

Install and Upgrade Firepower Threat Defense on ASA 55xx-X Appliances

Contents

[Introduction](#)

[Prerequisites](#)

[Requirements](#)

[Components Used](#)

[Background Information](#)

[Configure](#)

[Network Diagram](#)

[FTD Software Download](#)

[Task 2. Upgrade the ASA5508-X ROMMON](#)

[Task 3. Install the FTD Boot Image on ASA55xx-X](#)

[Task 4. Install the FTD System Image on ASA55xx-X](#)

[Task 5. Register the FTD to FMC](#)

[Task 6. Upgrade the FTD](#)

[Task 7. Connect and Detach From LINA Engine CLI Mode](#)

[Task 8. Reimage an Existing FTD Installation](#)

[Related Information](#)

Introduction

This document describes the Firepower Threat Defense (FTD) installation, upgrade and registration procedures on ASA55xx-X appliances.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

The information in this document is based on these software and hardware versions:

- ASA5508-X
- ASA5512-X
- FireSIGHT Management Center (FMC) running 6.0.1 (build 1213)

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Background Information

FTD is a unified software image that can be installed on these platforms:

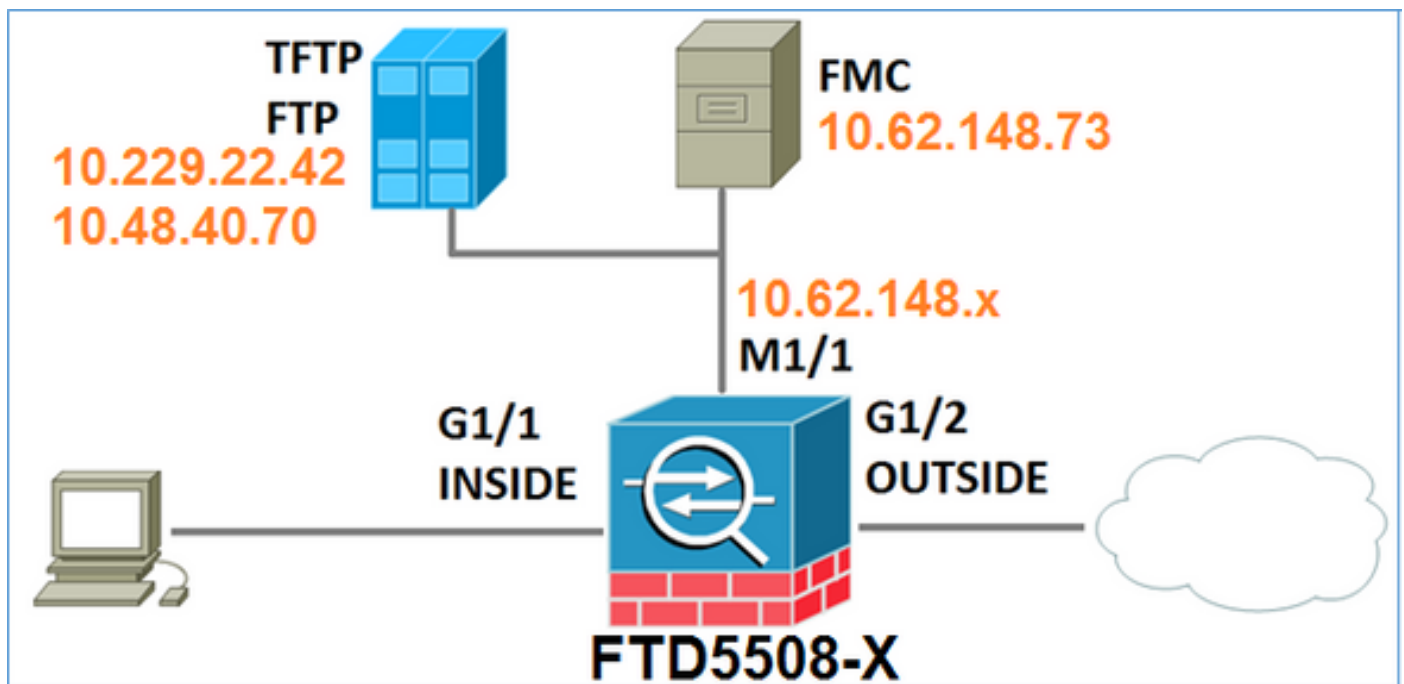
- ASA5506-X, ASA5506W-X, ASA5506H-X, ASA5508-X, ASA5516-X
- ASA5512-X, ASA5515-X, ASA5525-X, ASA5545-X, ASA5555-X
- FPR4100, FPR9300
- VMware (ESXi)
- Amazon Web Services (AWS)
- KVM
- ISR Router Module

The goal of this document is to demonstrate:

- The installation of FTD version 6.0.0 on ASA5508-X and ASA5512-X platform
- The upgrade procedure of FTD from version 6.0.0 to 6.0.1
- Firepower Management Center (FMC) registration and basic licensing

Configure

Network Diagram



FTD Software Download

Navigate to **Next-Generation Firewalls (NGFW) > ASA with FirePOWER Services > ASA 5508-X with FirePOWER Services** and select **Firepower Threat Defense Software**:

Download Software Download Cart (0 items) | Feedback Help

[Downloads Home](#) > [Products](#) > [Security](#) > [Firewalls](#) > [Next-Generation Firewalls \(NGFW\)](#) > [ASA with FirePOWER Services](#) > [ASA 5508-X with FirePOWER Services](#)

Select a Software Type:

- ASA Rommon Software
- Adaptive Security Appliance (ASA) Device Manager
- Adaptive Security Appliance (ASA) Software
- Adaptive Security Appliance REST API Plugin
- FirePOWER Services Software for ASA
- Firepower Threat Defense Software

Similarly for the ASA5512-X software.

Task 1. Verify the Prerequisites

Verify the prerequisites before the FTD installation.

Solution:

For FTD installation you use two images:

1. OS image (AKA boot image) - For Firepower Threat Defense on ASA5506-X, ASA5506H-X, ASA5506W-X, ASA5508-X, ASA5516-X is an *.lfbff file. For Firepower Threat Defense on Saleen (ASA5512-X, ASA5515-X, ASA5525-X, ASA5545-X, ASA5555-X) is a *.cdisk file.
2. System image – This is a .pkg file.

Before you proceed with the FTD installation, verify this:

- ASA flash must have at least 3.1 GBytes (3GBytes + size of boot image) free space
- The boot image is uploaded to a TFTP server
- The system image is uploaded to an HTTP or FTP server
- OnASA5506/08/16 the ROMMON is at least 1.1.8 version

Verify the free space:

```
FTD5508X# show flash | i free
7859437568 bytes total (4273819648 bytes free)
```

Verify these images:

File name	Description
ftd-boot-9.6.1.0.lfbff	v6.0.1 Firepower Threat Defense boot image for 5506/5508/5516. This is the boot image for the clean installation on 5506/5508/5516
ftd-boot-9.6.1.0.cdisk	v6.0.1 Firepower Threat Defense boot image for ASA 5512/5515/5525/5545/5555. This is the boot image for the clean installation on 5512/5515/5525/5545/5555
ftd-6.0.0-1005.pkg	v6.0.0 Firepower Threat Defense for all supported ASA's: 5506/5508/5512/5515/5516/5525/5545/5555. This is the system image for the clean installation

Task 2. Upgrade the ASA5508-X ROMMON

As it is mentioned in the prerequisites, ASA5506-X, ASA5508-X and ASA5516-X devices must be on ROMMON v1.1.8. If not then install asa5500-firmware-1108.SPA (available in the Cisco ASA download page).

Task Requirement:

Upgrade ASA5508 ROMMON from 1.1.1 to 1.1.8.

Solution:

The procedure is described in the [ASA ROMMON upgrade Guide](#).

Step 1. Verify the existing ROMMON version:

```
FTD5508X# show module
Mod  Card Type                               Model                               Serial No.
-----
  1  ASA 5508-X with FirePOWER services, 8GE, AC, ASA5508           JAD192100SZ
sfr  FirePOWER Services Software Module   ASA5508                             JAD192100SZ

Mod  MAC Address Range                       Hw Version  Fw Version  Sw Version
-----
  1  188b.9d1e.ca7c to 188b.9d1e.ca84  1.0         1.1.1       9.5(2)
sfr  188b.9d1e.ca7b to 188b.9d1e.ca7b  N/A         N/A         5.4.1-211
```

Step 2. Download the ROMMON firmware into ASA's flash:

```
FTD5508X# copy ftp://10.48.40.70/ANG/mzafeiro/asa5500-firmware-1108.SPA disk0:asa5500-firmware-1108.SPA
Address or name of remote host [10.48.40.70]?

Source filename [ANG/mzafeiro/asa5500-firmware-1108.SPA]?

Destination filename [asa5500-firmware-1108.SPA]?

Accessing ftp://10.48.40.70/ANG/mzafeiro/asa5500-firmware-1108.SPA...!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Done!
Computed Hash   SHA2: d824bdeecee1308fc64427367fa559e9
              eefe8f182491652ee4c05e6e751f7a4f
              5cdea28540cf60acde3ab9b65ff55a9f
              4e0cfb84b9e2317a856580576612f4af

Embedded Hash   SHA2: d824bdeecee1308fc64427367fa559e9
              eefe8f182491652ee4c05e6e751f7a4f
              5cdea28540cf60acde3ab9b65ff55a9f
              4e0cfb84b9e2317a856580576612f4af

Digital signature successfully validated
Writing file disk0:/asa5500-firmware-1108.SPA...
!!!!!!!!!!!!
9241408 bytes copied in 18.890 secs (513411 bytes/sec)
```

Step 3. Upgrade the ASA ROMMON image:

```
FTD5508X# upgrade rommon disk0:asa5500-firmware-1108.SPA  
Verifying file integrity of disk0:/asa5500-firmware-1108.SPA
```

```
Computed Hash   SHA2: d824bdeecce1308fc64427367fa559e9  
                eefe8f182491652ee4c05e6e751f7a4f  
                5cdea28540cf60acde3ab9b65ff55a9f  
                4e0cfb84b9e2317a856580576612f4af
```

```
Embedded Hash   SHA2: d824bdeecce1308fc64427367fa559e9  
                eefe8f182491652ee4c05e6e751f7a4f  
                5cdea28540cf60acde3ab9b65ff55a9f  
                4e0cfb84b9e2317a856580576612f4af
```

Digital signature successfully validated

```
File Name           : disk0:/asa5500-firmware-1108.SPA  
Image type          : Release  
  Signer Information  
    Common Name      : abraxas  
    Organization Unit : NCS_Kenton_ASA  
    Organization Name : CiscoSystems  
Certificate Serial Number : 55831CF6  
Hash Algorithm       : SHA2 512  
Signature Algorithm   : 2048-bit RSA  
Key Version          : A
```

Verification successful.

```
System config has been modified. Save? [Y]es/[N]o: Y  
Cryptochecksum: cb47de8a cad3b773 7fc07212 3e76ef4f
```

2804 bytes copied in 0.260 secs

Proceed with reload? [confirm]

```
***  
*** --- START GRACEFUL SHUTDOWN ---  
***  
*** Message to all terminals:  
***  
*** Performing upgrade on rom-monitor.  
Shutting down License Controller  
Shutting down File system  
  
***  
*** --- SHUTDOWN NOW ---  
***  
*** Message to all terminals:  
***  
*** Performing reload upgrade on rom-monitor.  
Process shutdown finished  
Rebooting.....  
INIT: Sending processes the TERM signal  
Deconfiguring network interfaces... done.  
Sending all processes the TERM signal...  
Sending all processes the KILL signal...  
Deactivating swap...  
Unmounting local filesystems...  
Rebooting...  
Rom image verified correctly
```

Cisco Systems ROMMON, Version 1.1.01, RELEASE SOFTWARE
Copyright (c) 1994-2014 by Cisco Systems, Inc.
Compiled Mon 10/20/2014 15:59:12.05 by builder

Current image running: Boot ROM0
Last reset cause: PowerCycleRequest
DIMM Slot 0 : Present
DIMM Slot 1 : Present
INFO: Rommon upgrade state: ROMMON_UPG_START (1)
INFO: Reset code: 0x00002000

Firmware upgrade step 1...
Looking for file 'disk0:asa5500-firmware-1108.SPA'
Located 'asa5500-firmware-1108.SPA' @ cluster 856765.

Image base 0x77014018, size 9241408
LFBFF signature verified.
Objtype: lfbff_object_rommon (0x800000 bytes @ 0x77014238)
Objtype: lfbff_object_fpga (0xd0100 bytes @ 0x77814258)
INFO: FPGA version in upgrade image: 0x0202
INFO: FPGA version currently active: 0x0202
INFO: The FPGA image is up-to-date.
INFO: Rommon version currently active: 1.1.01.
INFO: Rommon version in upgrade image: 1.1.08.
Active ROMMON: Preferred 0, selected 0, booted 0
Switching SPI access to standby rommon 1.
Please DO NOT reboot the unit, updating ROMMON..... INFO: Duplicating machine state..... Reloading now as step 1 of the rommon upgrade process... Toggling power on system board... Rom image verified correctly

Cisco Systems ROMMON, Version 1.1.01, RELEASE SOFTWARE
Copyright (c) 1994-2014 by Cisco Systems, Inc.
Compiled Mon 10/20/2014 15:59:12.05 by builder

Current image running: Boot ROM0
Last reset cause: RP-Reset
DIMM Slot 0 : Present
DIMM Slot 1 : Present
INFO: Rommon upgrade state: ROMMON_UPG_START (1)
INFO: Reset code: 0x00000008
Active ROMMON: Preferred 0, selected 0, booted 0

Firmware upgrade step 2...
Detected current rommon upgrade is available, continue rommon upgrade process
Rommon upgrade reset 0 in progress
Reloading now as step 2 of the rommon upgrade process...

Rom image verified correctly

Cisco Systems ROMMON, Version 1.1.8, RELEASE SOFTWARE
Copyright (c) 1994-2015 by Cisco Systems, Inc.
Compiled Thu 06/18/2015 12:15:56.43 by builders

Current image running: *Upgrade in progress* Boot ROM1
Last reset cause: BootRomUpgrade
DIMM Slot 0 : Present
DIMM Slot 1 : Present
INFO: Rommon upgrade state: ROMMON_UPG_START (1)
INFO: Reset code: 0x00000010

PROM B: stopping boot timer
Active ROMMON: Preferred 0, selected 0, booted 1
INFO: Rommon upgrade state: ROMMON_UPG_TEST

!!
!! Please manually or auto boot ASAOS now to complete firmware upgrade !!
!!

Platform ASA5508 with 8192 Mbytes of main memory
MAC Address: 18:8b:9d:1e:ca:7c

Use BREAK or ESC to interrupt boot.
Use SPACE to begin boot immediately.

Located '.boot_string' @ cluster 859024.

Attempt autoboot: "boot disk0:/asa952-lfbff-k8.SPA"
Located 'asa952-lfbff-k8.SPA' @ cluster 818273.

#####

LFBFF signature verified.
INIT: version 2.88 booting
Starting udev
Configuring network interfaces... done.
Populating dev cache
dosfsck 2.11, 12 Mar 2005, FAT32, LFN
There are differences between boot sector and its backup.
Differences: (offset:original/backup)
65:01/00
Not automatically fixing this.
Starting check/repair pass.
/csc0_config
"." is missing. Can't fix this yet.
/csc0_config
".." is missing. Can't fix this yet.
Starting verification pass.
/csc0_config
"." is missing. Can't fix this yet.
/csc0_config
".." is missing. Can't fix this yet.
/dev/sdb1: 182 files, 849380/1918808 clusters
dosfsck(/dev/sdb1) returned 0
IO Memory Nodes: 1
IO Memory Per Node: 499122176 bytes

Global Reserve Memory Per Node: 314572800 bytes Nodes=1

Processor memory 3807834603
LCMB: got 499122176 bytes on numa-id=0, phys=0x1b8000000, virt=0x2aaaaae00000
LCMB: HEAP-CACHE POOL got 314572800 bytes on numa-id=0, virt=0x2aaac8a00000

Compiled on Sat 28-Nov-15 00:16 PST by builders

```
Total NICs found: 13
i354 rev03 Gigabit Ethernet @ irq255 dev 20 index 08 MAC: 188b.9d1e.ca7c
ivshmem rev03 Backplane Data Interface @ index 09 MAC: 0000.0001.0002
en_vtun rev00 Backplane Control Interface @ index 10 MAC: 0000.0001.0001
en_vtun rev00 Backplane Int-Mgmt Interface @ index 11 MAC: 0000.0001.0003
en_vtun rev00 Backplane Ext-Mgmt Interface @ index 12 MAC: 0000.0000.0000
Rom-monitor was successfully upgraded.
...
```

Verify:

You can use the **show module** command to verify the ROMMON software version:

```
FTD5508X> enable
Password:
FTD5508X# show module
```

Mod	Card Type	Model	Serial No.
1	ASA 5508-X with FirePOWER services, 8GE, AC,	ASA5508	JAD192100SZ
sfr	FirePOWER Services Software Module	ASA5508	JAD192100SZ

Mod	MAC Address Range	Hw Version	Fw Version	Sw Version
1	188b.9d1e.ca7c to 188b.9d1e.ca84	1.0	1.1.8	9.5(2)
sfr	188b.9d1e.ca7b to 188b.9d1e.ca7b	N/A	N/A	5.4.1-211

Task 3. Install the FTD Boot Image on ASA55xx-X

Task requirement:

Install the FTD boot image ftd-boot-9.6.1.0.lfbff on ASA5508-X.

Solution:

There are more than one methods to do this. Here is the first one:

Method 1. From ROMMON

Step 1. Reload the ASA and enter ROMMON mode:

```
FTD5508X# reload
Proceed with reload? [confirm]
FTD5508X#
```

```
***
*** --- START GRACEFUL SHUTDOWN ---
Shutting down isakmp
Shutting down webvpn
Shutting down sw-module
Shutting down License Controller
Shutting down File system
```

```
***
*** --- SHUTDOWN NOW ---
```



```
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! .. output omitted ..
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
```

```
File reception completed.
Boot buffer bigbuf=348bd018
Boot image size = 100308208 (0x5fa94f0) bytes
[image size]      100308208
[MD5 signaure]   781dde41844d750f8c0db1cd1e1e164f
LFBFF signature verified.
INIT: version 2.88 booting
Starting udev
Configuring network interfaces... done.
Populating dev cache
Detected PID ASA5508.
Found device serial number JAD192100SZ.
Found USB flash drive /dev/sdb
Found hard drive(s): /dev/sda
fsck from util-linux 2.23.2
dosfsck 2.11, 12 Mar 2005, FAT32, LFN
/dev/sdb1: 47 files, 24618/1919063 clusters =====
Launching boot CLI ... Configuring network interface using static IP Bringing up network
interface. Depending on your network, this might take a couple of minutes when using DHCP...
ifup: interface lo already configured Using IPv4 address: 10.62.148.62
Using IPv6 address: fe80::1a8b:9dff:fe1e:ca7b
Using DNS server: 10.62.145.72
Using default gateway: 10.62.148.100
INIT: Starting system message bus: dbus.
Starting OpenBSD Secure Shell server: sshd
    generating ssh RSA key...
    generating ssh ECDSA key...
    generating ssh DSA key...
done.
Starting Advanced Configuration and Power Interface daemon: acpid.
acpid: starting up

acpid: 1 rule loaded

acpid: waiting for events: event logging is off

Starting ntpd: done
Starting syslog-ng:..
Starting crond: OK
```

```
                Cisco FTD Boot 6.0.0 (9.6.1.)
                Type ? for list of commands
```

firepower-boot>
On ASA5512/15/25/45/55 the procedure is the same with only difference the boot image name:

```
rommon #0> ADDRESS=10.62.148.10
rommon #1> SERVER=10.229.22.42
rommon #2> GATEWAY=10.62.148.1
rommon #3> IMAGE=ftd-boot-9.6.1.0.cdisk
```

Method 2. From ASA mode

Step 1. From ASA exec mode (no ROMMON) copy the FTD boot image into ASA flash:

```
ciscoasa# copy ftp://10.48.40.70/ANG/mzafeiro/ftd-boot-9.6.1.0.lfbff flash
```

Step 2. Delete any ASA images from the disk:

```
ciscoasa# delete flash:asa*
```

The flash contents after you delete ASA images:

```
ciscoasa# show flash
```

```
--#-- --length-- -----date/time----- path
 131 33          May 20 2016 09:27:28  .boot_string
   11 4096        Mar 03 2016 11:48:34  log
 154 16767       May 20 2016 09:23:48  log/asa-appagent.log
 155 465         Mar 03 2016 11:54:58  log/asa-ssp_ntp.log
   21 4096         Jun 10 2015 06:45:42  crypto_archive
   22 4096         Jun 10 2015 06:46:00  coredumpinfo
   23 59          Jun 10 2015 06:46:00  coredumpinfo/coredump.cfg
 134 25627616    Dec 01 2015 04:01:58  asdm-752.bin
 135 52563       Feb 09 2016 02:49:58  system.cfg
 136 25028660    Feb 09 2016 02:50:28  asdm-751-112.bin
 137 38409858    Feb 09 2016 02:51:14  anyconnect-win-3.1.10010-k9.pkg
 138 25629676    Feb 09 2016 04:38:10  asdm-752-153.bin
 151 100308208   May 20 2016 09:39:57  ftd-boot-9.6.1.0.lfbff  <--
```

Step 3.Reload the ASA. It boots from the FTD boot image:

```
Located 'ftd-boot-9.6.1.0.lfbff' @ cluster 45093.
```

```
#####
```

```
..
```

```
LFBFF signature verified.
```

```
INIT: version 2.88 booting
```

```
..
```

```
      Cisco FTD Boot 6.0.0 (9.6.1.)
```

```
      Type ? for list of commands
```

```
firepower-boot>
```

Task 4. Install the FTD System Image on ASA55xx-X

Install FTD system image on ASA5508-X.

Solution

```
firepower-boot> setup
```

```
      Welcome to Cisco FTD Setup
```

```
      [hit Ctrl-C to abort]
```

```
      Default values are inside []
```

```
Enter a hostname [firepower]: FTD5508
```

```
Do you want to configure IPv4 address on management interface?(y/n) [Y]:
```

```
Do you want to enable DHCP for IPv4 address assignment on management interface?(y/n) [Y]: N
```

```
Enter an IPv4 address: 10.62.148.29
```

```
Enter the netmask: 255.255.255.128
```

```
Enter the gateway: 10.62.148.1
```

```
Do you want to enable DHCP for IPv4 address assignment on management interface?(y/n) [N]: Enter an IPv4 address [10.62.148.29]: Enter the netmask [255.255.255.128]: Enter the gateway
```

```
[10.62.148.1]: Do you want to configure static IPv6 address on management interface?(y/n) [N]:
```

Stateless autoconfiguration will be enabled for IPv6 addresses. Enter the primary DNS server IP address: **173.38.200.100**

Do you want to configure Secondary DNS Server? (y/n) [n]: **y**

Enter the secondary DNS server IP address: **144.254.71.184**

Do you want to configure Local Domain Name? (y/n) [n]:

Do you want to configure Search domains? (y/n) [n]:

Do you want to enable the NTP service? [Y]:

Enter the NTP servers separated by commas [203.0.113.126]: **171.68.38.65**

Please review the final configuration:

Hostname: FTD5508

Management Interface Configuration

IPv4 Configuration: static
IP Address: 10.62.148.29
Netmask: 255.255.255.128
Gateway: 10.62.148.1

IPv6 Configuration: Stateless autoconfiguration

DNS Configuration:
DNS Server:
173.38.200.100
144.254.71.184

NTP configuration:
171.68.38.65

CAUTION:

You have selected IPv6 stateless autoconfiguration, which assigns a global address based on network prefix and a device identifier. Although this address is unlikely to change, if it does change, the system will stop functioning correctly.

We suggest you use static addressing instead.

Apply the changes?(y,n) [Y]:

Configuration saved successfully!

Applying...

Done.

Press ENTER to continue...

firepower-boot>

Verify connectivity with the FTP server:

```
firepower-boot> ping 10.229.22.42
PING 10.229.22.42 (10.229.22.42) 56(84) bytes of data.
64 bytes from 10.229.22.42: icmp_seq=1 ttl=124 time=1.30 ms
64 bytes from 10.229.22.42: icmp_seq=2 ttl=124 time=1.32 ms
64 bytes from 10.229.22.42: icmp_seq=3 ttl=124 time=1.45 ms
^C
--- 10.229.22.42 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2002ms
rtt min/avg/max/mdev = 1.302/1.360/1.458/0.075 ms
```

Install the system package:

```
firepower-boot> system install ftp://10.229.22.42/ftd-6.0.0-1005.pkg
```

```
##### WARNING #####
# The content of disk0: will be erased during installation! #
#####
```

Do you want to continue? [y/N] **y**

Erasing disk0 ...

Verifying

Enter credentials to authenticate with ftp server

Username: **ftp**

Password:

Verifying

Downloading

Extracting <-- Here give it some time (~10 min)

Package Detail

Description: Cisco ASA-NGFW 6.0.0-1005 System Install

Requires reboot: Yes

Do you want to continue with upgrade? [y]: <-- Press Enter

Warning: Please do not interrupt the process or turn off the system.

Doing so might leave system in unusable state.

Starting upgrade process ...

Populating new system image <-- Here give it some time (~5 min)

Reboot is required to complete the upgrade. Press 'Enter' to reboot the system. <-- Press Enter

Broadcast message from root@firepow: Stopping OpenBSD Secure Shell server: sshd stopped
/usr/sbin/sshd (pid 1963)

.
Stopping Advanced Configuration and Power Interface daemon: stopped /usr/sbin/acpid (pid 1967)
acpid: exiting

acpid.

Stopping system message bus: dbus.

Stopping ntpd: stopped process in pidfile '/var/run/ntp.pid' (pid 2055)

done

Stopping crond: OK

Deconfiguring network interfaces... done.

Sending all processes the TERM signal...

Sending all processes the KILL signal...

Deactivating swap...

Unmounting local filesystems...

Rebooting... ÿ

Rom image verified correctly

Cisco Systems ROMMON, Version 1.1.8, RELEASE SOFTWARE

Copyright (c) 1994-2015 by Cisco Systems, Inc.

Compiled Thu 06/18/2015 12:15:56.43 by builders

Current image running: Boot ROM1

Last reset cause: PowerCycleRequest

DIMM Slot 0 : Present

DIMM Slot 1 : Present

Platform ASA5508 with 8192 Mbytes of main memory

MAC Address: 18:8b:9d:1e:ca:7c

Use BREAK or ESC to interrupt boot.

Use SPACE to begin boot immediately.

Located '.boot_string' @ cluster 186016.

#

Attempt autoboot: "boot disk0:os.img"

Located 'os.img' @ cluster 160001.

```
#####  
LFBFF signature verified.  
INIT: version 2.88 booting  
Starting udev  
Configuring network interfaces... done.  
Populating dev cache  
Detected PID ASA5508.  
Found device serial number JAD192100SZ.  
Found USB flash drive /dev/sdb  
Found hard drive(s): /dev/sda  
fsck from util-linux 2.23.2  
dosfsck 2.11, 12 Mar 2005, FAT32, LFN  
/dev/sdb1: 7 files, 26064/1919063 clusters
```

```
=====  
Use ESC to interrupt boot and launch boot CLI.  
Use SPACE to launch Cisco FTD immediately.  
Cisco FTD launch in 20 seconds ...  
Running on kenton  
Mounting disk partitions ...  
Initializing Threat Defense ... [ OK ]  
Starting system log daemon... [ OK ]  
Flushing all current IPv4 rules and user defined chains: ...success  
Clearing all current IPv4 rules and user defined chains: ...success  
Applying iptables firewall rules:  
Flushing chain `PREROUTING'  
Flushing chain `INPUT'  
Flushing chain `FORWARD'  
Flushing chain `OUTPUT'  
Flushing chain `POSTROUTING'  
Flushing chain `INPUT'  
Flushing chain `FORWARD'  
Flushing chain `OUTPUT'  
Applying rules succeeded  
Flushing all current IPv6 rules and user defined chains: ...success  
Clearing all current IPv6 rules and user defined chains: ...success  
Applying ip6tables firewall rules:  
Flushing chain `PREROUTING'  
Flushing chain `INPUT'  
Flushing chain `FORWARD'  
Flushing chain `OUTPUT'  
Flushing chain `POSTROUTING'  
Flushing chain `INPUT'  
Flushing chain `FORWARD'  
Flushing chain `OUTPUT'  
Applying rules succeeded  
Starting nscd...  
mkdir: created directory '/var/run/nscd' [ OK ]  
Starting , please wait...grep: /ngfw/etc/motd: No such file or directory  
...complete.  
Firstboot detected, executing scripts  
Executing S01reset_failopen_if [ OK ]  
Executing S04fix-httpd.sh [ OK ]  
Executing S05set-mgmt-port [ OK ]  
Executing S06addusers [ OK ]  
Executing S07uuid-init [ OK ]  
Executing S09configure_mysql [ OK ]
```

***** Attention *****

Initializing the configuration database. Depending on available

system resources (CPU, memory, and disk), this may take 30 minutes or more to complete.

***** Attention *****

```
Executing S10database [ OK ]
Executing S12install_infodb [ OK ]
Executing S15set-locale.sh [ OK ]
Executing S16update-sensor.pl [ OK ]
Executing S19cert-tun-init [ OK ]
Executing S20cert-init [ OK ]
Executing S21disable_estreamer [ OK ]
Executing S25create_default_des.pl [ OK ]
Executing S30init_lights_out_mgmt.pl [ OK ]
Executing S40install_default_filters.pl [ OK ]
Executing S42install_default_dashboards.pl [ OK ]
Executing S43install_default_report_templates.pl [ OK ]
Executing S44install_default_app_filters.pl [ OK ]
Executing S45install_default_realms.pl [ OK ]
Executing S47install_default_sandbox_EO.pl [ OK ]
Executing S50install-remediation-modules [ OK ]
Executing S51install_health_policy.pl [ OK ]
Executing S52install_system_policy.pl [ OK ]
Executing S53change_reconciliation_baseline.pl [ OK ]
Executing S70update_sensor_objects.sh [ OK ]
Executing S85patch_history-init [ OK ]
Executing S90banner-init [ OK ]
Executing S95copy-crontab [ OK ]
Executing S96grow_var.sh [ OK ]
```

***** Attention *****

Initializing the system's localization settings. Depending on available system resources (CPU, memory, and disk), this may take 10 minutes or more to complete.

***** Attention *****

```
Executing S96localize-templates [ OK ]
Executing S96ovf-data.pl [ OK ]
Executing S97compress-client-resources [ OK ]
Executing S97create_platinum_forms.pl [ OK ]
Executing S97install_cloud_support.pl [ OK ]
Executing S97install_geolocation.pl [ OK ]
Executing S97install_ssl_inspection.pl [ OK ]
Executing S97update_modprobe.pl [ OK ]
Executing S98check-db-integrity.sh [ OK ]
Executing S98htaccess-init [ OK ]
Executing S99correct_ipmi.pl [ OK ]
Executing S99start-system [ OK ]
Executing S99z_db_restore [ OK ]
Firstboot scripts finished.
Configuring NTP... [ OK ]
Model reconfigure detected, executing scripts
Pinging mysql
Found mysql is running
Executing 45update-sensor.pl [ OK ]
Executing 55recalculate_arc.pl [ OK ]
Starting xinetd:
Mon Mar 14 18:28:11 UTC 2016
Starting MySQL...
Pinging mysql
Pinging mysql, try 1
Found mysql is running
Running initializeObjects...
```

```

Stopping MySQL...
Killing mysqld with pid 10993
Wait for mysqld to exit\c
done
Mon Mar 14 18:28:21 UTC 2016
Starting sfid... [ OK ]
Starting Cisco ASA5508-X Threat Defense, please wait...No PM running!
...started.
INIT: Starting system message bus: dbus.
Starting OpenBSD Secure Shell server: sshd
generating ssh RSA key...
generating ssh ECDSA key...
generating ssh DSA key...
done.
Starting Advanced Configuration and Power Interface daemon: acpid.
Starting crond: OK
Mar 14 18:28:26 ciscoasa SF-IMS[11490]: [11490] init script:system [INFO] pmmon Setting affinity
to 5-7...
pid 11486's current affinity list: 0-7
pid 11486's new affinity list: 5-7
Mar 14 18:28:26 ciscoasa SF-IMS[11492]: [11492] init script:system [INFO] pmmon The Process
Manager is not running...
Mar 14 18:28:26 ciscoasa SF-IMS[11493]: [11493] init script:system [INFO] pmmon Starting the
Process Manager...
Mar 14 18:28:26 ciscoasa SF-IMS[11494]: [11494] pm:pm [INFO] Using model number 75K

Cisco ASA5508-X Threat Defense v6.0.0 (build 1005)
ciscoasa login:
Compiled on Sat 07-Nov-15 16:13 PST by builders

Total NICs found: 13
i354 rev03 Gigabit Ethernet @ irq255 dev 20 index 08 MAC: 188b.9d1e.ca7c
ivshmem rev03 Backplane Data Interface @ index 09 MAC: 0000.0001.0002
en_vtun rev00 Backplane Control Interface @ index 10 MAC: 0000.0001.0001
en_vtun rev00 Backplane Int-Mgmt Interface @ index 11 MAC: 0000.0001.0003
en_vtun rev00 Backplane Ext-Mgmt Interface @ index 12 MAC: 0000.0000.0000

INFO: Unable to read firewall mode from flash
Writing default firewall mode (single) to flash

INFO: Unable to read cluster interface-mode from flash
Writing default mode "None" to flash
Verify the activation-key, it might take a while...
Failed to retrieve permanent activation key.
Running Permanent Activation Key: 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
The Running Activation Key is not valid, using default settings:

Licensed features for this platform:
Maximum Physical Interfaces : Unlimited perpetual
Maximum VLANs : 50 perpetual
Inside Hosts : Unlimited perpetual
Failover : Active/Active perpetual
Encryption-DES : Enabled perpetual
Encryption-3DES-AES : Disabled perpetual
Security Contexts : 2 perpetual
GTP/GPRS : Disabled perpetual
AnyConnect Premium Peers : 4 perpetual
AnyConnect Essentials : Disabled perpetual
Other VPN Peers : 100 perpetual
Total VPN Peers : 100 perpetual
Shared License : Disabled perpetual
AnyConnect for Mobile : Disabled perpetual
AnyConnect for Cisco VPN Phone : Disabled perpetual
Advanced Endpoint Assessment : Disabled perpetual

```


Total UC Proxy Sessions : 320 perpetual
Botnet Traffic Filter : Disabled perpetual
Cluster : Disabled perpetual
VPN Load Balancing : Enabled perpetual

Encryption hardware device : Cisco ASA Crypto on-board accelerator (revision 0x1)

Cisco Adaptive Security Appliance Software Version 99.1(3)194

***** Warning *****

This product contains cryptographic features and is subject to United States and local country laws governing, import, export, transfer, and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute, or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return the enclosed items immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:
<http://www.cisco.com/wwl/export/crypto/tool/stqrg.html>

If you require further assistance please contact us by sending email to export@cisco.com.

***** Warning *****

... output omitted ...

Reading from flash...

!

Cryptochecksum (changed): 6129864f 6298b553 75f279ea e547792b

INFO: Power-On Self-Test in process.

.....

INFO: Power-On Self-Test complete.

INFO: Starting HW-DRBG health test...

INFO: HW-DRBG health test passed.

INFO: Starting SW-DRBG health test...

INFO: SW-DRBG health test passed.

Cisco ASA5508-X Threat Defense v6.0.0 (build 1005)

firepower login: **admin**

Password: <-- **Admin123**

You must accept the EULA to continue.

Press <ENTER> to display the EULA:

... EULA is displayed - output is omitted

END USER LICENSE AGREEMENT

Please enter 'YES' or press to AGREE to the EULA:

System initialization in progress. Please stand by.

You must change the password for 'admin' to continue.

Enter new password:

Confirm new password:

You must configure the network to continue.

You must configure at least one of IPv4 or IPv6.

Do you want to configure IPv4? (y/n) [y]:

Do you want to configure IPv6? (y/n) [n]:

Configure IPv4 via DHCP or manually? (dhcp/manual) [manual]:

Enter an IPv4 address for the management interface [192.168.45.45]: **10.62.148.29**

Enter an IPv4 netmask for the management interface [255.255.255.0]: **255.255.255.128**
Enter the IPv4 default gateway for the management interface []: **10.62.148.1**
Enter a fully qualified hostname for this system [firepower]: **FTD5508**
Enter a comma-separated list of DNS servers or 'none' []: **173.38.200.100,144.254.71.184**
Enter a comma-separated list of search domains or 'none' []:
If your networking information has changed, you will need to reconnect.
For HTTP Proxy configuration, run 'configure network http-proxy'

Configure firewall mode? (routed/transparent) [routed]:
Configuring firewall mode ...

Update policy deployment information
- add device configuration

You can register the sensor to a Firepower Management Center and use the Firepower Management Center to manage it. Note that registering the sensor to a Firepower Management Center disables on-sensor Firepower Services management capabilities.

When registering the sensor to a Firepower Management Center, a unique alphanumeric registration key is always required. In most cases, to register a sensor to a Firepower Management Center, you must provide the hostname or the IP address along with the registration key.

```
'configure manager add [hostname | ip address ] [registration key ]'
```

However, if the sensor and the Firepower Management Center are separated by a NAT device, you must enter a unique NAT ID, along with the unique registration key.

```
'configure manager add DONTRESOLVE [registration key ] [ NAT ID ]'
```

Later, using the web interface on the Firepower Management Center, you must use the same registration key and, if necessary, the same NAT ID when you add this sensor to the Firepower Management Center.

>

Tip: You can use the **noconfirm** option to install the image. In that case you do not get prompted during the installation.

```
firepower-boot>system install noconfirm ftp://10.229.22.42/ftd-6.0.0-1005.pkg
```

On FTD 6.1.x and above you get prompted for the management mode (local vs remote).

For HTTP Proxy configuration, run 'configure network http-proxy'

Manage the device locally? (yes/no) [yes]: no
Configure firewall mode? (routed/transparent) [routed]:

Local mode = Applicable only on ASA55xx-X devices. You manage the FTD from Firepower Device Manager (FDM).

Remote mode = You manage the FTD from FMC

Verification

```
> show version
-----[ FTD5508 ]-----
Model                : Cisco ASA5508-X Threat Defense (75) Version 6.0.0 (Build 1005)
UUID                 : 8c3f4b7e-ea11-11e5-94f1-f3a55afb51a3
Rules update version : 2015-10-01-001-vrt
VDB version          : 252
-----

>
```

The system image installation on ASA5512/15/25/45/55 is the same as above.

Task 5. Register the FTD to FMC

Register FTD to FMC server using the following settings:

Host	10.62.148.29
Display Name	FTD5508
Registration Key	cisco
Group	None
Access Control Policy	FTD5508
Access Control Policy Base Policy	None
Access Control Policy Default Action	Block all Traffic

Solution

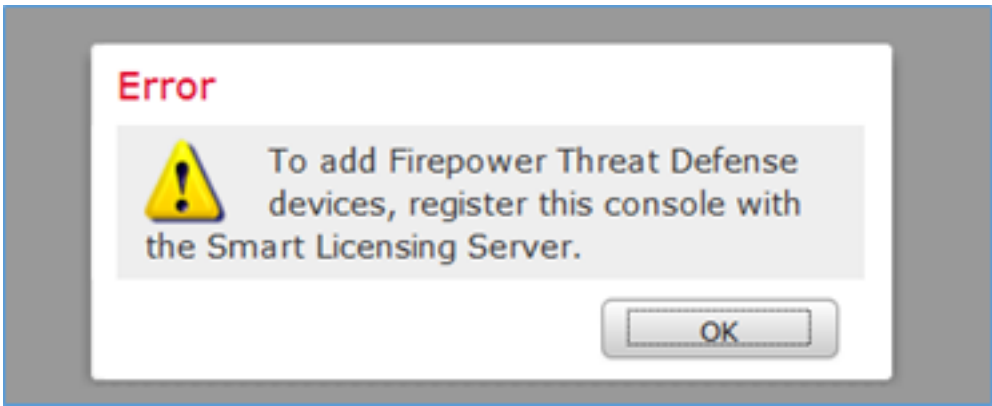
Step 1. On FTD specify the FMC server:

```
> configure manager add 10.62.148.73 cisco
Manager successfully configured.
Please make note of reg_key as this will be required while adding Device in FMC.

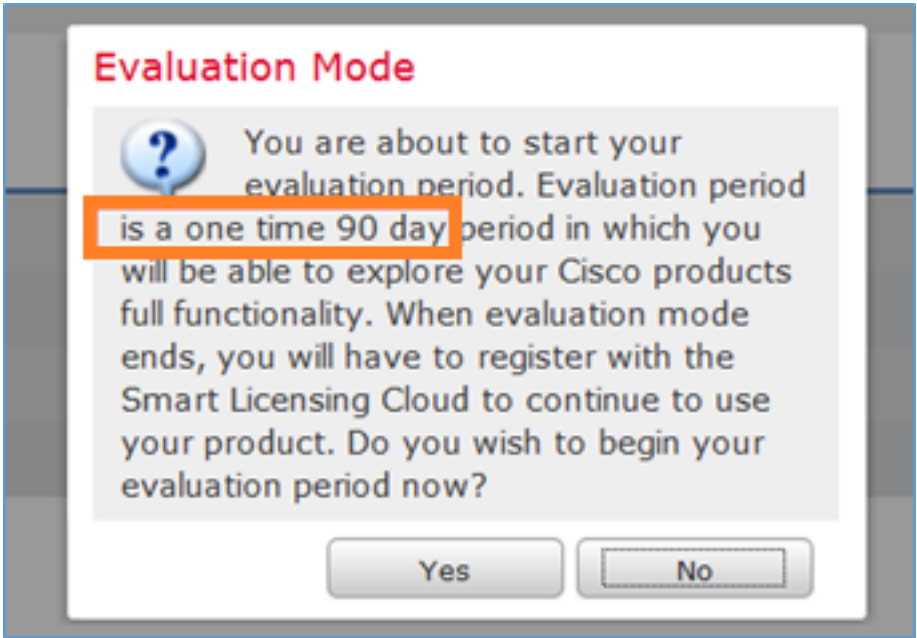
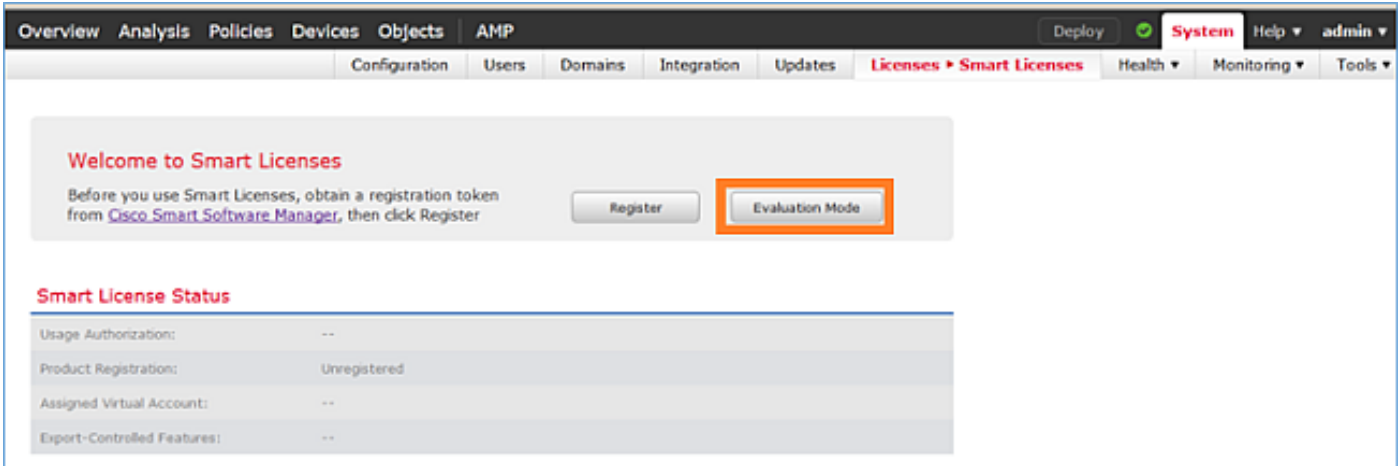
> show managers
Host                : 10.62.148.73
Registration Key     : ****
Registration        : pending
RPC Status          :
Type                : Manager
Host                : 10.62.148.73
Registration        : Pending

>
```

Step 2. Before adding the FTD you need to register the FMC with the Smart Licensing Server. If you try to add an FTD device without having a Smart License you get the following error:



You can choose Evaluation Mode. This allows you to use FTD for 90 days without features that require Strong Encryption (e.g. VPN).



Overview Analysis Policies Devices Objects AMP Deploy System Help admin

Configuration Users Domains Integration Updates Licenses Smart Licenses Health Monitoring Tools

Welcome to Smart Licenses

Before you use Smart Licenses, obtain a registration token from [Cisco Smart Software Manager](#), then click Register Register

Smart License Status [Cisco Smart Software Manager](#)

Usage Authorization: N/A

Product Registration: ✔ Evaluation Period (Expires in 89 days)

Assigned Virtual Account: Evaluation Mode

Export-Controlled Features: Enabled

Smart Licenses Filter Devices... Edit Licenses

License Type/Device Name	License Status	Device Type	Domain	Group
Base (0)				
Malware (0)				
Threat (0)				
URL Filtering (0)				

Step 3. On FMC first create the Access Control Policy that will be used by FTD. Navigate to **Policies > Access Control** and select **New Policy**:

Overview Analysis **Policies**

Access Control Network Discovery

Access Control

Deploy ✔ System Help admin

Object Management Intrusion Network Analysis Policy DNS Import/Export

New Policy

New Policy ? x

Name:

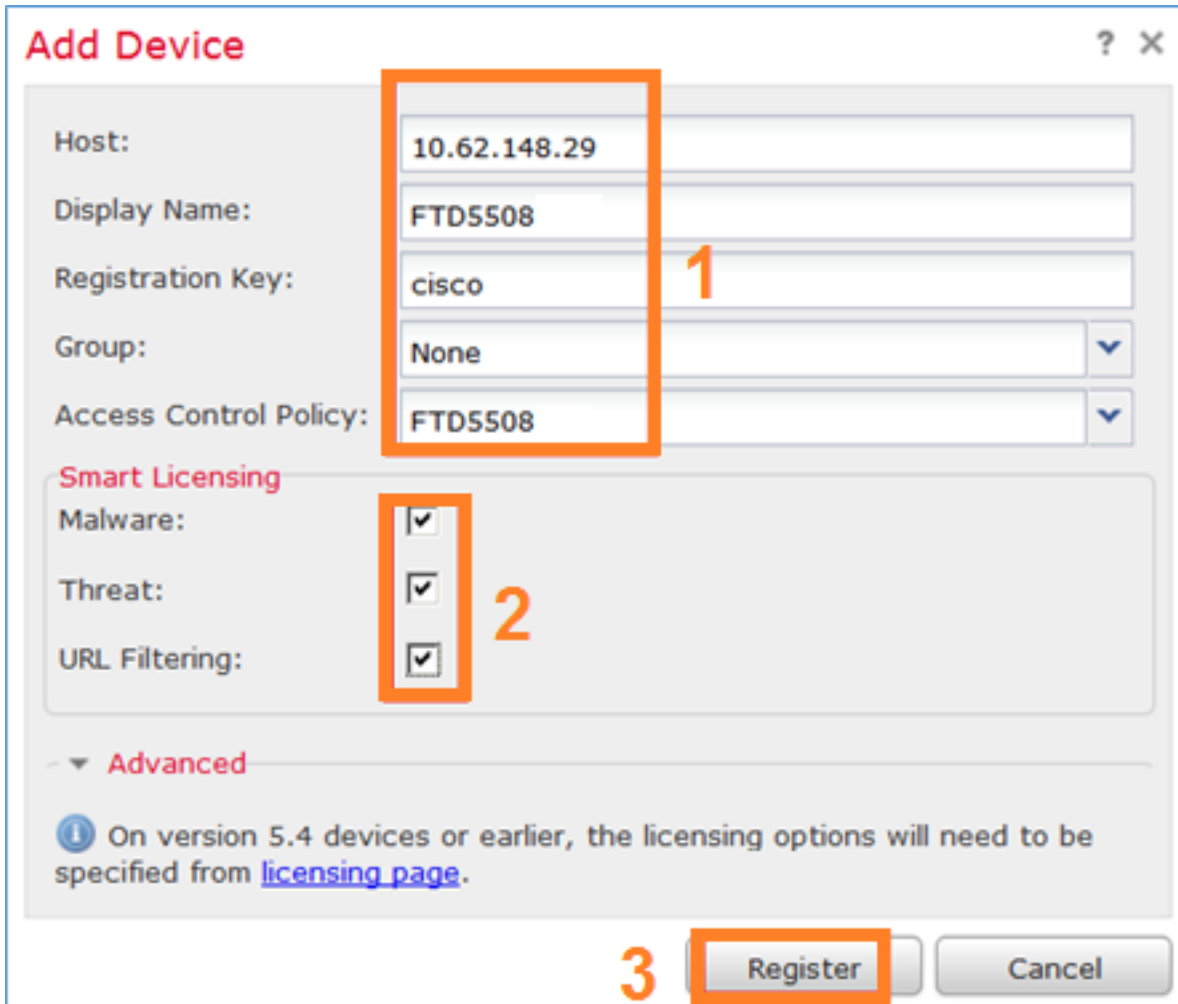
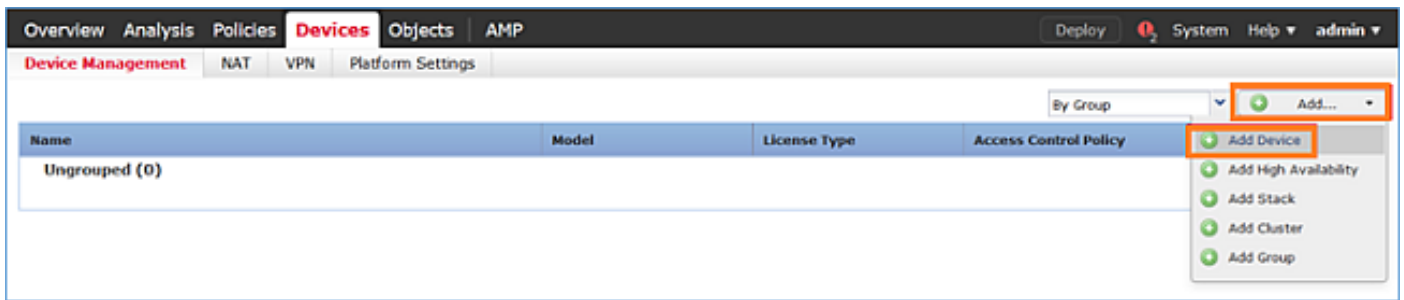
Description:

Select Base Policy:

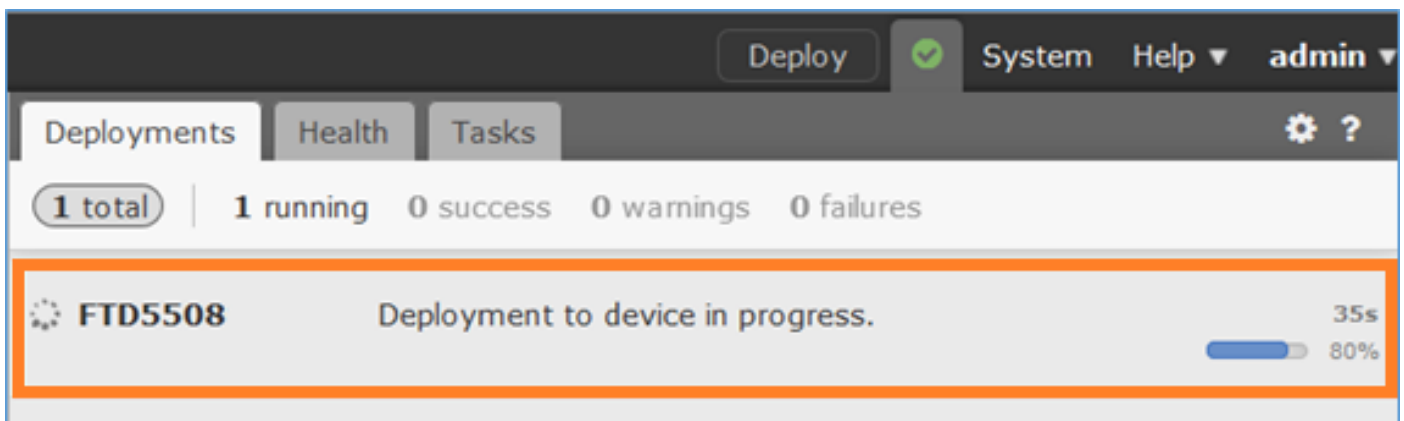
Default Action: Block all traffic Intrusion Prevention Network Discovery

Targeted Devices

Then add the FTD device:



At the end of FTD addition a policy is deployed:



To check what is happening in the background while adding the FTD device enable **tailnet** on both FMC and FTD.

On FMC:

```
admin@fs4k:~$ sudo pigtail
```

```
*****  
*****  
** Displaying logs: ACTQ HTTP DCSM VMSS MOJO NGFW NGUI VMSB TCAT DEPL MSGS USMS  
*****  
*****
```

On FTD:

```
> pigtail
```

```
*****  
** Displaying logs: HTTP ACTQ DCSM VMSS MOJO NGUI NGFW TCAT VMSB DEPL USMS MSGS  
*****
```

Note: If the FTD Management Interface status is down ensure that the confreg value is 0x1.

Task 6. Upgrade the FTD

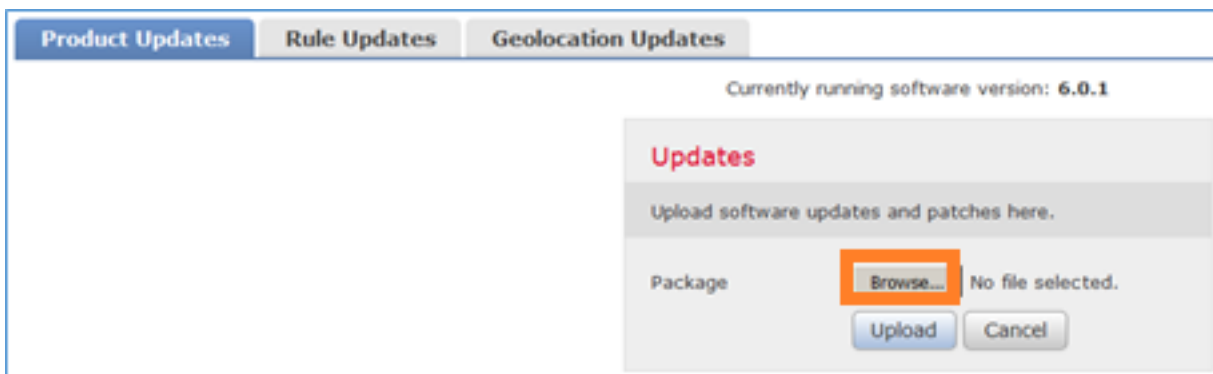
In this task upgrade FTD from 6.0.0 to 6.0.1.

	Version	File name
Initial FTD image	Version 6.0.0 (Build 1005)	ftd-6.0.0-1005.pkg
Target FTD image	Version 6.0.1 (Build 1213)	Cisco_FTD_Upgrade-6.0.1-1213.sh

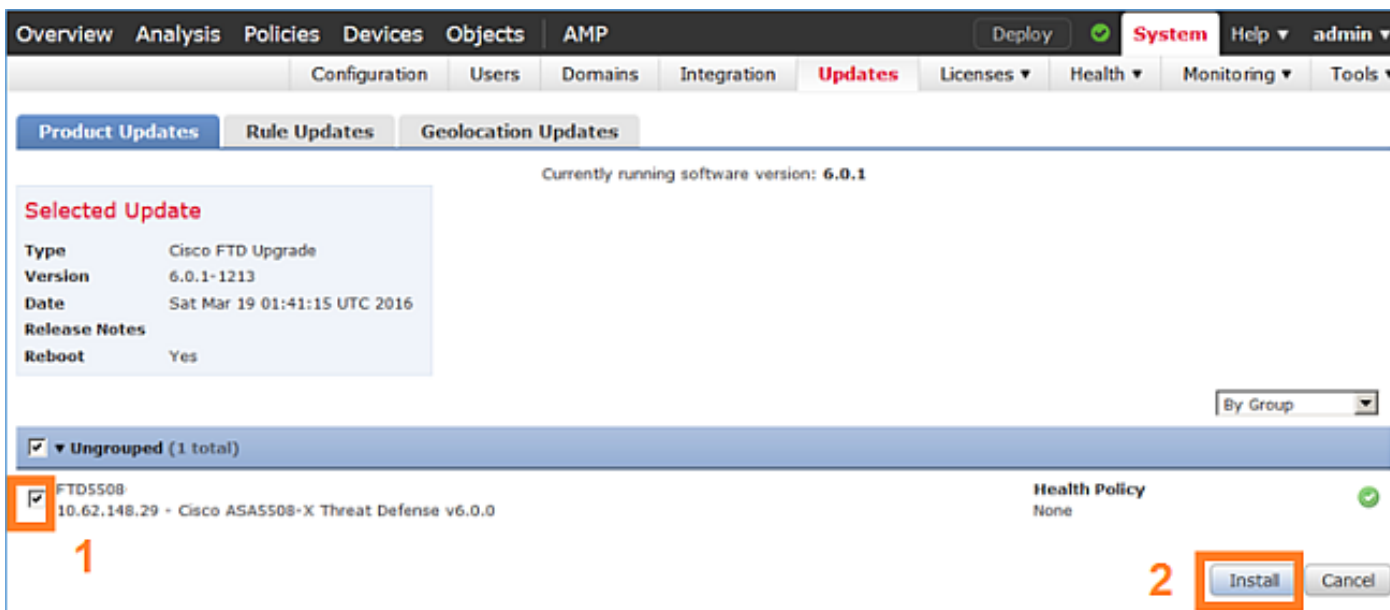
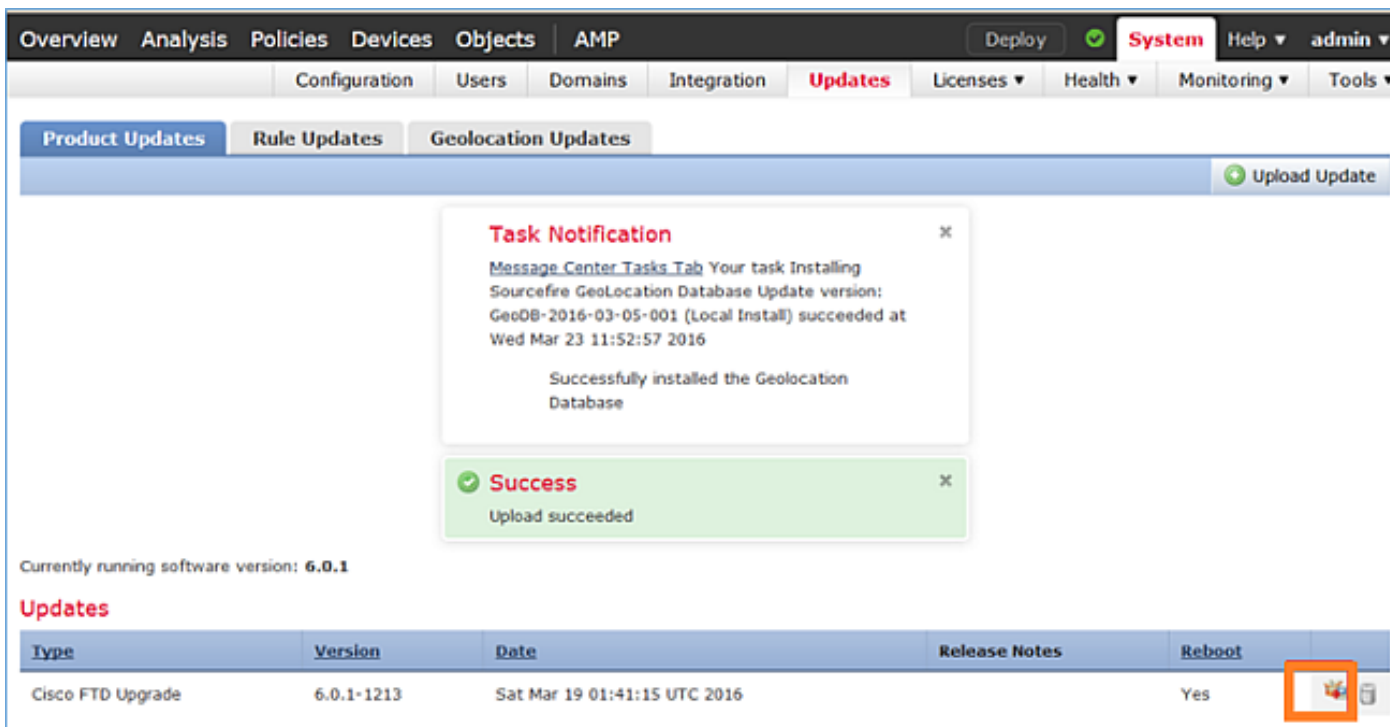
Solution

Step 1. Upload the FTD image into FMC:

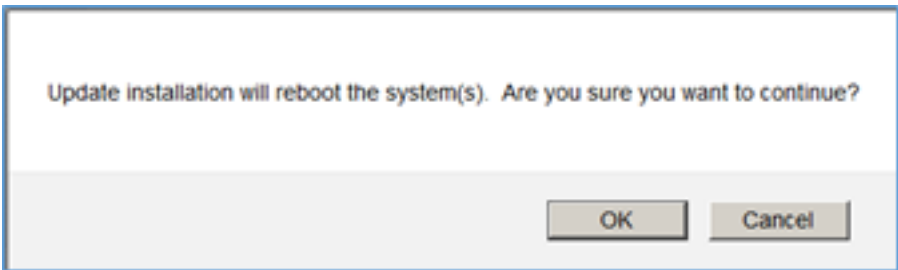




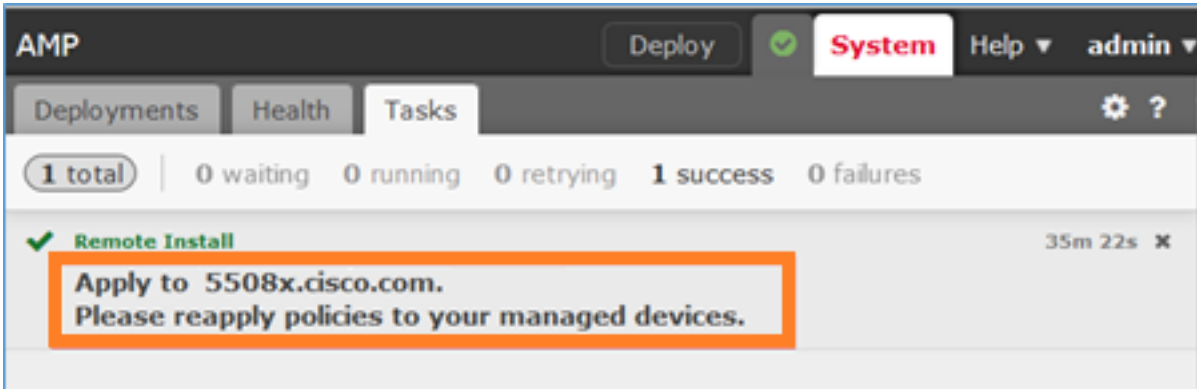
Step 2. Install the FTD image:



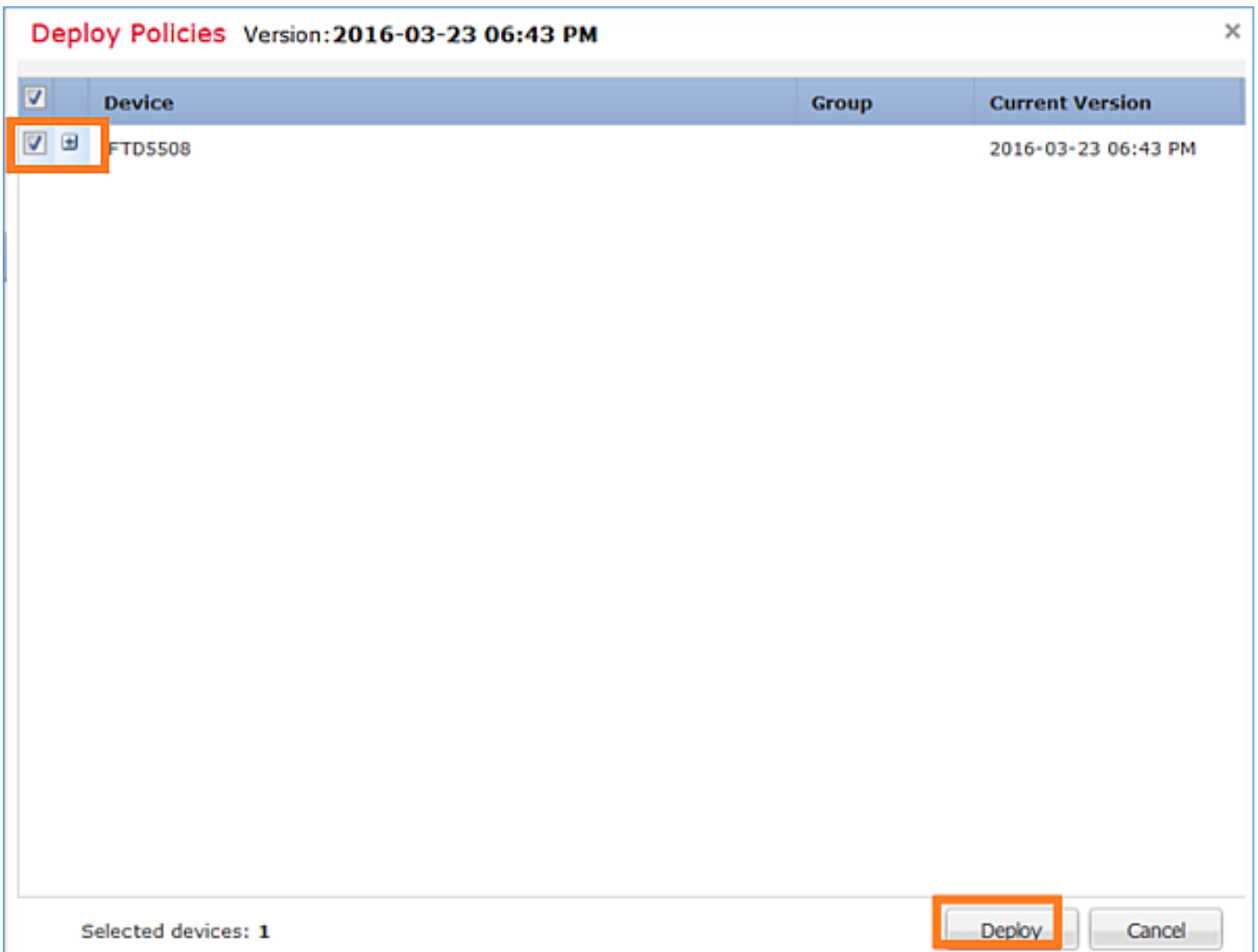
A warning about FTD reload is shown:



The upgrade in this case took around 35 minutes. As it is shown below, there is need to reapply the policy:



Deploy the policies:



Verification

After the FTD upgrade:

```
> show version
-----[ FTD5508 ]-----
Model                : Cisco ASA5508-X Threat Defense (75) Version 6.0.1 (Build 1213)
UUID                 : 53b44806-f0f4-11e5-88cc-c72c24d24877
Rules update version : 2016-03-04-001-vrt
VDB version          : 259
-----
```

>

Task 7. Connect and Detach From LINA Engine CLI Mode

Enter into LINA CLI mode, then disconnect from it.

Solution

From FTD CLISH mode type the following command:

```
> system support diagnostic-cli
Attaching to ASA console ... Press 'Ctrl+a then d' to detach.
Type help or '?' for a list of available commands.
```

```
firepower>
firepower> enable
Password: <-- by default empty (null)
firepower#
```

As it is mentioned in the message above, to disconnect (detach) from the FTD LINA console type CTRL + a and then press d:

```
firepower# <- 'Ctrl+a then d' Console connection detached.
admin@FTD5508:~$
```

Task 8. Reimage an Existing FTD Installation

Requirement

Reimage the existing FTD image and install version 6.1.0-330

Solution

This task assumes that there is an FTD appliance running code 6.0.1.x and for whatever reasons there is need to reimage it (e.g. unrecoverable database corruption, catastrophic defect that doesn't allow software upgrade etc).

Steps summary

1. Compatibility check.
2. Unregister FTD from FMC.
3. Reload the FTD appliance and enter the BootCLI.
4. Run the setup wizard.
5. Install the FTD System image.
6. Register FTD into FMC.

Detailed steps

Step 1. Check the Firepower release notes and ensure that the FTD image that you want to use is compatible with the FMC. If not upgrade the FMC first.

Step 2. Unregister (delete) FTD from FMC. This step is needed since after the FTD reimage its UUID changes and cannot be registered again, but has to be added from the scratch.

Step 3. Reload the FTD appliance and enter the BootCLI. Since there is already an existing FTD image installed the FTD Boot image installation can be skipped:

```
> reboot
```

```
This command will reboot the system. Continue?
```

```
Please enter 'YES' or 'NO': YES
```

```
Broadcast messagStopping Cisco ASA5506-X Threat Defense.....ok
```

```
Shutting down sfid... [ OK ]
```

```
Clearing static routes
```

```
Unconfiguring default route [ OK ]
```

```
Unconfiguring address on br1 [ OK ]
```

```
Unconfiguring IPv6 [ OK ]
```

```
Downing interface [ OK ]
```

```
Stopping nscd... [ OK ]
```

```
Stopping system log daemon... [ OK ]
```

```
Stopping Threat Defense ...
```

```
cp: cannot stat '/etc/ssh': No such file or directory
```

```
Stopping system message bus: dbus.
```

```
rmdir: failed to remove directory '/etc': Directory not empty [ OK ]
```

```
Un-mounting disk partitions ...
```

```
...
```

```
Device root is still in use.
```

```
mdadm: Cannot get exclusive access to /dev/md0:Perhaps a running process, mounted filesystem or
```

active volume group?
Stopping OpenBSD Secure Shell server: sshdstopped /usr/sbin/sshd (pid 4209)
.
Stopping Advanced Configuration and Power Interface daemon: stopped /usr/sbin/acpid (pid 4213)
acpid: exiting

acpid.
Stopping system message bus: dbus.
Deconfiguring network interfaces... ifdown: interface br1 not configured
done.
Sending all processes the TERM signal...
Sending all processes the KILL signal...
Deactivating swap...
Unmounting local filesystems...
Rebooting... y
Rom image verified correctly

Cisco Systems ROMMON, Version 1.1.8, RELEASE SOFTWARE
Copyright (c) 1994-2015 by Cisco Systems, Inc.
Compiled Thu 06/18/2015 12:15:56.43 by builders

Current image running: Boot ROM0
Last reset cause: PowerCycleRequest
DIMM Slot 0 : Present

Platform ASA5506 with 4096 Mbytes of main memory
MAC Address: 84:3d:c6:1a:cf:39

Use BREAK or ESC to interrupt boot.
Use SPACE to begin boot immediately.

Located '.boot_string' @ cluster 260275.

Attempt autoboot: "boot disk0:"
Located 'os.img' @ cluster 235457.

#####

LFBFF signature verified.
INIT: version 2.88 booting
Starting udev
Configuring network interfaces... done.
Populating dev cache
Detected PID ASA5506.
Found device serial number JAD2034008E.
Found USB flash drive /dev/sdb
Found hard drive(s): /dev/sda
fsck from util-linux 2.23.2
dosfsck 2.11, 12 Mar 2005, FAT32, LFN
/dev/sdb1: 42 files, 24805/1798467 clusters

```

=====
Use ESC to interrupt boot and launch boot CLI.
Use SPACE to launch Cisco FTD immediately.
Cisco FTD launch in 23 seconds ...           < Press ESC to enter BootCLI
Launching boot CLI ...
Configuring network interface using DHCP
Bringing up network interface.
Depending on your network, this might take a couple of minutes when using DHCP...
ifup: interface lo already configured
Using IPv6 address: fe80::863d:c6ff:fe1a:cf38
IPv4 address not assigned. Run 'setup' before installation.
INIT: Starting system message bus: dbus.
Starting OpenBSD Secure Shell server: sshd
    generating ssh RSA key...
    generating ssh ECDSA key...
    generating ssh DSA key...
done.
Starting Advanced Configuration and Power Interface daemon: acpid.
acpid: starting up

acpid: 1 rule loaded

acpid: waiting for events: event logging is off

Starting ntpd: done
Starting syslog-ng:[2017-01-14T11:20:33.699619] Connection failed; fd='15',
server='AF_INET(127.128.254.1:514)', local='AF_INET(0.0.0.0:0)', error='Network is unreachable
(101)'
[2017-01-14T11:20:33.699704] Initiating connection failed, reconnecting; time_reopen='60'
.
Starting crond: OK

        Cisco FTD Boot 6.0.0 (9.6.2.)
        Type ? for list of commands
firepower-boot>

```

Step 4. Run the setup wizard and set basic network parameters:

```

firepower-boot>setup

        Welcome to Cisco FTD Setup
        [hit Ctrl-C to abort]
        Default values are inside []

Enter a hostname [firepower]: FTD5506
Do you want to configure IPv4 address on management interface?(y/n) [Y]: Y
Do you want to enable DHCP for IPv4 address assignment on management interface?(y/n) [Y]: n
Enter an IPv4 address: 10.48.66.83
Enter the netmask: 255.255.255.128
Enter the gateway: 10.48.66.1
Do you want to configure static IPv6 address on management interface?(y/n) [N]: N
Stateless autoconfiguration will be enabled for IPv6 addresses.
Enter the primary DNS server IP address: 192.168.0.1
Do you want to configure Secondary DNS Server? (y/n) [n]: n

```

```
Do you want to configure Local Domain Name? (y/n) [n]: n
Do you want to configure Search domains? (y/n) [n]: n
Do you want to enable the NTP service? [Y]: n
Please review the final configuration:
Hostname:          FTD5506
Management Interface Configuration
```

```
IPv4 Configuration:  static
  IP Address:        10.48.66.83
  Netmask:           255.255.255.128
  Gateway:           10.48.66.1
```

```
IPv6 Configuration:  Stateless autoconfiguration
```

```
DNS Configuration:
  DNS Server:        192.168.0.1
```

```
NTP configuration:   Disabled
```

```
CAUTION:
You have selected IPv6 stateless autoconfiguration, which assigns a global address
based on network prefix and a device identifier. Although this address is unlikely
to change, if it does change, the system will stop functioning correctly.
We suggest you use static addressing instead.
```

```
Apply the changes?(y,n) [Y]:      Y
Configuration saved successfully!
Applying...
Restarting network services...
Done.
Press ENTER to continue...
firepower-boot>
```

Step 5. Verify connectivity with the server (FTP, HTTP etc) that contains the FTD system image and start the installation:

```
firepower-boot>ping 10.48.40.70
PING 10.48.40.70 (10.48.40.70) 56(84) bytes of data.
64 bytes from 10.48.40.70: icmp_seq=1 ttl=64 time=555 ms
64 bytes from 10.48.40.70: icmp_seq=2 ttl=64 time=0.465 ms
64 bytes from 10.48.40.70: icmp_seq=3 ttl=64 time=0.511 ms
--- 10.48.40.70 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2000ms
rtt min/avg/max/mdev = 0.465/185.466/555.424/261.599 ms

firepower-boot > system install noconfirm ftp://anonymous:cisco@10.48.40.70/ftd-6.1.0-330.pkg

##### WARNING #####
# The content of disk0: will be erased during installation! #
#####

Do you want to continue? [y/N] Y
Erasing disk0 ...
Verifying
Downloading
Extracting
Package Detail
  Description:          Cisco ASA-FTD 6.1.0-330 System Install
```

Requires reboot: Yes

Warning: Please do not interrupt the process or turn off the system.
Doing so might leave system in unusable state.

Starting upgrade process ...
Populating new system image

... output omitted ...

```
Firstboot detected, executing scripts
Executing S01reset_failopen_if [ OK ]
Executing S01virtual-machine-reconfigure [ OK ]
Executing S02aws-pull-cfg [ OK ]
Executing S02configure_onbox [ OK ]
Executing S04fix-httpd.sh [ OK ]
Executing S05set-mgmt-port [ OK ]
Executing S06addusers [ OK ]
Executing S07uuid-init [ OK ]
Executing S08configure_mysql [ OK ]
```

***** Attention *****

Initializing the configuration database. Depending on available system resources (CPU, memory, and disk), this may take 30 minutes or more to complete.

***** Attention *****

```
Executing S09database-init [ OK ]
Executing S11database-populate [ OK ]
Executing S12install_infodb [ OK ]
Executing S15set-locale.sh [ OK ]
Executing S16update-sensor.pl [ OK ]
Executing S19cert-tun-init [ OK ]
Executing S20cert-init [ OK ]
Executing S21disable_estreamer [ OK ]
Executing S25create_default_des.pl [ OK ]
Executing S30init_lights_out_mgmt.pl [ OK ]
Executing S40install_default_filters.pl [ OK ]
Executing S42install_default_dashboards.pl [ OK ]
Executing S43install_default_report_templates.pl [ OK ]
Executing S44install_default_app_filters.pl [ OK ]
Executing S45install_default_realms.pl [ OK ]
Executing S47install_default_sandbox_EO.pl [ OK ]
Executing S50install-remediation-modules [ OK ]
Executing S51install_health_policy.pl [ OK ]
Executing S52install_system_policy.pl [ OK ]
Executing S53change_reconciliation_baseline.pl [ OK ]
Executing S70remove_casuser.pl [ OK ]
Executing S70update_sensor_objects.sh [ OK ]
Executing S85patch_history-init [ OK ]
Executing S90banner-init [ OK ]
Executing S95copy-crontab [ OK ]
Executing S96grow_var.sh [ OK ]
Executing S96install_vmware_tools.pl [ OK ]
```

***** Attention *****

Initializing the system's localization settings. Depending on available system resources (CPU, memory, and disk), this may take 10 minutes or more to complete.

***** Attention *****

```
Executing S96localize-templates [ OK ]
```

```
Executing S96ovf-data.pl [ OK ]
Executing S97compress-client-resources [ OK ]
Executing S97create_platinum_forms.pl [ OK ]
Executing S97install_cas [ OK ]
Executing S97install_cloud_support.pl [ OK ]
Executing S97install_geolocation.pl [ OK ]
Executing S97install_ssl_inspection.pl [ OK ]
Executing S97update_modprobe.pl [ OK ]
Executing S98check-db-integrity.sh [ OK ]
Executing S98htaccess-init [ OK ]
Executing S98is-sru-finished.sh [ OK ]
Executing S99correct_ipmi.pl [ OK ]
Executing S99start-system [ OK ]
Executing S99z_db_restore [ OK ]
Executing S99_z_cc-integrity.sh [ OK ]
Firstboot scripts finished.
Configuring NTP... [ OK ]
fatattr: can't open '/mnt/disk0/.private2': No such file or directory
fatattr: can't open '/mnt/disk0/.ngfw': No such file or directory
Model reconfigure detected, executing scripts
Pinging mysql
Found mysql is running
Executing 45update-sensor.pl [ OK ]
Executing 55recalculate_arc.pl [ OK ]
Starting xinetd:
Sat Jan 14 12:07:35 UTC 2017
Starting MySQL...
Pinging mysql
Pinging mysql, try 1
Pinging mysql, try 2
Found mysql is running
Running initializeObjects...
Stopping MySQL...
Killing mysqld with pid 22354
Wait for mysqld to exit\c
done
Sat Jan 14 12:07:57 UTC 2017
Starting sfid... [ OK ]
Starting Cisco ASA5506-X Threat Defense, please wait...No PM running!
...started.
... output omitted ...
firepower login: admin
Password: < Admin123
You must accept the EULA to continue.
Press <ENTER> to display the EULA:
END USER LICENSE AGREEMENT

...

Please enter 'YES' or press <ENTER> to AGREE to the EULA:

System initialization in progress. Please stand by.
You must change the password for 'admin' to continue.
Enter new password:
Confirm new password:
You must configure the network to continue.
You must configure at least one of IPv4 or IPv6.
Do you want to configure IPv4? (y/n) [y]:
Do you want to configure IPv6? (y/n) [n]:
Configure IPv4 via DHCP or manually? (dhcp/manual) [manual]:
Enter an IPv4 address for the management interface [192.168.45.45]: 10.48.66.83
Enter an IPv4 netmask for the management interface [255.255.255.0]: 255.255.255.128
Enter the IPv4 default gateway for the management interface [192.168.45.1]: 10.48.66.1
Enter a fully qualified hostname for this system [firepower]: FTD5506
```


Enter a comma-separated list of DNS servers or 'none' []: 192.168.0.1
Enter a comma-separated list of search domains or 'none' []:
If your networking information has changed, you will need to reconnect.
For HTTP Proxy configuration, run 'configure network http-proxy'

Manage the device locally? (yes/no) [yes]: **no**
Configure firewall mode? (routed/transparent) [routed]:
Configuring firewall mode ...

Update policy deployment information
- add device configuration
- add network discovery
- add system policy

You can register the sensor to a Firepower Management Center and use the Firepower Management Center to manage it. Note that registering the sensor to a Firepower Management Center disables on-sensor Firepower Services management capabilities.

When registering the sensor to a Firepower Management Center, a unique alphanumeric registration key is always required. In most cases, to register a sensor to a Firepower Management Center, you must provide the hostname or the IP address along with the registration key.

```
'configure manager add [hostname | ip address ] [registration key ]'
```

However, if the sensor and the Firepower Management Center are separated by a NAT device, you must enter a unique NAT ID, along with the unique registration key.

```
'configure manager add DONTRESOLVE [registration key ] [ NAT ID ]'
```

Later, using the web interface on the Firepower Management Center, you must use the same registration key and, if necessary, the same NAT ID when you add this sensor to the Firepower Management Center.

Step 6. Register FTD into FMC

```
> configure manager add 10.62.148.50 cisco
```

Manager successfully configured.

Please make note of reg_key as this will be required while adding Device in FMC.

```
> show managers
```

```
Host                : 10.62.148.50  
Registration Key    : ****  
Registration        : pending  
RPC Status         :
```

On FMC navigate to **Devices > Device Management** in order to add the FTD device.

After adding FTD into FMC you need to:

- Reconfigure the Device settings like Interfaces and Routing
- Reconfigure Policies like VPN and QoS

- Reapply the previously applied policies and settings like Access Control Policy, NAT and Platform Settings

Related Information

- [Install and Upgrade Guides](#)
- [Reimage the Cisco ASA or Firepower Threat Defense Device](#)
- [Technical Support & Documentation - Cisco Systems](#)