

Upgrade FMC in High Availability

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Introduction

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

Prerequisites

Requirements

Cisco recommends you have knowledge of these topics:

- High Availability concepts
- Secure FMC configuration

Components Used

The information in this document is based on virtual Secure 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.

Background Information

The upgrade must 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.

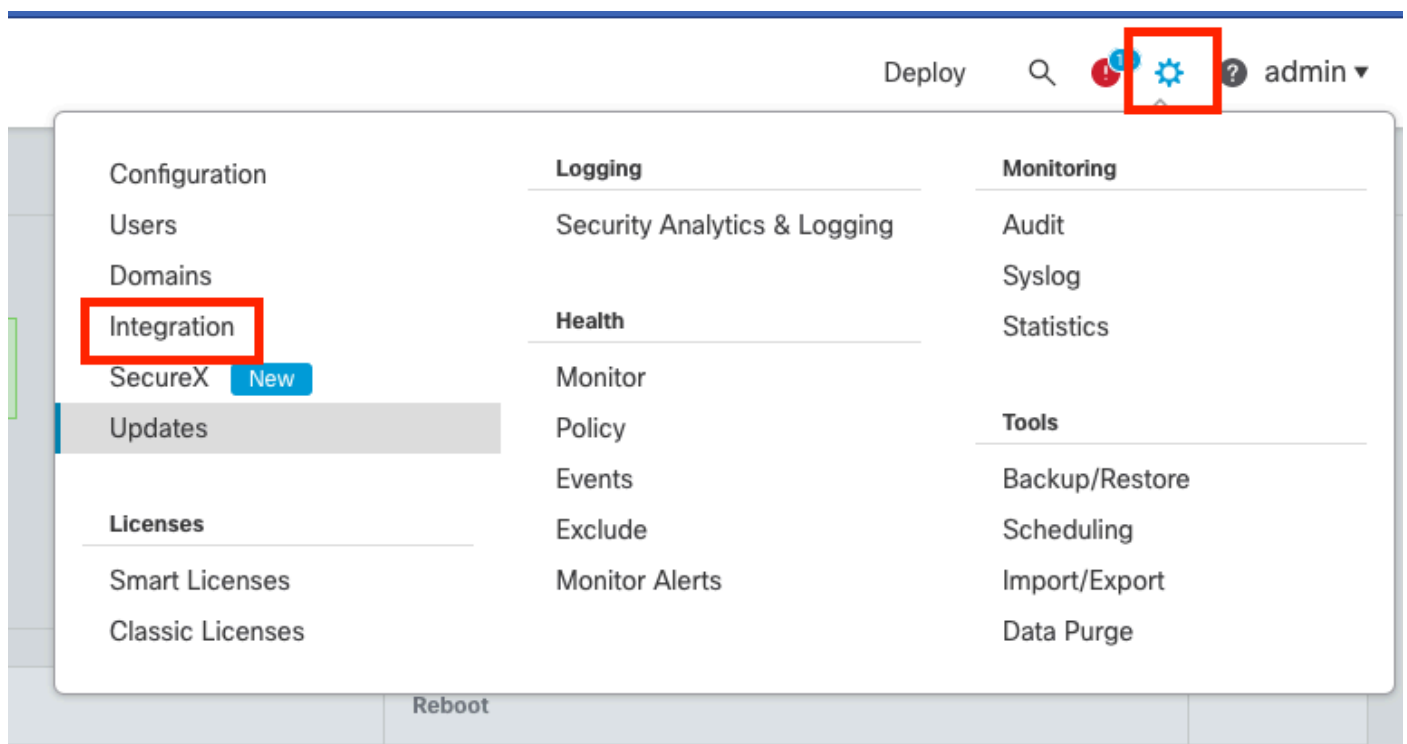
- Upgrade virtual hosting. This is required when you are running an older version of VMware.
- Check configurations.
- Check NTP synchronization.
FMC: Choose **System > Configuration > Time**.
Devices: Use the **show time** CLI command.
- Check disk space.
- Deploy configurations. In FMC high availability deployments, you only need to deploy from the active peer.
- Check running tasks. Ensure there is no pending deployments.

Upgrade Procedure

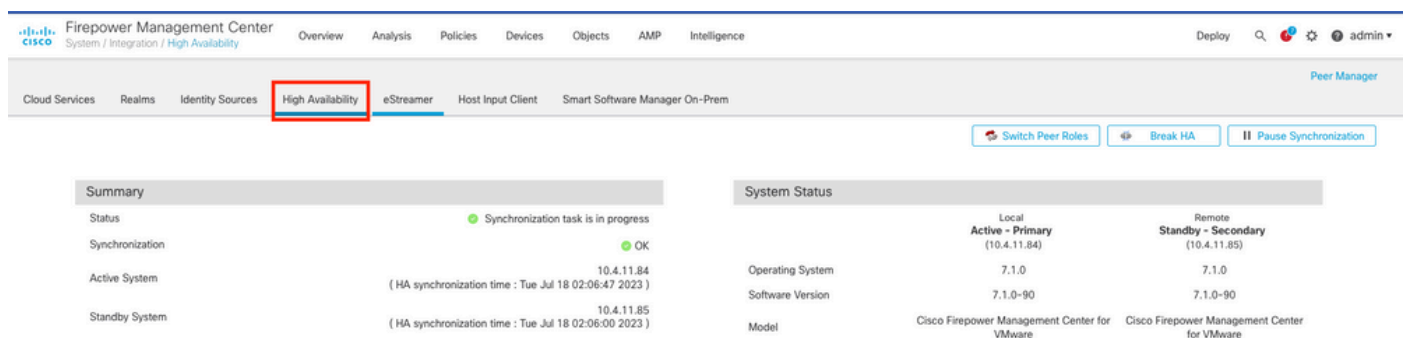
Step 1. Pause Synchronization

On the Active unit, navigate to the **High Availability** tab on the FMC.

System > Integration > High Availability



Pause Synchronization. Select System and Integration



Pause Synchronization. Select High Availability

Select **Pause Synchronization**.

The screenshot shows the Firepower Management Center interface. At the top, there is a navigation bar with the Cisco logo and the text 'Firepower Management Center System / Integration / High Availability'. Below this, there are several tabs: 'Cloud Services', 'Realms', 'Identity Sources', 'High Availability' (which is selected), 'eStreamer', 'Host Input Client', and 'Smart Software Manager On-Prem'. On the right side of the navigation bar, there are icons for 'Deploy', search, settings, and a user profile labeled 'admin'. Below the navigation bar, there are three buttons: 'Switch Peer Roles', 'Break HA', and 'Pause Synchronization' (which is highlighted with a red box). The main content area is divided into two sections: 'Summary' and 'System Status'. The 'Summary' section shows the status as 'Healthy' with a green dot, and 'Synchronization' as 'OK' with a green dot. The 'System Status' section shows details for the Local Active - Primary (10.4.11.84) and Remote Standby - Secondary (10.4.11.85) systems, including their operating systems, software versions, and models.

Pause Synchronization

Wait for the synchronization to be paused. Status must be Paused by user when complete.

The screenshot shows the 'Summary' section of the Firepower Management Center interface. The status is 'Degraded- Synchronization incomplete' with a yellow triangle warning icon. Below this, there is a message: '(Both Management Centers are configured to run in standalone mode , Database is not configured for high availability , Synchronization paused.)'. The 'Synchronization' status is 'Paused by user' with a yellow triangle warning icon. The 'Active System' is 10.4.11.84 with a message '(HA synchronization time : Tue Jul 18 02:32:23 2023)'. The 'Standby System' is 10.4.11.85 with a message '(HA synchronization time : Tue Jul 18 02:27:29 2023)'.

Synchronization Status must 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






FMC Product Updates Devices AMP admin

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 Firepower Mgmt Center Patch	7.1.0.1-28	Tue Feb 22 23:32:26 UTC 2022	Yes	 
Cisco FTD Upgrade	7.0.4-55	Sun Aug 7 19:43:24 UTC 2022	Yes	  

Upload the Upgrade Package

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

Cancel Upload

Select Upgrade File

Step 3. Readiness Check

Run a readiness check on the appliance to be upgraded.

Click 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	

Install Upgrade Package for Readiness Check

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

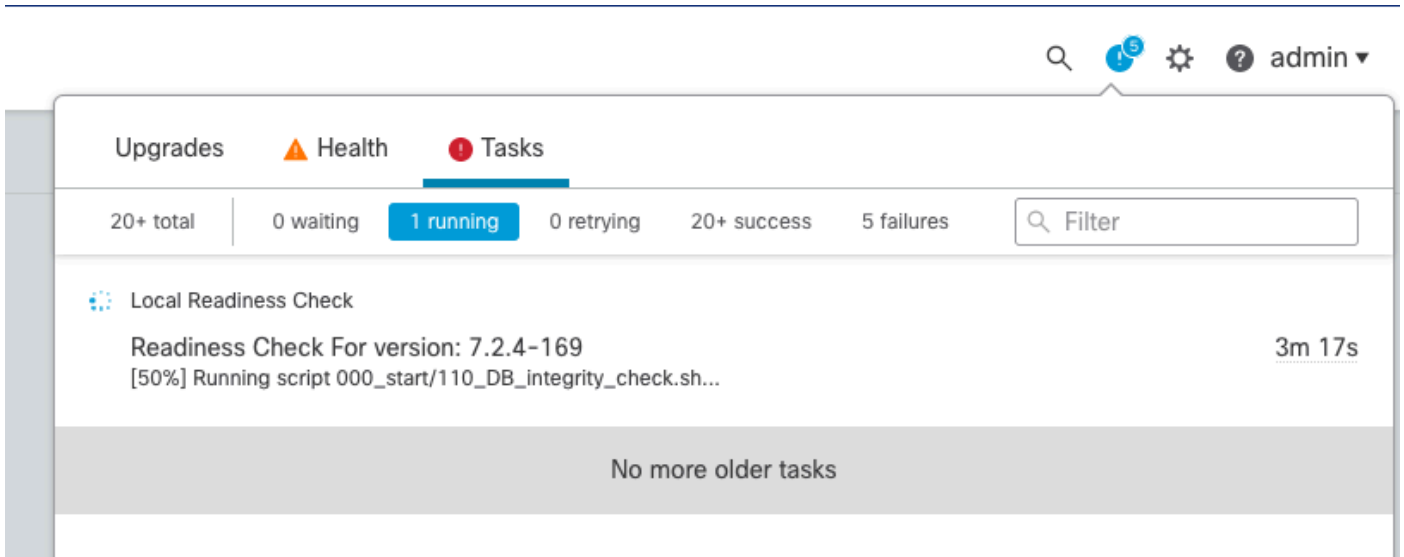
<input checked="" type="checkbox"/> Ungrouped (1 total)	Compatibility Check	Readiness Check Results	Readiness Check Completed	Estimated Upgrade Time	
<input checked="" type="checkbox"/> firepower 10.4.11.85 - Cisco Firepower Management Center for VMware v7.1.0	 Compatibility check passed. Proceed with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

Back Check Readiness Install

Select Check Readiness

The progress can be checked in the message center.

Messages > Tasks > Running



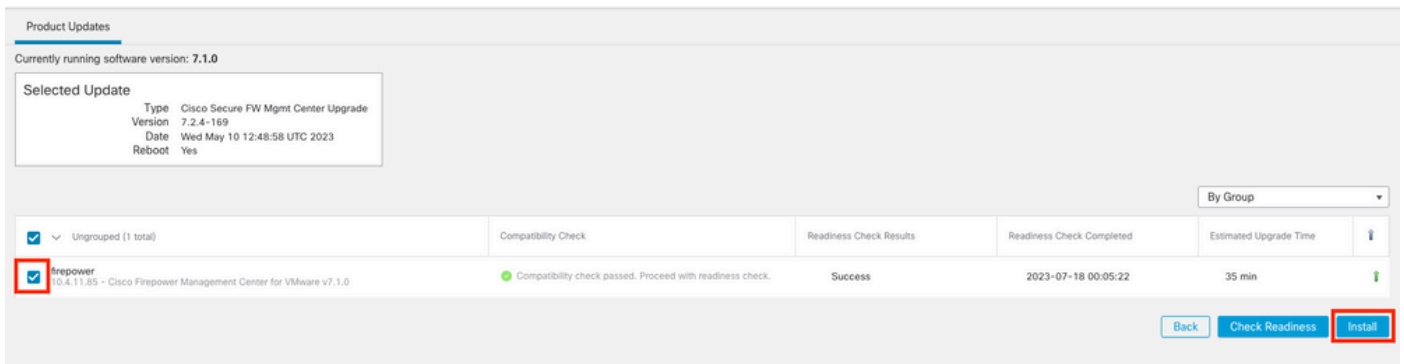
Readiness Check in Progress

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

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

Step 4. Install the Upgrade Package

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



Install the Upgrade Package

Warning for the split brain, click **OK**.

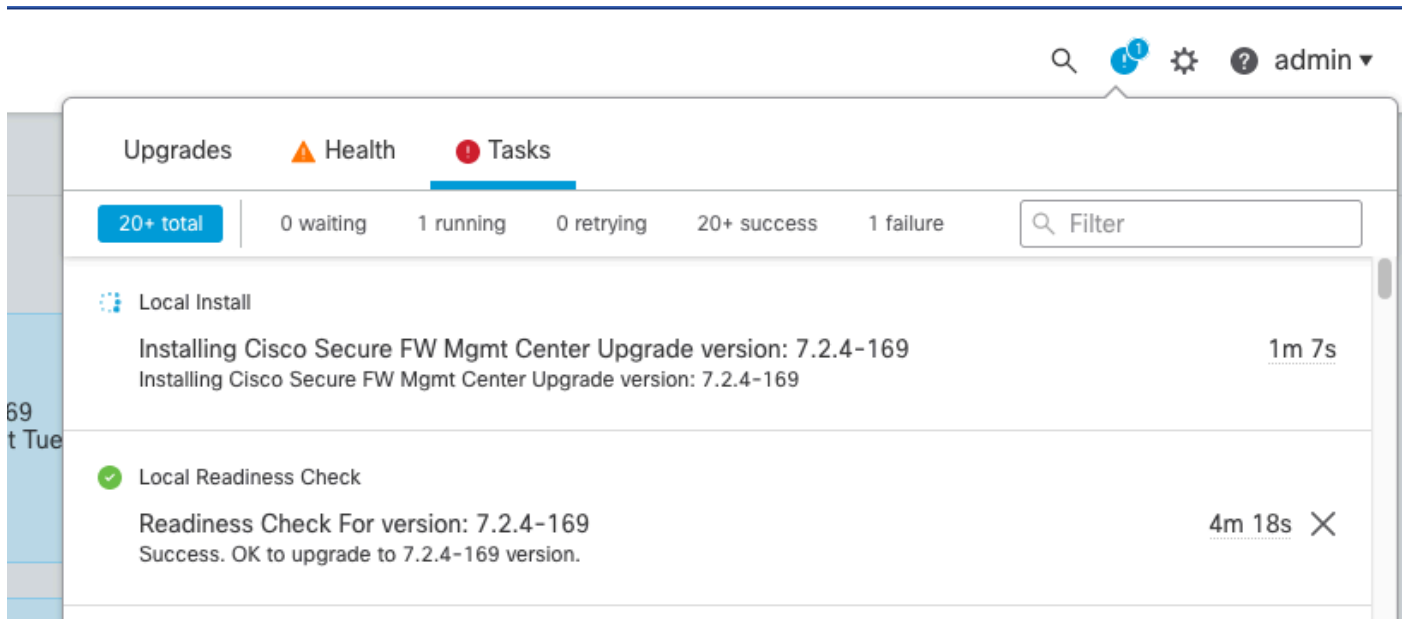
 10.88.243.115:43085

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.

OK

Warning About Split Brain

Progress can be checked in **Messages > Tasks**.



The screenshot shows the 'Tasks' tab in the Cisco Secure FW Mgmt Center interface. The top navigation bar includes 'Upgrades', 'Health', and 'Tasks'. The 'Tasks' tab is active, showing a summary of task progress: 20+ total, 0 waiting, 1 running, 0 retrying, 20+ success, and 1 failure. A search filter is available. The task list includes:

- 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.

Monitor Installation

Note: Installation takes around 30 minutes 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

For technical/system questions, email tac@cisco.com phone: 1-800-553-2447 or 1-408-526-7209. Copyright 2004-2023, Cisco and/or its affiliates. All rights reserved.

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Model and Version Information in FMC

Integration > High Availability

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

Summary		System Status		
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>	Local	Remote	
Synchronization	<p>▲ Paused by user</p>	Split Brain - Secondary (10.4.11.85)	Split Brain - Primary (10.4.11.84)	
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>	Operating System	7.2.4	7.1.0
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>	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

Over CLI, the version can be checked after accepting the EULA.

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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
-----
```

Step 5. Upgrade Active Peer

Repeat Steps two to four in the Active unit:

1. Upload the Upgrade Package.
2. Readiness Check.
3. Install the Upgrade Package.

Step 6. Make the Desired FMC Active

After the upgrade has been completed on both FMC, log in to the FMC that you want to make the Active unit and select the option **Make Me Active**.

Integration > High Availability > Make Me Active

Firewall Management Center
Integration / Other Integrations / High Availability

Overview Analysis Policies Devices Objects Integration Deploy admin

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

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	▲ 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.)
Synchronization	▲ Paused by user
Active System	10.4.11.84 (HA synchronization time : Tue Jul 18 16:57:35 2023)
Standby System	10.4.11.85 (HA synchronization time : Tue Jul 18 16:57:07 2023)

System Status		
	Local Split Brain - Primary (10.4.11.84)	Remote 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

Make the Desired FMC Active

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

Warning About Active Overwriting Configuration on Standby Peer

Make Me Active



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

Cancel

OK

Select OK

System Status

Resolving split brain, making this Management Center active.

Please Wait...



Resolving Split Brain

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

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	
Status	▲ Temporarily degraded- high availability operations are in progress.
Synchronization	▲ Failed
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 17:26:56 2023)

System Status		
	Local Split Brain - Primary (10.4.11.84)	Remote 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

FMC Synchronization

Note: Synchronization can take up to 20 minutes to complete.

Deploy pending changes on the FMC Active unit to complete upgrade process.

Validation

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

Integration > High Availability

The screenshot displays the 'High Availability' section of the FMC interface. It includes a navigation bar at the top with tabs for Overview, Analysis, Policies, Devices, Objects, and Integration. 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	Standby - Secondary
	(10.4.11.84)	(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

Upgrade Validation in FMC



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