

# 升級Firepower裝置上的FTD HA配對

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## 簡介

本檔案介紹Firepower裝置上高可用性(HA)模式下Firepower威脅防禦(FTD)的升級過程。

## 必要條件

### 需求

思科建議瞭解以下主題：

- Firepower Management Center (FMC)
- FTD
- Firepower裝置(FXOS)

### 採用元件

- 2個FPR4150
- 1個FS4000
- 1台PC

升級前的軟體映像版本：

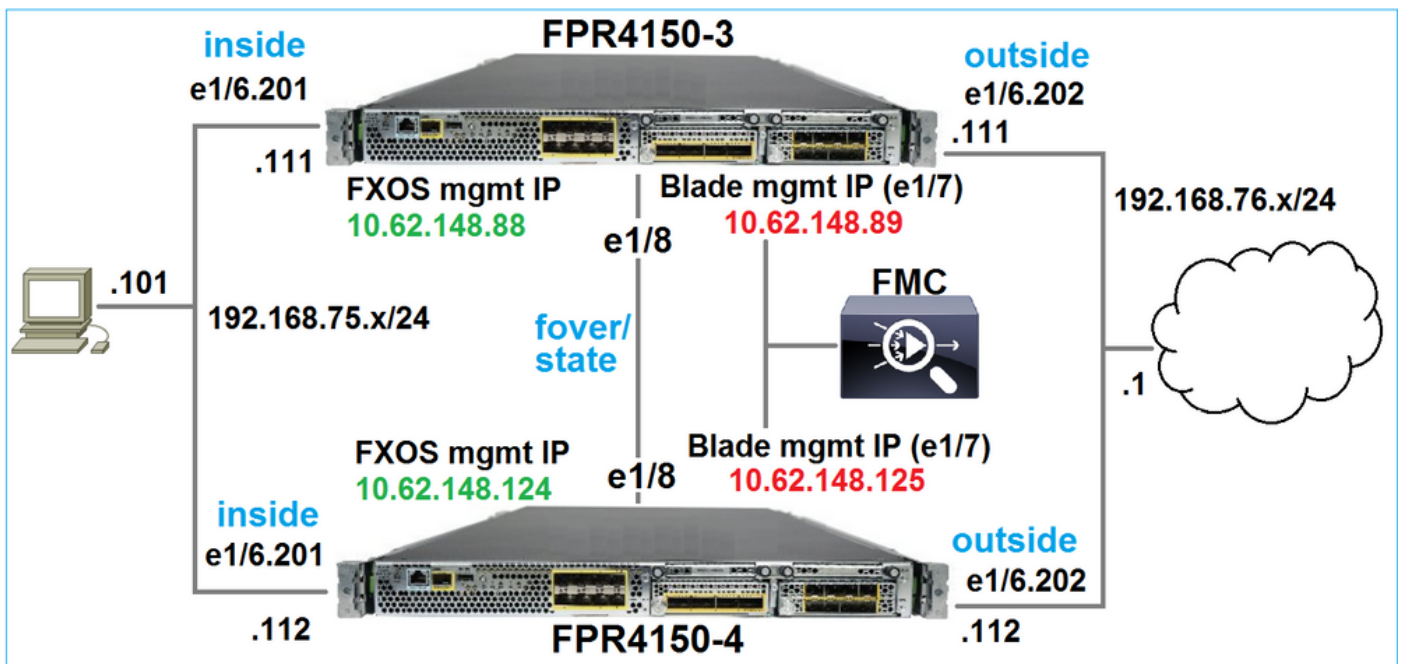
- FMC 6.1.0-330

- FTD主要6.1.0-330
- FTD輔助6.1.0-330
- FXOS主要2.0.1-37
- FXOS輔助2.0.1-37

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除 ( 預設 ) 的組態來啟動。如果您的網路運作中，請確保您瞭解任何指令可能造成的影響。

## 設定

### 網路圖表



### 行動計畫

任務1：驗證前提條件

任務2：將映像上傳到FMC和SSP

任務3：升級第一個FXOS機箱(2.0.1-37 -> 2.0.1-86)

任務4：交換FTD故障轉移

任務5：升級第二個FXOS機箱(2.0.1-37 -> 2.0.1-86)

任務6：升級FMC(6.1.0-330 -> 6.1.0.1)

任務7：升級FTD HA配對(6.1.0-330 -> 6.1.0.1)

任務8：將策略從FMC部署到FTD HA配對

## 任務1. 驗證必要條件

請參閱《FXOS相容性指南》，以確定以下各項之間的相容性：

- 目標FTD軟體版本和FXOS軟體版本
- Firepower硬體平台和FXOS軟體版本

### [Cisco Firepower 4100/9300 FXOS相容性](#)

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 註：此步驟不適用於FP21xx和更早的平台。

---

檢查目標版本的FXOS發行版本註釋，以確定FXOS升級路徑：

### [Cisco Firepower 4100/9300 FXOS版本說明, 2.0\(1\)](#)

---

 註：此步驟不適用於FP21xx和更早的平台。

---

請參閱FTD目標版本版本說明，以確定FTD升級路徑：

### [Firepower 系統版本資訊, 6.0.1.2 版本](#)

## 任務2. 上傳軟體映像


在兩台FCM上，上傳FXOS映像(fxos-k9.2.0.1.86.SPA)。

在FMC上，上傳FMC和FTD升級套件：

- 對於FMC升級：Sourcefire\_3D\_Defense\_Center\_S3\_Patch-6.1.0.1-53.sh
- 對於FTD升級：Cisco\_FTD\_SSP\_Patch-6.1.0.1-53.sh

## 任務3. 升級第一個FXOS機箱

---

 註：如果您將FXOS從1.1.4.x升級到2.x，請首先關閉FTD邏輯裝置，升級FXOS，然後重新啟用它。

---

 註：此步驟不適用於FP21xx和更早的平台。

---

升級之前：

```
<#root>
```

```
FPR4100-4-A /system #
```

```
show firmware monitor
```

```
FPRM:
```

```
Package-Vers: 2.0(1.37)
```

Upgrade-Status: Ready

Fabric Interconnect A:

Package-Vers: 2.0(1.37)

Upgrade-Status: Ready

Chassis 1:

Server 1:

Package-Vers: 2.0(1.37)

Upgrade-Status: Ready

啟動FXOS升級：

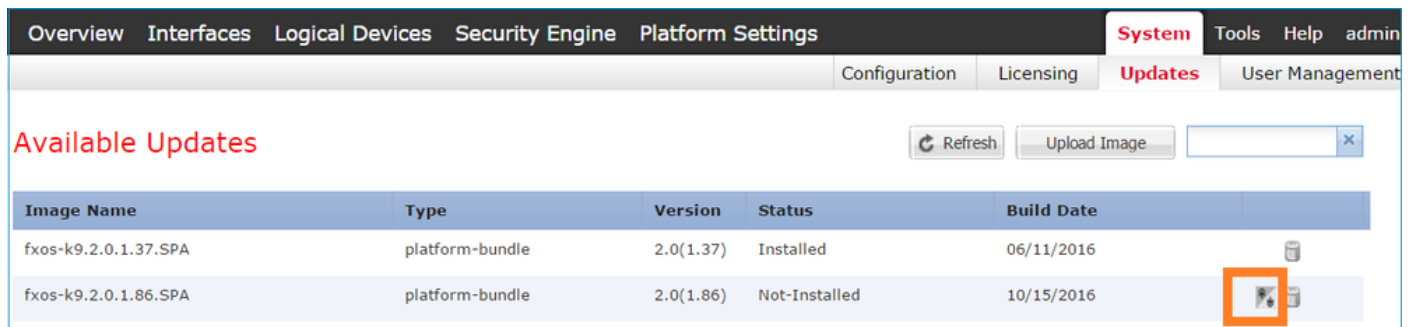



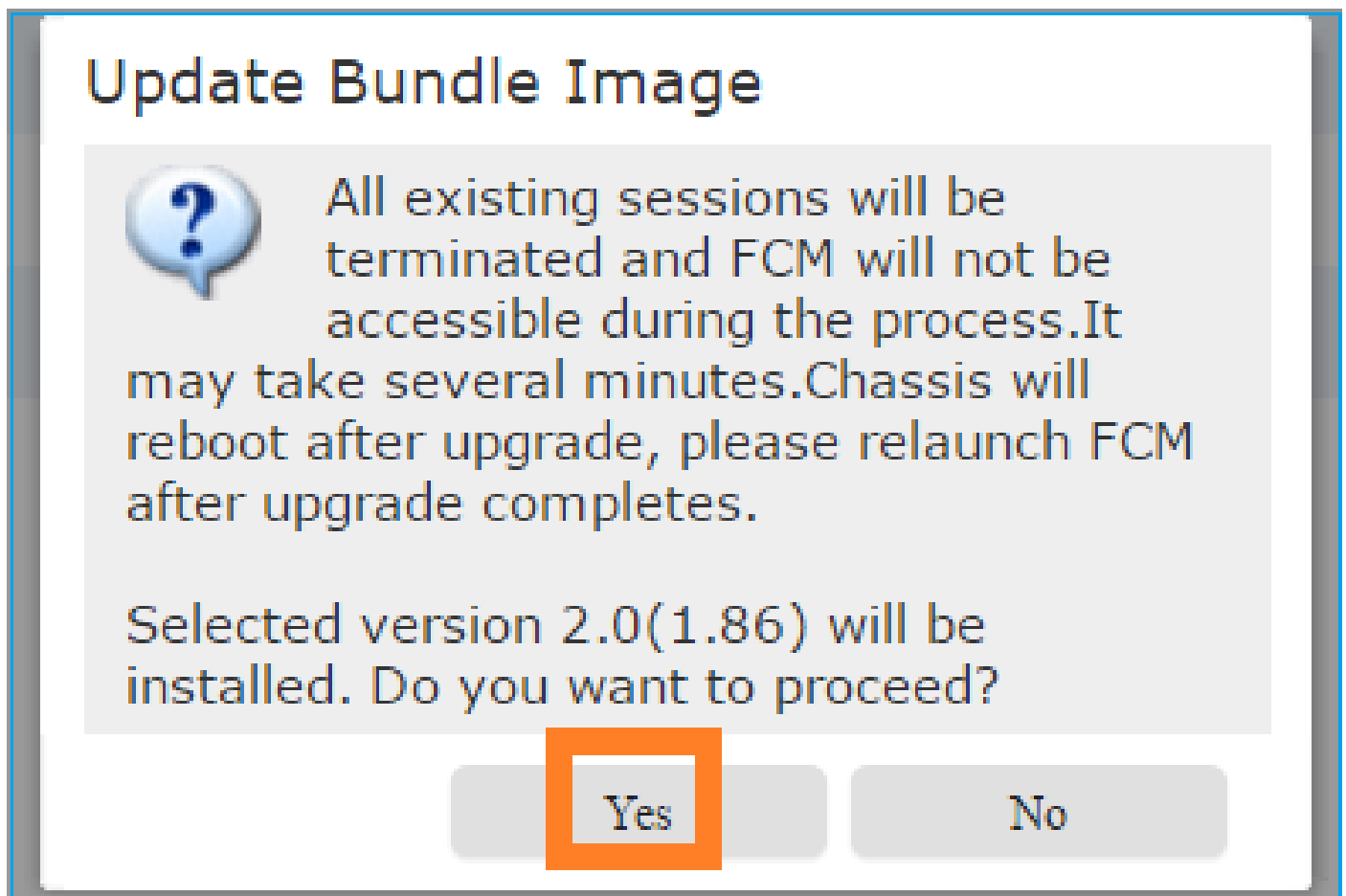



Image Name	Type	Version	Status	Build Date	
fxos-k9.2.0.1.37.SPA	platform-bundle	2.0(1.37)	Installed	06/11/2016	
fxos-k9.2.0.1.86.SPA	platform-bundle	2.0(1.86)	Not-Installed	10/15/2016	 

FXOS升級需要重新啟動機箱：



## Update Bundle Image

 All existing sessions will be terminated and FCM will not be accessible during the process. It may take several minutes. Chassis will reboot after upgrade, please relaunch FCM after upgrade completes.

Selected version 2.0(1.86) will be installed. Do you want to proceed?

您可以從FXOS CLI監控FXOS升級。必須升級所有三個元件（FPRM、交換矩陣互聯和機箱）：

```
<#root>
```

```
FPR4100-4-A#
```

```
scope system
```

```
FPR4100-4-A /system #
```

```
show firmware monitor
```

```
FPRM:
```

```
Package-Vers: 2.0(1.37)
```

```
Upgrade-Status:
```

```
Upgrading
```

```
Fabric Interconnect A:
```

```
Package-Vers: 2.0(1.37)
```

```
Upgrade-Status: Ready
```

```
Chassis 1:
```

```
Server 1:
```

```
Package-Vers: 2.0(1.37)
```

```
Upgrade-Status: Ready
```

---

 註：啟動FXOS升級過程幾分鐘後，您將與FXOS CLI和GUI斷開連線。幾分鐘後必須能夠重新登入。

---

大約五分鐘後，FPRM元件升級完成：

```
<#root>
```

```
FPR4100-4-A /system #
```

```
show firmware monitor
```

```
FPRM:
```

```
Package-Vers:
```

```
2.0(1.86)
```

```
Upgrade-Status:
```

```
Ready
```

```
Fabric Interconnect A:
```

```
Package-Vers: 2.0(1.37)
```

```
Upgrade-Status:
```

```
Upgrading
```

```
Chassis 1:
```

```
Server 1:
```

```
Package-Vers: 2.0(1.37)
```

```
Upgrade-Status:
```

```
Upgrading
```

大約10分鐘後，作為FXOS升級過程的一部分，Firepower裝置將重新啟動：

```
<#root>
```

```
Please stand by while rebooting the system...
```

```
...
```

```
Restarting system.
```

重新啟動後，升級過程將恢復：

```
<#root>
```

```
FPR4100-4-A /system #
```

```
show firmware monitor
```

```
FPRM:
```

```
Package-Vers:
```

```
2.0(1.86)
```

```
Upgrade-Status:
```

```
Ready
```

```
Fabric Interconnect A:
```

```
Package-Vers: 2.0(1.37)
```

```
Upgrade-Status:
```

```
Upgrading
```

```
Chassis 1:
```

```
Server 1:
```

```
Package-Vers: 2.0(1.37)
```

```
Upgrade-Status:
```

```
Upgrading
```

在總共大約30分鐘後，FXOS升級完成：

```
<#root>
```

```
FPR4100-4-A /system #
```

```
show firmware monitor
```

```
FPRM:
```

```
Package-Vers:
```

```
2.0(1.86)
```

```
Upgrade-Status:
```

Ready

Fabric Interconnect A:  
Package-Vers:

2.0(1.86)

Upgrade-Status:

Ready

Chassis 1:

Server 1:

Package-Vers:

2.0(1.86)

,2.0(1.37)

Upgrade-Status:

Ready

## 任務4.交換FTD容錯移轉狀態

---

 註：此步驟不適用於FP21xx和更早的平台。

---

交換容錯移轉狀態之前，請確保機箱上的FTD模組完全開啟：

```
<#root>
```

```
FPR4100-4-A#
```

```
connect module 1 console
```

```
Firepower-module1>
```

```
connect ftd
```

```
Connecting to ftd console... enter exit to return to bootCLI
```

```
>
```

```
show high-availability config
```

```
Failover On
```

```
Failover unit Secondary
```

```
Failover LAN Interface: FOVER Ethernet1/8 (up)
```

```
Reconnect timeout 0:00:00
```

```
Unit Poll frequency 1 seconds, holdtime 15 seconds
```

```
Interface Poll frequency 5 seconds, holdtime 25 seconds
```

```
Interface Policy 1
```

```
Monitored Interfaces 3 of 1041 maximum
```

```
MAC Address Move Notification Interval not set
```

```
failover replication http
```

```
Version: Ours 9.6(2), Mate 9.6(2)
```

```
Serial Number: Ours FLM2006EQFW, Mate FLM2006EN9U
```

```
Last Failover at: 15:08:47 UTC Dec 17 2016
```

**This host: Secondary - Standby Ready**

Active time: 0 (sec)  
slot 0: UCSB-B200-M3-U hw/sw rev (0.0/9.6(2)) status (Up Sys)  
Interface inside (192.168.75.112):

**Normal**

(Monitored)

Interface outside (192.168.76.112):

**Normal**

(Monitored)

Interface diagnostic (0.0.0.0): Normal (Waiting)  
slot 1: snort rev (1.0)

**status**

(

up

)

slot 2: diskstatus rev (1.0)

**status**

(

up

)

**Other host: Primary - Active**

Active time: 5163 (sec)  
Interface inside (192.168.75.111):

**Normal**

(Monitored)

Interface outside (192.168.76.111):

**Normal**

(Monitored)

Interface diagnostic (0.0.0.0): Normal (Waiting)  
slot 1: snort rev (1.0)

**status**

(

up

)

slot 2: diskstatus rev (1.0)

**status**

(

up

)



#### Stateful Failover Logical Update Statistics

```
Link : FOVER Ethernet1/8 (up)
Stateful Obj  xmit      xerr      rcv        rerr
General       65         0         68         4
sys cmd       65         0         65         0
```

...

交換FTD容錯移轉狀態。在作用中FTD CLI上：

```
<#root>
```

```
>
```

```
no failover active
```

```
Switching to Standby
```

```
>
```

## 任務5.升級第二個FXOS機箱

與任務2類似，升級安裝了新待命FTD的FXOS裝置。這可能需要大約30分鐘或更長時間才能完成。

---

 註：此步驟不適用於FP21xx和更早的平台。

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## 任務6.升級FMC軟體

在此案例中，將FMC從6.1.0-330升級到6.1.0.1。

## 任務7.升級FTD HA配對

升級之前：

```
<#root>
```

```
>
```

```
show high-availability config
```

```
Failover On
```

```
Failover unit Primary
```

```
Failover LAN Interface: FOVER Ethernet1/8 (up)
Reconnect timeout 0:00:00
Unit Poll frequency 1 seconds, holdtime 15 seconds
Interface Poll frequency 5 seconds, holdtime 25 seconds
```

Interface Policy 1  
 Monitored Interfaces 3 of 1041 maximum  
 MAC Address Move Notification Interval not set  
 failover replication http

Version: Ours 9.6(2), Mate 9.6(2)

Serial Number: Ours FLM2006EN9U, Mate FLM2006EQFW  
 Last Failover at: 15:51:08 UTC Dec 17 2016

**This host: Primary - Standby Ready**

Active time: 0 (sec)  
 slot 0: UCSB-B200-M3-U hw/sw rev (0.0/9.6(2)) status (Up Sys)  
 Interface inside (192.168.75.112): Normal (Monitored)  
 Interface outside (192.168.76.112): Normal (Monitored)  
 Interface diagnostic (0.0.0.0): Normal (Waiting)  
 slot 1: snort rev (1.0) status (up)  
 slot 2: diskstatus rev (1.0) status (up)

**Other host: Secondary - Active**

Active time: 1724 (sec)  
 Interface inside (192.168.75.111): Normal (Monitored)  
 Interface outside (192.168.76.111): Normal (Monitored)  
 Interface diagnostic (0.0.0.0): Normal (Waiting)  
 slot 1: snort rev (1.0) status (up)  
 slot 2: diskstatus rev (1.0) status (up)

Stateful Failover Logical Update Statistics

Link : FOVER Ethernet1/8 (up)  
 Stateful Obj    xmit        xerr        rcv        rerr  
 General        6            0           9           0  
 sys cmd        6            0           6           0

在FMC System > Updates 功能表上，啟動FTD HA升級程式：

Currently running software version: 6.1.0

**Updates**

Type	Version	Date	Release Notes	Reboot
Sourcefire Vulnerability And Fingerprint Database Updates	275	Wed Nov 16 16:50:43 UTC 2016		No
Cisco FTD Patch	6.1.0.1-53	Fri Dec 2 17:36:27 UTC 2016		Yes
Cisco FTD SSP Patch	6.1.0.1-53	Fri Dec 2 17:37:52 UTC 2016		Yes

Ungrouped (1 total)

- FTD4150-HA  
Cisco Firepower 4150 Threat Defense Cluster
- FTD4150-4 (active)  
10.62.148.125 - Cisco Firepower 4150 Threat Defense v6.1.0
- FTD4150-3  
10.62.148.89 - Cisco Firepower 4150 Threat Defense v6.1.0

Health Policy  
Initial Health Policy 2016-11-21 12:21:09

Health Policy  
Initial Health Policy 2016-11-21 12:21:09

Launch Readiness Check **Install** Cancel

首先，升級主/備用FTD:

Deploy **System** Help admin

Deployments Health **Tasks** ?

1 total | 0 waiting 1 running 0 retrying 0 success 0 failures

Remote Install 1m 21s

Apply to FTD4150-HA.  
10.62.148.89 : Initializing

待命FTD模組會使用新映像重新開機：

1 total | 0 waiting 1 running 0 retrying 0 success 0 failures

Remote Install 7m 50s

Apply to FTD4150-HA.  
10.62.148.89 : Last Message : System will now reboot. (no communication)

您可以從FXOS BootCLI模式驗證FTD狀態：

```
<#root>
```

```
FPR4100-3-A#
```

```
connect module 1 console
```

```
Firepower-module1>
```

```
show services status
```

```
Services currently running:
```

```
Feature | Instance ID | State | Up Since
```

```
-----
```

```
ftd | 001_JAD201200R4WLYCW06 |
```

RUNNING

| :00:00:33

由於FTD模組之間的軟體版本不相符，Secondary/Active FTD CLI顯示警告訊息：

<#root>

firepower#

\*\*\*\*\*WARNING\*\*\*\*WARNING\*\*\*\*WARNING\*\*\*\*\*

Mate version 9.6(2) is not identical with ours 9.6(2)4

\*\*\*\*\*WARNING\*\*\*\*WARNING\*\*\*\*WARNING\*\*\*\*\*

Beginning configuration replication: Sending to mate.

End Configuration Replication to mate

FMC顯示FTD裝置已成功升級：

1 total | 1 waiting 0 running 0 retrying 0 success 0 failures

Remote Install 16m 1s

Apply to FTD4150-HA.  
10.62.148.89 : Device successfully upgraded

第二個FTD模組的升級開始：

1 total | 0 waiting 1 running 0 retrying 0 success 0 failures

Remote Install 17m 22s

Apply to FTD4150-HA.  
10.62.148.125 : [ 1%] Running script 000\_start/101\_run\_pruning.pl...

程式結束時，FTD會使用新映像啟動：

Deploy System Help admin

Deployments Health Tasks

2 total | 0 waiting 1 running 0 retrying 1 success 0 failures

Remote Install 24m 55s

Apply to FTD4150-HA.  
10.62.148.125 : Last Message : System will now reboot. (no communication)

在後台，FMC使用內部使用者enable\_1、交換FTD容錯移轉狀態，並暫時從FTD移除容錯移轉組態：

```
<#root>
firepower#
show logging
Dec 17 2016 16:40:14: %ASA-5-111008: User 'enable_1' executed the '
no failover active
' command.
Dec 17 2016 16:40:14: %ASA-5-111010: User 'enable_1', running 'N/A' from IP 0.0.0.0, executed 'no failo
Dec 17 2016 16:41:19: %ASA-5-111008: User 'enable_1' executed the '
clear configure failover
' command.
Dec 17 2016 16:41:19: %ASA-5-111010: User 'enable_1', running 'N/A' from IP 0.0.0.0, executed 'clear co
Dec 17 2016 16:41:19: %ASA-5-111008: User 'enable_1' executed the 'copy /noconfirm running-config disk0
Dec 17 2016 16:41:19: %ASA-5-111010: User 'enable_1', running 'N/A' from IP 0.0.0.0, executed 'copy /no
disk0:/modified-config.cfg'
firepower#
Switching to Standby
firepower#
```

在此案例中，整個FTD升級（兩個裝置）耗時約30分鐘。

## 驗證

此範例顯示來自主FTD裝置的FTD CLI驗證：

```
<#root>
>
show high-availability config
Failover On
Failover unit Primary
Failover LAN Interface: FOVER Ethernet1/8 (up)
Reconnect timeout 0:00:00
Unit Poll frequency 1 seconds, holdtime 15 seconds
Interface Poll frequency 5 seconds, holdtime 25 seconds
Interface Policy 1
Monitored Interfaces 3 of 1041 maximum
MAC Address Move Notification Interval not set
failover replication http
Version: Ours 9.6(2)4, Mate 9.6(2)4
```

Serial Number: Ours FLM2006EN9U, Mate FLM2006EQFW  
Last Failover at: 16:40:14 UTC Dec 17 2016

**This host: Primary - Active**

Active time: 1159 (sec)  
slot 0: UCSB-B200-M3-U hw/sw rev (0.0/9.6(2)4) status (Up Sys)  
  Interface inside (192.168.75.111): Normal (Monitored)  
  Interface outside (192.168.76.111): Normal (Monitored)  
  Interface diagnostic (0.0.0.0): Normal (Waiting)  
slot 1: snort rev (1.0) status (up)  
slot 2: diskstatus rev (1.0) status (up)

**Other host: Secondary - Standby Ready**

Active time: 0 (sec)  
slot 0: UCSB-B200-M3-U hw/sw rev (0.0/9.6(2)4) status (Up Sys)  
  Interface inside (192.168.75.112): Normal (Monitored)  
  Interface outside (192.168.76.112): Normal (Monitored)  
  Interface diagnostic (0.0.0.0): Normal (Waiting)  
slot 1: snort rev (1.0) status (up)  
slot 2: diskstatus rev (1.0) status (up)

Stateful Failover Logical Update Statistics

Link : FOVER Ethernet1/8 (up)  
Stateful Obj   xmit       xerr       rcv       rerr  
General        68        0        67        0

...  
>

此範例顯示從輔助/待命FTD裝置進行的FTD CLI驗證：

<#root>

>

show high-availability config

Failover On

Failover unit Secondary

Failover LAN Interface: FOVER Ethernet1/8 (up)  
Reconnect timeout 0:00:00  
Unit Poll frequency 1 seconds, holdtime 15 seconds  
Interface Poll frequency 5 seconds, holdtime 25 seconds  
Interface Policy 1  
Monitored Interfaces 3 of 1041 maximum  
MAC Address Move Notification Interval not set  
failover replication http  
Version: Ours 9.6(2)4, Mate 9.6(2)4  
Serial Number: Ours FLM2006EQFW, Mate FLM2006EN9U  
Last Failover at: 16:52:43 UTC Dec 17 2016

**This host: Secondary - Standby Ready**

Active time: 0 (sec)  
slot 0: UCSB-B200-M3-U hw/sw rev (0.0/9.6(2)4) status (Up Sys)  
  Interface inside (192.168.75.112): Normal (Monitored)  
  Interface outside (192.168.76.112): Normal (Monitored)  
  Interface diagnostic (0.0.0.0): Normal (Waiting)

```
slot 1: snort rev (1.0) status (up)
slot 2: diskstatus rev (1.0) status (up)
```

Other host: Primary - Active

```
Active time: 1169 (sec)
Interface inside (192.168.75.111): Normal (Monitored)
Interface outside (192.168.76.111): Normal (Monitored)
Interface diagnostic (0.0.0.0): Normal (Waiting)
slot 1: snort rev (1.0) status (up)
slot 2: diskstatus rev (1.0) status (up)
```

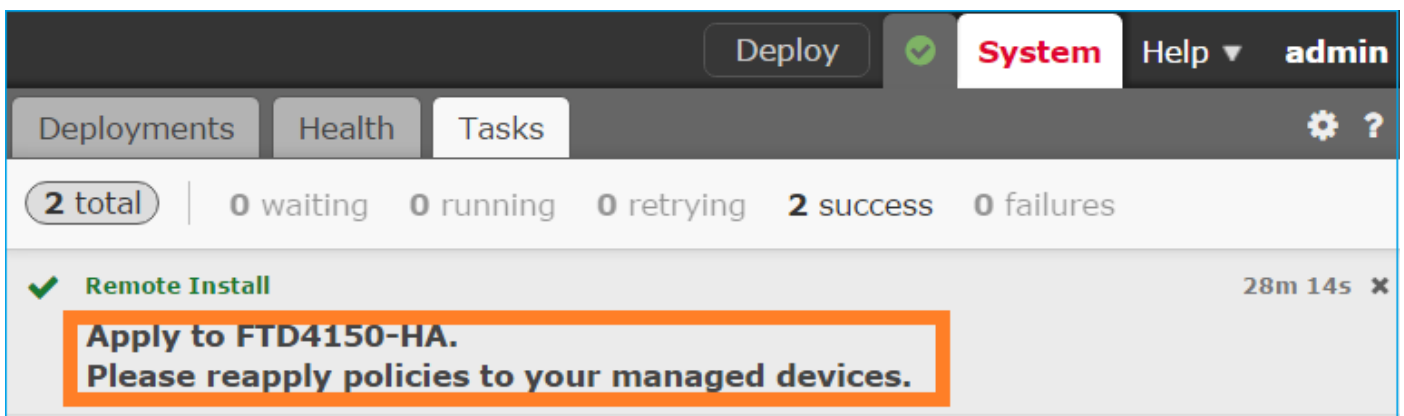
Stateful Failover Logical Update Statistics

```
Link : FOVER Ethernet1/8 (up)
Stateful Obj  xmit      xerr      rcv       rerr
General      38         0         41        0
```

...  
>

## 任務8.將原則部署到FTD HA配對

升級完成後，您需要將原則部署到HA配對。以下內容顯示在FMC UI中：



The screenshot shows the FMC UI interface. At the top, there is a 'Deploy' button with a green checkmark, followed by 'System', 'Help', and 'admin'. Below this, there are tabs for 'Deployments', 'Health', and 'Tasks'. The 'Tasks' tab is active, showing a summary of deployment status: '2 total', '0 waiting', '0 running', '0 retrying', '2 success', and '0 failures'. A notification banner at the bottom of the tasks list indicates a successful 'Remote Install' for 'Apply to FTD4150-HA.' with a duration of '28m 14s'. The notification text is highlighted with an orange border.

部署策略：

## Deploy Policies Version: 2016-12-17 06:08 PM

The screenshot shows a configuration page for a device named 'FTD4150-HA'. The page title is 'Deploy Policies' with a version timestamp of '2016-12-17 06:08 PM'. Under the 'Device' section, several policies are listed, each with a status icon (a clock for pending or a checkmark for active):

- NGFW Settings: FTD4150
- Access Control Policy: FTD4150
- Intrusion Policy: Balanced Security and Connectivity
- DNS Policy: Default DNS Policy
- Prefilter Policy: Default Prefilter Policy (marked with a green checkmark)
- Network Discovery
- Device Configuration ([Details](#))

驗證

從FMC UI中看到的已升級FTD HA配對：

The screenshot shows the 'Devices' tab in the FMC UI. The navigation bar includes 'Overview', 'Analysis', 'Policies', 'Devices' (selected), 'Objects', and 'AMP'. Below the navigation bar, there are sub-tabs for 'Device Management', 'NAT', 'VPN', 'QoS', and 'Platform Settings'. The main content area displays a table of devices:

Name	Group
<b>Ungrouped (1)</b>	
<b>FTD4150-HA</b> Cisco Firepower 4150 Threat Defense High Availability	
<b>FTD4150-3(Primary, Active)</b> 10.62.148.89 - Cisco Firepower 4150 Threat Defense - v6.1.0.1 - routed	
<b>FTD4150-4(Secondary, Standby)</b> 10.62.148.125 - Cisco Firepower 4150 Threat Defense - v6.1.0.1 - routed	

從FCM UI看到的已升級FTD HA配對：



Overview Interfaces **Logical Devices** Security Engine Platform Settings System Tools Help admin

Refresh Add Device

FTD4150-3 Standalone Status: ok

Application	Version	Management IP	Gateway	Management Port	Status
FTD	6.1.0.1.53	10.62.148.89	10.62.148.1	Ethernet1/7	online

Ports:

Data Interfaces: Ethernet1/6 Ethernet1/8

Attributes:

Cluster Operational Status: not-applicable  
Firepower Management IP: 10.62.148.89  
Management URL : https://fs4k  
UUID : 13fbc60-c378

## 相關資訊

- [思科 Firepower 新世代防火牆\(NGFW\)](#)
- [技術支援與文件 - Cisco Systems](#)

## 關於此翻譯

思科已使用電腦和人工技術翻譯本文件，讓全世界的使用者能夠以自己的語言理解支援內容。請注意，即使是最佳機器翻譯，也不如專業譯者翻譯的內容準確。Cisco Systems, Inc. 對這些翻譯的準確度概不負責，並建議一律查看原始英文文件（提供連結）。