Configuring Rollback

This chapter describes how to configure rollback on Cisco NX-OS devices.

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Finding Feature Information

Your software release might not support all the features documented in this module. For the latest caveats and feature information, see the Bug Search Tool at https://bst.cloudapps.cisco.com/bugsearch and the release notes for your software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the "New and Changed Information"chapter or the Feature History table in this chapter.

About Rollbacks

A rollback allows you to take a snapshot, or user checkpoint, of the Cisco NX-OS configuration and then reapply that configuration to your device at any point without having to reload the device. A rollback allows any authorized administrator to apply this checkpoint configuration without requiring expert knowledge of the features configured in the checkpoint.

Cisco NX-OS automatically creates system checkpoints. You can use either a user or system checkpoint to perform a rollback.

You can create a checkpoint copy of the current running configuration at any time. Cisco NX-OS saves this checkpoint as an ASCII file which you can use to roll back the running configuration to the checkpoint

configuration at a future time. You can create multiple checkpoints to save different versions of your running configuration.

When you roll back the running configuration, you can trigger the following rollback types:

- atomic—Implement a rollback only if no errors occur.
- best-effort—Implement a rollback and skip any errors.
- stop-at-first-failure—Implement a rollback that stops if an error occurs.

The default rollback type is atomic.

When you are ready to roll back to a checkpoint configuration, you can view the changes that will be applied to your current running configuration before committing to the rollback operation. If an error occurs during the rollback operation, you can choose to cancel the operation, or ignore the error and proceed with the rollback. If you cancel the operation, Cisco NX-OS provides a list of changes already applied before the error occurred. You need to clean up these changes manually.

Automatically Generated System Checkpoints

The Cisco NX-OS software automatically generates system checkpoints to help you avoid a loss of configuration information. System checkpoints are generated by the following events:

- Disabling an enabled feature with the **no feature** command
- Removing an instance of a Layer 3 protocol, such as with the **no router bgp** command or the **no ip pim sparse-mode** command
- License expiration of a feature

If one of these events causes system configuration changes, the feature software creates a system checkpoint that you can use to roll back to the previous system configuration. The system generated checkpoint filenames begin with “system-” and include the feature name. For example, the first time that you disable the EIGRP feature, the system creates the checkpoint named system-fm-__inst_1__eigrp.

High Availability

Whenever a checkpoint is created using the checkpoint or checkpoint checkpoint_name commands, the checkpoint is synchronized to the standby unit.

A rollback remembers the states of the checkpoint operation, so if the checkpoint operation is interrupted and the system is left in an inconsistent state, a rollback can complete the checkpoint operation (synchronize the checkpoint with the standby unit) before proceeding with the rollback operation.

Your checkpoint files are still available after a process restart or supervisor switchover. Even if there is an interruption during the process restart or supervisor switchover, the checkpoint will complete successfully before proceeding with the operation. In a supervisor switchover, the checkpoint is completed on the new active unit.

If a process restart or supervisor switchover occurs during a rollback operation, after the restart or switchover completes, the rollback will resume from its previous state and complete successfully.

Virtualization Support

Cisco NX-OS creates a checkpoint of the running configuration in the virtual device context (VDC) that you are logged into. You can create different checkpoint copies in each VDC. You cannot apply the checkpoint of one VDC into another VDC. By default, Cisco NX-OS places you in the default VDC. See the *Cisco Nexus 7000 Series NX-OS Virtual Device Context Configuration Guide*.

VDC configuration does not support checkpoints for any operations, including (but not limited to) VDC creation, VDC deletion, VDC suspension, VDC reloading, VDC renaming, VDC interface allocation, shared interface allocation, FCoE VLAN allocation, resource allocation, and resource templates. You should create your checkpoint from within a specific VDC.

Prerequisites for Rollbacks

To configure rollback, you must have network-admin user privileges.

Guidelines and Limitations for Rollbacks

Rollbacks have the following configuration guidelines and limitations:

- You can create up to ten checkpoint copies.
- Your checkpoint filenames must be 80 characters or less.
- You cannot apply a checkpoint configuration in a nondefault VDC if there is a change in the global configuration portion of the running configuration compared to the checkpoint configuration.
- Your checkpoint filenames must be 80 characters or less.
- You cannot start a checkpoint filename with the word *system*.
- Beginning in Cisco NX-OS Release 4.2(1), you can start a checkpoint filename with the word *auto*.
- Beginning in Cisco NX-OS Release 4.2(1), you can name a checkpoint file *summary* or any abbreviation of the word *summary*.
- Only one user can perform a checkpoint, rollback, or copy the running configuration to the startup configuration at the same time.
- After the system executes the **write erase** or **reload** command, checkpoints are deleted. You can use the **clear checkpoint database** command to clear out all checkpoint files.
- A rollback fails for NetFlow if during a rollback, you try to modify a record that is programmed in the hardware.
- Although a rollback is not supported for checkpoints across software versions, users can perform a rollback at their own discretion and can use the best-effort mode to recover from errors.
- When checkpoints are created on bootflash, differences with the running-system configuration cannot be performed before performing the rollback, and the system reports “No Changes.”
- Checkpoints are local to a virtual device context (VDC).

- Checkpoints created using the **checkpoint** and **checkpoint** *checkpoint_name* commands are present upon a switchover.
- Checkpoints created in the default VDC are present upon reload unless a **write-erase** command is issued before a reload.
- Checkpoints created in nondefault VDCs are present upon reload only if a **copy running-config startup-config** command is issued in the applicable VDC *and* the default VDC.
- A rollback to files on bootflash is supported only on files created using the **checkpoint** *checkpoint_name* command and not on any other type of ASCII file.
- Checkpoint names must be unique. You cannot overwrite previously saved checkpoints with the same name.
- Rollback is not supported in the storage VDC.
- Rollback is not supported in the Admin virtual device context (VDC) feature.
- Configure the **terminal dont-ask** command before executing the **rollback** command to a checkpoint. In a rollback patch, the rollback process does not pause for user interaction and takes the default values for interactive commands. Configuring the **terminal dont-ask** command before executing the **rollback** command helps in resolving this issue.
- Rollback is not supported in the context of auto configurations. Checkpoints do not store auto configurations. Therefore, after a rollback is performed, the corresponding auto configurations will not be present.
- When you perform rollback, if the patch contains the **reload** command for the corresponding module along with the configuration commands for that module, rollback fails. This is because the rollback action does not wait for the module to come online; it starts executing the configuration commands on the module even as the reload process is in progress. To resolve this issue, manually execute the configuration commands for the module *after* the module is online.

  Examples:

  - A rollback fails when you execute the **bfd hw-offload-module** command or the **no** form of this command. In this instance, failure is because rollback cannot execute these commands when the switch interfaces that are a part of the BFD sessions are powered up. To resolve this issue, shut down all the interfaces that are a part of the BFD sessions using the **shutdown** command before executing the **bfd hw-offload-module** command or the **no** form of this command.
  - The following BFD command configurations are not supported during a rollback configuration:
    - **bfd** {**ipv4 | ipv6**} **echo**
    - **bfd** {**ipv4 | ipv6**} **per-link**
    - **bfd hw-offload-module** *module-number*
    - **port-channel bfd track-member-link**
    - **port-channel bfd destination** *destination-ip-address*
  - When an FEX is being configured while a rollback vPC is applied to an interface, the FEX goes offline momentarily. When this occurs, rollback does not wait for the FEX to come online, and executes the configuration commands for the interface, resulting in failure because the corresponding

FEX is not yet provisioned. To resolve this issue, manually execute the FEX-related configuration commands *after* the FEX is online.

- Checkpoint descriptions are not persistent across switch reloads. When a description for a checkpoint is created by using the **checkpoint** *description* command, the description is not visible in the output of the **show checkpoint summary** command after the switch is reloaded. If the checkpoint description can be qualified as a checkpoint name, we recommend using the same alphanumeric string for both the checkpoint name and description. The checkpoint name is visible in the output of the **show checkpoint summary** command even after the switch is reloaded

Default Settings for Rollbacks

This table lists the default settings for rollback parameters.

Parameters	Default
Rollback type	Atomic

Configuring Rollbacks

Note Be aware that the Cisco NX-OS commands may differ from the Cisco IOS commands.

Creating a Checkpoint

You can create up to ten checkpoints of your configuration.

Procedure

	Command or Action	Purpose
Step 1	[**no**] **checkpoint** {[*cp-name*] [**description** *descr*] | **file** *file-name* } **Example:** `switch# checkpoint stable`	Creates a checkpoint of the running configuration to either a user checkpoint name or a file. The checkpoint name can be any alphanumeric string up to 80 characters but cannot contain spaces. If you do not provide a name, Cisco NX-OS sets the checkpoint name to user-checkpoint-*number* where *number* is from 1 to 10. The description can contain up to 80 alphanumeric characters, including spaces. You can use the **no** form of the **checkpoint** command to remove a checkpoint name. Use

	Command or Action	Purpose
		the **delete** command to remove a checkpoint file.
Step 2	(Optional) **show checkpoint** *cp-name* [**all**] **Example:** `switch# show checkpoint stable`	Displays the contents of the checkpoint name.

Implementing a Rollback

You can implement a rollback to a checkpoint name or file. Before you implement a rollback, you can view the differences between source and destination checkpoints that reference current or saved configurations.

Note If you make a configuration change during an atomic rollback, the rollback will fail.

Procedure

	Command or Action	Purpose
Step 1	**show diff rollback-patch** {**checkpoint** *src-cp-name* | **running-config** | **startup-config** | **file** *source-file*} {**checkpoint** *dest-cp-name* | **running-config** | **startup-config** | **file** *dest-file*} **Example:** `switch# show diff rollback-patch checkpoint stable running-config`	Displays the differences between the source and destination checkpoint selections.
Step 2	**rollback running-config** {**checkpoint** *cp-name* | **file** *cp-file*} [**atomic** | **best-effort** | **stop-at-first-failure**] **Example:** `switch# rollback running-config checkpoint stable`	Creates a rollback to the specified checkpoint name or file. You can implement the following rollback types: • atomic—Implement a rollback only if no errors occur. • best-effort—Implement a rollback and skip any errors. • stop-at-first-failure—Implement a rollback that stops if an error occurs. The default is atomic. This example shows how to implement a rollback to a user checkpoint name.

Verifying the Rollback Configuration

To display the rollback configuration information, perform one of the following tasks:

Command	Purpose
show checkpoint *name* [**all**]	Displays the contents of the checkpoint name.
show checkpoint all [**user** | **system**]	Displays the contents of all checkpoints. You can limit the displayed checkpoints to user or system generated checkpoints.
show checkpoint summary [**user** | **system**]	Displays a list of all checkpoints. You can limit the displayed checkpoints to user or system generated checkpoints.
show diff rollback-patch {**checkpoint** *src-cp-name* | **running-config** | **startup-config** | **file** *source-file*} {**checkpoint** *dest-cp-name* | **running-config** | **startup-config** | **file** *dest-file*}	Displays the differences between the source and destination checkpoint selections.
show rollback log [**exec** | **verify**]	Displays the contents of the rollback log.

Use the **clear checkpoint database** command to delete all checkpoint files.

Note When a **checkpoint** is created, you can view the default configuration **priority-flow-control mode auto** using the **show run all** command. You cannot view the configuration **priority-flow-control mode auto** using the **show run** command for the interface.

Configuration Example for Rollback

This example shows how to create a checkpoint file and then implements a best-effort rollback to a user checkpoint name:

```
checkpoint stable
rollback running-config checkpoint stable best-effort
```

Additional References

Related Documents

Related Topic	Document Title
Rollback CLI commands	*Cisco Nexus 7000 Series NX-OS System Management Command Reference*
VDCs	*Cisco Nexus 7000 Series NX-OS Virtual Device Context Configuration Guide*
Configuration files	*Cisco Nexus 7000 Series NX-OS Fundamentals Configuration Guide*

Feature History for Rollback

Your software release might not support all the features in this document. For the latest caveats and feature information, see the Bug Search Tool at https://tools.cisco.com/bugsearch/ and the release notes for your software release.

Table 1: Feature History for Rollback

Feature Name	Releases	Feature Information
High Availability	4.2(1)	Checkpoint and rollback operations support high availability.
Guidelines and Limitations	4.2(1)	Checkpoint file naming conventions changed.
Automatically generated system checkpoints	4.2(1)	The software automatically generates a system checkpoint when disabling a feature or license expiration could cause loss of configuration information.
Guidelines and Limitations	4.1(3)	A rollback fails for NetFlow if during rollback, you try to modify a record that is programmed in the hardware. A rollback is not supported for checkpoints across software versions.