

Install NFVIS over CIMC Using Host Image Mapping

Contents

[Introduction](#)

[Prerequisites](#)

[Requirements](#)

[Components Used](#)

[Boot Devices](#)

[Boot Order without UEFI](#)

[Boot Order with UEFI](#)

[Network Diagram](#)

[NFVIS Host Image Mapping Installation over CIMC CLI](#)

[NFVIS Host Image Mapping Installation over WebUI](#)

[Verification](#)

[Troubleshoot](#)

Introduction

This document describes a step-by-step guide on how to install NFVIS software over CIMC environment via the Host Image Mapping (HIM) utility.

Prerequisites

The NFVIS .iso image must be served by a file transfer service that is reachable by the device. These protocols for such service can be used:

- FTP
- SFTP
- HTTP
- HTTPS

Requirements

Cisco recommends you have knowledge of these topics:

- NFVIS capable/compatible hardware unit that has a CIMC implementation.
- CIMC must have basic network configuration over the CIMC Management interface to reach the remote server with the NFVIS image available.
- Basic knowledge on CIMC CLI and WebUI.

Components Used

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

- Host: Remote PC with reachability over HTTP to the CIMC MGMT IP
- Hardware: ENCS5412/K9
- CIMC Firmware Version: 3.2(14.19)
- NFVIS 4.15.3 ISO image. (This method can also be used with newest and oldest NFVIS ISO images)

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.

Boot Devices

Throughout the installation process, prioritize using the M.2 SSD for the host OS installation (NFVIS). If an M.2 SSD is not available, use HDD Slot 0 as the install media. You have two possibilities:

Legacy boot, UEFI boot and UEFI secure boot are the three boot modes. Secure boot can only be used on a disk that has UEFI partition.

Boot Order without UEFI

On the ENCS devices, for virtual devices (vKVM-Mapped vDVD and CIMC-Mapped vDVD), ensure they are always at the top of the boot order. This is essential because they are activated based on a specific fresh install method.

- Mapping an image for HIM, activates vCIMC-Mapped vDVD and relates the host image to this storage medium.
- Mapping an image for KVM Console, activates vKVM-Mapped vDVD and relates the host image to

▼ Actual Boot Devices

▼ CD/DVD

Cisco vKVM-Mapped vDVD1.22

Cisco CIMC-Mapped vDVD1.22

▼ HDD

SSD

HDD Slot 0

Cisco vKVM-Mapped vHDD1.22

Cisco CIMC-Mapped vHDD1.22

HDD Slot 1

this storage medium via a network drive mount.

Image 1 - Boot Order Example from CIMC GUI without UEFI

If nothing is mapped with the vKVM and CIMC, these boot devices are ignored and the 3rd device in the boot order list is used for boot (For Image 1, this is SSD)

Boot Order with UEFI

ENCS Platform

Since CIMC cannot be used to configure UEFI boot order on ENCS devices, the BootOrderRules setting must be changed to Loose when secure boot is enabled. If BootOrderRules is set to Loose, the boot order is changed on the BIOS setup menu. When an operating system is installed in secure boot mode, the new UEFI boot option for the OS automatically appears at the top of the BIOS menu boot order list, to boot the installed operating system.

To set BootOrderRule to Loose:

```
DEVICE# scope bios/advanced
DEVICE /bios/advanced # set BootOrderRules Loose
DEVICE /bios/advanced *# commit
Changes to BIOS set-up parameters will require a reboot.
Do you want to reboot the system?[y|N]
```

Catalyst 8000 uCPE Platforms

On the Catalyst 8000 uCPE devices, you can change the boot order settings from CIMC when enabling secure-boot.

Boot Order



	Name	
<input type="checkbox"/>	UEFIMAP	
<input type="checkbox"/>	UEFIOS	

Image 2 - Boot Order Example from CIMC GUI with UEFI

- Mapping an image for HIM activates UEFIMAP and relates the host image to this storage medium.
- Mapping an image for KVM Console activates UEFIOS and relates the host image to this storage medium via a network drive mount.

Network Diagram



Image 3 - Topology Diagram Example

There is reachability between these 2 locations. An HTTP Server is listening on port 80 within the PC Host. CIMC server is able to reach remote host.

NFVIS Host Image Mapping Installation over CIMC CLI

Step 1. Download the desired **NFVIS image** on the remote host from [Cisco Software Download](#) webpage.

Step 2. Log in to CIMC over terminal connection.

Step 3. From terminal, move to the host-image-mapping scope:

```
<#root>
```

```
DEVICE# scope
```

```
host-image-mapping
```

```
DEVICE /host-image-mapping #
```

Step 4. On this scope, download the **image** from the remote host:



Note: For this guide, the remote host has the Cisco NFVIS 4.15.3 iso file downloaded and available over HTTP protocol. You can map and unmap only an ISO images.

```
<#root>
```

```
DEVICE /host-image-mapping #
```

```
download-image http 10.24.57.179 Cisco_NFVIS-4.15.3-FC1.iso
```

```
Username: admin
```

```
Password:
```

```
Image download has started.
```

The progress of the transference can be checked by using the **show detail** command:

```
DEVICE /host-image-mapping # show detail
```

```
Current Mapped Image : None
```

```
Host Image Status: "Downloading ..Please wait: 2.9%"
```

Once the image is already downloaded, a confirmation message is displayed:

```
DEVICE /host-image-mapping # show detail
Current Mapped Image : None
Host Image Status: Image Downloaded and Processed Successfully
DEVICE /host-image-mapping #
DEVICE /host-image-mapping # show filelist
Index Name
-----
1 Cisco_NFVIS-4.15.3-FC1.iso
```

Step 5. On the same scope, map the desired **image** to be installed:

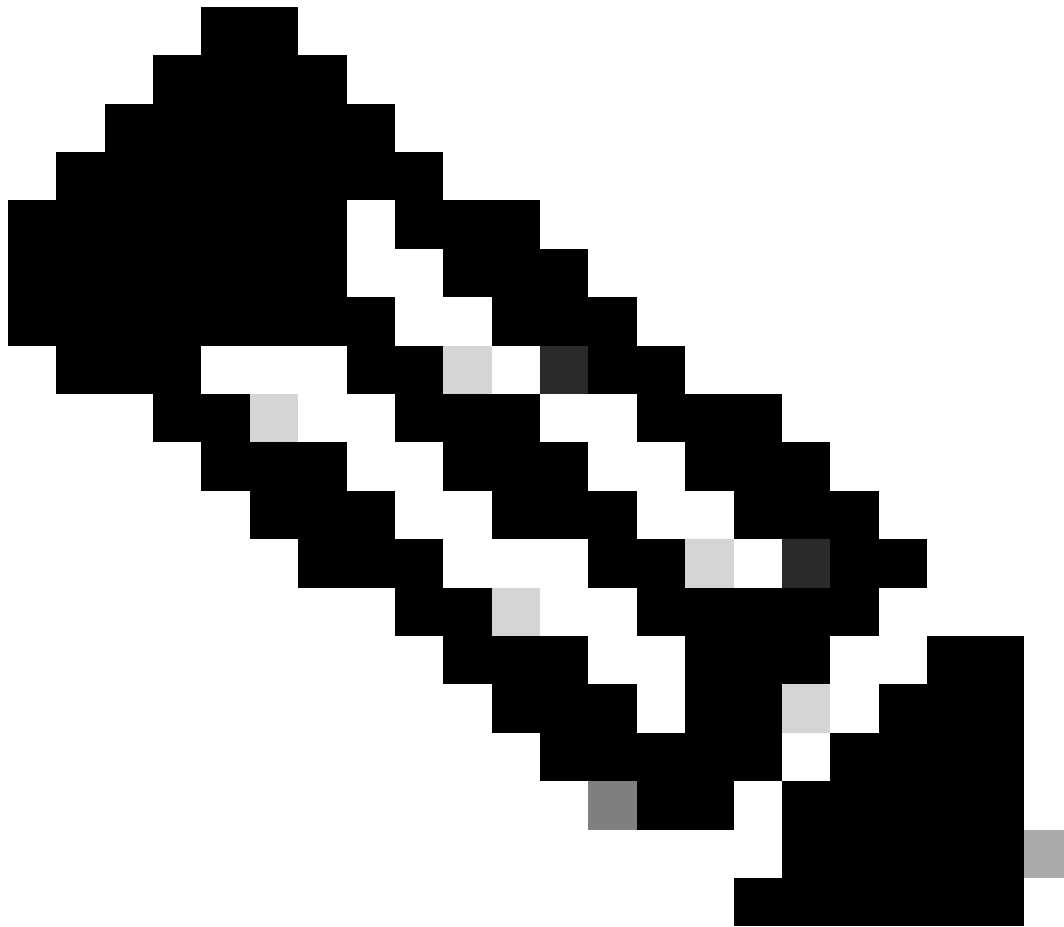
<#root>

```
DEVICE /host-image-mapping #
map-image Cisco_NFVIS-4.15.3-FC1.iso
```

Please check the status using "show detail".

```
DEVICE /host-image-mapping # show detail
Current Mapped Image : Cisco_NFVIS-4.15.3-FC1.iso
Host Image Status: Image mapped successfully, set CDRom as the Boot device.
```

Step 6. Move to the BIOS scope and set the boot order to make the virtual drive in which the image is mounted as the first boot device:



Note: The Boot Order values are hardware dependent. For more information, review the **Boot Devices** section.

<#root>

DEVICE# scope

bios

DEVICE /bios #

set boot-order CDROM:Virtual-CD,CDROM:CIMC-VDVD,HDD:SSD,HDD:HDDslot0

To manage boot-order:

- Reboot server to have your boot-order settings take place
 - Do not disable boot options via BIOS screens
 - If a specified device type is not seen by the BIOS, it can be removed from the boot order configured on the BMC
 - Your boot order sequence can be applied subject to the previous rule.
- The configured list can be appended by the additional device types seen by the BIOS


```
DEVICE /bios *#  
DEVICE /bios *#
```

```
show detail
```

```
BIOS:  
BIOS Version: "ENC54_3.06 (Build Date: 05/04/2022)"  
Boot Order: CDROM:Virtual-CD,CDROM:CIMC-VDVD,HDD:SSD,HDD:HDDslot0  
FW Update/Recovery Status: None, OK  
Active BIOS on next reboot: main  
UEFI Secure Boot: disabled  
Password: *****
```

Step 7. Save the **configuration** and reload the **device**.

```
<#root>
```

```
DEVICE /bios *#
```

```
commit
```

```
DEVICE /bios # top  
DEVICE#
```

```
scope chassis
```

```
DEVICE /chassis #
```

```
power cycle
```

```
This operation can change the server's power state.  
Do you want to continue?[y|N]y  
DEVICE /chassis #
```

The installation process after the reload takes approximately 30 to 60 minutes.

Step 8. After the installation is complete, unmap the **image**.

```
<#root>
```

```
DEVICE# scope
```

```
host-image-mapping
```

```
DEVICE /host-image-mapping #
```

```
unmap-image Cisco_NFVIS-4.15.3-FC1.iso
```

```
DEVICE /host-image-mapping *#
```

```
commit
```

```
DEVICE /host-image-mapping # show detail
Current Mapped Image : None
Host Image Status: Unmap successful!!!
```

NFVIS Host Image Mapping Installation over WebUI

Step 1. Log in to CIMC.



Image 4 - CIMC Login Screen

Step 2. In the Navigation panel, click the **Compute** menu.

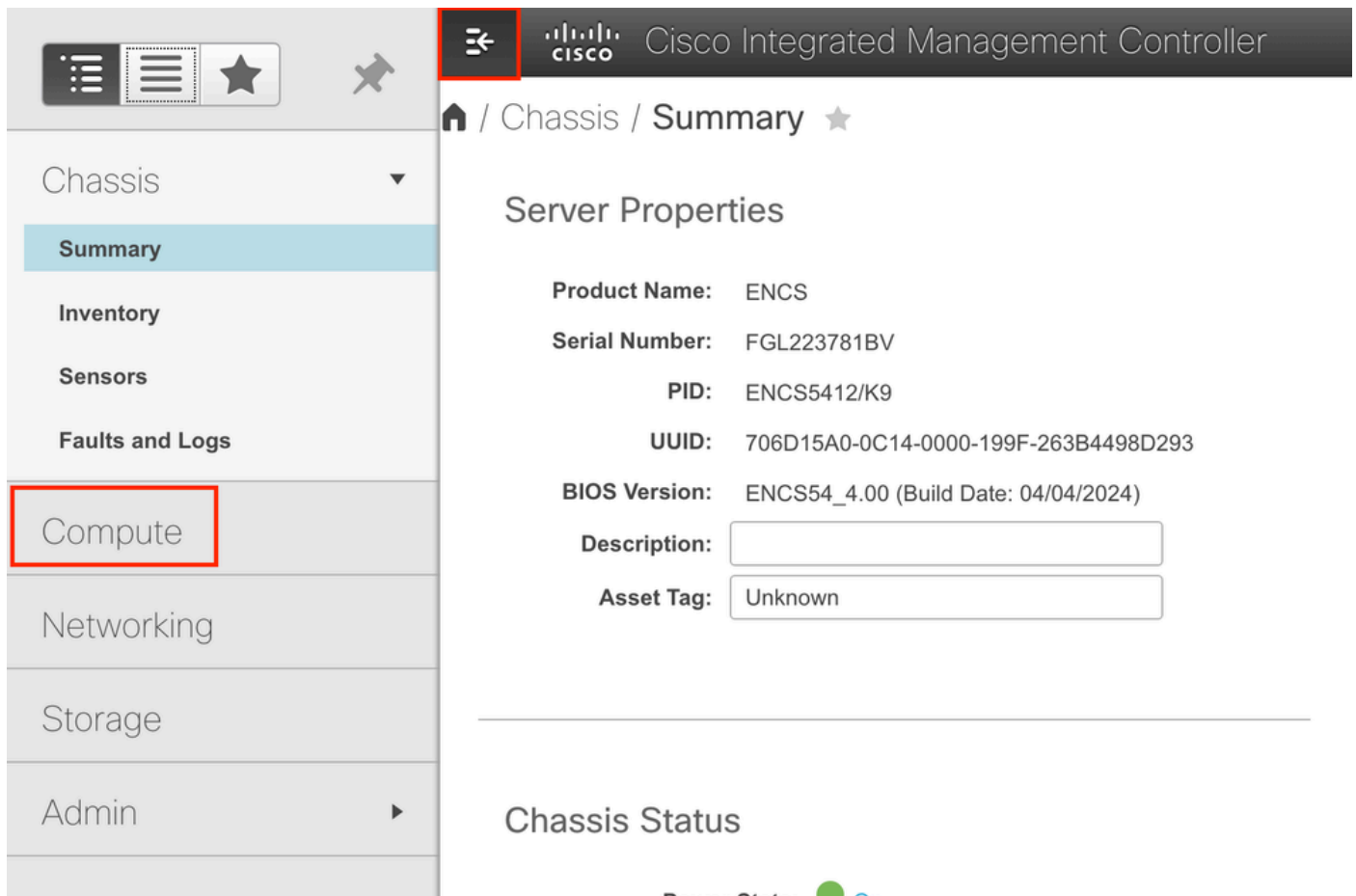


Image 5 - Default Page after Log In (/chassis/summary)

Step 3. In the work panel, click the **Host Image Mapping** tab.

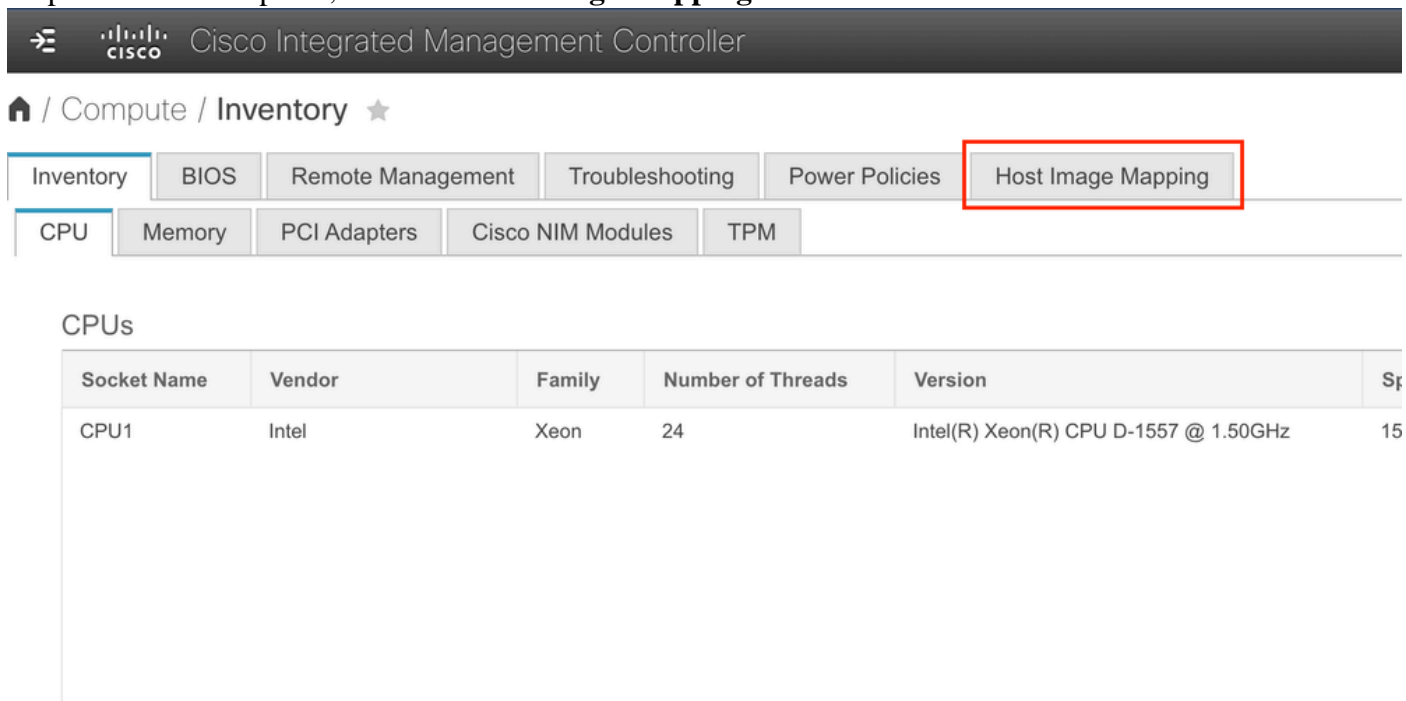


Image 6 - Host Image Mapping Tab (/compute/Host Image Mapping)

Step 4. From the **Host Image Mapping** page, click **Add Image**. A new dialog box opens. Complete the corresponding fields:

Add New Mapping

Server Type:

HTTP

Server IP Address:

10.88.247.88

File Path:

/etc/Cisco_NFVIS-4.15.3-FC1.iso

User Name

admin

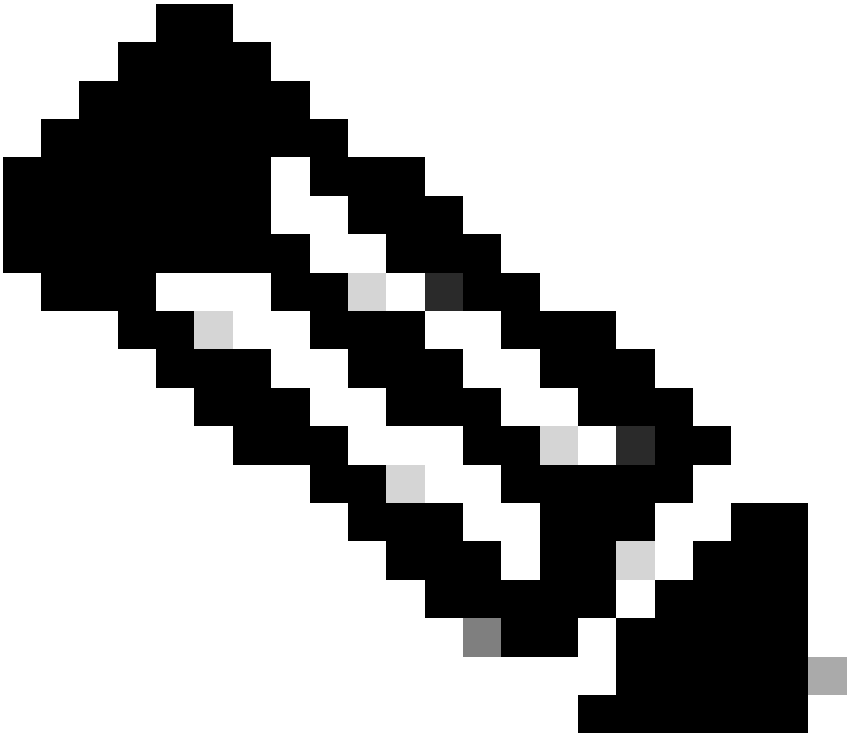
Password:

Download

Cancel

Image 7 - Pop-up Dialog

Name	Description
Server Typedrop-down list	<div>The type of remote server on which the image is located. This can be one of the following:</div> <ul style="list-style-type: none">FTPSFTPHTTPHTTPS

Name	Description
	 <p>Note: Depending on the remote server that you select, the fields that display changes.</p>
Server IP Addressfield	The IP address of the remote host/server.
File Pathfield	<p>The path and filename of the remote host/server.</p> <p>The path and filename can contain up to 80 characters.</p> <ul style="list-style-type: none"> • If you are installing a host image, that image must have .iso or .img as the file extension. • If you are installing a diagnostics image, that image must have .diag as the file extension.
Usernamefield	<p>The username of the remote server.</p> <p>The username can contain 1 to 20 characters.</p>
Passwordfield	<p>The password for the username.</p> <p>The password can contain 1 to 20 characters.</p>




Note: If the username is not configured, enter anonymous for the username and any character(s) for the password.

Step 5. Click **Download.**

The Host Image Mapping feature begins to download the image. You can view the status of the image download in the Host Image Mapping Status area. Once the image is downloaded and processed successfully, refresh the page. After the page refreshes, the new image displays in the Image Information area.

Step 6. From the Image Information area, select the **image** to map, and then click **Map Selected Image**.

 Cisco Integrated Management Controller

[Home](#) / [Compute](#) / [Host Image Mapping](#) ★

Inventory

BIOS

Remote Management

Troubleshooting

Power Policies

Host Image Mapping

▼ Host Image Mapping Information


Status

Image mapped successfully, set CDROM as the Boot device.

Mapped Image

Cisco_NFVIS-4.15.3-FC1.iso

Current Mappings

Selected 0 / Total 2 

Add Image

Unmap Image

Map Selected Image

Delete Selected Image

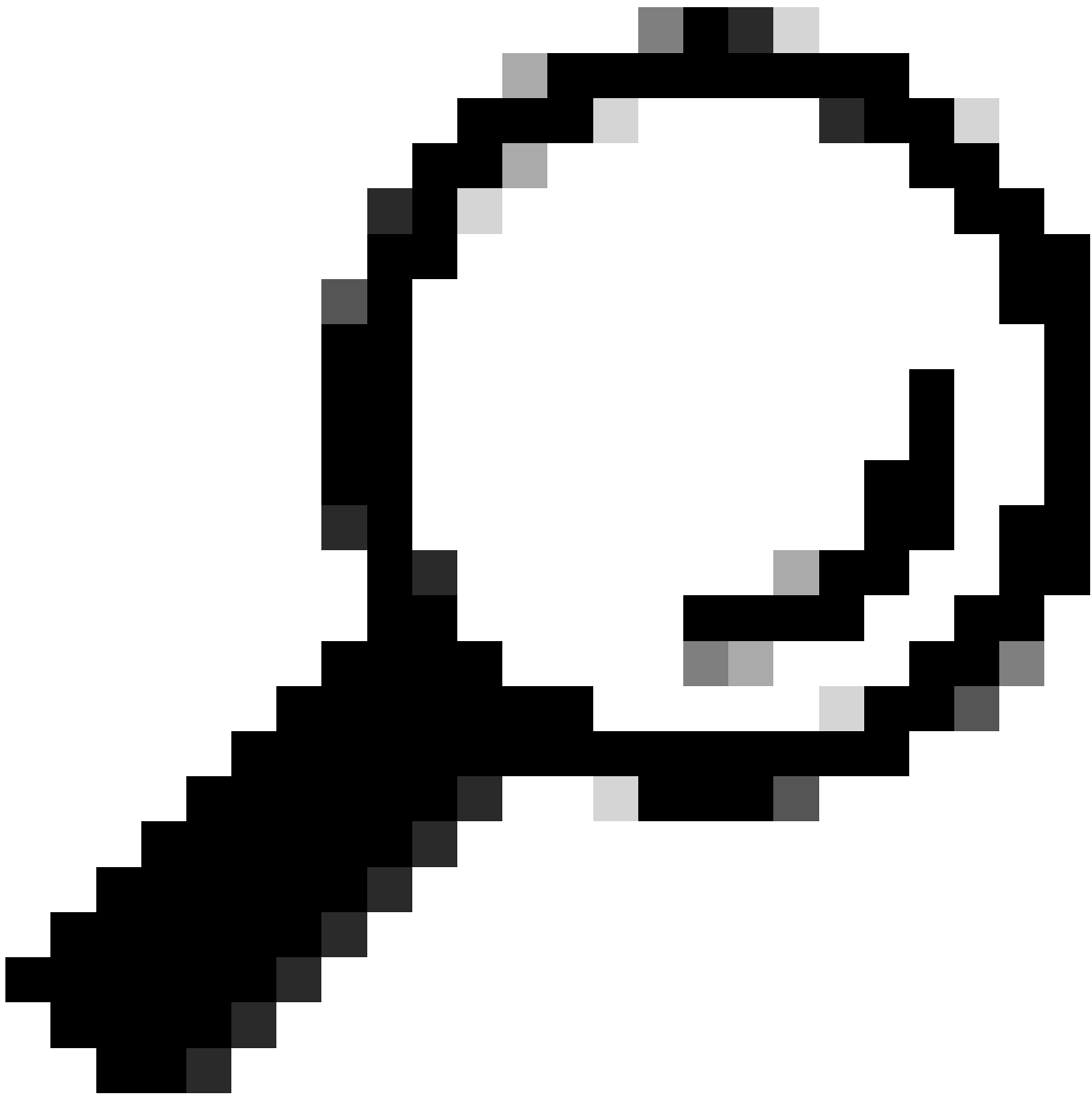
	Image Name	Image Size	MD5 Checksum	Last Modified Time
<input type="radio"/>	Cisco_NFVIS-4.15.3-FC1.iso	2706950144	5ae164ad295de325dbb47a3fbb6c90e7	Wed, 11 Jun 2025 20:31:15 GMT
<input type="radio"/>	Cisco_NFVIS_Upgrade-4.7....	438254629	b53446f1b453e1282aa2e6396d06d63e	Fri, 21 Oct 2022 14:04:00 GMT

Image 8 - Host Image Mapping tab after Image Download


The image is mapped and mounted on the virtual drive of a USB controller. The virtual drive can be one of the following:


- HDD — Hard disk drive
- FDD — Floppy disk drive
- CD/DVD — Bootable CD-ROM or DVD drive

Step 7. Set the boot order to make the virtual drive in which the image is mounted as the first boot device.



Tip: To determine in which virtual drive the image is mounted, see the Host Image Update Status area in the Host Image Mapping page.

 Cisco Integrated Management Controller

[Home](#) / [Compute](#) / [BIOS](#) 

Inventory

BIOS

Remote Management

Troubleshooting

Power Policies

Host Image Mapping

[Enter BIOS Setup](#) | [Clear BIOS CMOS](#) | [Restore Manufacturing Custom Settings](#)

Configure BIOS

Configure Boot Order

Configure BIOS Profile

BIOS Properties

Running Version

ENCS54_4.00 (Build Date: 04/04/2024)

UEFI Secure Boot

☐

Save Changes

▼ Configured Boot Devices

▼ CDROM

Virtual-CD

CIMC-VDVD

▼ HDD

SSD

HDDslot0

Virtual-HiFD

CIMC-VHDD

HDDslot1

▼ FDD

IntFlash

Virtual-Floppy

EFI

▼ Actual Boot Devices

▼ CD/DVD

Cisco vKVM-Mapped vDVD1.22

Cisco CIMC-Mapped vDVD1.22

▼ HDD

HDD Slot 0

HDD Slot 1

SSD

Cisco vKVM-Mapped vHDD1.22

Cisco CIMC-Mapped vHDD1.22

▼ FDD

Internal Flash

Cisco vKVM-Mapped vFDD1.22

Internal EFI Shell

UEFI Image Map

Configure Boot Order

Image 9 - Configure Boot Order Tab (/compute/bios)



Note: For this example, the mapped image is located on the CIMC CDROM Virtual Media. KVM CDROM Virtual media is at first position but since there is nothing in this space, CIMC loads the next media available.

Step 8. Ensure the correct boot order is configured. vKVM and CIMC mapped virtual devices are in the top and boot media is on the 3rd place: SSD or HDD Slot X (If no SSD is present).

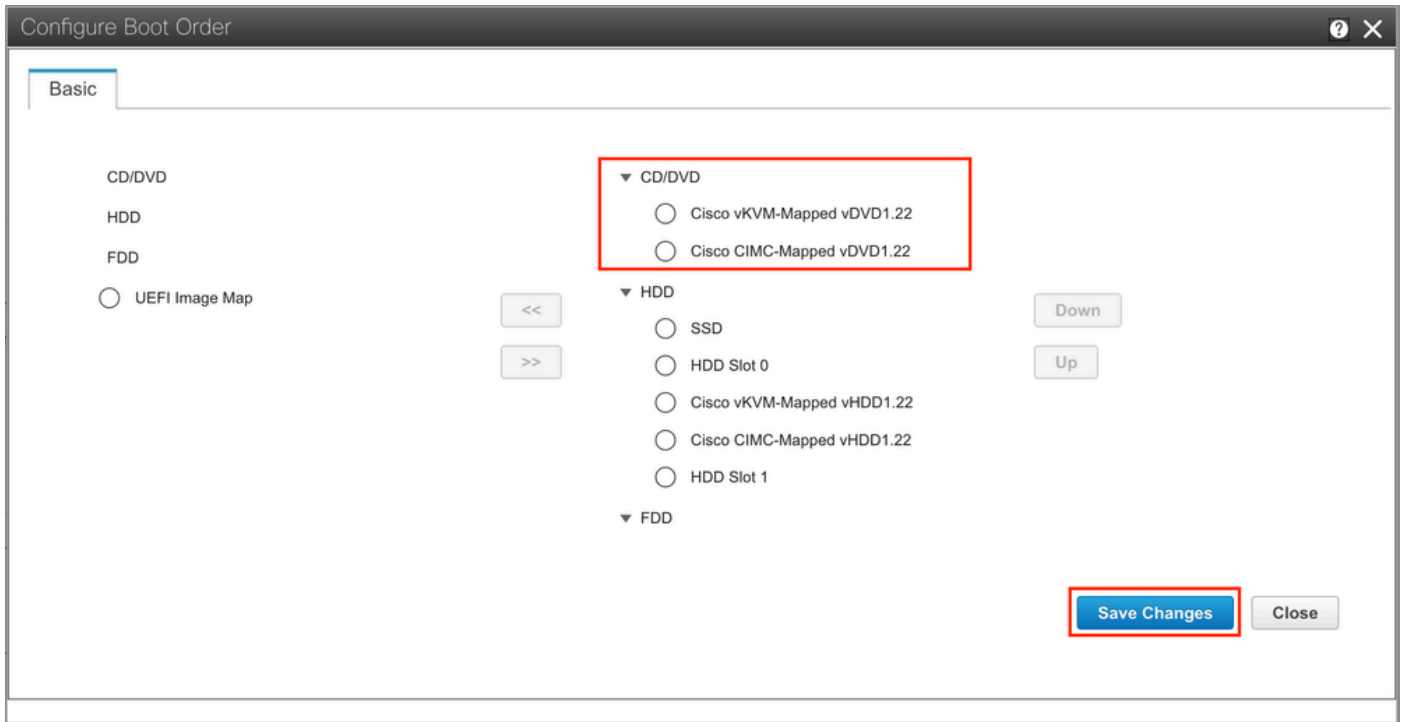


Image 10 - Pop-up Dialog

Step 9. Save the **changes** and reboot the **server**.

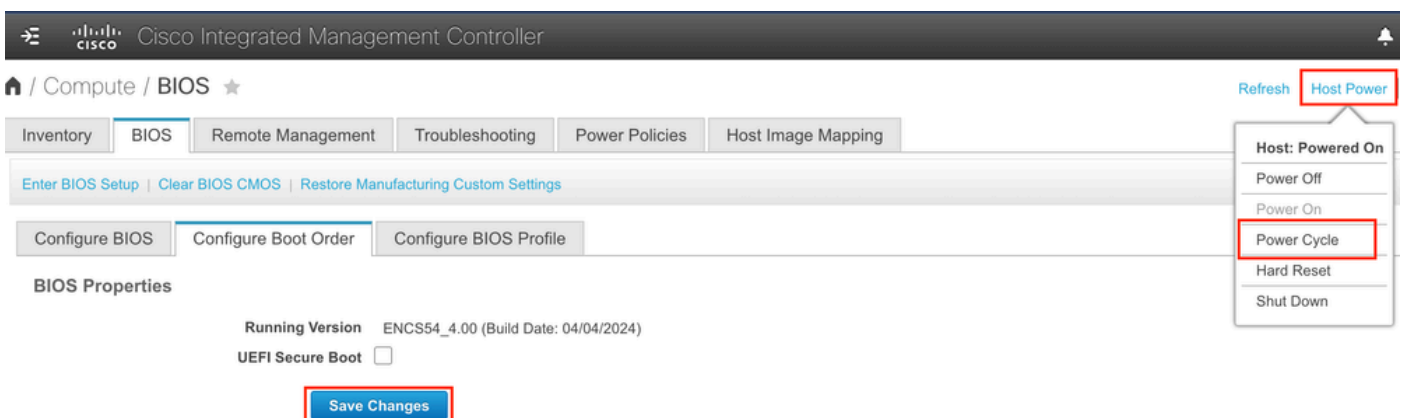


Image 11 - Boot Order Tab

The installation process after the reload takes approximately 30 to 60 minutes.

Step 10. After installation is complete, log in back into CIMC and unmap the image on the **Host Image Mapping** tab by selecting the **image** and clicking **Unmap Image**.

Cisco Integrated Management Controller

[Home](#) / [Compute](#) / [Host Image Mapping](#)

[Inventory](#)
[BIOS](#)
[Remote Management](#)
[Troubleshooting](#)
[Power Policies](#)
[Host Image Mapping](#)

Host Image Mapping Information

Status Image mapped successfully, set CDROM as the Boot device.
Mapped Image Cisco_NFVIS-4.15.3-FC1.iso

Current Mappings Selected 1 / Total 2

Add Image
 Unmap Image
 Map Selected Image
 Delete Selected Image

	Image Name	Image Size	MD5 Checksum	Last Modified Time
<input checked="" type="radio"/>	Cisco_NFVIS-4.15.3-FC1.iso	2706950144	5ae164ad295de325dbb47a3fbb6c90e7	Wed, 11 Jun 2025 20:31:15 GMT
<input type="radio"/>	Cisco_NFVIS_Upgrade-4.7....	438254629	b53446f1b453e1282aa2e6396d06d63e	Fri, 21 Oct 2022 14:04:00 GMT

Image 12 - Image Unmapping on Host Image Mapping Tab

This information is displayed after this action:

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[Home](#) / [Compute](#) / [Host Image Mapping](#)

[Inventory](#)
[BIOS](#)
[Remote Management](#)
[Troubleshooting](#)
[Power Policies](#)
[Host Image Mapping](#)

Host Image Mapping Information

Status Unmap Successful!!
Mapped Image None

Image 13 - Host Image Mapping Tab after Unmap

Verification

Once the installation is finished, you can access to the NFVIS CLI over the CPU console port (or over the Serial-over-LAN method from CIMC CLI) using the default credentials:



Note: Default credentials for NFVIS are **admin** as the default user name and **Admin123#** as the default password.

Troubleshoot

- If the "Bad Request" error message is displayed after clicking the **Download** button, you are recommended to check that the remote server has its socket available for the corresponding protocol.
- If the "Download Error:512 Please try again." error is displayed during download process, this means that communications between CIMC and the remote host is not working properly. Please verify the reachability over the socket in use or attempt using a different server type that can serve the image.