



Upgrade Cisco NFVIS

The Cisco NFVIS enabled hardware comes preinstalled with Cisco NFVIS version. Follow the steps below to upgrade it to the latest version of the release.

The Cisco Enterprise NFVIS upgrade image is available as a `.iso` and `.nfvispkg` file. Currently, downgrade is not supported. All RPM packages in the Cisco Enterprise NFVIS upgrade image are signed to ensure cryptographic integrity and authenticity. In addition, all RPM packages are verified during Cisco Enterprise NFVIS upgrade.

Ensure that you copy the image to the Cisco NFVIS server before starting the upgrade process. Always specify the exact path of the image when registering the image. Use the `scp` command to copy the upgrade image from a remote server to your Cisco Enterprise NFVIS server. When using the `scp` command, you must copy the image to the `"/data/intdatastore/uploads"` folder on the Cisco Enterprise NFVIS server.



Note

- In Cisco NFVIS release 4.2.1 and earlier releases, you can upgrade Cisco NFVIS from one release to the very next release using the `.nfvispkg` file. For example, you can upgrade your NFVIS from Cisco NFVIS release 3.5.2 to Cisco NFVIS release 3.6.1.
- Starting from Cisco NFVIS release 4.4.1, you can upgrade NFVIS using `.iso` file.
- To know if a downloaded file is safe to install, it is essential to compare the file's checksum before using it. Verifying the checksum helps ensure that the file was not corrupted during network transmission, or modified by a malicious third party before you downloaded it. For more information see, [Virtual Machine Security](#).

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Upgrade Matrix for Upgrading Cisco NFVIS


Note

- Use the following table to upgrade from your current version of Cisco NFVIS software to the latest supported upgrade versions only. If you upgrade to an unsupported version, the system might crash.
- Upgrading using .iso file is recommended if the supported upgrade image type is both .iso and .nfvispkg.

Table 1: Upgrade Matrix for Upgrading Cisco NFVIS from Cisco NFVIS Release 4.6.1 and later

Running Version	Supported Upgrade Version	Supported Upgrade Image Type
4.15.4	4.18.1	iso
4.15.3	4.15.4	iso
4.15.2	4.15.4 4.15.3	iso
4.15.1	4.16.1 4.15.4 4.15.3 4.15.2	iso
4.14.1	4.16.1 4.15.4 4.15.3 4.15.2 4.15.1	iso
4.13.1	4.15.4 4.15.3 4.15.2 4.15.1 4.14.1	iso
4.12.5	4.15.4 4.15.3 4.15.2	iso

4.12.4	4.15.4 4.15.1 4.12.5	iso
4.12.3	4.15.4 4.15.3 4.15.2 4.15.1 4.14.1 4.12.5 4.12.4	iso
4.12.2	4.15.4 4.15.3 4.15.2 4.15.1 4.14.1 4.12.5 4.12.4 4.12.3	iso
4.12.1	4.15.4 4.15.3 4.15.2 4.15.1 4.14.1 4.13.1 4.12.5 4.12.4 4.12.3 4.12.2	iso
4.11.1	4.12.5 4.12.4 4.12.3 4.12.2 4.12.1	iso

4.10.1	4.12.5 4.12.4 4.12.3 4.12.2 4.12.1 4.11.1	iso
4.9.6	4.12.5 4.12.4 4.12.3 4.9.6	iso
4.9.5	4.12.4 4.12.3 4.9.6	iso
4.9.4	4.12.3 4.9.5	iso iso
4.9.3	4.12.3 4.11.1 4.9.4 and 4.9.5	iso
4.9.2	4.12.3 4.11.1 4.9.3, 4.9.4, and 4.9.5	iso
4.9.1	4.12.3 4.11.1 4.10.1 4.9.5, 4.9.4, 4.9.3, and 4.9.2	iso
4.8.1	4.9.4 4.9.3 4.9.2 4.9.1	iso

4.7.1	4.9.4	iso
	4.9.3	
	4.9.2	
	4.9.1	
	4.8.1	iso, nfvispkg
4.6.3	4.9.4	iso
	4.9.3	
	4.9.2	
	4.9.1	
	4.8.1	
	4.7.1	nfvispkg
4.6.2	4.9.1 or 4.9.2 or 4.9.3 or 4.9.4	iso
	4.8.1	
	4.7.1	
	4.6.3	
4.6.1	4.9.1 or 4.9.2 or 4.9.3 or 4.9.4	iso
	4.8.1	
	4.7.1	iso, nfvispkg
	4.6.3	iso

Table 2: Upgrade Matrix for Upgrading Cisco NFVIS from Cisco NFVIS Release 4.5.1 and earlier

Running Version	Supported Upgrade Version	Supported Upgrade Image Type(s)
4.5.1	4.7.1	iso
	4.6.3	iso, nfvispkg
	4.6.2	iso, nfvispkg
	4.6.1	iso, nfvispkg
4.4.2	4.6.3	iso
	4.6.2	iso
	4.6.1	iso
	4.5.1	iso, nfvispkg

4.4.1	4.6.3	iso
	4.6.2	iso
	4.6.1	iso
	4.5.1	iso, nfvispkg
	4.4.2	iso, nfvispkg
4.2.1	4.4.2	nfvispkg
	4.4.1	nfvispkg
4.1.2	4.2.1	nfvispkg
4.1.1	4.2.1	nfvispkg
	4.1.2	nfvispkg
3.12.3	4.1.1	nfvispkg
3.11.3	3.12.3	nfvispkg
3.10.3	3.11.3	nfvispkg
3.9.2	3.10.3	nfvispkg
3.8.1	3.9.2	nfvispkg

Restrictions for Cisco NFVIS ISO File Upgrade

- Cisco NFVIS supports .iso upgrade only from version N to versions N+1, N+2 and N+3 starting from Cisco NFVIS release 4.6.x (except Cisco NFVIS releases 4.7.x and 4.8.x). NFVIS does not support .iso upgrade from version N to version N+4 and above.
- Image downgrade using .iso file is not supported.



Note In case of an error while upgrading from version N to N+1 or N+2, Cisco NFVIS rolls back to the image version N.

Upgrade NFVIS Software Using Cisco Enterprise NFVIS Portal

Use this procedure to upgrade the Cisco NFVIS to a newer version by registering the upgrade image and initiating the upgrade process via the Cisco Enterprise NFVIS portal.

The NFVIS upgrade is a two-step process: first, registering the NFVIS upgrade image, and then initiating the upgrade. This ensures the NFVIS platform is running the desired software version and includes any new features or fixes.

**Note**

- During the upgrade process, the NFVIS application is not available for use.
- All VMs in a running state will be powered off automatically.
- After the upgrade completes, the NFVIS application will be accessible, and all VM will be powered on.
- The upgrade process typically takes approximately 20-30 minutes to complete.

Register the NFVIS Upgrade Image**1.** From the NFVIS portal, click **Operations > Upgrade**.**a.** If the upgrade image is on your local computer:

1. Select the **LOCAL** tab.
2. Click **Select File (.iso)** and choose the NFVIS upgrade image.

The system will upload the image, validate the supported upgrade path, and register the image.

Once complete, the image appears in the **Upgrade Image List** with **Status: Valid**.

b. If the upgrade image is on a remote server:

1. Select the **REMOTE** tab.
2. Fill in the following fields:

Table 3: Upgrade Details

Field	Description
Image Name	Enter a descriptive name for the upgrade image.
Protocol	Select http from the drop-down list. Note Remote registration currently supports only HTTP protocol.
IP Address	Enter the server IP address.
Port	Enter the port number (optional, defaults to 80).
Image File Path	Enter the path to the upgrade image.
Image Checksum	Provide the SHA512 checksum value.

3. Click **Submit**.

The system will download the image from the remote server, validate the supported upgrade path, and register the image. A notification is sent upon completion.

Once complete, the image appears in the **Upgrade Image List** with **Status: Valid**.



Note A progress bar for image registration is not available for remote uploads. The image registration and download process runs in the background and the image will appear in the Image Repository table once the process completes.

Verify Image Registration

Before proceeding with the upgrade, verify the image is registered successfully:

- Check the **Upgrade Image List** section.
- Verify the image shows:
 - **Status**: Valid
 - **Version**: Correct upgrade version
 - **Upload Date**: Registration timestamp

Initiate the NFVIS Upgrade

Once the image status is **Valid**, proceed with the upgrade:

1. In the **Upgrade Image** section, click the + icon to schedule an upgrade.
2. Select the registered upgrade image from the list.
3. Choose the scheduling option:
 - **Upgrade Now**: Set the schedule time to 0 hours.
 - **Upgrade Later**: Specify hours from now for the upgrade to begin.
4. Click **Submit**.

The **Status** column shows the upgrade status.

Post-Upgrade Verification

After the upgrade completes:

1. From the NFVIS portal, click **Platform > About Platform** to verify the new version.
2. Verify all VMs are powered on and operational.

Upgrade Cisco NFVIS 4.8.1 and Later Using ISO File

The following example shows how to use the **scp** command to copy the upgrade image:

- To copy the upgrade image, use the **scp** command from Cisco NFVIS CLI:

```
nfvis# scp
admin@192.0.2.9:/NFS/2022-01-23/13/nfvis/iso/Cisco_NFVIS-4.8.0-13-20220123_020232.iso
intdatastore:Cisco_NFVIS-4.8.0-13-20220123_020232.iso
```

- To copy the upgrade image, use the **scp** command from remote linux:

```
config terminal
system settings ip-receive-acl 0.0.0.0/0
service scpd action accept
commit

scp -P22222 Cisco_NFVIS-4.8.0-13-20220123_020232.iso
admin@172.27.250.128:/data/intdatastore/uploads/Cisco_NFVIS-4.8.0-13-20220123_020232.iso
```

Alternatively, you can upload the image to the Cisco Enterprise NFVIS server using the **System Upgrade** option from the Cisco Enterprise NFVIS portal.



Note When the NFVIS upgrade is in progress, ensure that the system is not powered off. If the system is powered off during the NFVIS upgrade process, the system may become inoperable and you may need to reinstall the system.

The upgrade process comprises of two tasks:

1. Register the image using the **system upgrade image-name** command.
2. Upgrade the image using the **system upgrade apply-image** command.

Register an Image

To register an image, use the following command:

```
config terminal
system upgrade image-name Cisco_NFVIS-4.8.0-13-20220123_020232.iso location
/data/intdatastore/uploads/Cisco_NFVIS-4.8.0-13-20220123_020232.iso
commit
```



Note You must verify the image registration status before upgrading the image using the **system upgrade apply-image** command. The package status must be valid for the registered image.

To verify the image registration status, use the following command:

```
nfvis# show system upgrade
```

NAME	PACKAGE		LOCATION	
	VERSION	STATUS	UPLOAD DATE	
Cisco_NFVIS-4.8.0-13-20220123_020232.iso	/data/upgrade/register/Cisco_NFVIS-4.8.0-13-20220123_020232.iso	4.8.0-13	Valid	2022-01-24T02:40:29.236057-00:00

```
nfvis# show system upgrade reg-info
```

NAME	PACKAGE	LOCATION
VERSION	STATUS	UPLOAD DATE
Cisco_NFVIS-4.8.0-13-20220123_020232.iso		
/data/upgrade/register/Cisco_NFVIS-4.8.0-13-20220123_020232.iso	4.8.0-13	Valid
2022-01-24T02:40:29.236057-00:00		

Upgrade the Registered Image

To upgrade the registered image, use the following command:

```
config terminal
system upgrade apply-image Cisco_NFVIS-4.8.0-13-20220123_020232.iso scheduled-time 5
commit
```

To verify the upgrade status, use the **show system upgrade apply-image** command in the privileged EXEC mode.

```
nfvis# show system upgrade
```

NAME	STATUS	UPGRADE FROM	UPGRADE TO
Cisco_NFVIS-4.8.0-13-20220123_020232.iso	SCHEDULED	-	-

NAME	PACKAGE	LOCATION
VERSION	STATUS	UPLOAD DATE
Cisco_NFVIS-4.8.0-13-20220123_020232.iso		
/data/upgrade/register/Cisco_NFVIS-4.8.0-13-20220123_020232.iso	4.8.0-13	Valid
2022-01-24T02:40:29.236057-00:00		

Upgrade APIs and Commands

The following table lists the upgrade APIs and commands:

Upgrade APIs	Upgrade Commands
<ul style="list-style-type: none"> • /api/config/system/upgrade • /api/config/system/upgrade/image-name • /api/config/system/upgrade/reg-info • /api/config/system/upgrade/apply-image 	<ul style="list-style-type: none"> • system upgrade image-name • system upgrade apply-image • show system upgrade reg-info • show system upgrade apply-image

Upgrade Cisco NFVIS 4.7.1 and Earlier Using a .nvfispkg File

The following example shows how to use the **scp** command to copy the upgrade image:

scp command from NFVIS CLI:

```
nfvis# scp admin@192.0.2.9:/NFS/Cisco_NFVIS_BRANCH_Upgrade-351.nfvispkg
intdatastore:Cisco_NFVIS_BRANCH_Upgrade-351.nfvispkg
```

scp command from remote linux:

```
config terminal
system settings ip-receive-acl 0.0.0.0/0
service scpd action accept
commit
```

```
scp -P 22222 nfvis-351.nfvispkg admin@192.0.2.9:/data/intdatastore/uploads/nfvis-351.nfvispkg
```

Alternatively, you can upload the image to the Cisco Enterprise NFVIS server using the **System Upgrade** option from the Cisco Enterprise NFVIS portal.



Note When the NFVIS upgrade is in progress, ensure that the system is not powered off. If the system is powered off during the NFVIS upgrade process, the system may become inoperable and you may need to reinstall the system.

The upgrade process comprises two tasks:

- Registering the image using the **system upgrade image-name** command.
- Upgrading the image using the **system upgrade apply-image** command.

Register an Image

To register an image:

```
config terminal
system upgrade image-name nfvis-351.nfvispkg location
/data/intdatastore/uploads/<filename.nfvispkg>
commit
```



Note You must verify the image registration status before upgrading the image using the **system upgrade apply-image** command. The package status must be valid for the registered image.

Verify the Image Registration

Use the **show system upgrade reg-info** command in the privileged EXEC mode to verify the image registration.

```
nfvis# show system upgrade reg-info
PACKAGE
NAME                LOCATION                VERSION                STATUS  UPLOAD DATE
-----
nfvis-351.nfvispkg  /data/upgrade/register/nfvis-351.nfvispkg  3.6.1-722  Valid
2017-04-25T10:29:58.052347-00:00
```

Upgrade the Registered Image

To upgrade the registered image:

```
config terminal
system upgrade apply-image nfvis-351.nfvispkg scheduled-time 5
commit
```

Verify the Upgrade Status

Use the **show system upgrade apply-image** command in the privileged EXEC mode

```
nfvis# show system upgrade apply-image
UPGRADE
NAME      STATUS      FROM      UPGRADE TO
-----
nfvis-351.nfvispkg SUCCESS 3.5.0 3.5.1
```

The only upgrade supported when BIOS secured boot (UEFI mode) is enabled on ENCS 5400 platform is:

NFVIS 3.8.1 + BIOS 2.5(legacy) --> NFVIS 3.9.1 + BIOS 2.6(legacy)

The following upgrade requires re-installation of NFVIS in UEFI mode:

NFVIS 3.8.1 + BIOS 2.5(legacy) --> NFVIS 3.9.1 + BIOS 2.6(UEFI)

NFVIS 3.9.1 + BIOS 2.6(legacy) --> NFVIS 3.9.1 + BIOS 2.6(UEFI)

Upgrade APIs and Commands

The following table lists the upgrade APIs and commands:

Upgrade APIs	Upgrade Commands
<ul style="list-style-type: none"> • /api/config/system/upgrade • /api/config/system/upgrade/image-name • /api/config/system/upgrade/reg-info • /api/config/system/upgrade/apply-image 	<ul style="list-style-type: none"> • system upgrade image-name • system upgrade apply-image • show system upgrade reg-info • show system upgrade apply-image

Firmware Upgrade



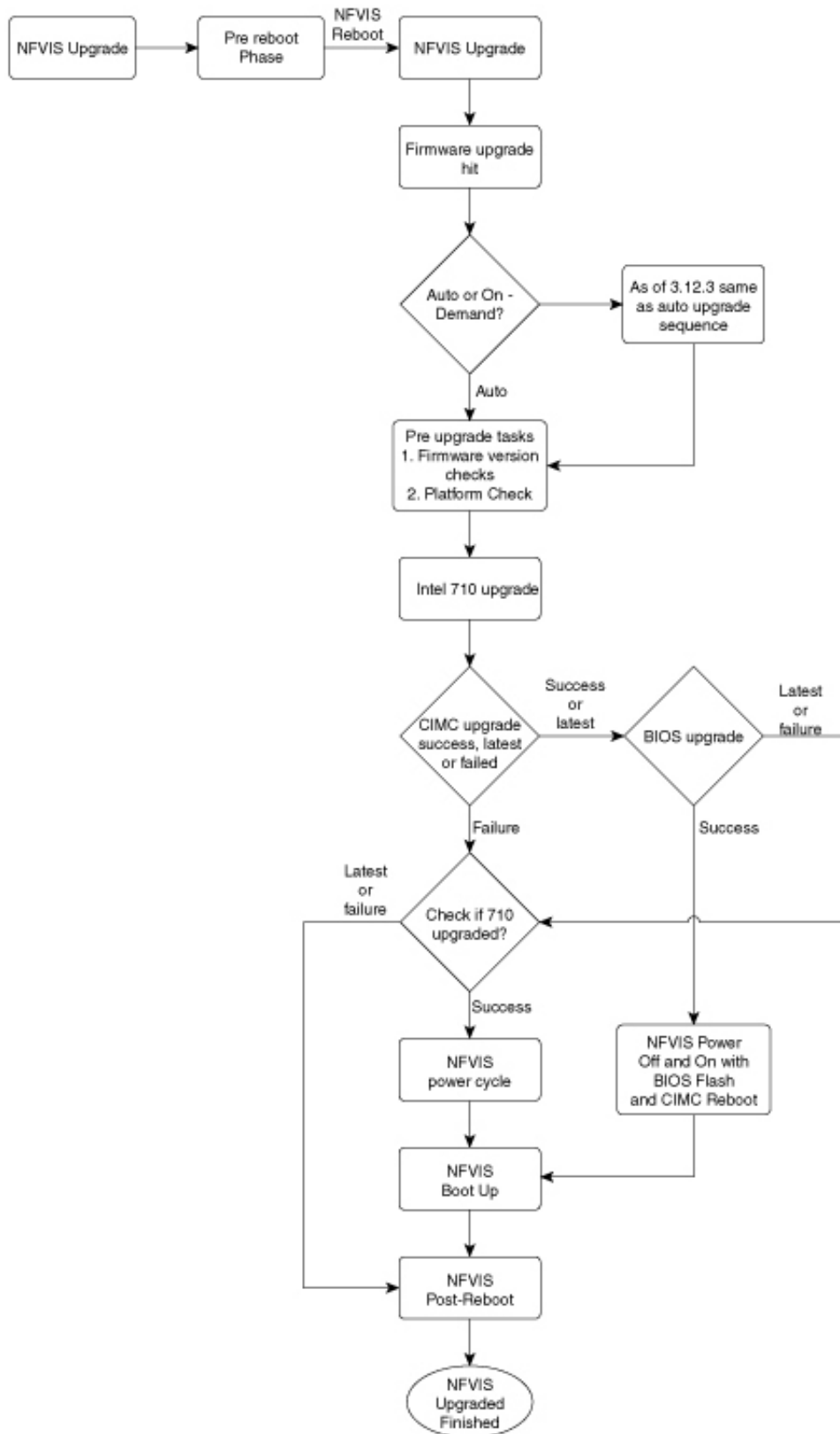
Note Firmware upgrade is supported only on ENCS 5400 series devices.

This feature was introduced in NFVIS 3.8.1 release as part of NFVIS auto-upgrade and it supports upgrade of selected firmwares on ENCS 5400 series devices. Firmware upgrade is triggered during NFVIS upgrade as part of the post reboot phase. To trigger the firmware upgrade refer to the NFVIS upgrade feature.

Starting from NFVIS 3.9.1 release, an on demand upgrade is supported which provides a separate firmware package (.fwpkg extension) to be registered and applied through NFVIS CLI. You can also upgrade to the latest firmware through a fresh installation of NFVIS.

The following firmwares can be upgraded:

- Cisco Integrated Management Controller (CIMC)
- BIOS
- Intel 710
- FPGA



Starting from NFVIS 3.12.3 release, the firmware upgrade script is changed from executable to module format. The code is modularized and each firmware can be individually upgraded. The shell commands are called with subprocess instead of os.system() calls. Each firmware upgrade call is monitored with a time limit. If the call is stuck, the process is killed and execution control will return back to the code flow with appropriate message.

The following table shows the sequence of firmware upgrade:

NFVIS Upgrade	Fresh Install	On Demand Upgrade
Intel 710		
<ol style="list-style-type: none"> 1. NFVIS upgrade 2. Reboot 3. Login 4. Firmware upgrade 710 5. NFVIS power cycle 6. Login 	<ol style="list-style-type: none"> 1. Install 2. Reboot 3. Login 4. Firmware upgrade 710 5. NFVIS power cycle 6. Login 	<ol style="list-style-type: none"> 1. Firmware upgrade 710 2. NFVIS power cycle 3. Login
Intel 710 and BIOS		
<ol style="list-style-type: none"> 1. NFVIS upgrade 2. Reboot 3. Login 4. Firmware upgrade 710 and BIOS 5. NFVIS power off/on due to BIOS 6. Login 	<ol style="list-style-type: none"> 1. Install 2. Reboot 3. Login 4. Firmware upgrade 710 and BIOS 5. NFVIS power off/on due to BIOS 6. Login 	<ol style="list-style-type: none"> 1. Firmware upgrade 710 and BIOS 2. NFVIS power off/on due to BIOS 3. Login
Intel 710 and CIMC		
<ol style="list-style-type: none"> 1. NFVIS upgrade 2. Reboot 3. Login 4. Firmware upgrade 710 and CIMC 5. CIMC reboot 6. NFVIS power cycle due to 710 7. Login 	<ol style="list-style-type: none"> 1. Install 2. Reboot 3. Login 4. Firmware upgrade 710 and CIMC 5. CIMC reboot 6. NFVIS power cycle due to 710 7. Login 	<ol style="list-style-type: none"> 1. Firmware upgrade 710 and CIMC 2. CIMC reboot 3. NFVIS power cycle due to 710 4. Login
CIMC		

NFVIS Upgrade	Fresh Install	On Demand Upgrade
<ol style="list-style-type: none"> 1. NFVIS upgrade 2. Reboot 3. Login 4. Firmware upgrade CIMC 5. CIMC reboot 6. Login 	<ol style="list-style-type: none"> 1. Install 2. Reboot 3. Login 4. Firmware upgrade CIMC 5. CIMC reboot 6. Login 	<ol style="list-style-type: none"> 1. Firmware upgrade CIMC 2. CIMC reboot 3. Login
CIMC and BIOS		
<ol style="list-style-type: none"> 1. NFVIS upgrade 2. Reboot 3. Login 4. Firmware upgrade CIMC and BIOS 5. NFVIS power off 6. CIMC reboot 7. BIOS flash 8. NFVIS power on 9. Login 	<ol style="list-style-type: none"> 1. Install 2. Reboot 3. Login 4. Firmware upgrade CIMC and BIOS 5. NFVIS power off 6. CIMC reboot 7. BIOS flash 8. NFVIS power on 9. Login 	<ol style="list-style-type: none"> 1. Firmware upgrade CIMC and BIOS 2. NFVIS power off 3. CIMC reboot 4. BIOS flash 5. NFVIS power on 6. Login
BIOS		
<ol style="list-style-type: none"> 1. NFVIS upgrade 2. Reboot 3. Login 4. Firmware upgrade BIOS 5. NFVIS power off 6. BIOS flash 7. NFVIS power on 8. Login 	<ol style="list-style-type: none"> 1. Install 2. Reboot 3. Login 4. Firmware upgrade BIOS 5. NFVIS power off 6. BIOS flash 7. NFVIS power on 8. Login 	<ol style="list-style-type: none"> 1. Firmware upgrade BIOS 2. NFVIS power off 3. BIOS flash 4. NFVIS power on 5. Login
Intel 710, CIMC and BIOS		

NFVIS Upgrade	Fresh Install	On Demand Upgrade
1. NFVIS upgrade	1. Install	1. Firmware upgrade 710, CIMC and BIOS
2. Reboot	2. Reboot	2. NFVIS power off
3. Login	3. Login	3. CIMC reboot
4. Firmware upgrade 710, CIMC and BIOS	4. Firmware upgrade 710, CIMC and BIOS	4. BIOS flash
5. NFVIS power off	5. NFVIS power off	5. NFVIS power on
6. CIMC reboot	6. CIMC reboot	6. Login
7. BIOS flash	7. BIOS flash	
8. NFVIS power on	8. NFVIS power on	
9. Login	9. Login	

