

Upgrade FMC in High Availability

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Introduction

This document describes the steps to upgrade an environment of Firewall Management Center (FMC) in High Availability (HA).

Requirements

Cisco recommends you have knowledge of these topics:

- High Availability concepts
- FMC configuration

Components used

The information in this document is based on:

- Virtual Firewall Management Center (FMC) , version 7.1.0

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.

Overview

The upgrade has to be one peer at a time. First, pause synchronization between the peers.

Then the upgrade needs to be first done in the standby, followed by the active FMC.



Warning: While the standby peer is working on pre-checks / installation, both peers switch to active; this is called split-brain. It is totally expected while the upgrade. During this time, you must not make or deploy any configuration change. If you do any configuration change, it can be lost after synchronization is restarted.

Pre upgrade

1. Plan your upgrade path.

In FMC deployments, you usually upgrade the FMC, then its managed devices.

Always know which upgrade you just performed and which is next.

2. Read all upgrade guidelines and plan configuration changes.
3. Check bandwidth.

Ensure your management network has the bandwidth to perform large data transfers.

4. Schedule maintenance windows.
5. Back up the configuration before and after upgrade.

System > Back up / Restore > Firepower Management backup

Download the backup to your local machine.

6. Upgrade virtual hosting. This is required when you are running an older version of VMware.
7. Check configurations
8. Check NTP synchronization

- FMC: Choose System > Configuration > Time.
- Devices: Use the show time CLI command.

9. Check disk space.

10. Deploy configurations. In FMC high availability deployments, you only need to deploy from the active peer.

11. Check running tasks. Ensure there is no pending deployments.

Upgrade Procedure

Step 1. Pause synchronization

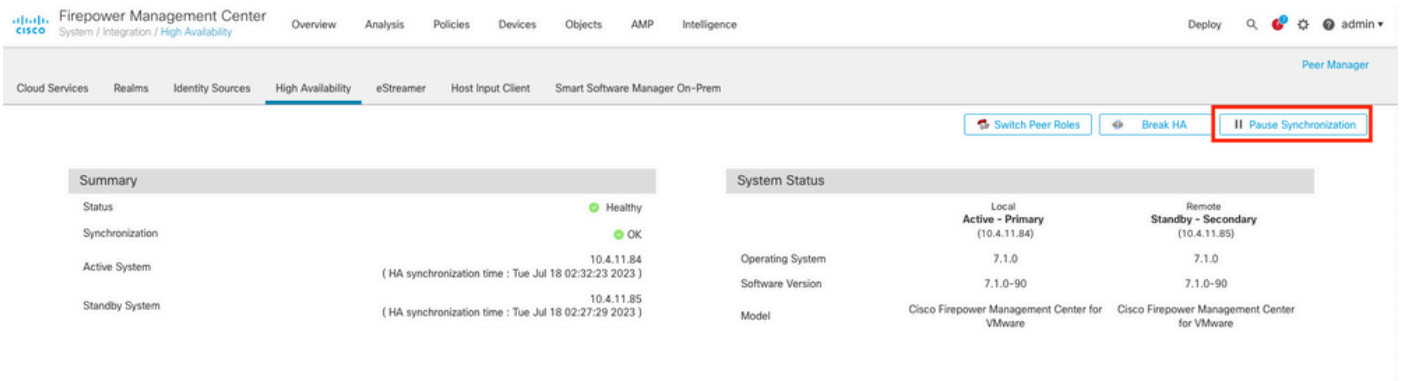
Navigate to the High Availability tab on the FMC on Active peer

- **System > Integration > High Availability**

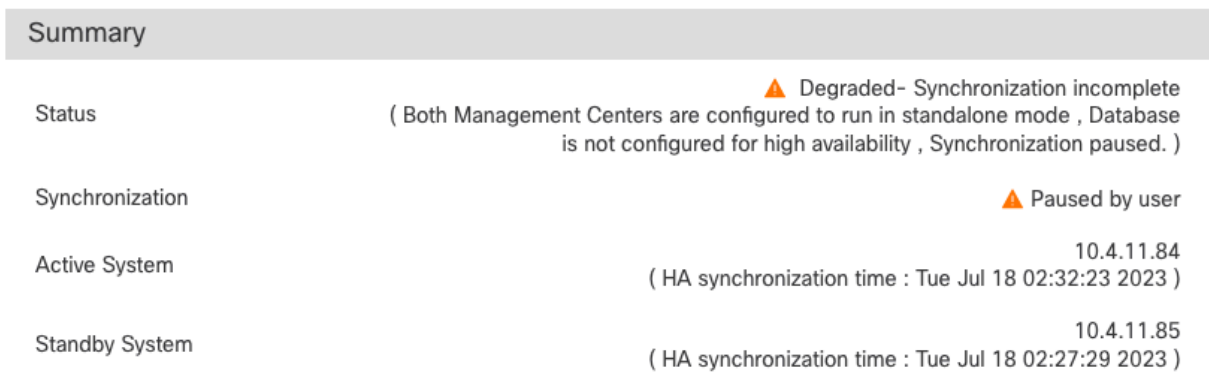
The screenshot shows the Cisco Firepower Management Center (FMC) interface. At the top right, there is a navigation bar with 'Deploy', a search icon, a gear icon (highlighted with a red box), a help icon, and the user 'admin'. Below this is a large menu with three columns: 'Configuration', 'Logging', and 'Monitoring'. The 'Integration' option in the 'Configuration' column is highlighted with a red box. Below the menu is a 'Reboot' button. At the bottom of the page, there is a navigation bar with 'Cloud Services', 'Realms', 'Identity Sources', 'High Availability' (highlighted with a red box), 'eStreamer', 'Host Input Client', and 'Smart Software Manager On-Prem'. Below the navigation bar are three buttons: 'Switch Peer Roles', 'Break HA', and 'Pause Synchronization'. The main content area is divided into two sections: 'Summary' and 'System Status'. The 'Summary' section shows the status of synchronization tasks. The 'System Status' section shows the status of the local and remote peers.

| Summary | System Status |
|-----------------|---|
| Status | Local Active - Primary (10.4.11.84) |
| Synchronization | Remote Standby - Secondary (10.4.11.85) |
| Active System | Operating System |
| Standby System | Software Version |
| | Model |

- **Select Pause Synchronization**



- Wait for the synchronization to be paused, status must be Paused by user when complete.

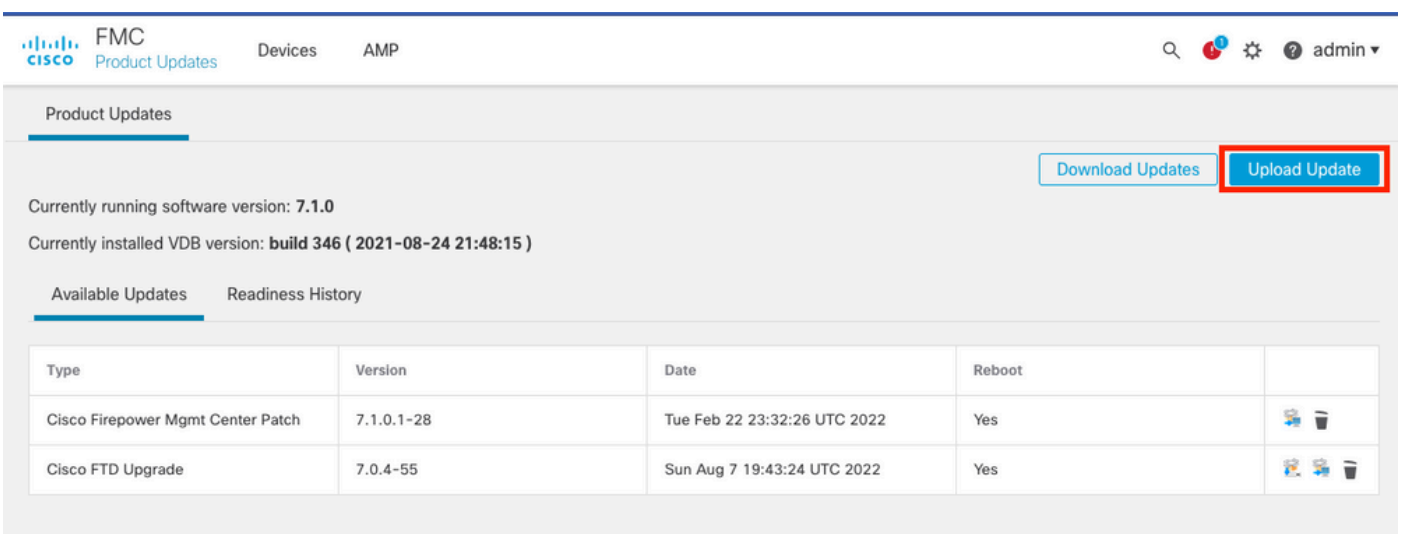


Synchronization status should be Paused per user

Step 2. Upload the upgrade package

Log in to the standby unit and upload the upgrade package

- **System > Updates > Upload Update**



- Browse the previously downloaded package of the version to be upgraded.

Currently running software version: 7.1.0

Updates

Upload software updates and patches here.

- Action Upload local software update package
 Specify software update source (FTD devices only)

Package Cisco_Secure_FW_Mgmt_Center_Upgrade-7.2.4-169.sh.REL.tar

Step 3. Readiness check

Run a readiness check on the appliance to be upgraded.


- Click on the install icon next to the appropriate upgrade package.

Product Updates

Download Updates Upload Update

Currently running software version: 7.1.0
Currently installed VDB version: build 346 (2021-08-24 21:48:15)

Available Updates Readiness History

| Type | Version | Date | Reboot | |
|-------------------------------------|-----------|------------------------------|--------|---|
| Cisco Secure FW Mgmt Center Upgrade | 7.2.4-169 | Wed May 10 12:48:58 UTC 2023 | Yes |  |

- Select the appliance you want to check and click Check Readiness

Product Updates

Currently running software version: 7.1.0

Selected Update

| | |
|---------|-------------------------------------|
| Type | Cisco Secure FW Mgmt Center Upgrade |
| Version | 7.2.4-169 |
| Date | Wed May 10 12:48:58 UTC 2023 |
| Reboot | Yes |

By Group

| <input checked="" type="checkbox"/> Ungrouped (1 total) | Compatibility Check | Readiness Check Results | Readiness Check Completed | Estimated Upgrade Time | |
|---|-------------------------------------|-------------------------------------|-------------------------------------|------------------------|--|
| <input checked="" type="checkbox"/> firepower 10.4.11.85 - Cisco Firepower Management Center for VMware v7.1.0 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 35 min | |

Back **Check Readiness** Install

The progress can be check in the message center

Messages > Tasks > Running

Upgrades Health **Tasks**

20+ total | 0 waiting | **1 running** | 0 retrying | 20+ success | 5 failures | Filter

Local Readiness Check

Readiness Check For version: 7.2.4-169 3m 17s

[50%] Running script 000_start/110_DB_integrity_check.sh...

No more older tasks

Once completed, you can see the status in the Readiness Check Results.

If successful, then we can continue with the installation of the package.

Step 4. Install the upgrade package

- Select the appliance to upgrade. Click **Install**

Product Updates


Currently running software version: 7.1.0

Selected Update

| | |
|---------|-------------------------------------|
| Type | Cisco Secure FW Mgmt Center Upgrade |
| Version | 7.2.4-169 |
| Date | Wed May 10 12:48:58 UTC 2023 |
| Reboot | Yes |

| By Group | Compatibility Check | Readiness Check Results | Readiness Check Completed | Estimated Upgrade Time | |
|---|--|--|--|------------------------|--------|
| <input checked="" type="checkbox"/> Ungrouped (1 total) | <input checked="" type="checkbox"/> firepower <small>10.4.11.85 - Cisco Firepower Management Center for VMware v7.1.0</small> | ● Compatibility check passed. Proceed with readiness check. | ● Success | 2023-07-18 00:05:22 | 35 min |

- Warning for the split brain, click OK

 **10.88.243.115:43085**


After both FMCs are updated, FMC high availability will be in split brain. Click 'Make Me Active' after choosing the right Active FMC to resolve split brain.

Progress can be check in **Messages > Tasks**

admin ▾

Upgrades
▲ Health
● Tasks

20+ total
0 waiting
1 running
0 retrying
20+ success
1 failure

 Local Install

Installing Cisco Secure FW Mgmt Center Upgrade version: 7.2.4-169 1m 7s

Installing Cisco Secure FW Mgmt Center Upgrade version: 7.2.4-169

● Local Readiness Check

Readiness Check For version: 7.2.4-169 4m 18s ✕

Success. OK to upgrade to 7.2.4-169 version.

Note: Installation takes around 30min to complete.

If you have CLI Access, progress can be checked in upgrade folder **/var/log/sf**; move to expert mode and enter root access

```
> expert
admin@firepower:~$ sudo su
Password:
root@firepower:/Volume/home/admin# cd /var/log/sf/

root@firepower:/var/log/sf# ls
Cisco_Secure_FW_Mgmt_Center_Upgrade-7.2.4

root@firepower:/var/log/sf/Cisco_Secure_FW_Mgmt_Center_Upgrade-7.2.4# ls
000_start AQ_UUID DBCheck.log exception.log flags.conf main_upgrade_script.log status.log status

root@firepower:/var/log/sf/Cisco_Secure_FW_Mgmt_Center_Upgrade-7.2.4# tail -f status.log
```


When the upgrade completes, the FMC reboots

```
ui:[100%] [1 mins to go for reboot]Running script 999_finish/999_zzz_complete_upgrade_message.sh...
ui:[100%] [1 mins to go for reboot] Upgrade complete
ui:[100%] [1 mins to go for reboot] The system will now reboot.
ui:System will now reboot.
```

Broadcast message from root@firepower (Tue Jul 18 05:08:57 2023):

System will reboot in 5 seconds due to system upgrade.

Broadcast message from root@firepower (Tue Jul 18 05:09:02 2023):

System will reboot now due to system upgrade.

```
ui:[100%] [1 mins to go for reboot] Installation completed successfully.
```

```
ui:Upgrade has completed.
```

```
state:finished
```

Broadcast message from root@firepower (Tue Jul 18 05:09:25 2023):

The system is going down for reboot NOW!

After reboot, the physical FMC must show the correct model in FMC **GUI > Help > About**.



Firewall Management Center

Version 7.2.4 (build 169)

| | |
|----------------------------|---|
| Model | Secure Firewall Management Center for VMware |
| Serial Number | None |
| Snort Version | 2.9.20 (Build 4004) |
| Snort3 Version | 3.1.21.400 (Build 24) |
| Rule Pack Version | 2869 |
| Module Pack Version | 3245 |
| LSP Version | lsp-rel-20230717-1542 |
| VDB Version | build 353 (2022-03-07 22:13:19) |
| Rule Update Version | 2023-07-17-001-vrt |
| Geolocation Update Version | Country Code: 2023-07-17-100, IP: 2022-12-19-101 |
| OS | Cisco Firepower Extensible Operating System (FX-OS) 2.12.0 (build 499) |
| Hostname | firepower |

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Cisco Firepower Extensible Operating System (FX-OS) v2.12.0 (build 499)
Cisco Secure Firewall Management Center for VMware v7.2.4 (build 169)

```
>
> show version
-----[ firepower ]-----
Model                : Secure Firewall Management Center for VMware (66) Version 7.2.4 (Build 169)
UUID                 : 1c71ae24-1e60-11ed-8459-9758e19f1a24
Rules update version : 2023-01-09-001-vrt
LSP version          : lsp-rel-20220511-1540
VDB version          : 353
-----
```

[Make Me Active](#) [Break HA](#) [Resume Synchronization](#)

This high availability pair is in split brain. Make one Management Center active by clicking 'Make Me Active'. ✕

| Summary | |
|-----------------|--|
| Status | <p>▲ Split Brain - Management Center is active on both peers. (Both Management Centers are configured to run in standalone mode , Database is not configured for high availability , No synchronization task running between high availability management centers , Synchronization paused.)</p> |
| Synchronization | <p>▲ Paused by user</p> |
| Active System | <p>10.4.11.85 (HA synchronization time : Software versions do not match (7.2.4 vs 7.1.0) VDB versions do not match (353 vs 346))</p> |
| Standby System | <p>10.4.11.84 (HA synchronization time : Software versions do not match (7.1.0 vs 7.2.4) VDB versions do not match (346 vs 353))</p> |

| System Status | | |
|------------------|--|--|
| | Local | Remote |
| | Split Brain - Secondary (10.4.11.85) | Split Brain - Primary (10.4.11.84) |
| Operating System | 7.2.4 | 7.1.0 |
| Software Version | 7.2.4-169 | 7.1.0-90 |
| Model | Secure Firewall Management Center for VMware | |

HA Summary when only Standby FMC is upgraded

Step 5. Upgrade Active peer.

Repeat Steps 2 to 4 in the active appliance.

Step 6. Make the desire FMC active

- Log in to the FMC that you want to make the active peer.

Integration > High Availability > Make Me Active option

[Make Me Active](#) [Break HA](#) [Resume Synchronization](#)

This high availability pair is in split brain. Make one Management Center active by clicking 'Make Me Active'. ✕

| Summary | |
|-----------------|---|
| Status | <p>▲ Split Brain - Management Center is active on both peers. (Both Management Centers are configured to run in standalone mode , Database is not configured for high availability , Synchronization paused.)</p> |
| Synchronization | <p>▲ Paused by user</p> |
| Active System | <p>10.4.11.84 (HA synchronization time : Tue Jul 18 16:57:35 2023)</p> |
| Standby System | <p>10.4.11.85 (HA synchronization time : Tue Jul 18 16:57:07 2023)</p> |

| System Status | | |
|------------------|--|--|
| | Local | Remote |
| | Split Brain - Primary (10.4.11.84) | Split Brain - Secondary (10.4.11.85) |
| Operating System | 7.2.4 | 7.2.4 |
| Software Version | 7.2.4-169 | 7.2.4-169 |
| Model | Secure Firewall Management Center for VMware | Secure Firewall Management Center for VMware |

- Warnings about processes and overwrite any configuration done in the standby peer, select **YES** to continue.

Warning

This operation may affect critical processes running in the background. The local peer will be active and the other peer will become a standby. The active peer will overwrite configuration and policies present on the standby peer. Do you want to continue?

No

Yes

10.4.11.85

Make Me Active



Do you want to make this Management Center active and peer standby?

Cancel

OK

System Status

Resolving split brain, making this Management Center active.

Please Wait...



- Wait until synchronization restarts and the other FMC switches up standby mode.

Firewall Management Center
Integration / Other Integrations / High Availability

Overview Analysis Policies Devices Objects Integration Deploy 🔍 ⚙️ admin 🔒 cisco SECURE

Cloud Services Realms Identity Sources High Availability eStreamer Host Input Client Smart Software Manager On-Prem Peer Manager

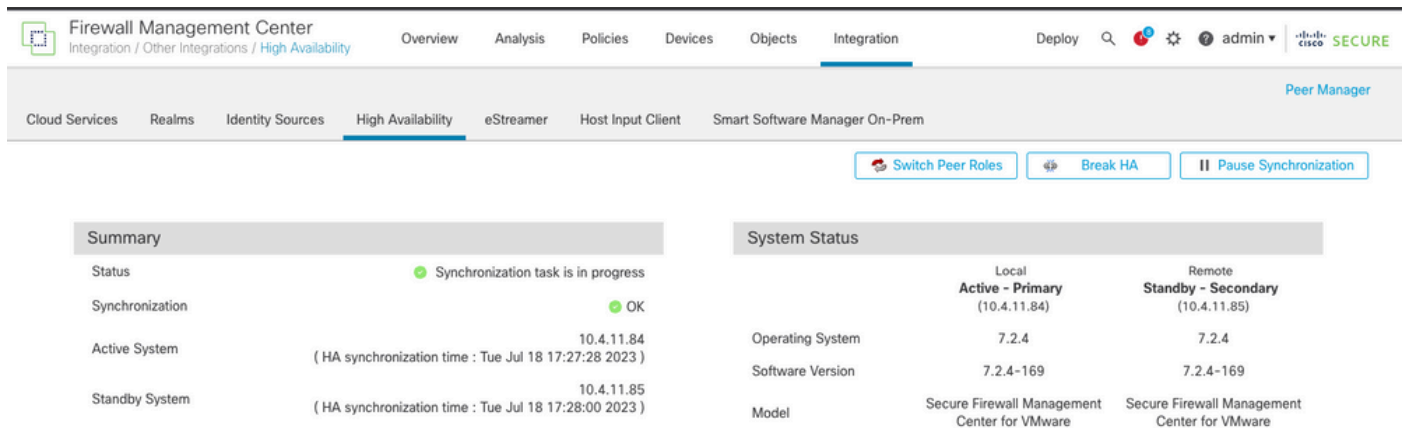
Make Me Active Break HA Pause Synchronization

High availability operations are in progress. The status messages and alerts on this page are temporary. Please check after high availability operations are complete. These operations include file copy which may take time to complete. ✕

| Summary | | System Status | |
|-----------------|---|---|--|
| Status | ▲ Temporarily degraded- high availability operations are in progress. | Local Split Brain - Primary (10.4.11.84) | Remote Split Brain - Secondary (10.4.11.85) |
| Synchronization | ▲ Failed | Operating System | 7.2.4 |
| Active System | 10.4.11.84 (HA synchronization time : Tue Jul 18 17:27:28 2023) | Software Version | 7.2.4-169 |
| Standby System | 10.4.11.85 (HA synchronization time : Tue Jul 18 17:26:56 2023) | Model | Secure Firewall Management Center for VMware |

Note: The progress can take up to 20 minutes.

After both FMC are in the same version, and synchronization has completed, HA Summary tab must look like this:



The screenshot shows the Firewall Management Center interface. The top navigation bar includes 'Overview', 'Analysis', 'Policies', 'Devices', 'Objects', and 'Integration'. The 'Integration' tab is active, and the 'High Availability' sub-tab is selected. Below the navigation bar, there are buttons for 'Switch Peer Roles', 'Break HA', and 'Pause Synchronization'. The main content area is divided into two sections: 'Summary' and 'System Status'.

| Summary | |
|-----------------|--|
| Status | ● Synchronization task is in progress |
| Synchronization | ● OK |
| Active System | 10.4.11.84 (HA synchronization time : Tue Jul 18 17:27:28 2023) |
| Standby System | 10.4.11.85 (HA synchronization time : Tue Jul 18 17:28:00 2023) |

| System Status | | |
|------------------|--|--|
| | Local | Remote |
| | Active - Primary (10.4.11.84) | Standby - Secondary (10.4.11.85) |
| Operating System | 7.2.4 | 7.2.4 |
| Software Version | 7.2.4-169 | 7.2.4-169 |
| Model | Secure Firewall Management Center for VMware | Secure Firewall Management Center for VMware |



Warning: If the final synchronization status shows degraded or other result than OK, please contact TAC

Deploy pending changes from FMC.