

# CHAPTER 5

## Configuring Rollback and Session Manager

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This chapter describes how to configure the Rollback and Session Manager features in Cisco NX-OS.

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- [Information About Rollback and Session Manager, page 5-1](#)
- [Licensing Requirements for Rollback and Session Manager, page 5-3](#)
- [Prerequisites for Rollback and Session Manager, page 5-3](#)
- [Configuration Guidelines and Limitations, page 5-3](#)
- [Configuring Rollback, page 5-4](#)
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### Information About Rollback and Session Manager

This section includes the following topics:

- [Rollback Overview, page 5-1](#)
- [Session Manager, page 5-2](#)
- [High Availability, page 5-2](#)
- [Virtualization Support, page 5-2](#)

### Rollback Overview

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

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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 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.

## Session Manager

Session Manager allows you to implement your configuration changes in batch mode. Session Manager works in the following phases:

- Configuration session—Create a list of commands that you want to implement in session manager mode.
- Validation—Provides a basic semantic check on your configuration. Cisco NX-OS returns an error if the semantic check fails on any part of the configuration.
- Verification—Verifies the configuration as a whole, based on the existing hardware and software configuration and resources. Cisco NX-OS returns an error if the configuration does not pass this verification phase.
- Commit—Cisco NX-OS verifies the complete configuration and implements the changes atomically to the device. If a failure occurs, Cisco NX-OS reverts to the original configuration.
- Abort—Discards the configuration changes before implementation.

You can optionally end a configuration session without committing the changes. You can also save a configuration session.

## High Availability

The rollback feature provides the ability to roll back to a prior checkpoint configuration without requiring a software reload. Your checkpoint files are still available after a process restart or supervisor switchover.

You can perform an undisturbed checkpoint or rollback operation during process restart or system switchover.

Session manager sessions remain available after a supervisor switchover. Sessions are not persistent across a software reload.

## Virtualization Support

Cisco NX-OS creates a checkpoint of the running configuration in the virtual device context (VDCs) 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 NX-OS Virtual Device Context Configuration Guide*.

You cannot create or delete a VDC from a checkpoint file. You should create your checkpoint from within a specific VDC.

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## Licensing Requirements for Rollback and Session Manager

The following table shows the licensing requirements for this feature:

Product	License Requirement
NX-OS	Rollback and session manager require no license. Any feature not included in a license package is bundled with the Cisco NX-OS system images and is provided at no extra charge to you. For a complete explanation of the NX-OS licensing scheme, see the <i>Cisco NX-OS Licensing Guide</i> .

## Prerequisites for Rollback and Session Manager

If you configure VDCs, install the Advanced Services license and enter the desired VDC (see the *Cisco NX-OS Virtual Device Context Configuration Guide*).

For rollback, you must have network-admin or vdc-admin user privileges. For session manager, any user can create a session, but will only see the commands inside the session that the user's privilege allows.

## Configuration Guidelines and Limitations

Rollback has the following configuration guidelines and limitations:

- You can create up to ten checkpoint copies per VDC.
- You cannot apply the checkpoint file of one VDC into another VDC
- 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 file names must be 20 characters or less.
- You cannot start a checkpoint file name with the word 'auto'.
- You cannot name a checkpoint file with '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 in a VDC.
- Checkpoint files are available after a system reload. You can use the **clear checkpoint database** command to clear out all checkpoint files.

Session Manager has the following configuration guidelines and limitations:

- Session Manager supports only the ACL feature.
- You can create up to 32 configuration sessions per VDC.
- You cannot issue an in-service software upgrade (ISSU) if an active session is in progress. You must commit the session, save it, or abort it before issuing an ISSU.
- You can configure a maximum of 20K commands across all sessions in a VDC.
- You cannot simultaneously execute configuration commands in more than one configuration session or configuration terminal mode. Parallel configurations (for example, one configuration session and one configuration terminal) may cause validation or verification failures in the configuration session.

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- If an interface reloads while you are configuring that interface in a configuration session, Session Manager may accept the commands even though the interface is not present in the device at that time.

## Configuring Rollback

This section includes the following topics:

- [Creating a Checkpoint, page 5-4](#)
- [Implementing a Rollback, page 5-5](#)



### Note

If you are familiar with the Cisco IOS CLI, be aware that the Cisco NX-OS commands for this feature might differ from the Cisco IOS commands that you would use.

## Creating a Checkpoint

You can create up to ten checkpoint copies of your configuration per VDC.

### BEFORE YOU BEGIN

Ensure that you are in the correct VDC (or use the **switchto vdc** command).

### SUMMARY STEPS

1. **checkpoint** *[name]*
2. **show checkpoint** *[name]*

### DETAILED STEPS

	Command	Purpose
Step 1	<b>checkpoint</b> <i>[name]</i>  <b>Example:</b> switch# <b>checkpoint stable</b>	Creates a checkpoint copy of the running configuration. The name can be any alphanumeric string up to 79 characters. If you do not provide a name, Cisco NX-OS sets the checkpoint name as 'auto-<number>' where number is from 1 to 10.
Step 2	<b>show checkpoint</b> <i>[name]</i>  <b>Example:</b> switch# <b>show checkpoint stable</b>	(Optional) Displays the contents of the checkpoint file.

This example shows how to create a checkpoint copy of the current configuration:

```
switch# checkpoint stable
```

To delete a checkpoint file use the following command:

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Command	Purpose
<code>no checkpoint name</code>  <b>Example:</b> <code>switch# no checkpoint stable</code>	Deletes the checkpoint file.

## Implementing a Rollback

You can implement a configuration rollback to one of your saved checkpoint files.

### BEFORE YOU BEGIN

Ensure that you are in the correct VDC (or use the `switchto vdc` command).

### SUMMARY STEPS

1. `show diff rollback-patch {checkpoint name | running-config | startup-config} {checkpoint name | running-config | startup-config}`
2. `rollback running-config checkpoint name [atomic | best-effort | stop-at-first-failure]`

### DETAILED STEPS

	Command	Purpose
Step 1	<code>show diff rollback-patch {checkpoint name   running-config   startup-config} {checkpoint name   running-config   startup-config}</code>  <b>Example:</b> <code>switch# show diff rollback-patch checkpoint stable running-config</code>	Displays the differences between the source and destination files. The name can be any alphanumeric string.
Step 2	<code>rollback running-config checkpoint name [atomic   best-effort   stop-at-first-failure]</code>  <b>Example:</b> <code>switch# rollback running-config checkpoint stable</code>	Implements a rollback for the configured checkpoint file. You can optionally trigger the following rollback types: <ul style="list-style-type: none"> <li>• <code>atomic</code>—Implement the rollback only if no errors occur.</li> <li>• <code>best-effort</code>—Implement a rollback and skip any errors.</li> <li>• <code>stop-at-first-failure</code>—Implement a rollback that stops if an error occurs.</li> </ul> The default is <code>best-effort</code> .

This example shows how to trigger a rollback:

```
switch# rollback running-config checkpoint stable
```

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## Configuring Session Manager

This section includes the following topics:

- [Creating a Session, page 5-6](#)
- [Configuring ACLs in a Session, page 5-7](#)
- [Verifying a Session, page 5-7](#)
- [Committing a Session, page 5-8](#)
- [Saving a Session, page 5-8](#)
- [Discarding a Session, page 5-8](#)



### Note

If you are familiar with the Cisco IOS CLI, be aware that the Cisco NX-OS commands for this feature might differ from the Cisco IOS commands that you would use.

## Creating a Session

You can create up to 32 configuration sessions.

### BEFORE YOU BEGIN

Ensure that you are in the correct VDC (or use the **switchto vdc** command).

### SUMMARY STEPS

1. **configure session** *name*
2. **show configuration session** [*name*]
3. **save** *location*

### DETAILED STEPS

	Command	Purpose
Step 1	<b>configure session</b> <i>name</i>  <b>Example:</b> switch# configure session myACLs switch(config-s)#	Creates a configuration session and enters session configuration mode. The name can be any alphanumeric string.
Step 2	<b>show configuration session</b> [ <i>name</i> ]  <b>Example:</b> switch(config-s)# show configuration session myACLs	(Optional) Displays the contents of the session.
Step 3	<b>save</b> <i>location</i>  <b>Example:</b> switch(config-s)# save bootflash:sessions/myACLs	(Optional) Saves the session to a file. The location can be in bootflash:, slot0:, or volatile:

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## Configuring ACLs in a Session

You can configure ACLs within a configuration session.

### BEFORE YOU BEGIN

Ensure that you are in the correct VDC (or use the **switchto vdc** command).

### SUMMARY STEPS

1. **configure session** *name*
2. add ACL commands
3. **show configuration session** [*name*]

### DETAILED STEPS

	Command	Purpose
Step 1	<b>configure session</b> <i>name</i>  <b>Example:</b> switch# configure session myacls switch(config-s)#	Creates a configuration session and enters session configuration mode. The name can be any alphanumeric string.
Step 2	<b>ip access-list</b> <i>name</i>  <b>Example:</b> switch(config-s)# ip access-list acl1 switch(config-s-acl)#	Creates an ACL.
Step 3	<b>permit</b> <i>protocol source destination</i>  <b>Example:</b> switch(config-s-acl)# permit tcp any any	(Optional) Adds a permit statement to the ACL
Step 4	<b>interface</b> <i>interface-type number</i>  <b>Example:</b> switch(config-s-acl)# interface e 2/1 switch(config-s-if)#	Enters interface configuration mode
Step 5	<b>ip access-group</b> <i>name</i> { <b>in</b>   <b>out</b> }  <b>Example:</b> switch(config-s-if)# ip access-group acl1 in	Enters interface configuration mode
Step 6	<b>show configuration session</b> [ <i>name</i> ]  <b>Example:</b> switch(config-s)# show configuration session myacls	(Optional) Displays the contents of the session.

## Verifying a Session

To verify a session, use the following command in session mode.

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Command	Purpose
<b>verify</b> [ <b>verbose</b> ]	Verifies the commands in the configuration session.
Example: switch(config-s)# verify	

## Committing a Session

To commit a session, use the following command in session mode.

Command	Purpose
<b>commit</b> [ <b>verbose</b> ]	Commits the commands in the configuration session.
Example: switch(config-s)# commit	

## Saving a Session

To save a session, use the following command in session mode.

Command	Purpose
<b>save</b> <i>location</i>	(Optional) Saves the session to a file. The location can be in bootflash:, slot0:, or volatile:.
Example: switch(config-s)# save bootflash:sessions/myACLs	

## Discarding a Session

To discard a session, use the following command in session mode.

Command	Purpose
<b>abort</b>	Discards the configuration session without applying the commands.
Example: switch(config-s)# abort switch#	

## Verifying Rollback and Session Manager Configuration

To verify rollback configuration information, use these commands:

Command	Purpose
<b>show checkpoint</b> <i>name</i>	Displays the contents of the checkpoint file.

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Command	Purpose
<code>show checkpoint summary</code>	Displays a list of all checkpoint files in the current VDC.
<code>show diff rollback-patch {checkpoint name   running-config   startup-config} {checkpoint name   running-config   startup-config}</code>	Displays the differences between the two configurations.

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

To verify Session Manager configuration information, use the following commands:

Command	Purpose
<code>show configuration session [name]</code>	Displays the contents of the configuration session.
<code>show configuration session status [name]</code>	Displays the status of the configuration session.
<code>show configuration session summary</code>	Displays a summary of all the configuration session.

## Rollback and Session Manager Example Configuration

This example creates a checkpoint file and then implements a best-effort rollback to this checkpoint:

```
checkpoint stable
rollback running-config checkpoint stable
```

This example creates a configuration session for ACLs:

```
configure session name test2
ip access-list acl2
  permit tcp any any

interface Ethernet1/2
  ip access-group acl2 in
```

## Related Topics

See the *Cisco Nexus 7000 Series NX-OS Fundamentals Configuration Guide, Release 4.0* for more information on configuration files.

## Default Settings

Table 5-1 lists the default settings for Rollback and Session Manager parameters.

**Table 5-1** Default Rollback Parameters

Parameters	Default
rollback type	best-effort

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## Additional References

For additional information related to implementing Rollback, see the following sections:

- [Related Documents, page 5-10](#)
- [Standards, page 5-10](#)

## Related Documents

Related Topic	Document Title
Rollback and Session Manager CLI commands	<i>Cisco Nexus 7000 Series NX-OS System Management Command Reference, Release 4.0</i>
configuration files	<i>Cisco Nexus 7000 Series NX-OS Fundamentals Configuration Guide, Release 4.0</i>
VDCs	<i>Cisco Nexus 7000 Series NX-OS Virtual Device Context Configuration Guide, Release 4.0</i>

## Standards

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—