13T22:50:45+0000        ttyUSB0 Audit on 13/8/2015 22:43:34 0020006b 478000007A2D2972
2015-08-13T22:50:45+0000        ttyUSB0
2015-08-13T22:51:11+0000        ttyUSB0 Audit on 13/8/2015 22:43:59 0020006b 478000007A6D2972
2015-08-13T22:51:11+0000        ttyUSB0
2015-08-13T22:51:39+0000        ttyUSB0 Audit on 13/8/2015 22:44:27 00200039
2015-08-13T22:51:39+0000        ttyUSB0
2015-08-13T22:51:46+0000        ttyUSB0 Audit on 13/8/2015 22:44:34 0020003b
2015-08-13T22:51:46+0000        ttyUSB0
2015-08-13T22:51:57+0000        ttyUSB0 Audit on 13/8/2015 22:44:45 00200041
2015-08-13T22:51:57+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 HSM Status
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 ====================
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 Keyper 9860-2
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 Serial Number H1403033
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 Date(dd/mm/yyyy) 13/8/2015  Time 22:45:17
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 Software Versions:
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 BBL 010 ABL 011 App 023
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 CPLD Version:
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 1.9
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0
```

```
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 SCR Firmware Version:
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 OROS-R2.99-R1.20
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 Memory Usage:
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 RAM (free/total)        197Mb/256Mb
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 Flash (free/total)      127Mb/128Mb
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0    black store          328b
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0    statistics           112b
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0    other                116b
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 RedStore (free/total)   109Kb/128Kb
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 Network Configuration:
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 IPv4: enabled
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 IPv6: enabled
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 MAC/IP address(es): 00:E0:06:C0:B2:40 / 192.168.0.2/24 , 2001::2e0:6ff:fec0:b240/64
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 HSM Port: 05000
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 HSM Gateway(s): 0.0.0.0 ::
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0 tsec0: flags=8a43<UP,BROADCAST,RUNNING,ALLMULTI,SIMPLEX,MULTICAST> mtu 1500
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0         capabilities rx=7<IP4CSUM,TCP4CSUM,UDP4CSUM>
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0         capabilities tx=0
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0         enabled=0
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0         address: 00:e0:06:c0:b2:40
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0         media: Ethernet none
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0         inet 192.168.0.2 netmask 0xffffff00 broadcast 192.168.0.255
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0         inet6 2001::2e0:6ff:fec0:b240 prefixlen 64
2015-08-13T22:52:28+0000        ttyUSB0
2015-08-13T22:52:28+0000        ttyUSB0         inet6 fe80::2e0:6ff:fec0:b240H\037\220@ec0 prefixlen 64 scopeid 0x2
2015-08-13T22:52:28+0000        ttyUSB0
```

```
2015-08-13T22:52:28+0000 ttyUSB0
2015-08-13T22:52:28+0000 ttyUSB0
2015-08-13T22:52:28+0000 ttyUSB0
2015-08-13T22:52:28+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 Current HSM State: Secured Off-line
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 Modes: (1=Enabled 0=Disabled)
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 Global Key Export    1  App Key Import       0  App Key Export       0  Asymmetric Key Gen   1
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 Symmetric Key Gen    1  Symmetric Key Derive 0  Signing              1  Signature Verify     1
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 MAC Generation       1  MAC Verification     1  Encrypt / Decrypt    1  Delete Asym Key      1
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 Delete Sym Key       1  Output Key Details   1  Output Key Summary   1  Suite B Algorithms   1
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 Non Suite B Algs     1  Auto Online          0
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 Other Modes:
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 AES SMK                FIPS Mode
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 Battery ok
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 ####################################
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 ###     ABL tamper records       ###
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 ####################################
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 Current Tamper Counts (decimal 0-255):
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 ====================================
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 vextoosTamperCount:     0
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 vintoosTamperCount:     0
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 vbboosTamperCount:      0
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 maxstrtempTamperCount:  0
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 minstrtempTamperCount:  0
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 meshTamperCount:        0
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 extampSMKTamperCount:   0
2015-08-13T22:52:29+0000 ttyUSB0
2015-08-13T22:52:29+0000 ttyUSB0 extampIMKTamperCount:   0
```

```
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0 tempdiffTamperCount:    0
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0 pfTamperCount:          0
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0 restartTamperCount:     0
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0 Current tamper bitmaps:
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0 ======================
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0 currentTamper bitmap:   0x0000 0b .... .... .... ....
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0 lastTamper bitmap:      0x0000 0b .... .... .... ....
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0 Bitmapped Change Record (most recent first):
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0 ============================================
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0 DRBG Instantiate Health Test On Demand Passed
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0 DRBG Generate Health Test On Demand Passed
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:52:29+0000        ttyUSB0 DRBG Reseed Health Test On Demand Passed
2015-08-13T22:52:29+0000        ttyUSB0
2015-08-13T22:54:28+0000        ttyUSB0 Audit on 13/8/2015 22:47:16 0020006b 4780000079ED2972
2015-08-13T22:54:28+0000        ttyUSB0
2015-08-13T22:54:52+0000        ttyUSB0 Audit on 13/8/2015 22:47:40 0020006b 478000007A2D2972
2015-08-13T22:54:52+0000        ttyUSB0
2015-08-13T22:55:39+0000        ttyUSB0 Audit on 13/8/2015 22:48:27 00200025 4780000087ED2972
2015-08-13T22:55:39+0000        ttyUSB0
2015-08-13T22:55:56+0000        ttyUSB0 Audit on 13/8/2015 22:48:44 00200025 47800000882D2972
2015-08-13T22:55:56+0000        ttyUSB0
2015-08-13T22:55:56+0000        ttyUSB0 Audit on 13/8/2015 22:48:45 00200005
2015-08-13T22:55:56+0000        ttyUSB0
2015-08-13T22:57:04+0000        ttyUSB0 Audit on 13/8/2015 22:49:53 0020006b 478000007A6D2972
2015-08-13T22:57:04+0000        ttyUSB0
2015-08-13T22:57:30+0000        ttyUSB0 Audit on 13/8/2015 22:50:18 0020006b 4780000079ED2972
2015-08-13T22:57:30+0000        ttyUSB0
2015-08-13T23:00:18+0000        ttyUSB0 Audit on 13/8/2015 22:53:04 0020002d 4780000087AD2972
2015-08-13T23:00:18+0000        ttyUSB0
2015-08-13T23:00:53+0000        ttyUSB0 Audit on 13/8/2015 22:53:41 0020002d 4780000086ED2972
2015-08-13T23:00:53+0000        ttyUSB0
2015-08-13T23:01:23+0000        ttyUSB0 Audit on 13/8/2015 22:54:11 0020002d 4780000087ED2972
2015-08-13T23:01:23+0000        ttyUSB0
2015-08-13T23:01:53+0000        ttyUSB0 Audit on 13/8/2015 22:54:41 0020002d 47800000882D2972
2015-08-13T23:01:53+0000        ttyUSB0
```

```
2015-08-13T23:08:20+0000        ttyUSB0 Audit on 13/8/2015 23:01:09 0020006b 4780000079ED2972
2015-08-13T23:08:20+0000        ttyUSB0
2015-08-13T23:08:48+0000        ttyUSB0 Audit on 13/8/2015 23:01:36 0020006b 478000007A2D2972
2015-08-13T23:08:48+0000        ttyUSB0
2015-08-13T23:09:41+0000        ttyUSB0 Audit on 13/8/2015 23:02:30 00200016 Kjqmt7v
2015-08-13T23:09:41+0000        ttyUSB0
2015-08-13T23:09:42+0000        ttyUSB0 Audit on 13/8/2015 23:02:30 00200015 0880004AB3B3296D
2015-08-13T23:09:42+0000        ttyUSB0
2015-08-13T23:09:42+0000        ttyUSB0 Audit on 13/8/2015 23:02:30 00200018
2015-08-13T23:09:42+0000        ttyUSB0
2015-08-14T00:02:17+0000        ttyUSB0 Audit on 13/8/2015 23:55:05 00200069 0A400000B706296E
2015-08-14T00:02:17+0000        ttyUSB0
2015-08-14T00:02:39+0000        ttyUSB0 Audit on 13/8/2015 23:55:27 00200069 0A4000009D06296E
2015-08-14T00:02:39+0000        ttyUSB0
2015-08-14T00:03:03+0000        ttyUSB0 Audit on 13/8/2015 23:55:52 00200069 0A400000B686296E
2015-08-14T00:03:03+0000        ttyUSB0
2015-08-14T00:03:05+0000        ttyUSB0
2015-08-14T00:03:05+0000        ttyUSB0
2015-08-14T00:03:05+0000        ttyUSB0 TcpListener: Created IPv4 socket 11 on port 5000.
2015-08-14T00:03:05+0000        ttyUSB0
2015-08-14T00:03:05+0000        ttyUSB0
2015-08-14T00:03:05+0000        ttyUSB0
2015-08-14T00:03:05+0000        ttyUSB0 TcpListener: Created IPv6 socket 16 on port 5000.
2015-08-14T00:03:05+0000        ttyUSB0
2015-08-14T00:03:05+0000        ttyUSB0 Audit on 13/8/2015 23:55:53 00100002
2015-08-14T00:03:05+0000        ttyUSB0
2015-08-14T00:05:30+0000        ttyUSB0
2015-08-14T00:05:30+0000        ttyUSB0
2015-08-14T00:05:30+0000        ttyUSB0 TcpListener: Accepted connection on socket 17 from address 192.168.0.1.
2015-08-14T00:05:30+0000        ttyUSB0
2015-08-14T00:06:47+0000        ttyUSB0
2015-08-14T00:06:47+0000        ttyUSB0
2015-08-14T00:06:47+0000        ttyUSB0 CryptoTask: Closing connection on socket 17 from address 192.168.0.1.
2015-08-14T00:06:47+0000        ttyUSB0
2015-08-14T00:13:36+0000        ttyUSB0
2015-08-14T00:13:36+0000        ttyUSB0
2015-08-14T00:13:36+0000        ttyUSB0 H1403033 011397 BBL 010 : Factory Software Verification Key : CPLD version 1.9
2015-08-14T00:13:36+0000        ttyUSB0
2015-08-14T00:13:36+0000        ttyUSB0 BBL CRC32: 0x757574CA
2015-08-14T00:13:36+0000        ttyUSB0
2015-08-14T00:13:36+0000        ttyUSB0 Running applicationBootLoader at 0xEFDC0000
2015-08-14T00:13:36+0000        ttyUSB0
2015-08-14T00:13:36+0000        ttyUSB0
2015-08-14T00:13:36+0000        ttyUSB0
2015-08-14T00:13:36+0000        ttyUSB0 H1403033 011403 ABL 011 : Tamper Challenge Response Key
2015-08-14T00:13:36+0000        ttyUSB0
2015-08-14T00:13:36+0000        ttyUSB0 ABL CRC32: 0xE7E0FA6A
2015-08-14T00:13:36+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 ######################################
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 ###     ABL tamper records       ###
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 ######################################
```

```
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 Current Tamper Counts (decimal 0-255):
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 ========================================
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 vextoosTamperCount:     0
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 vintoosTamperCount:     41
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 vbboosTamperCount:      0
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 maxstrtempTamperCount:  0
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 minstrtempTamperCount:  0
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 meshTamperCount:        0
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 extampSMKTamperCount:   0
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 extampIMKTamperCount:   0
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 tempdiffTamperCount:    0
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 pfTamperCount:          41
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 restartTamperCount:     135
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 Current tamper bitmaps:
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 ======================
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 currentTamper bitmap:   0x0000 0b .... .... .... ....
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 lastTamper bitmap:      0x0080 0b .... .... 1... ....  |EXT_POWER_DOWN
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 Bitmapped Change Record (most recent first):
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0 ========================================
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:37+0000        ttyUSB0
2015-08-14T00:13:38+0000        ttyUSB0 Running cryptoApplication at 0xEBF00000
2015-08-14T00:13:38+0000        ttyUSB0
2015-08-14T00:13:38+0000        ttyUSB0 Jumping to startup @ 0x001037B4
2015-08-14T00:13:38+0000        ttyUSB0
2015-08-14T00:13:38+0000        ttyUSB0 Board is P2020RDB
2015-08-14T00:13:38+0000        ttyUSB0
2015-08-14T00:13:38+0000        ttyUSB0 board_smp_init: 2 cpu
2015-08-14T00:13:38+0000        ttyUSB0
2015-08-14T00:13:38+0000        ttyUSB0
2015-08-14T00:13:38+0000        ttyUSB0
```

```
2015-08-14T00:13:38+0000        ttyUSB0 Cpu_clk=1000000000, Sys_clk=100000000, CCB=500000000
2015-08-14T00:13:38+0000        ttyUSB0
2015-08-14T00:13:38+0000        ttyUSB0
2015-08-14T00:13:38+0000        ttyUSB0
2015-08-14T00:13:39+0000        ttyUSB0 System page at phys:0000b000 user:0000b000 kern:0000b000
2015-08-14T00:13:39+0000        ttyUSB0
2015-08-14T00:13:39+0000        ttyUSB0 Starting next program at v0015183c
2015-08-14T00:13:39+0000        ttyUSB0
2015-08-14T00:13:39+0000        ttyUSB0 Starting K-Series Kernel
2015-08-14T00:13:39+0000        ttyUSB0
2015-08-14T00:13:39+0000        ttyUSB0 Copyright AEP Networks Ltd. All Rights Reserved.
2015-08-14T00:13:39+0000        ttyUSB0
2015-08-14T00:13:39+0000        ttyUSB0 Fri Aug 14 00:06:27 2015
2015-08-14T00:13:39+0000        ttyUSB0
2015-08-14T00:13:39+0000        ttyUSB0 Starting auditd v2.0 ... started.
2015-08-14T00:13:39+0000        ttyUSB0
2015-08-14T00:13:39+0000        ttyUSB0 Interface 0 configured for IPv6.
2015-08-14T00:13:39+0000        ttyUSB0
2015-08-14T00:13:40+0000        ttyUSB0 Interface 0 configured for IPv4.
2015-08-14T00:13:40+0000        ttyUSB0
2015-08-14T00:13:40+0000        ttyUSB0 route: writing to routing socket: Network is unreachable
2015-08-14T00:13:40+0000        ttyUSB0
2015-08-14T00:13:40+0000        ttyUSB0 add net default: gateway ::: Network is unreachable
2015-08-14T00:13:40+0000        ttyUSB0
2015-08-14T00:13:40+0000        ttyUSB0 route: writing to routing socket: Network is unreachable
2015-08-14T00:13:40+0000        ttyUSB0
2015-08-14T00:13:40+0000        ttyUSB0 add net default: gateway 0.0.0.0: Network is unreachable
2015-08-14T00:13:40+0000        ttyUSB0
2015-08-14T00:13:40+0000        ttyUSB0 Starting USB driver...
2015-08-14T00:13:40+0000        ttyUSB0
2015-08-14T00:13:41+0000        ttyUSB0 9860 v2.3 Keyper Application - Nov  8 2013 13:17:33
2015-08-14T00:13:41+0000        ttyUSB0
2015-08-14T00:13:41+0000        ttyUSB0
2015-08-14T00:13:41+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0 Running DES POST Test
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0 DES POST Test Passed
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0 Running Triple DES POST Test
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0 Triple DES POST Test Passed
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0 Running AES POST Test
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0 AES POST Test Passed
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0 Running SHA1 POST Test
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0 SHA1 POST Test Passed
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0 Running SHA2 POST Test
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0 SHA2 POST Test Passed
```

```
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0 Running RandomGen POST Test
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0 RandomGen POST Test Passed
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0 Running RSA POST Test
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0 RSA POST Test Passed
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0 Running DSA POST Test
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0 DSA POST Test Passed
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0 Running ECC POST Test
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:42+0000        ttyUSB0 ECC POST Test Passed
2015-08-14T00:13:42+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0 Audit on 14/8/2015 00:06:30 00100008
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0 Keyper 9860-2  Serial Number H1403033
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0 Memory Usage:
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0 RAM (free/total)        197Mb/256Mb
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0 Flash (free/total)      127Mb/128Mb
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0    black store          400b
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0    statistics           112b
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0    other                116b
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0 RedStore (free/total)   109Kb/128Kb
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0 Network Configuration:
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0 IPv4: enabled
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0 IPv6: enabled
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0 MAC/IP address(es): 00:E0:06:C0:B2:40 / 192.168.0.2/24 , 2001::2e0:6ff:fec0:b240/64
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0 HSM Port: 05000
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0 HSM Gateway(s): 0.0.0.0 ::
2015-08-14T00:13:43+0000        ttyUSB0
```

```
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0 Software Versions:
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0 BBL 010 ABL 011 App 023
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0 CPLD Version:
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0 1.9
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0 SCR Firmware Version:
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0 OROS-R2.99-R1.20
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:43+0000        ttyUSB0
2015-08-14T00:13:44+0000        ttyUSB0
2015-08-14T00:13:44+0000        ttyUSB0
2015-08-14T00:13:44+0000        ttyUSB0 HmcListener: Created IPv4 socket 10 on port 3000.
2015-08-14T00:13:44+0000        ttyUSB0
2015-08-14T00:13:44+0000        ttyUSB0
2015-08-14T00:13:44+0000        ttyUSB0
2015-08-14T00:13:44+0000        ttyUSB0 HmcListener: Created IPv6 socket 11 on port 3000.
2015-08-14T00:13:44+0000        ttyUSB0
2015-08-14T00:13:44+0000        ttyUSB0 Audit on 14/8/2015 00:06:31 00100003
2015-08-14T00:13:44+0000        ttyUSB0
```

```
2015-08-13T22:16:39+0000        ttyUSB1 þþ
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 H1411006 011397 BBL 010 : Factory Software Verification Key : CPLD version 1.9
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 BBL CRC32: 0x757574CA
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 Running applicationBootLoader at 0xEFDC0000
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 H1411006 011403 ABL 011 : Tamper Challenge Response Key
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 ABL CRC32: 0xE7E0FA6A
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 ####################################
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 ###     ABL tamper records       ###
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 ####################################
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 Current Tamper Counts (decimal 0~255):
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 ====================================
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 vextoosTamperCount:     0
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 vintoosTamperCount:     7
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 vbboosTamperCount:      0
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 maxstrtempTamperCount:  0
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 minstrtempTamperCount:  0
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 meshTamperCount:        0
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 extampSMKTamperCount:   0
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 extampIMKTamperCount:   0
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 tempdiffTamperCount:    0
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 pfTamperCount:          7
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 restartTamperCount:     22
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 Current tamper bitmaps:
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 ======================
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 currentTamper bitmap:   0x0000 0b .... .... .... ....
```

```
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 lastTamper bitmap:      0x0080 0b .... .... 1... ....  |EXT_POWER_DOWN
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 Bitmapped Change Record (most recent first):
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1 ============================================
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:39+0000        ttyUSB1
2015-08-13T22:16:40+0000        ttyUSB1 Running cryptoApplication at 0xEBF00000
2015-08-13T22:16:40+0000        ttyUSB1
2015-08-13T22:16:40+0000        ttyUSB1 Jumping to startup @ 0x001037B4
2015-08-13T22:16:40+0000        ttyUSB1
2015-08-13T22:16:40+0000        ttyUSB1 Board is P2020RDB
2015-08-13T22:16:40+0000        ttyUSB1
2015-08-13T22:16:40+0000        ttyUSB1 board_smp_init: 2 cpu
2015-08-13T22:16:40+0000        ttyUSB1
2015-08-13T22:16:40+0000        ttyUSB1
2015-08-13T22:16:40+0000        ttyUSB1
2015-08-13T22:16:40+0000        ttyUSB1 Cpu_clk=1000000000, Sys_clk=100000000, CCB=500000000
2015-08-13T22:16:40+0000        ttyUSB1
2015-08-13T22:16:41+0000        ttyUSB1
2015-08-13T22:16:41+0000        ttyUSB1
2015-08-13T22:16:41+0000        ttyUSB1 System page at phys:0000b000 user:0000b000 kern:0000b000
2015-08-13T22:16:41+0000        ttyUSB1
2015-08-13T22:16:41+0000        ttyUSB1 Starting next program at v0015183c
2015-08-13T22:16:41+0000        ttyUSB1
2015-08-13T22:16:41+0000        ttyUSB1 Starting K-Series Kernel
2015-08-13T22:16:41+0000        ttyUSB1
2015-08-13T22:16:41+0000        ttyUSB1 Copyright AEP Networks Ltd. All Rights Reserved.
2015-08-13T22:16:41+0000        ttyUSB1
2015-08-13T22:16:41+0000        ttyUSB1 Thu Aug 13 22:09:19 2015
2015-08-13T22:16:41+0000        ttyUSB1
2015-08-13T22:16:42+0000        ttyUSB1 Starting auditd v2.0 ... started.
2015-08-13T22:16:42+0000        ttyUSB1
2015-08-13T22:16:42+0000        ttyUSB1 Interface 0 configured for IPv6.
2015-08-13T22:16:42+0000        ttyUSB1
2015-08-13T22:16:42+0000        ttyUSB1 Interface 0 configured for IPv4.
2015-08-13T22:16:42+0000        ttyUSB1
2015-08-13T22:16:43+0000        ttyUSB1 route: writing to routing socket: Network is unreachable
2015-08-13T22:16:43+0000        ttyUSB1
2015-08-13T22:16:43+0000        ttyUSB1 add net default: gateway ::: Network is unreachable
2015-08-13T22:16:43+0000        ttyUSB1
2015-08-13T22:16:43+0000        ttyUSB1 route: writing to routing socket: Network is unreachable
2015-08-13T22:16:43+0000        ttyUSB1
2015-08-13T22:16:43+0000        ttyUSB1 add net default: gateway 0.0.0.0: Network is unreachable
2015-08-13T22:16:43+0000        ttyUSB1
2015-08-13T22:16:43+0000        ttyUSB1 Starting USB driver...
2015-08-13T22:16:43+0000        ttyUSB1
2015-08-13T22:16:43+0000        ttyUSB1 9860 v2.3 Keyper Application - Nov  8 2013 13:17:33
2015-08-13T22:16:43+0000        ttyUSB1
2015-08-13T22:16:43+0000        ttyUSB1
2015-08-13T22:16:43+0000        ttyUSB1
```

```
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1 Running DES POST Test
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1 DES POST Test Passed
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1 Running Triple DES POST Test
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1 Triple DES POST Test Passed
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1 Running AES POST Test
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1 AES POST Test Passed
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1 Running SHA1 POST Test
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1 SHA1 POST Test Passed
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1 Running SHA2 POST Test
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1 SHA2 POST Test Passed
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1 Running RandomGen POST Test
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1 RandomGen POST Test Passed
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1 Running RSA POST Test
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1 RSA POST Test Passed
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1 Running DSA POST Test
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1 DSA POST Test Passed
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1 Running ECC POST Test
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1 ECC POST Test Passed
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1 Audit on 13/8/2015 22:09:22 00100008
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:45+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1 Keyper 9860-2  Serial Number H1411006
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1 Memory Usage:
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1 RAM (free/total)        197Mb/256Mb
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1 Flash (free/total)      127Mb/128Mb
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1    black store          44b
```

```
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1    statistics            112b
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1    other                 116b
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1 RedStore (free/total)   109Kb/128Kb
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1 Network Configuration:
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1 IPv4: enabled
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1 IPv6: enabled
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1 MAC/IP address(es): 00:E0:06:C0:B3:1B / 192.168.0.2/24 , 2001::2e0:6ff:fec0:b31b/64
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1 HSM Port: 05000
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1 HSM Gateway(s): 0.0.0.0 ::
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1 Software Versions:
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1 BBL 010 ABL 011 App 023
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1 CPLD Version:
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1 1.9
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1 SCR Firmware Version:
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1 OROS-R2.99-R1.20
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:16:46+0000        ttyUSB1 Audit on 13/8/2015 22:09:23 00100001
2015-08-13T22:16:46+0000        ttyUSB1
2015-08-13T22:18:14+0000        ttyUSB1 Audit on 13/8/2015 22:10:50 00200035 47800000872D2972
2015-08-13T22:18:14+0000        ttyUSB1
2015-08-13T22:18:30+0000        ttyUSB1 Audit on 13/8/2015 22:11:07 00200035 47800000876D2972
2015-08-13T22:18:30+0000        ttyUSB1
2015-08-13T22:18:30+0000        ttyUSB1 Audit on 13/8/2015 22:11:07 0020000e 47800000876D2972
2015-08-13T22:18:30+0000        ttyUSB1
2015-08-13T22:19:28+0000        ttyUSB1 Audit on 13/8/2015 22:12:05 00200023 0A400000BA86296E
2015-08-13T22:19:28+0000        ttyUSB1
2015-08-13T22:19:54+0000        ttyUSB1 Audit on 13/8/2015 22:12:31 00200023 0A400000BA06296E
2015-08-13T22:19:54+0000        ttyUSB1
2015-08-13T22:20:22+0000        ttyUSB1 Audit on 13/8/2015 22:12:56 00200023 0A400000DB06296E
2015-08-13T22:20:22+0000        ttyUSB1
```

```
2015-08-13T22:20:54-0000        ttyUSB1
2015-08-13T22:20:54+0000        ttyUSB1
2015-08-13T22:20:54+0000        ttyUSB1 HmcListener: Created IPv4 socket 7 on port 3000.
2015-08-13T22:20:54+0000        ttyUSB1
2015-08-13T22:20:54+0000        ttyUSB1
2015-08-13T22:20:54+0000        ttyUSB1
2015-08-13T22:20:54+0000        ttyUSB1 HmcListener: Created IPv6 socket 9 on port 3000.
2015-08-13T22:20:54+0000        ttyUSB1
2015-08-13T22:20:54+0000        ttyUSB1 Audit on 13/8/2015 22:13:31 00100003
2015-08-13T22:20:54+0000        ttyUSB1
2015-08-13T22:20:54+0000        ttyUSB1 Shutting down daemons...
2015-08-13T22:20:54+0000        ttyUSB1
2015-08-13T22:20:54+0000        ttyUSB1 AuditBuffer rx'd [-1] (3)
2015-08-13T22:20:54+0000        ttyUSB1
2015-08-13T22:20:54+0000        ttyUSB1 shutting down audit service.
2015-08-13T22:20:54+0000        ttyUSB1
2015-08-13T22:20:54+0000        ttyUSB1 Terminated
2015-08-13T22:20:54+0000        ttyUSB1
2015-08-13T22:20:54+0000        ttyUSB1 HmcListener::accept(): No such process
2015-08-13T22:20:54+0000        ttyUSB1
2015-08-13T22:20:54+0000        ttyUSB1 Shutting down filesystems...
2015-08-13T22:20:54+0000        ttyUSB1
2015-08-13T22:20:56+0000        ttyUSB1
2015-08-13T22:20:56+0000        ttyUSB1
2015-08-13T22:20:56+0000        ttyUSB1 H1411006 011397 BBL 010 : Factory Software Verification Key : CPLD version 1.9
2015-08-13T22:20:56+0000        ttyUSB1
2015-08-13T22:20:56+0000        ttyUSB1 BBL CRC32: 0x757574CA
2015-08-13T22:20:56+0000        ttyUSB1
2015-08-13T22:20:56+0000        ttyUSB1 Running applicationBootLoader at 0xEFDC0000
2015-08-13T22:20:56+0000        ttyUSB1
2015-08-13T22:20:56+0000        ttyUSB1
2015-08-13T22:20:56+0000        ttyUSB1
2015-08-13T22:20:56+0000        ttyUSB1 H1411006 011403 ABL 011 : Tamper Challenge Response Key
2015-08-13T22:20:56+0000        ttyUSB1
2015-08-13T22:20:56+0000        ttyUSB1 ABL CRC32: 0xE7E0FA6A
2015-08-13T22:20:56+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 ####################################
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 ###     ABL tamper records       ###
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 ####################################
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 Current Tamper Counts (decimal 0-255):
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 ====================================
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 vextoosTamperCount:     0
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 vintoosTamperCount:     7
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 vbboosTamperCount:      0
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 maxstrtempTamperCount:  0
```

```
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 minstrtempTamperCount:  0
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 meshTamperCount:        0
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 extampSMKTamperCount:   0
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 extampIMKTamperCount:   0
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 tempdiffTamperCount:    0
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 pfTamperCount:          7
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 restartTamperCount:     22
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 Current tamper bitmaps:
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 ========================
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 currentTamper bitmap:   0x0000 0b .... .... .... ....
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 lastTamper bitmap:      0x0080 0b .... .... 1... ....  |EXT_POWER_DOWN
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 Bitmapped Change Record (most recent first):
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1 ========================================
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:57+0000        ttyUSB1
2015-08-13T22:20:58+0000        ttyUSB1 Running cryptoApplication at 0xEBF00000
2015-08-13T22:20:58+0000        ttyUSB1
2015-08-13T22:20:58+0000        ttyUSB1 Jumping to startup @ 0x001037B4
2015-08-13T22:20:58+0000        ttyUSB1
2015-08-13T22:20:58+0000        ttyUSB1 Board is P2020RDB
2015-08-13T22:20:58+0000        ttyUSB1
2015-08-13T22:20:58+0000        ttyUSB1 board_smp_init: 2 cpu
2015-08-13T22:20:58+0000        ttyUSB1
2015-08-13T22:20:58+0000        ttyUSB1
2015-08-13T22:20:58+0000        ttyUSB1
2015-08-13T22:20:58+0000        ttyUSB1 Cpu_clk=1000000000, Sys_clk=100000000, CCB=500000000
2015-08-13T22:20:58+0000        ttyUSB1
2015-08-13T22:20:58+0000        ttyUSB1
2015-08-13T22:20:58+0000        ttyUSB1
2015-08-13T22:20:58+0000        ttyUSB1 System page at phys:0000b000 user:0000b000 kern:0000b000
2015-08-13T22:20:58+0000        ttyUSB1
2015-08-13T22:20:58+0000        ttyUSB1 Starting next program at v0015183c
2015-08-13T22:20:58+0000        ttyUSB1
2015-08-13T22:20:58+0000        ttyUSB1 Starting K-Series Kernel
2015-08-13T22:20:58+0000        ttyUSB1
2015-08-13T22:20:58+0000        ttyUSB1 Copyright AEP Networks Ltd. All Rights Reserved.
2015-08-13T22:20:58+0000        ttyUSB1
```

```
2015-08-13T22:20:59+0000        ttyUSB1 Thu Aug 13 22:13:36 2015
2015-08-13T22:20:59+0000        ttyUSB1
2015-08-13T22:20:59+0000        ttyUSB1 Starting auditd v2.0 ... started.
2015-08-13T22:20:59+0000        ttyUSB1
2015-08-13T22:20:59+0000        ttyUSB1 Interface 0 configured for IPv6.
2015-08-13T22:20:59+0000        ttyUSB1
2015-08-13T22:21:00+0000        ttyUSB1 Interface 0 configured for IPv4.
2015-08-13T22:21:00+0000        ttyUSB1
2015-08-13T22:21:00+0000        ttyUSB1 route: writing to routing socket: Network is unreachable
2015-08-13T22:21:00+0000        ttyUSB1
2015-08-13T22:21:00+0000        ttyUSB1 add net default: gateway ::: Network is unreachable
2015-08-13T22:21:00+0000        ttyUSB1
2015-08-13T22:21:00+0000        ttyUSB1 route: writing to routing socket: Network is unreachable
2015-08-13T22:21:00+0000        ttyUSB1
2015-08-13T22:21:00+0000        ttyUSB1 add net default: gateway 0.0.0.0: Network is unreachable
2015-08-13T22:21:00+0000        ttyUSB1
2015-08-13T22:21:00+0000        ttyUSB1 Starting USB driver...
2015-08-13T22:21:00+0000        ttyUSB1
2015-08-13T22:21:01+0000        ttyUSB1 9860 v2.3 Keyper Application - Nov  8 2013 13:17:33
2015-08-13T22:21:01+0000        ttyUSB1
2015-08-13T22:21:01+0000        ttyUSB1
2015-08-13T22:21:01+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1 Running DES POST Test
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1 DES POST Test Passed
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1 Running Triple DES POST Test
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1 Triple DES POST Test Passed
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1 Running AES POST Test
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1 AES POST Test Passed
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1 Running SHA1 POST Test
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1 SHA1 POST Test Passed
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1 Running SHA2 POST Test
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1 SHA2 POST Test Passed
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1 Running RandomGen POST Test
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1 RandomGen POST Test Passed
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1 Running RSA POST Test
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1 RSA POST Test Passed
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1 Running DSA POST Test
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1 DSA POST Test Passed
```

```
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1 Running ECC POST Test
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1 ECC POST Test Passed
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:02+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1 Keyper 9860-2  Serial Number H1411006
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1 Memory Usage:
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1 RAM (free/total)        197Mb/256Mb
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1 Flash (free/total)      127Mb/128Mb
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1    black store          192b
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1    statistics           112b
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1    other                116b
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1 RedStore (free/total)   109Kb/128Kb
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1 Network Configuration:
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1 IPv4: enabled
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1 IPv6: enabled
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1 MAC/IP address(es): 00:E0:06:C0:B3:1B / 192.168.0.2/24 , 2001::2e0:6ff:fec0:b31b/64
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1 HSM Port: 05000
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1 HSM Gateway(s): 0.0.0.0 ::
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1 Software Versions:
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1 BBL 010 ABL 011 App 023
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1 CPLD Version:
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1 1.9
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1
```

```
2015-08-13T22:21:03+0000        ttyUSB1 SCR Firmware Version:
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1 OROS-R2.99-R1.20
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1 HmcListener: Created IPv4 socket 7 on port 3000.
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1 HmcListener: Created IPv6 socket 8 on port 3000.
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:21:03+0000        ttyUSB1 Audit on 13/8/2015 22:13:40 00100003
2015-08-13T22:21:03+0000        ttyUSB1
2015-08-13T22:22:37+0000        ttyUSB1 Audit on 13/8/2015 22:15:14 00200023 0A400000B786296E
2015-08-13T22:22:37+0000        ttyUSB1
2015-08-13T22:23:04+0000        ttyUSB1 Audit on 13/8/2015 22:15:40 00200023 0A400000B946296E
2015-08-13T22:23:04+0000        ttyUSB1
2015-08-13T22:23:29+0000        ttyUSB1 Audit on 13/8/2015 22:16:05 00200023 0A400000B906296E
2015-08-13T22:23:29+0000        ttyUSB1
2015-08-13T22:24:39+0000        ttyUSB1 Audit on 13/8/2015 22:17:16 0020002c 47800000872D2972
2015-08-13T22:24:39+0000        ttyUSB1
2015-08-13T22:25:15+0000        ttyUSB1 Audit on 13/8/2015 22:17:51 0020002c 47800000876D2972
2015-08-13T22:25:15+0000        ttyUSB1
2015-08-13T22:29:54+0000        ttyUSB1 Audit on 13/8/2015 22:22:31 00200023 0A400000BA06296E
2015-08-13T22:29:54+0000        ttyUSB1
2015-08-13T22:30:26+0000        ttyUSB1 Audit on 13/8/2015 22:23:02 00200023 0A400000B6C6296E
2015-08-13T22:30:26+0000        ttyUSB1
2015-08-13T22:30:58+0000        ttyUSB1 Audit on 13/8/2015 22:23:34 00200023 0A400000DB46296E
2015-08-13T22:30:58+0000        ttyUSB1
2015-08-13T22:31:50+0000        ttyUSB1 Audit on 13/8/2015 22:24:27 0020002c 4780000079ED2972
2015-08-13T22:31:50+0000        ttyUSB1
2015-08-13T22:32:41+0000        ttyUSB1 Audit on 13/8/2015 22:25:18 0020002c 478000007A2D2972
2015-08-13T22:32:41+0000        ttyUSB1
2015-08-13T22:33:25+0000        ttyUSB1 Audit on 13/8/2015 22:26:02 0020002c 478000007A6D2972
2015-08-13T22:33:25+0000        ttyUSB1
2015-08-13T22:33:49+0000        ttyUSB1 Audit on 13/8/2015 22:26:26 00200077 478000007A6D2972
2015-08-13T22:33:49+0000        ttyUSB1
2015-08-13T22:34:56+0000        ttyUSB1 Audit on 13/8/2015 22:27:33 0020006b 4780000079ED2972
2015-08-13T22:34:56+0000        ttyUSB1
2015-08-13T22:35:24+0000        ttyUSB1 Audit on 13/8/2015 22:27:58 0020006b 478000007A2D2972
2015-08-13T22:35:24+0000        ttyUSB1
2015-08-13T22:35:50+0000        ttyUSB1 Audit on 13/8/2015 22:28:27 00200039
2015-08-13T22:35:50+0000        ttyUSB1
2015-08-13T22:36:01+0000        ttyUSB1 Audit on 13/8/2015 22:28:38 0020003b
2015-08-13T22:36:01+0000        ttyUSB1
2015-08-13T22:36:14+0000        ttyUSB1 Audit on 13/8/2015 22:28:51 00200041
2015-08-13T22:36:14+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 HSM Status
```

```
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 ==================
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 Keyper 9860-2
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 Serial Number H1411006
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 Date(dd/mm/yyyy) 13/8/2015  Time 22:30:47
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 Software Versions:
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 BBL 010 ABL 011 App 023
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 CPLD Version:
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 1.9
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 SCR Firmware Version:
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 OROS-R2.99-R1.20
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 Memory Usage:
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 RAM (free/total)        197Mb/256Mb
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 Flash (free/total)      127Mb/128Mb
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1    black store          328b
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1    statistics           112b
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1    other                116b
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 RedStore (free/total)   109Kb/128Kb
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 Network Configuration:
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 IPv4: enabled
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 IPv6: enabled
2015-08-13T22:38:10+0000        ttyUSB1
```

```
2015-08-13T22:38:10+0000  ttyUSB1 MAC/IP address(es): 00:E0:06:C0:B3:1B / 192.168.0.2/24 , 2001::2e0:6ff:fec0:b31b/64
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1 HSM Port: 05000
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1 HSM Gateway(s): 0.0.0.0 ::
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1 tsec0: flags=8a43<UP,BROADCAST,RUNNING,ALLMULTI,SIMPLEX,MULTICAST> mtu 1500
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1         capabilities rx=7<IP4CSUM,TCP4CSUM,UDP4CSUM>
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1         capabilities tx=0
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1         enabled=0
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1         address: 00:e0:06:c0:b3:1b
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1         media: Ethernet none
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1         inet 192.168.0.2 netmask 0xffffff00 broadcast 192.168.0.255
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1         inet6 2001::2e0:6ff:fec0:b31b prefixlen 64
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1         inet6 fe80::2e0:6ff:fec0:b31bH\037\220@ec0 prefixlen 64 scopeid 0x2
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1 Current HSM State: Secured Off-line
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1 Modes: (1=Enabled 0=Disabled)
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1 Global Key Export    1  App Key Import       0  App Key Export       0  Asymmetric Key Gen   1
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1 Symmetric Key Gen    1  Symmetric Key Derive 0  Signing              1  Signature Verify     1
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1 MAC Generation       1  MAC Verification     1  Encrypt / Decrypt    1  Delete Asym Key      1
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1 Delete Sym Key       1  Output Key Details   1  Output Key Summary   1  Suite B Algorithms   1
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1 Non Suite B Algs     1  Auto Online          0
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1 Other Modes:
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1 AES SMK                 FIPS Mode
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1 Battery ok
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1
2015-08-13T22:38:10+0000  ttyUSB1 ######################################
```

```
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 ###     ABL tamper records       ###
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 ########################################
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 Current Tamper Counts (decimal 0-255):
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 ======================================
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 vextoosTamperCount:     0
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 vintoosTamperCount:     0
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 vbboosTamperCount:      0
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 maxstrtempTamperCount:  0
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 minstrtempTamperCount:  0
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 meshTamperCount:        0
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:10+0000        ttyUSB1 extampSMKTamperCount:   0
2015-08-13T22:38:10+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1 extampIMKTamperCount:   0
2015-08-13T22:38:11+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1 tempdiffTamperCount:    0
2015-08-13T22:38:11+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1 pfTamperCount:          0
2015-08-13T22:38:11+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1 restartTamperCount:     0
2015-08-13T22:38:11+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1 Current tamper bitmaps:
2015-08-13T22:38:11+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1 ======================
2015-08-13T22:38:11+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1 currentTamper bitmap:   0x0000 0b .... .... .... ....
2015-08-13T22:38:11+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1 lastTamper bitmap:      0x0000 0b .... .... .... ....
2015-08-13T22:38:11+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1 Bitmapped Change Record (most recent first):
2015-08-13T22:38:11+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1 ==========================================
2015-08-13T22:38:11+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1 DRBG Instantiate Health Test On Demand Passed
2015-08-13T22:38:11+0000        ttyUSB1
2015-08-13T22:38:11+0000        ttyUSB1 DRBG Generate Health Test On Demand Passed
2015-08-13T22:38:11+0000        ttyUSB1
```

```
2015-08-13T22:38:11+0000 ttyUSB1 DRBG Reseed Health Test On Demand Passed
2015-08-13T22:38:11+0000 ttyUSB1
2015-08-13T22:42:57+0000 ttyUSB1 Audit on 13/8/2015 22:35:33 0020006b 47800000?A6D2972
2015-08-13T22:42:57+0000 ttyUSB1
2015-08-13T22:47:48+0000 ttyUSB1 Audit on 13/8/2015 22:40:25 0020006b 4780000079ED2972
2015-08-13T22:47:48+0000 ttyUSB1
2015-08-13T22:48:40+0000 ttyUSB1 Audit on 13/8/2015 22:41:17 00200025 4780000087AD2972
2015-08-13T22:48:40+0000 ttyUSB1
2015-08-13T22:48:57+0000 ttyUSB1 Audit on 13/8/2015 22:41:34 00200025 4780000086ED2972
2015-08-13T22:48:57+0000 ttyUSB1
2015-08-13T22:48:58+0000 ttyUSB1 Audit on 13/8/2015 22:41:35 00200005
2015-08-13T22:48:58+0000 ttyUSB1
2015-08-13T23:10:58+0000 ttyUSB1 Audit on 13/8/2015 23:03:35 0020006b 478000007A6D2972
2015-08-13T23:10:58+0000 ttyUSB1
2015-08-13T23:11:28+0000 ttyUSB1 Audit on 13/8/2015 23:04:05 0020006b 4780000079ED2972
2015-08-13T23:11:28+0000 ttyUSB1
2015-08-13T23:12:10+0000 ttyUSB1 Audit on 13/8/2015 23:04:47 00200016 Kjqmt7v
2015-08-13T23:12:10+0000 ttyUSB1
2015-08-13T23:12:11+0000 ttyUSB1 Audit on 13/8/2015 23:04:47 00200015 0880004AB373296D
2015-08-13T23:12:11+0000 ttyUSB1
2015-08-13T23:12:11+0000 ttyUSB1 Audit on 13/8/2015 23:04:48 00200018
2015-08-13T23:16:33+0000 ttyUSB1
2015-08-13T23:16:33+0000 ttyUSB1 Audit on 13/8/2015 23:09:09 00200023 0A400000B906296E
2015-08-13T23:17:02+0000 ttyUSB1
2015-08-13T23:17:02+0000 ttyUSB1 Audit on 13/8/2015 23:09:38 00200023 0A400000B806296E
2015-08-13T23:17:30+0000 ttyUSB1
2015-08-13T23:17:30+0000 ttyUSB1 Audit on 13/8/2015 23:10:07 00200023 0A400000B946296E
2015-08-13T23:18:40+0000 ttyUSB1
2015-08-13T23:18:40+0000 ttyUSB1 Audit on 13/8/2015 23:11:14 00200070 4780000079ED2972
2015-08-13T23:19:16+0000 ttyUSB1
2015-08-13T23:19:16+0000 ttyUSB1 Audit on 13/8/2015 23:11:53 00200070 478000007A2D2972
2015-08-13T23:19:52+0000 ttyUSB1
2015-08-13T23:19:52+0000 ttyUSB1 Audit on 13/8/2015 23:12:28 00200070 478000007A6D2972
2015-08-14T00:18:55+0000 ttyUSB1
2015-08-14T00:18:55+0000 ttyUSB1 Audit on 14/8/2015 00:11:31 00200069 0A4000009D86296E
2015-08-14T00:19:18+0000 ttyUSB1
2015-08-14T00:19:18+0000 ttyUSB1 Audit on 14/8/2015 00:11:55 00200069 0A400000B7C6296E
2015-08-14T00:19:42+0000 ttyUSB1
2015-08-14T00:19:42+0000 ttyUSB1 Audit on 14/8/2015 00:12:19 00200069 0A400000B706296E
2015-08-14T00:19:44+0000 ttyUSB1
2015-08-14T00:19:44+0000 ttyUSB1
2015-08-14T00:19:44+0000 ttyUSB1 TcpListener: Created IPv4 socket 11 on port 5000.
2015-08-14T00:19:44+0000 ttyUSB1
2015-08-14T00:19:44+0000 ttyUSB1
2015-08-14T00:19:44+0000 ttyUSB1
2015-08-14T00:19:44+0000 ttyUSB1 TcpListener: Created IPv6 socket 17 on port 5000.
2015-08-14T00:19:44+0000 ttyUSB1
2015-08-14T00:19:44+0000 ttyUSB1 Audit on 14/8/2015 00:12:21 00100002
2015-08-14T00:19:44+0000 ttyUSB1
2015-08-14T00:21:30+0000 ttyUSB1
2015-08-14T00:21:30+0000 ttyUSB1
2015-08-14T00:21:30+0000 ttyUSB1 TcpListener: Accepted connection on socket 18 from address 192.168.0.1.
2015-08-14T00:21:30+0000 ttyUSB1
2015-08-14T00:22:36+0000 ttyUSB1
```

```
2015-08-14T00:22:36+0000 ttyUSB1
2015-08-14T00:22:36+0000 ttyUSB1 CryptoTask: Closing connection on socket 18 from address 192.168.0.1.
2015-08-14T00:22:36+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 H1411006 011397 BBL 010 : Factory Software Verification Key : CPLD version 1.9
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 BBL CRC32: 0x757574CA
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 Running applicationBootLoader at 0xEFDC0000
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 H1411006 011403 ABL 011 : Tamper Challenge Response Key
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 ABL CRC32: 0xE7E0FA6A
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 ####################################
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 ###     ABL tamper records        ###
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 ####################################
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 Current Tamper Counts (decimal 0-255):
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 ====================================
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 vextoosTamperCount:     0
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 vintoosTamperCount:     7
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 vbboosTamperCount:      0
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 maxstrtempTamperCount:  0
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 minstrtempTamperCount:  0
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 meshTamperCount:        0
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 extampSMKTamperCount:   0
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 extampIMKTamperCount:   0
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 tempdiffTamperCount:    0
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 pfTamperCount:          7
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 restartTamperCount:     24
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 Current tamper bitmaps:
2015-08-14T00:28:27+0000 ttyUSB1
```

```
2015-08-14T00:28:27+0000 ttyUSB1 ======================
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 currentTamper bitmap:   0x0000 0b .... .... .... ....
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 lastTamper bitmap:      0x0080 0b .... .... 1... ....  !EXT_POWER_DOWN
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 Bitmapped Change Record (most recent first):
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1 ==========================================
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:27+0000 ttyUSB1
2015-08-14T00:28:28+0000 ttyUSB1 Running cryptoApplication at 0xEBF00000
2015-08-14T00:28:28+0000 ttyUSB1
2015-08-14T00:28:28+0000 ttyUSB1 Jumping to startup @ 0x001037B4
2015-08-14T00:28:28+0000 ttyUSB1
2015-08-14T00:28:28+0000 ttyUSB1 Board is P2020RDB
2015-08-14T00:28:28+0000 ttyUSB1
2015-08-14T00:28:28+0000 ttyUSB1 board_smp_init: 2 cpu
2015-08-14T00:28:28+0000 ttyUSB1
2015-08-14T00:28:28+0000 ttyUSB1
2015-08-14T00:28:28+0000 ttyUSB1
2015-08-14T00:28:28+0000 ttyUSB1 Cpu_clk=1000000000, Sys_clk=100000000, CCB=500000000
2015-08-14T00:28:28+0000 ttyUSB1
2015-08-14T00:28:29+0000 ttyUSB1
2015-08-14T00:28:29+0000 ttyUSB1
2015-08-14T00:28:29+0000 ttyUSB1 System page at phys:0000b000 user:0000b000 kern:0000b000
2015-08-14T00:28:29+0000 ttyUSB1
2015-08-14T00:28:29+0000 ttyUSB1 Starting next program at v0015183c
2015-08-14T00:28:29+0000 ttyUSB1
2015-08-14T00:28:29+0000 ttyUSB1 Starting K-Series Kernel
2015-08-14T00:28:29+0000 ttyUSB1
2015-08-14T00:28:29+0000 ttyUSB1 Copyright AEP Networks Ltd. All Rights Reserved.
2015-08-14T00:28:29+0000 ttyUSB1
2015-08-14T00:28:29+0000 ttyUSB1 Fri Aug 14 00:21:06 2015
2015-08-14T00:28:29+0000 ttyUSB1
2015-08-14T00:28:30+0000 ttyUSB1 Starting auditd v2.0 ... started.
2015-08-14T00:28:30+0000 ttyUSB1
2015-08-14T00:28:30+0000 ttyUSB1 Interface 0 configured for IPv6.
2015-08-14T00:28:30+0000 ttyUSB1
2015-08-14T00:28:30+0000 ttyUSB1 Interface 0 configured for IPv4.
2015-08-14T00:28:30+0000 ttyUSB1
2015-08-14T00:28:31+0000 ttyUSB1 route: writing to routing socket: Network is unreachable
2015-08-14T00:28:31+0000 ttyUSB1
2015-08-14T00:28:31+0000 ttyUSB1 add net default: gateway ::: Network is unreachable
2015-08-14T00:28:31+0000 ttyUSB1
2015-08-14T00:28:31+0000 ttyUSB1 route: writing to routing socket: Network is unreachable
2015-08-14T00:28:31+0000 ttyUSB1
2015-08-14T00:28:31+0000 ttyUSB1 add net default: gateway 0.0.0.0: Network is unreachable
2015-08-14T00:28:31+0000 ttyUSB1
2015-08-14T00:28:31+0000 ttyUSB1 Starting USB driver...
2015-08-14T00:28:31+0000 ttyUSB1
2015-08-14T00:28:31+0000 ttyUSB1 9860 v2.3 Keyper Application - Nov  8 2013 13:17:33
```

```
2015-08-14T00:28:31+0000        ttyUSB1
2015-08-14T00:28:31+0000        ttyUSB1
2015-08-14T00:28:31+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1 Running DES POST Test
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1 DES POST Test Passed
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1 Running Triple DES POST Test
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1 Triple DES POST Test Passed
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1 Running AES POST Test
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1 AES POST Test Passed
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1 Running SHA1 POST Test
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1 SHA1 POST Test Passed
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1 Running SHA2 POST Test
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1 SHA2 POST Test Passed
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1 Running RandomGen POST Test
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1 RandomGen POST Test Passed
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1 Running RSA POST Test
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1 RSA POST Test Passed
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1 Running DSA POST Test
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1 DSA POST Test Passed
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1 Running ECC POST Test
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1 ECC POST Test Passed
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1 Audit on 14/8/2015 00:21:09 00100008
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:33+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1 Keyper 9860-2  Serial Number H1411006
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1 Memory Usage:
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1 RAM (free/total)        197Mb/256Mb
2015-08-14T00:28:34+0000        ttyUSB1
```

```
2015-08-14T00:28:34+0000        ttyUSB1 Flash (free/total)      127Mb/128Mb
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1    black store          400b
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1    statistics           112b
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1    other                116b
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1 RedStore (free/total)   109Kb/128Kb
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1 Network Configuration:
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1 IPv4: enabled
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1 IPv6: enabled
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1 MAC/IP address(es): 00:E0:06:C0:B3:1B / 192.168.0.2/24 , 2001::2e0:6ff:fec0:b31b/64
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1 HSM Port: 05000
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1 HSM Gateway(s): 0.0.0.0 ::
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1 Software Versions:
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1 BBL 010 ABL 011 App 023
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1 CPLD Version:
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1 1.9
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1 SCR Firmware Version:
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1 OROS-R2.99-R1.20
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1 HmcListener: Created IPv4 socket 10 on port 3000.
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1 HmcListener: Created IPv6 socket 11 on port 3000.
2015-08-14T00:28:34+0000        ttyUSB1
2015-08-14T00:28:34+0000        ttyUSB1 Audit on 14/8/2015 00:21:10 00100003
2015-08-14T00:28:34+0000        ttyUSB1
```

Returning HSMFD and O/S DVD to a TEB

Step	Activity	Initials	Time

18.	CA unmounts HSMFD by executing
	`cd /tmp`
	then
	`umount /media/HSMFD`
	CA removes HSMFD.
		GL	00:49

19.	After all print jobs are complete, CA a) Turns off the laptop by pressing the power switch b) Turns on the laptop by pressing the power switch c) Remove the O/S DVD from the drive d) Turns off the laptop again by pressing the power switch	GL	00:50
20.	CA places **TWO** HSMFDs and OS/DVD, paper with printed hash in prepared TEB; and seals; reads out TEB #; shows item to participants and IW1 confirms TEB # below. **O/S DVD (Rev600) + HSMFD: TEB# BB46584331**	GL	00:52
21.	CA and IW1 initials the TEB and keeps the sealing strips for later inventory. CA then places the TEB on equipment cart.	GL	00:53

Distribute HSMFDs

Step	Activity	Initials	Time
22.	Remaining HSMFDs are distributed to IW1 (2 for audit bundles, 2 for IKOS) to post SKR to RZM, and to review, analyze and improve on procedures.	GL	00:53

Returning Laptop to a TEB

Step	Activity	Initials	Time
23.	CA disconnects printer, display, power, and any other connections from laptop and puts laptop in prepared TEB and seals; reads out TEB #, serial # laptop # and shows item to participants and IW1 confirms TEB #, serial # laptop # below. **Laptop1 (Dell ATG6400): TEB# BB24646663 / serial # 37240147333**	GL	00:55
24.	CA and IW1 initials the TEB and keeps the sealing strips for later inventory. CA then places the TEB on equipment cart.	GL	00:56

Returning OP and SO Cards to TEBs

Step	Activity	Initials	Time
25.	CA calls each COs to the front of the room one at a time and repeats the steps below. a) CA takes the two TEBs prepared for the CO and reads out the number and description while showing the bag to IW1 and CO. Figure 2 below for an example. b) CO places the OP card into the plastic case. c) CO places the SO cards into the plastic case. d) CA places each plastic case into the proper TEBs, seals in front of IW1 and CO then the CA initials TEB and strip. e) IW1 inspects each TEB, confirms description in table below and initials TEB and strip. IW1 keeps sealing strips for later inventory. f) CA hands each TEB containing the OP and the SO cards to the CO. CO inspects and verifies TEB #s and contents then initials his/her TEB. g) CO enters completion time and signs for each TEB in the table below in IW1's script. IW1 initials table entry. h) CO returns to his/her seat with the TEBs, being careful not to poke or puncture TEBs. **CO 1: Arbogast Fabian** **OP TEB # BB46584261** **SO TEB # BB46584262** **CO 2: Dmitry Burkov** **OP TEB # BB46584255** **SO TEB # BB46584256** **CO 4: Carlos Martinez** **OP TEB # BB46584253** **SO TEB # BB46584254** **CO 5: Olafur Gudmundsson** **OP TEB # BB46584251** **SO TEB # BB46584252** **CO 7: Subramanian Moonesamy** **OP TEB # BB46584257** **SO TEB # BB46584258**		

CO #	Card Type	TEB #	Printed Name	Signature	Date	Time	IW1 Initials
CO 1	OP 1 of 7	BB46584261	Arbogast Fabian		13 August 2015	1:05	GL
CO 1	SO 1 of 7	BB46584262	Arbogast Fabian		13 August 2015	1:05	GL
CO 2	OP 2 of 7	BB46584255	Dmitry Burkov		13 August 2015	1:08	GL
CO 2	SO 2 of 7	BB46584256	Dmitry Burkov		13 August 2015	1:08	GL
CO 4	OP 4 of 7	BB46584253	Carlos Martinez		13 August 2015	1:12	GL
CO 4	SO 4 of 7	BB46584254	Carlos Martinez		13 August 2015	1:12	GL
CO 5	OP 5 of 7	BB46584251	Olafur Gudmundsson		13 August 2015	1:15	GL
CO 5	SO 5 of 7	BB46584252	Olafur Gudmundsson		13 August 2015	1:15	GL
CO 7	OP 7 of 7	BB46584257	Subramanian Moonesamy		13 August 2015	1:18	GL
CO 7	SO 7 of 7	BB46584258	Subramanian Moonesamy		13 August 2015	1:18	GL


FROM:
Root DNSSEC KSK Ceremony 22
DEPOSIT SAID TO CONTAIN:
TOTAL DEPOSIT: $ OP 7 of 7
SIGNATURE:
DATE: 13 August 2015
TO: Subramanian Moonesamy
BB46584257
BB46584257
AMPAC
KEEPSAFE

Figure 2

Returning Equipment to Safe #1

Step	Activity	Initials	Time
26.	CA, IW1, SSC1 open safe room and enter with equipment cart.	AL	1:20
27.	SSC1 opens Safe #1 shielding combination from camera.	AL	1:21
28.	SSC1 removes the safe log and fills the next entry with printed name, date, time, and signature indicating the opening of the safe. IW1 initials the entry. **Note: If log entry is pre-printed, verify the entry, record time of completion and sign.**	AL	1:21
29.	CA records return of **HSM2, HSM3 and HSM4** in next entry field of safe log with TEB # and HSM serial #, printed name, date, time, and signature. CA **CAREFULLY** places the HSMs into Safe #1 and IW1 initials the entry. **HSM2: TEB# BB24646669** **HSM3: TEB# BB24646665** **HSM4: TEB# BB24646664**	AL	1:23
30.	CA records return of **laptop** in next entry field of safe log with TEB #, serial #, laptop #, printed name, date, time, and signature; places the laptop into Safe #1 and IW1 initials the entry. **Laptop1 (Dell ATG6400): TEB# BB24646663**	AL	1:24
31.	CA records return of **O/S DVD + HSMFD** in next entry field of safe log with TEB #, printed name, date, time, and signature; places the **O/S DVD + HSMFD** into Safe #1 and IW1 initials the entry. **O/S DVD (Rev600) + HSMFD: TEB# BB46584331**	AL	1:24
32.	CA records return of **APP. Key** in next entry field of safe log with TEB #, printed name, date, time, and signature; places the **APP. Key** into Safe #1 and IW1 initials the entry. **APP. Key: TEB # BB46584332**	AL	1:25

Close Equipment Safe #1

Step	Activity	Initials	Time
33.	SSC1 makes an entry including printed name, date, time, signature and notes "closing safe" in the safe log. IW1 initials the entry. **Note: If log entry is pre-printed, verify the entry, record time of completion and sign.**	AL	1:25
34.	SSC1 places log back in safe and locks Safe #1 (spin dial at least two full revolutions each way, counter clock wise then clock wise). IW1 and CA verify safe is locked and door indicator light is green.	AL	1:25
35.	IW1, CA, and SSC1 return to ceremony room with equipment cart closing the door behind them.	AL	1:26

Open Credential Safe #2

Step	Activity	Initials	Time
36.	After a one (1) minute delay, CA, IW1, SSC2, and COs enter the safe room. CA brings a flashlight and the CO brings their OP and SO TEB with them.	[illegible]	1:28
37.	SSC2 opens Safe #2 while shielding combination from camera.	[illegible]	1:30
38.	SSC2 removes the safe log and fills in the next entry with printed name, date, time, and signature indicating the opening of the safe. IW1 initials the entry. **Note: If log entry is pre-printed, verify the entry, record time of completion and sign.**	[illegible]	1:30

CO Returns Credentials to Safe #2

Step	Activity	Initials	Time
39.	One by one, each COs along with the CA (using his/her common key): a) Open his/her respective safe deposit box and read out box number inside Safe #2. **# Common Key is bottom lock and CO Key is top lock** b) CO makes an entry into the safe log indicating the return of OP card 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. c) Note: If log entry is pre-printed, verify the entry, record time of completion and sign. d) CO shows each 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. Repeat the steps above until all cards are returned to the deposit box. **CO 1: Arbogast Fabian** **Box #: 1791** **OP TEB # BB46584261** **SO TEB # BB46584262** **CO 2: Dmitry Burkov** **Box #: 1793** **OP TEB # BB46584255** **SO TEB # BB46584256** **CO 4: Carlos Martinez** **Box #: 1068** **OP TEB # BB46584253** **SO TEB # BB46584254** **CO 5: Olafur Gudmundsson** **Box #: 1789** **OP TEB # BB46584251** **SO TEB # BB46584252** **CO 7: Subramanian Moonesamy** **Box #: 1792** **OP TEB # BB46584257** **SO TEB # BB46584258**	GL	1:39

Close Credential Safe #2

Step	Activity	Initials	Time
40.	Once all safe deposit boxes are closed, SSC2 makes an entry including printed name, date, time, and signature and notes "Close safe" into the safe log. IW1 initials the entry. **Note: If log entry is pre-printed, verify the entry, record time of completion and sign.**	GL	1:39
41.	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). IW1 and CA verify safe is locked and door indicator light is green.	GL	1:40
42.	CA, IW1, SSC2, and COs leave safe room closing the door behind them making sure it is locked.	GL	1:40

Participant Signing of IW1's Script

Step	Activity	Initials	Time
43.	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.**	GL	1:49
44.	CA reviews IW1's script and signs it.	CL	1:51

Signing Out of Ceremony Room

Step	Activity	Initials	Time
45.	IKOS 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.	CL	2:02

Filming Stops

Step	Activity	Initials	Time
46.	SA stops filming and makes 2 copies of film, one for on-site and one for off-site storage along with IW1 script copies made below.	GL	2:03

Copying and Storing the Script

Step	Activity	Initials	Time
47.	IW1 makes at least 4 copies of his/her script: one for off-site audit bundle, one for IW1, one for IKOS and copies for other participants, as requested. Audit bundles each contain: a) Output of signer system – HSMFD b) Copy of the KSR_COPY FD used for HSM3 and HSM4 c) Copy of IW1's key ceremony script d) Audio-visual recording e) Logs from the Physical Access Control and Intrusion Detection System (Range is **01/22/2015 – 08/13/2015**) f) The IW attestation (A.1 below) g) SA attestation (A.2, A.3 below) All in a TEB labeled **"Root DNSSEC KSK Ceremony 22"**, dated and signed by **IW1 and CA**. Off-site audit bundle is delivered to off-site storage. **The CA holds the ultimate responsibility for finalizing the audit bundle.**	GC	3:04

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

Audit Bundle Checklist:

1. Output of Signer System (CA)
One electronic copy (physical flash drive) of the HSMFD in each audit bundle, each placed within a tamper-evident bag, labeled, dated and signed by the CA and the IW1

2. Key Ceremony Scripts (IW1)
Hard copies of the IW1's key ceremony scripts, including the IW's notes and the IW's attestation. See Appendix A.1.

3. Audio-visual recordings from the key ceremony (SA)
One set for the original audit bundle and the other for duplicate.

4. Logs from the Physical Access Control and Intrusion Detection System (SA)
One electronic copy (physical flash drive) of the firewall configuration, the screenshots from the PAC-IDS configuration review, the list of the enrolled users, the event log file and the configuration audit log file in each audit bundle, each placed in a tamper-evident bag, labeled, dated and signed by the SA and the IW.

IW confirms the contents of the logs before placing the logs in the audit bundle.

5. Configuration review of the Physical Access Control and Intrusion Detection System (SA)
SA's attestation and hard copies of the screen shots and configuration audit log from the review process. See Appendix A.2.

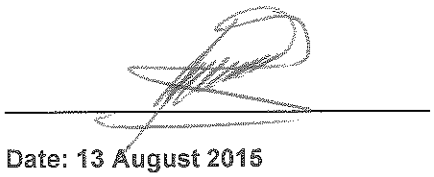
6. Configuration review of the Firewall System (SA)
SA's attestation and hard copies of the firewall configuration from the review process. See Appendix A.3. Make sure the scrambled passwords are eliminated from the configuration before publishing it.

7. Other items
If applicable.

A.1 Key Ceremony Script (by IW)

I hereby attest that the Key Ceremony was conducted in accordance with this script and any exceptions that may have occurred were accurately and properly documented.

Gustavo Lozano



Date: 13 August 2015

A.2 Access Control System Configuration Review (by SA)

I have reviewed the access control system configuration, the configuration audit log and the assigned authorizations from the other KMF and not found any discrepancies or anything else out of the ordinary.

Enclosed are the configuration audit log, the list of assigned authorizations and the screenshots of the roles configurations.

Enclosed is also an electronic copy of the event log from the access control system ranging from the last log extraction on **22 January 2015 00:00 UTC** to now.

Connor Barthold

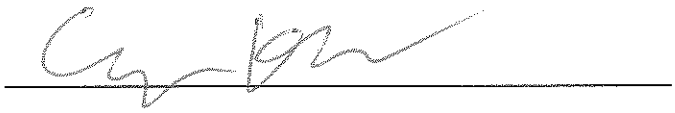
Date: 13 August 2015

A.3 Firewall Configuration Review (by SA)

I have reviewed the firewall configuration from the other KMF and not found any discrepancies or anything else out of the ordinary.

Enclosed is the configuration extract from the firewall unit.

Connor Barthold



Date: 13 August 2015

```
# run show configuration | no-more
## Last commit: 2014-12-12 18:55:44 UTC by cbarthold
version 12.1X44-D35.5;
system {
    host-name srx;
    domain-name ksk.lax.dns.icann.org;
    location {
        country-code US;
        postal-code 90245;
        building Equinix-LA3;
        floor 1;
        rack 1;
    }
    ports {
        console {
            log-out-on-disconnect;
            type vt100;
        }
    }
    root-authentication {
        encrypted-password “XXXXXXXXXXXXXXXX; ## SECRET-DATA
    }
    name-server {
        8.8.8.8;
        8.8.4.4;
    }
    login {
        user cbarthold {
            full-name "Connor A. Barthold";
            uid 2004;
            class super-user;
            authentication {
                encrypted-password "XXXXXXXXXXXXXXXX"; ## SECRET-DATA
            }
        }
        user jjenkins {
            full-name "Josh Jenkins";
            uid 2007;
            class super-user;
            authentication {
                encrypted-password "XXXXXXXXXXXXXXXX"; ## SECRET-DATA
            }
        }
        user reed {
            full-name "Reed Quinn";
            uid 2003;
            class super-user;
            authentication {
                encrypted-password "XXXXXXXXXXXXXXXX"; ## SECRET-DATA
            }
```

```
        }
    }
    services;
    syslog {
        archive size 100k files 3;
        user * {
            any emergency;
        }
        file messages {
            any critical;
            authorization info;
        }
        file interactive-commands {
            interactive-commands error;
        }
    }
    max-configurations-on-flash 5;
    max-configuration-rollbacks 20;
    license {
        autoupdate {
            url https://ae1.juniper.net/junos/key_retrieval;
        }
    }
    ntp {
        server 129.6.15.28;
        server 129.6.15.29;
    }
}
interfaces {
    interface-range interfaces-trust {
        member ge-0/0/1;
        member fe-0/0/2;
        member fe-0/0/3;
        member fe-0/0/4;
        member fe-0/0/5;
        member fe-0/0/6;
        member fe-0/0/7;
        unit 0 {
            family ethernet-switching {
                vlan {
                    members vlan-trust;
                }
            }
        }
    }
    ge-0/0/0 {
        unit 0 {
            family inet {
                address 10.100.1.1/24;
            }
```

```
        }
    }
    ge-1/0/0 {
        unit 0 {
            family inet {
                address 192.0.35.202/26;
            }
        }
    }
    vlan {
        unit 0 {
            family inet {
                address 10.4.28.1/24;
            }
        }
    }
}
routing-options {
    static {
        route 0.0.0.0/0 next-hop 192.0.35.201;
    }
}
security {
    nat {
        source {
            rule-set trust-to-untrust {
                from zone trust;
                to zone untrust;
                rule source-nat-rule {
                    match {
                        source-address 0.0.0.0/0;
                    }
                    then {
                        source-nat {
                            interface;
                        }
                    }
                }
            }
            rule-set wifi-to-untrust {
                from zone wifi;
                to zone untrust;
                rule source-nat-rule2 {
                    match {
                        source-address 0.0.0.0/0;
                    }
                    then {
                        source-nat {
                            interface;
                        }
```

```
                    }
                }
            }
        }
    }
    policies {
        from-zone trust to-zone untrust {
            policy trust-to-untrust {
                match {
                    source-address localnet;
                    destination-address [ icann simplex1 simplex2
googledns1 googledns2 ];
                    application any;
                }
                then {
                    permit;
                    log {
                        session-close;
                    }
                }
            }
        }
        from-zone wifi to-zone untrust {
            policy internet {
                match {
                    source-address any;
                    destination-address any;
                    application any;
                }
                then {
                    permit;
                }
            }
        }
    }
    zones {
        security-zone trust {
            address-book {
                address localnet 10.4.28.0/24;
            }
            host-inbound-traffic {
                system-services {
                    all;
                }
                protocols {
                    all;
                }
            }
            interfaces {
                vlan.0;
```

```
            }
        }
        security-zone untrust {
            address-book {
                address icann 192.0.32.0/20;
                address simplex1 216.224.218.31/32;
                address simplex2 216.224.219.32/32;
                address googledns1 8.8.8.8/32;
                address googledns2 8.8.4.4/32;
            }
            interfaces {
                ge-1/0/0.0 {
                    host-inbound-traffic {
                        system-services {
                            ping;
                        }
                    }
                }
            }
        }
        security-zone wifi {
            interfaces {
                ge-0/0/0.0;
            }
        }
    }
}
vlans {
    vlan-trust {
        vlan-id 3;
        l3-interface vlan.0;
    }
}
```