對Firepower 4100和9300系列中的FXOS執行完全重新映像

目錄

簡介

本文說明如何重新格式化整個系統、清除映像並將其恢復為出廠預設設定。

需求

— 與Firepower上的管理介面的TFTP伺服器連線

— 到裝置的控制檯連線

採用元件

- Firepower 4100或9300系列

-TFTP伺服器

-Recovery Image Software Bundle，恢復映像包括三個不同的檔案（K.ickstart、Manager和System）。 例如，接下來是FXOS 2.13(0.212)的恢復映像

  — 用於FX-OS 2.13(0.212)的恢復映像(kickstart)

  — 用於FX-OS 2.13(0.212)的恢復映像（管理器）

  — 用於FX-OS 2.13(0.212)的恢復映像（系統）

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。

✎ 注意:執行此過程後，管理員密碼將重置為Admin123。

開始之前

- 如果Supervisor板載快閃記憶體損壞且系統不再能夠成功啟動，您可以使用此過程恢復系統。

要完成此過程，您必須使用TFTP引導啟動映像，重新格式化快閃記憶體下載新系統並重新啟動Supervisor。

程式

步驟 1.

訪問ROMMON提示

  a. 連線到控制檯埠。

  b. 重新啟動系統。
    系統啟動引導過程並顯示倒計時計時器。

  c. 在倒計時過程中按Escapekey進入ROMMON模式

```
Cisco System ROMMON, Version 1.0.15, RELEASE SOFTWARE
Copyright (c) 1994-2019  by Cisco Systems, Inc.
Compiled Thu 04/11/2019 21:15:59.58 by builder
Current image running: Boot ROM0
Last reset cause: PowerOn
DIMM Slot 0 : Present
DIMM Slot 1 : Present
No USB drive !!
BIOS has been locked !!

Platform FPR-4145-SUP with 8192 Mbytes of main memory
MAC Address: 88:fc:5d:4b:fa:b8

find the string ! boot bootflash:/installables/switch/fxos-k9-kickstart.5.0.3.N2.4.130.81.SPA bootflash:/installables/switch/fxos-k9-system.5.0.3.N2.4.130.81.SPA

Use BREAK, ESC or CTRL+L to interrupt boot.
Use SPACE to begin boot immediately.
Boot interrupted.

rommon 1 >
```

步驟 2.

通過TFTP使用kickstarter映像啟動系統

  a. 為管理介面、地址、網路掩碼和網關設定正確的引數。

```
rommon 1 > address <IP-Address>

rommon 2 > netmask <Network-Mask>

rommon 3 > gateway <Default-Gateway>
```

b.使用set命令驗證管理介面上的資訊。

```
rommon 4 > set
        ADDRESS=
        NETMASK=
        GATEWAY=
        SERVER=
        IMAGE=
        PS1="rommon ! > "
```

c.將kickstart映像複製到可通過管理介面從Firepower4100/9300機箱訪問的TFTP目錄。

```
rommon 15 > boot tftp://10.88.7.12/fxos-k9-kickstart.5.0.3.N2.4.130.81.SPA
        ADDRESS: 10.201.183.202
        NETMASK: 255.255.255.248
        GATEWAY: 10.201.183.201
         SERVER: 10.88.7.12
          IMAGE: fxos-k9-kickstart.5.0.3.N2.4.130.81.SPA

    TFTP_MACADDR: 88:fc:5d:4b:fa:b8
.......................................................................
Receiving fxos-k9-kickstart.5.0.3.N2.4.130.81.SPA from 10.88.7.12
#######################################################################
#######################################################################
###################################
File reception completed.
  !!   Kickstart Image verified successfully   !!
```

✏️ 註:您也可以使用插入Firepower4100/9300機箱前面板上USB插槽的USB媒體裝置從ROMMON啟動kickstart。如果在系統運行時插入USB裝置,則需要在系統識別USB裝置之前重新啟動系統。

步驟 3.

一旦 kickstart 影象為 已載入 , 重新格式化 其 快閃記憶體 使用 其 init 系統 指令。

```
switch(boot)# init system
This command is going to erase your startup-config, licenses as well as the contents of your bootflash:.
Do you want to continue? (y/n)  [n] y
Detected 32GB flash...
Initializing the system
mke2fs 1.46.1 (9-Feb-2021)
Checking for bad blocks (read-only test): done
Initializing startup-config and licenses
mke2fs 1.46.1 (9-Feb-2021)
Checking for bad blocks (read-only test): done
mke2fs 1.46.1 (9-Feb-2021)
Checking for bad blocks (read-only test): done
mke2fs 1.46.1 (9-Feb-2021)
Checking for bad blocks (read-only test): done
Formatting bootflash:
mke2fs 1.46.1 (9-Feb-2021)
Checking for bad blocks (read-only test): done
Formatting SAM partition:
mke2fs 1.46.1 (9-Feb-2021)
Checking for bad blocks (read-only test): done
Formatting Workspace partition:
mke2fs 1.46.1 (9-Feb-2021)
Checking for bad blocks (read-only test): done
Formatting Sysdebug  partition:
mke2fs 1.46.1 (9-Feb-2021)
Checking for bad blocks (read-only test): done
Resetting CMOS to default configuration
CMOS I/O operation succeeded
Reinitializing NVRAM contents
Reinitializing OBFL contents
Initialization_completed
```

✎ 註：「init system」命令會清除快閃記憶體的內容，包括下載到系統的所有軟體映像以及系統上的所有配置。完成該過程大約需要20-30分鐘。

步驟 4.

下載Firepower 4100/9300機箱的恢復映像。

   a. 您 必須 set 其 管理 IP 地址 和 網關 成長至 下載 其 恢復 影象。

```
switch(boot)# config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
switch(boot)(config)# interface mgmt 0
switch(boot)(config-if)# ip address <IP Address> <Netmask>
switch(boot)(config-if)# no shutdown
switch(boot)(config-if)# exit
switch(boot)(config)# ip default-gateway <Gateway>
switch(boot)(config-if)# exit
```

✎ 註:無法通過USB下載這些映像。

b.將所有三個恢復映像從遠端伺服器複製到bootflash。

c.指定使用下一個語法之一匯入映像的檔案的URL:

   • ftp://username@hostname/path/image_name
   • scp://username@hostname/path/image_name

- sftp://username@hostname/path/image_name
- tftp://hostname/path/image_name

```
switch(boot)# copy tftp://10.88.7.12/fxos-k9-kickstart.5.0.3.N2.4.130.81.SPA bootflash:
Trying to connect to tftp server......
Connection to server Established. Copying Started.....
/
TFTP get operation was successful
Copy complete, now saving to disk (please wait)...
switch(boot)# copy tftp://10.88.7.12/fxos-k9-system.5.0.3.N2.4.130.81.SPA bootflash:
Trying to connect to tftp server......
Connection to server Established. Copying Started.....
-
TFTP get operation was successful
Copy complete, now saving to disk (please wait)...
switch(boot)# copy tftp://10.88.7.12/fxos-k9-manager.4.13.0.81.SPA bootflash:
Trying to connect to tftp server......
Connection to server Established. Copying Started.....
/
TFTP get operation was successful
Copy complete, now saving to disk (please wait)...
switch(boot)#
```

d.映像成功複製到Firepower 4100/9300機箱後，請從nuova-sim-mgmt-nsg.0.1.0.001.bin對管理器映像進行符號連結。此連結告知載入機制載入哪個管理器映像。

無論您嘗試載入什麼影象，符號連結名稱必須始終為nuova-sim-mgmt-nsg.0.1.0.001.bin。

```
switch(boot)# copy bootflash:<manager-image> bootflash:nuova-sim-mgmt-nsg.0.1.0.001.bin
                                ^


switch(boot)# copy bootflash:fxos-k9-manager.4.13.0.81.SPA bootflash:nuova-sim-mgmt-nsg.0.1.0.001.bin
Copy complete, now saving to disk (please wait)...
```

步驟 5.

重新載入交換器。

```
switch(boot)# reload
This command will reboot this supervisor module. (y/n) ? y
[ 6267.402202] reboot: Restarting system

!!   Rommon image verified successfully   !!



Cisco System ROMMON, Version 1.0.15, RELEASE SOFTWARE
Copyright (c) 1994-2019  by Cisco Systems, Inc.
Compiled Thu 04/11/2019 21:15:59.58 by builder
Current image running: Boot ROM0
Last reset cause: ResetRequest
DIMM Slot 0 : Present
DIMM Slot 1 : Present
No USB drive !!
BIOS has been locked !!

Platform FPR-4145-SUP with 8192 Mbytes of main memory
MAC Address: 88:fc:5d:4b:fa:b8

autoboot: Can not find autoboot file 'menu.lst.local'
           Or can not find correct boot string !!
rommon 1 >
```

步驟 6.

開機 自 kickstart 和 系統映像。

```
rommon 1 > boot <kickstart-image> <system-image>

rommon 2 > boot fxos-k9-kickstart.5.0.3.N2.4.130.81.SPA fxos-k9-system.5.0.3.N2.4.130.81.SPA
  !!   Kickstart Image verified successfully   !!

Linux version: 5.10.79-yocto-standard+ (pvasapur@sjc-vms-vm0185) #1 SMP Tue Mar 22 23:16:22 PDT 2022
cp: setting permissions for '/new-root/bootflash': Operation not supported
cp: setting permissions for '/new-root/proc': Operation not supported
cp: setting permissions for '/new-root/slot0': Operation not supported
cp: setting permissions for '/new-root/sys': Operation not supported
linuxrc.ext Sun Jan  1 00:09:40 UTC 2012
[    4.286394] Nuova i2c initialization done successfully
```

✎ 注意：載入系統映像時，可以看到license manager錯誤消息。您可以放心地忽略這些消息。

步驟 7.

映像載入後，系統提示您輸入初始配置設定。 有關詳細資訊，請參閱使用控制檯埠進行初始配置。

```
Type Ctrl-C at any time for more options
or to abort configuration and reboot system.
You have chosen to setup a new Security Appliance.
        Continue? (yes/no): yes
```

步驟 8.

使用已設定的憑據登入系統。

步驟 9.

下載用於Firepower 4100/9300機箱的平台捆綁包映像。

```
FPR-4145# scope firmware
FPR-4145 /firmware # download image tftp://10.88.7.12/fxos-k9.2.13.0.212.SPA
Please use the command 'show download-task' or 'show download-task detail' to check download progress.
% Download-task fxos-k9.2.13.0.212.SPA : transferring 28624 KB              download-task

Download task:
    File Name Protocol Server          Port      Userid          State
    --------- -------- --------------- --------- --------------- -----
    fxos-k9.2.13.0.212.SPA
              Tftp     10.88.7.12                0               Downloading
% Download-task fxos-k9.2.13.0.212.SPA : completed successfully.
```

步驟 10.

1. 進入自動安裝模式。
2. 安裝FXOS平台捆綁包。
3. 系統將首先驗證要安裝的軟體包。系統會通知您當前安裝的應用程式與指定的FXOS平台軟體包之間的任何不相容性。
4. 輸入以確認您要繼續安裝，或輸入不要取消安裝。

```
FPR-4145 /firmware # show package
Name                                            Version
----------------------------------------------- -------
fxos-k9.2.13.0.212.SPA                          2.13(0.212)
FPR-4145 /firmware # scope auto-install
FPR-4145 /firmware/auto-install # install platform platform-vers 2.13(0.212)
The currently installed FXOS platform software package is not set

INFO: There is no service impact to install this FXOS platform software 2.13(0.212)

This operation upgrades firmware and software on Security Platform Components
Here is the checklist of things that are recommended before starting Auto-Install
(1) Review current critical/major faults
(2) Initiate a configuration backup
Do you want to proceed? (yes/no):yes

Triggering Install-Platform with:
    FXOS platform software package version 2.13(0.212)
Note: the upgrade status can be monitored with 'show firmware monitor' under system scope
command executed
FPR-4145 /firmware/auto-install # 
```

步驟 11.

監控安裝。

```
FPR-4145 /firmware/auto-install # show fsm status expand


    FSM Status:

        Affected Object: sys/fw-system/fsm
        Current FSM: Deploy
        Status: Success
        Completion Time: 2012-01-01T00:56:29.615
        Progress (%): 100

        FSM Stage:

        Order  Stage Name                          Status       Try
        -----  --------------------------------    -----------  ---
        1      DeployWaitForDeploy                 Success      0
        2      DeployResolveDistributableNames     Skip         0
        3      DeployResolveDistributable          Skip         0
        4      DeployResolveImages                 Skip         0
        5      DeployValidatePlatformPack          Success      1
        6      DeployDebundlePort                  Skip         0
        7      DeployPollDebundlePort              Success      1
        8      DeployActivateUCSM                  Skip         0
        9      DeployPollActivateOfUCSM            Success      0
        10     DeployActivateMgmtExt               Skip         0
        11     DeployPollActivateOfMgmtExt         Skip         0
        12     DeployUpdateIOM                     Skip         0
        13     DeployPollUpdateOfIOM               Skip         0
        14     DeployActivateIOM                   Skip         0
        15     DeployPollActivateOfIOM             Skip         0
        16     DeployActivateRemoteFI              Skip         0
        17     DeployPollActivateOfRemoteFI        Skip         0
        18     DeployWaitForUserAck                Skip         0
        19     DeployActivateLocalFI               Success      0
        20     DeployPollActivateOfLocalFI         Success      0
```

步驟 12.

如果安裝的平台捆綁包映像與用於恢復系統的映像相對應,則必須手動啟用kickstart和系統映像,以便在以後載入系統時使用這些映像。

安裝與使用的恢復映像具有相同映像的平台套件組合時,不會發生自動啟用。

1. 設定交換矩陣互聯a的範圍:
2. 使用show version命令顯示正在運行的核心版本和正在運行的系統版本。使用這些字串啟用影象。

✎ 注意:如果Startup-Kern-Vers和Startup-Sys-Vers已設定並且與Running-Kern-Vers和Running-Sys-Vers匹配,則無需啟用映像,即可繼續執行步驟13。

c.輸入下一個命令以啟用映像。啟用韌體核心版本<running_kernel_version> system-version <running_system_version>

```
FPR-4145# scope fabric-interconnect a
FPR-4145 /fabric-interconnect # show version
Fabric Interconnect A:
    Running-Kern-Vers: 5.0(3)N2(4.130.81)
    Running-Sys-Vers: 5.0(3)N2(4.130.81)
    Package-Vers: 2.13(0.212)
    Startup-Kern-Vers:
    Startup-Sys-Vers:
    Act-Kern-Status: Ready
    Act-Sys-Status: Ready
    Bootloader-Vers:

FPR-4145 /fabric-interconnect # activate firmware kernel-version 5.0(3)N2(4.130.81) system-version 5.0(3)N2(4.130.81)
Warning: When committed this command will reset the end-point
FPR-4145 /fabric-interconnect* # commit-buffer
FPR-4145 /fabric-interconnect # show version
Fabric Interconnect A:
    Running-Kern-Vers: 5.0(3)N2(4.130.81)
    Running-Sys-Vers: 5.0(3)N2(4.130.81)
    Package-Vers: 2.13(0.212)
    Startup-Kern-Vers: 5.0(3)N2(4.130.81)
    Startup-Sys-Vers: 5.0(3)N2(4.130.81)
    Act-Kern-Status: Activating
    Act-Sys-Status: Activating
    Bootloader-Vers:
```

✎ 注意:伺服器狀態可以更改為「磁碟故障」。 您無需擔心此消息,可以繼續此過程。

步驟 13.

重新啟動系統。

```
FPR-4145# top
FPR-4145# scope chassis 1
FPR-4145 /chassis # reboot no-prompt
Starting chassis reboot. Monitor progress with the command "show fsm status"
FPR-4145 /chassis # show fsm status

Chassis: 1

    FSM 1:
        Remote Result: Not Applicable
        Remote Error Code: None
        Remote Error Description:
        Status: Reboot Chassis Wait For Blade Shutdown
        Previous Status: Reboot Chassis Wait For Blade Shutdown
        Timestamp: 2012-01-01T01:15:19.564
        Try: 1
        Progress (%): 65
        Current Task: Waiting for blade shutdown(FSM-STAGE:sam:dme:EquipmentChas
sisRebootChassis:WaitForBladeShutdown)
        Flags: 0
FPR-4145 /chassis #
```

✎ 註:在最後關機,然後重新啟動Firepower4100/9300機箱之前,系統會關閉每個安全模組/引擎的電源。此過程大約需要5-10分鐘。

步驟 14.

監控系統狀態。伺服器狀態必須從「Discovery」（發現）變為「Config」（配置），最後變為「Ok」（確定）。

```
FPR-4145# show server status
Server  Slot Status                          Overall Status          Discovery
------- ----------------------------------   ----------------------  ---------
1/1     Equipped                             Discovery               Retry

FPR-4145# show server status
Server  Slot Status                          Overall Status          Discovery
------- ----------------------------------   ----------------------  ---------
1/1     Equipped                             Config                  Complete

FPR-4145# show server status
Server  Slot Status                          Overall Status          Discovery
------- ----------------------------------   ----------------------  ---------
1/1     Equipped                             Ok                      Complete
```