Cisco NX-OS Software Upgrade or Downgrade

This chapter provides the Cisco NX-OS best practices for upgrading and downgrading Cisco NX-OS system software. The Cisco NX-OS system software can be upgraded or downgraded using two different methods. The In-Service-Software-Upgrade (ISSU) is the recommended procedure, especially when performing a nondisruptive upgrade for a chassis that has two supervisor modules installed. However, the traditional method is documented as well since it is applicable to lab environments and production environments that may require a fast downgrade.

This chapter includes the following sections:

- Recommended Upgrade Procedure (ISSU)
- Verifying Software Compatibility (ISSU and Chassis Reload)
- Traditional Upgrade or Downgrade Procedure (Chassis Reload)

Recommended Upgrade Procedure (ISSU)

Introduced: Cisco NX-OS Release 4.0(1)

An In-Service-Software-Upgrade (ISSU) allows a Nexus 7000 with two supervisor modules to be upgraded or downgraded with a single command. It automatically changes the boot variables, performs a compatibility check, and prompts the administrator to continue once he or she has verified the expected outcome. Once the process starts, it upgrades the system software seamlessly without any downtime. The chassis continues to forward packets (hitless) throughout the process while the individual chassis components are upgraded. The upgrade or downgrade time will vary (30 – 50 minutes) depending on the chassis type and how many modules are installed. The CMP port on each supervisor module will require a manual reload to complete the process. This manual step prevents users from being disconnected if they are monitoring the procedure from the CMP ports.

For best results, follow these recommendations:

- Connect to both supervisor modules' console or CMP ports if you want to monitor the entire upgrade (which we recommend you do).
- Only perform ISSU upgrades in stable environments where there are no link flaps, STP state changes, etc.
- You cannot perform an ISSU if a Session Manager session is active. The active session must be committed, aborted, or saved.

```
n7000# install all kickstart bootflash:n7000-s1-kickstart.5.1.1.bin system
bootflash:n7000-s1-dk9.5.1.1.bin

n7000# reload cmp module 5
```

```
n7000# reload cmp module 6
```

Note   This procedure can be used for a chassis with one supervisor module, but the process is disruptive because the chassis requires a reload.

Verifying Software Compatibility (ISSU and Chassis Reload)

Introduced: Cisco NX-OS Release 4.0(1)

Before downgrading software, verify if there are any incompatibilities to make sure features can be properly disabled before performing the downgrade. This will inform the administrator if there are any features that will be automatically removed from the configuration and allow the administrator to take action prior to the downgrade. This command should be run regardless if the ISSU or traditional downgrade method is performed.

```
n7000# show incompatibility-all system bootflash:n7000-s1-dk9.4.2.4.bin

Checking incompatible configuration(s) for vdc 'n7000':
------------------------------------------------------------

<CLI Output Omitted>

6) Service : otv , Capability : CAP_FEATURE_OTV
Description : Overlay Transport Virtualization
Capability requirement : STRICT
Disable command : no feature otv

7) Service : bfd , Capability : CAP_FEATURE_BFD_V2
Description : Feature bfd is enabled.
Capability requirement : STRICT
Disable command : Disable bfd using"no feature bfd"

<CLI Output Omitted>
```

Traditional Upgrade or Downgrade Procedure (Chassis Reload)

Introduced: Cisco NX-OS Release 4.0(1)

The traditional upgrade procedure is documented because it is recommended for these specific scenarios:

- In lab environments where continuous uptime is not a requirement
- In production environments in the unlikely event that an upgrade needs to be downgraded in a timely manner
- In situations where ISSU or ISSD is not supported for the respective images

Before you begin, save and back up all configurations before reloading the system to load the new software. Follow these steps to upgrade the Cisco NX-OS software:

1. Configure the boot variable for the Cisco NX-OS software kickstart image.

    ```
    n7000# boot kickstart bootflash:n7000-s1-kickstart.5.2.1.bin
    ```

2. Configure the boot variable for the Cisco NX-OS software system image.

    ```
    n7000# boot system bootflash:n7000-s1-dk9.5.2.1.bin
    ```

3. Save the running configuration to the startup configuration.

```
n7000# copy running-config startup-config vdc-all
```

4. Verify that the "Current Boot Variables" and the "Boot Variables on next reload" match the expected image.

```
n7000# show boot

Current Boot Variables:

sup-1
kickstart variable = bootflash:/n7000-s1-kickstart.5.2.1.bin
system variable = bootflash:/n7000-s1-dk9.5.2.1.bin

Boot Variables on next reload:

sup-1
kickstart variable = bootflash:/n7000-s1-kickstart.5.2.1.bin
system variable = bootflash:/n7000-s1-dk9.5.2.1.bin
```

5. Verify that the image location matches the above boot statements. In redundant supervisor chassis, the images auto-synchronize from active to standby once the boot statements are set.

```
n7000# show boot auto-copy list

n7000# dir bootflash://sup-active/

  161980383    Aug 15 17:52:03 2011  n7000-s1-dk9.5.2.1.bin

   29471232    Aug 15 18:01:38 2011  n7000-s1-kickstart.5.2.1.bin

n7000# dir bootflash://sup-standby/

  161980383    Aug 15 18:04:55 2011  n7000-s1-dk9.5.2.1.bin

   29471232    Aug 15 18:06:18 2011  n7000-s1-kickstart.5.2.1.bin
```

6. After you verify the image location and statements, reload the Cisco NX-OS device.

```
n7000# reload
```