



# **Command Reference Guide for Cisco Evolved Programmable Network Manager 7.0**

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**Glossary** ?





## Preface

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This guide describes how you can configure and maintain the Cisco Evolved Programmable Network Manager (EPNM) using the command-line interface (CLI). Each topic provides a high-level summary of the tasks required for using CLI for EPNM that runs on supported appliances for small, medium, and large Cisco EPNM deployments.

- [Who Should Read This Guide, on page ix](#)
- [How to Use This Guide, on page ix](#)
- [How This Guide Is Organized, on page x](#)
- [Document Conventions, on page x](#)
- [Related Documentation, on page xi](#)
- [Obtaining Documentation and Submitting a Service Request, on page xi](#)

## Who Should Read This Guide

Most of the instructions given in this guide are straightforward; however, a few are complex. Therefore, only experienced users should use these instructions.



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**Note** Use this guide in conjunction with the documentation listed in [Related Documentation, on page xi](#).

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## How to Use This Guide

We recommend that you use the information in this guide as follows:

- Read the document in its entirety. Subsequent sections build on information and recommendations discussed in previous sections.
- Use this document for all-inclusive information about the Cisco EPNM appliance.
- Do not vary the command-line conventions.

## How This Guide Is Organized

The following table lists the major sections of this guide.

Chapter	Title	Description
<a href="#">Overview of the Cisco EPNM Command-Line Interface</a>	Overview of the Cisco EPNM Command-Line Interface	Provides an overview of the EPNM CLI environment and command modes.
<a href="#">Using the Command-Line Interface</a>	Using the Cisco EPNM Command-Line Interface	Describes how you can access and administer EPNM using the CLI.

## Document Conventions

This guide uses the following conventions to convey instructions and information.

Convention	Description
<b>bold font</b>	Commands and keywords.
<i>italic font</i>	Variables for which you supply values.
[.....]	Keywords or arguments that appear within square brackets are optional.
{x   y   z}	A choice of required keywords appears in braces separated by vertical bars. You must select one.
<code>courier font</code>	Examples of information displayed on the screen.
<b>bold courier font</b>	Examples of information you must enter.
<.....>	Nonprinting characters (for example, passwords) appear in angle brackets.
[...]	Default responses to system prompts appear in square brackets.




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**Note** Notes contain helpful suggestions or references to material not covered in the manual.

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**Tip** Suggests the following information will help you solve a problem.

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**Caution** Provides critical information. In this situation, you might perform an action that could result in equipment damage or loss of data.

## Related Documentation

The table lists the Cisco EPNM documents.

**Table 1: Product Documentation**

Document Title	Location
<i>Cisco EPNM Release Notes</i>	<a href="https://www.cisco.com/c/en/us/support/cloud-systems-management/evolved-programmable-network-epn-manager/products-release-notes-list.html">https://www.cisco.com/c/en/us/support/cloud-systems-management/evolved-programmable-network-epn-manager/products-release-notes-list.html</a>
<i>Cisco EPNM Command Reference Guide</i>	<a href="https://www.cisco.com/c/en/us/support/cloud-systems-management/prime-infrastructure/products-command-reference-list.html">https://www.cisco.com/c/en/us/support/cloud-systems-management/prime-infrastructure/products-command-reference-list.html</a>
<i>Cisco EPNM User and Administrator Guide</i>	<a href="https://www.cisco.com/c/en/us/support/cloud-systems-management/evolved-programmable-network-epn-manager/products-user-guide-list.html">https://www.cisco.com/c/en/us/support/cloud-systems-management/evolved-programmable-network-epn-manager/products-user-guide-list.html</a>
<i>Cisco EPNM Installation Guide</i>	<a href="https://www.cisco.com/c/en/us/support/cloud-systems-management/evolved-programmable-network-epn-manager/products-installation-guides-list.html">https://www.cisco.com/c/en/us/support/cloud-systems-management/evolved-programmable-network-epn-manager/products-installation-guides-list.html</a>

## Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly What's New in Cisco Product Documentation, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0.





# Overview of the Cisco EPNM Command-Line Interface

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This chapter provides an overview of how to access the Cisco Evolved Programmable Network Manager (EPNM) command-line interface (CLI), the different command modes, and the commands that are available in each mode.

You can configure and monitor the Cisco EPNM through the web interface. You can also use CLI to perform the configuration and monitoring tasks described in this guide.

- [Accessing the Cisco EPNM Command Environment, on page 2](#)
- [User Accounts and Modes in Cisco EPNM CLI, on page 3](#)
- [Command Modes in the Cisco EPNM CLI, on page 4](#)

# Accessing the Cisco EPNM Command Environment

You can access the Cisco EPNM CLI through a secure shell (SSH) client or the console port using one of the following machines:

- Windows PC running Windows 7, 8, and 10
- Apple Computer running Mac OS X 10.4 or later
- PC running Linux

# User Accounts and Modes in Cisco EPNM CLI

The below mentioned types of accounts are available on the Cisco EPNM CLI:

- Admin (administrator)
- Network Admin
- Security Admin
- User

When you power on the Cisco EPNM appliance for the first time, you are prompted to run the setup utility to configure the appliances. During this setup process, an administrator user account, also known as an Admin account, is created. After you enter the initial configuration information, the appliance automatically reboots and prompts you to enter the username and the password that you specified for the Admin account. You must use this Admin account to log in to the Cisco EPNM CLI for the first time.

An Admin can create and manage user accounts (which have limited privileges and access to the Cisco EPNM server). An Admin account also provides the functionality that is needed to use the EPNM CLI.

To create more users (with admin, security-admin, network-admin, and user privileges) with SSH access to the Cisco EPNM CLI, you must enter the **username** command in configuration mode (see [Command Modes in the Cisco EPNM CLI](#)).



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**Note** A user with an admin role can be assigned for user admin role alone and not with any other user role type mentioned above, once the installation is completed.

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Logging in to the Cisco EPNM server places you in user mode or admin (EXEC) mode, which always requires a username and password for authentication.

You can tell which mode you are in by looking at the prompt. A right angle bracket (>) appears at the end of user mode prompt; a pound sign (#) appears at the end of admin mode prompt, regardless of the submode.

# Command Modes in the Cisco EPNM CLI

This section describes the command modes supported in Cisco EPNM.

## EXEC Commands

EXEC commands primarily include system-level commands such as **show** and **reload** (for example, application installation, application start and stop, copy files and installations, restore backups, and display information).

- [Table 2: Summary of EXEC Commands](#) describes the EXEC commands
- [Table 3: Summary of show Commands](#) describes the show commands in EXEC mode

For detailed information on EXEC commands, see [Understanding Command Modes, on page 17](#).

## EXEC or System-Level Commands

[Table 2: Summary of EXEC Commands](#) describes EXEC mode commands.

*Table 2: Summary of EXEC Commands*

	Description
<b>application install</b>	Installs a specific application bundle.
<b>application start</b>	Starts or enables a specific application.
<b>application stop</b>	Stops or disables a specific application.
<b>application upgrade</b>	Upgrades a specific application bundle.
<b>backup</b>	Performs a backup and places the backup in a repository.
<b>backup-logs</b>	Performs a backup of all the logs on the Cisco EPNM to a remote location.
<b>banner</b>	Sets messages while logging in to CLI (pre-login).
<b>change-password</b>	Changes the current CLI user password
<b>clock</b>	Sets the system clock on the Cisco EPNM server.
<b>configure</b>	Enters configuration mode.
<b>copy</b>	Copies any file from a source to a destination.
<b>debug</b>	Displays any errors or events for various command situations; for example, backup and restore, configuration, copy, resource locking, file transfer, and user management.
<b>delete</b>	Deletes a file in the Cisco EPNM server.



	Description
<b>dir</b>	Lists the files in the Cisco EPNM server.
<b>exit</b>	Disconnects the encrypted session with a remote system. Exits from the current command mode to the previous command mode.
<b>export</b>	Exports data for CW migration
<b>forceout</b>	Forces the logout of all the sessions of a specific Cisco EPNM server system user.
<b>halt</b>	Disables or shuts down the Cisco EPNM server.
<b>mkdir</b>	Creates a new directory.
<b>ncs</b>	NCS-related commands used to start, stop, and back up the server.
<b>nslookup</b>	Queries the IPv4 address or hostname of a remote system.
<b>ocsp</b>	Enables certificate-based authentication for web clients using OCSP responders.
<b>patch</b>	Installs System or Application patch.
<b>ping</b>	Determines the IPv4 network connectivity to a remote system.
<b>ping6</b>	Determines the IPv6 network connectivity to a remote system.
<b>reload</b>	Reboots the Cisco EPNM server.
<b>restore</b>	Restores a previous backup.
<b>rmdir</b>	Removes an existing directory.
<b>rsakey</b>	Displays a configured RSA key or sets a new RSA public key for user authentication.
<b>sam</b>	SAM Top Level Command
<b>show</b>	Provides information about the Cisco EPNM server.
<b>ssh</b>	Starts an encrypted session with a remote system.
<b>tech</b>	Provides Cisco Technical Assistance Center (TAC) commands.
<b>telnet</b>	Establishes a Telnet connection to a remote system.
<b>terminal length</b>	Sets terminal line parameters.

	Description
<b>terminal session-timeout</b>	Sets the inactivity timeout for all terminal sessions.
<b>terminal session-welcome</b>	Sets the welcome message on the system for all terminal sessions.
<b>terminal terminal-type</b>	Specifies the type of terminal connected to the current line of the current session.
<b>traceroute</b>	Traces the route of a remote IP address.
<b>undebug</b>	Disables the output (display of errors or events) of the <b>debug</b> command for various command situations; for example, backup and restore, configuration, copy, resource locking, file transfer, and user management.
<b>write</b>	Erases the startup configuration that forces to run the setup utility and prompt the network configuration, copies the running configuration to the startup configuration, and displays the running configuration on the console.

## show Commands

The **show** commands are used to display the Cisco EPNM settings and are among the most useful commands. See the table [show Commands, on page 6](#) for a summary of the **show** commands. The **show** commands must be followed by a keyword; for example, **show application status**. Some **show** commands require an argument or variable after the keyword to function; for example, **show application version**.

*Table 3: Summary of show Commands*

	Description
<b>application (requires keyword)</b>	Displays information about the installed application; for example, status information or version information.
<b>backup (requires keyword)</b>	Displays information about the backup.
<b>banner (requires keyword)</b>	Sets up messages when logging in to CLI.
<b>cdp (requires keyword)</b>	Displays information about the enabled Cisco Discovery Protocol interfaces.
<b>clock</b>	Displays the day, date, time, time zone, and year of the system clock.
<b>cpu</b>	Displays CPU information.
<b>disks</b>	Displays file-system information of the disks.
<b>icmp-status</b>	Displays the Internet Control Message Protocol (ICMP) echo response configuration information.

	<b>Description</b>
<b>interface</b>	Displays statistics for all the interfaces that are configured on the Cisco EPNM.
<b>inventory</b>	Displays information about the hardware inventory, including the Cisco EPNM appliance model and serial number.
<b>ip route</b>	Displays the IP route details of the application.
<b>logging (requires keyword)</b>	Displays the Cisco EPNM server logging information.
<b>logins (requires keyword)</b>	Displays the login history of the Cisco EPNM server.
<b>memory</b>	Displays memory usage by all running processes.
<b>netstat</b>	Displays the netstat and firewall information.
<b>ntp</b>	Displays the status of the Network Time Protocol (NTP) servers.
<b>ports</b>	Displays all the processes listening on the active ports.
<b>process</b>	Displays information about the active processes of the Cisco EPNM server.
<b>repository (requires keyword)</b>	Displays the file contents of a specific repository.
<b>restore (requires keyword)</b>	Displays the restore history in the Cisco EPNM.
<b>running-config</b>	Displays the contents of the configuration file that currently runs in the Cisco EPNM.
<b>security-status</b>	Displays whether the services/ports are enabled or disabled
<b>startup-config</b>	Displays the contents of the startup configuration in the Cisco EPNM.
<b>tech-support</b>	Displays system and configuration information that you can provide to the TAC when you report a problem.
<b>terminal</b>	Displays information about the terminal configuration parameter settings for the current terminal line.
<b>timezone</b>	Displays the current time zone in the Cisco EPNM.
<b>timezones</b>	Displays all the time zones available for use in the Cisco EPNM.
<b>udi</b>	Displays information about the unique device identifier (UDI) of the Cisco EPNM.

	Description
<b>uptime</b>	Displays how long the system you are logged in to has been up and running.
<b>users</b>	Displays information about the system users.
<b>version</b>	Displays information about the currently loaded software version, along with hardware and device information.

## Configuration Commands

Configuration commands include **interface** and **repository**. To access configuration mode, run the **configure** command in EXEC mode.

Some of the configuration commands require that you enter the configuration submode to complete the configuration.

[Table 4: Summary of Configuration Commands](#) describes the configuration commands.

**Table 4: Summary of Configuration Commands**

	Description
<b>aaa authentication</b>	Logs in to EPNM server remotely.
<b>backup-staging-url</b>	Specifies a Network File System (NFS) temporary space or staging area for the remote directory for backup and restore operations.
<b>cdp holdtime</b>	Specifies the amount of time the receiving device should hold a Cisco Discovery Protocol packet from the server before discarding it.
<b>cdp run</b>	Enables Cisco Discovery Protocol.
<b>cdp timer</b>	Specifies how often the EPNM server sends Cisco Discovery Protocol updates.
<b>clock timezone</b>	Sets the time zone for display purposes.
<b>do</b>	Executes an EXEC-level command from configuration mode or any configuration submode.  <b>Note</b> To initiate, the <b>do</b> command precedes the EXEC command.
<b>end</b>	Returns to EXEC mode.
<b>exit</b>	Exits configuration mode.
<b>hostname</b>	Sets the hostname of the system.

	Description
<b>icmp</b>	Configures the ICMP echo requests.
<b>interface</b>	Configures an interface type and enters interface configuration mode.
<b>ip access-list</b>	Configures Access Control Lists (ACL).
<b>ip default-gateway</b>	Defines or sets a default gateway with an IP address.
<b>ip domain-name</b>	Defines a default domain name that a EPNM server uses to complete hostnames.
<b>ip name-server</b>	Sets the Domain Name System (DNS) servers for use during a DNS query.
<b>ip route</b>	Configures the IP routes.
<b>kron occurrence</b>	Schedule one or more Command Scheduler commands to run at a specific date and time or a recurring level.
<b>kron policy-list</b>	Specifies a name for a Command Scheduler policy.
<b>logging</b>	Enables the system to forward logs to a remote system.
<b>loglevel</b>	Configures the log level for the <b>logging</b> command.
<b>security</b>	Security configuration for the <b>logging</b> command.
<b>logging sync-logs</b>	Configures and enables continuous logs to sync into a repository.
<b>no</b>	Disables or removes the function associated with the command.
<b>ntp</b>	Synchronizes the software clock through the NTP server for the system.
<b>password-policy</b>	Enables and configures the password policy.
<b>repository</b>	Enters repository submode.
<b>service</b>	Specifies the type of service to manage.
<b>snmp-server community</b>	Sets up the community access string to permit access to the Simple Network Management Protocol (SNMP).
<b>snmp-server contact</b>	Configures the SNMP contact the Management Information Base (MIB) value on the system.
<b>snmp-server host</b>	Sends SNMP traps to a remote system.
<b>snmp-server location</b>	Configures the SNMP location MIB value on the system.

	Description
<b>username</b>	Adds a user to the system with a password and a privilege level.

For detailed information on configuration mode and submode commands, see [Understanding Command Modes](#), on page 17.



## Using the Command-Line Interface

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This chapter provides helpful tips for understanding and configuring the Cisco Evolved Programmable Network Manager (EPNM) from the command-line interface (CLI). The Cisco EPNM can be deployed for small, medium, and large deployments and is available on different platforms and also as a software that can run on VMware.

- [Before Accessing the Cisco EPNM CLI, on page 12](#)
- [Running the Setup Utility to Configure the Appliance, on page 13](#)
- [Accessing the Cisco EPNM CLI, on page 15](#)
- [Understanding Command Modes, on page 17](#)
- [Navigating the CLI Commands, on page 20](#)
- [Where to Go Next, on page 23](#)

## Before Accessing the Cisco EPNM CLI

Before logging in to the Cisco EPNM CLI, ensure that you have completed the installation tasks as specified in the *Cisco EPNM Installation Guide* at : <https://www.cisco.com/c/en/us/support/cloud-systems-management/evolved-programmable-network-epn-manager/products-installation-guides-list.html>.



# Running the Setup Utility to Configure the Appliance

When you power on the Cisco EPNM appliances for the first time, you are prompted to run the setup utility to configure the Cisco EPNM appliances. Before you run the utility using the **setup** command, ensure that you have values for the following network configuration prompts:

- Hostname
- IP address
- Netmask
- Gateway
- Domain
- Nameserver
- Network Time Protocol (NTP) server (optional)
- User ID
- Password

The following is a sample output from the **setup** command:

```
*****
Please type 'setup' to configure the appliance
*****
localhost login: setup
Press 'Ctrl-C' to abort setup
Enter hostname[]: epm-33-aws-100
Enter IP address[10.126.168.100]:
Enter IP default netmask[]: 255.255.255.0
Enter IP default gateway[]: 10.126.168.1
Enter default DNS domain[]: cisco.com
Enter primary nameserver[]: 72.163.128.140
Add/Edit another nameserver? Y/N : n
Enter primary NTP server[time.nist.gov]: 10.81.254.202
Add/Edit secondary NTP server? Y/N : n
Enter system timezone[UTC]: Asia/Calcutta
Current system clock time : 2018-11-27 07:59:14 IST
Change system clock time? Y/N : n
Enter username[admin]:
Enter password:
Enter password again:
*****
* High Availability (HA) Role Selection *
*****
HA refers to a system that is continuously operating during failure.
To configure HA, go to the primary server's user interface.
Choose Administration > High Availability > HA Configuration.
For more information, click the context-sensitive online help.
Will this server be used as a Secondary for HA? (yes/no) : no
*****
* Web Interface Root Password Selection *
*****
Expected :
```

```
* Cisco EPNM Setup *
```

```

Enter "^" to return to previous question.

*****
* Advanced Security Selection *
*****
Do you want to allow access to root shell? (yes/no) :yes

*****
* Web Interface Root Password Selection *
*****
Enter Web Interface - root password:
Enter Web Interface - root password again:

*****
* Summary *
*****
Server will not be a Secondary
Root shell will be enabled.
Web Interface - root password is set.
Apply these settings? (y/n)y
Settings Applied.

```

After you enter the required information, the Cisco EPNM appliance automatically reboots and the following login prompt appears:

```
machine_name login:
```

where *machine\_name* identifies the hostname that you specified when you ran the **setup** command.

In this example, this prompt appears:

```
NCS login:
```

To log in, use the administrator user account (and the corresponding password) that you created during the setup process. You must also use this Admin account to log in to the Cisco EPNM CLI for the first time. After accessing the CLI as an administrator, you can create more users (with admin and operator privileges) with SSH access to the CLI by running the **username** command in configuration mode.




---

**Note** The administrator user account and the corresponding password (a CLI user account) that you created during the initial setup wizard can be used to manage the Cisco EPNM application using the CLI. The CLI user has privileges to start and stop the Cisco EPNM application software, backup, and restore the Cisco EPNM application data, apply software patches and upgrades to the Cisco EPNM application software, view all the system and the application logs, and reload or shut down the Cisco EPNM appliance. To protect the CLI user credentials, explicitly create users with access to the CLI.

---




---

**Note** Any users that you create from the Cisco EPNM web interface cannot automatically log in to the Cisco EPNM CLI. You must explicitly create users with access to the CLI. To create these users, you must log in to the CLI using the Admin account that you created during setup; then, enter configuration mode, and run the **username** command.

---

# Accessing the Cisco EPNM CLI

Before logging in to the Cisco EPNM CLI, ensure that you have completed the hardware installation and configuration process outlined in the [Before Accessing the Cisco EPNM CLI, on page 12](#)

To log in to the Cisco EPNM server and access the CLI, use an SSH secure shell client or the console port. You can log in from:

- A PC running Windows 7, 8, and 10.
- A PC running Linux.
- An Apple computer running Mac OS X 10.4 or later.
- Any terminal device compatible with VT100 or ANSI characteristics. On the VT100-type and ANSI devices, you can use cursor-control and cursor-movement key. Keys include left arrow, up arrow, down arrow, right arrow, Delete, and Backspace. The CLI senses the use of the cursor-control keys and automatically uses the optimal device characteristics.

To exit the CLI, use the **exit** command from EXEC mode. If you are currently in one of the configuration modes and you want to exit the CLI, enter the **end**, **exit**, or press **Ctrl z** command to return to EXEC mode, and then enter the **exit** command.

## Opening CLI with Secure Shell



---

**Note** To access the Cisco EPNM CLI environment, use any SSH client that supports SSH v2.

---

The following example shows you how to log in with a Secure Shell (SSH) client (connection to a wired WAN) via a PC by using Windows XP. Assuming that Cisco EPNM is preconfigured through the setup utility to accept an Admin (administrator) user, log in as Admin.

---

**Step 1** Use any SSH client and start an SSH session.

The SSH window appears.

**Step 2** Press **Enter** or **Spacebar** to connect.

The Connection to Remote Host window appears.

**Step 3** Enter a hostname, username, port number, and authentication method.

In this example, you enter **ncs** for the hostname, **admin** for the username, and **22** for the port number; and, for the authentication method, choose **Password** from the drop-down list.

**Step 4** Click **Connect**, or press **Enter**.

The Enter Password window appears.

**Step 5** Enter your assigned password for the administrator.

The SSH with the Add Profile window appears.

**Step 6** (Optional) Enter a profile name in the text box and click **Add to Profile**.

**Step 7** Click **Close** in the Add Profile window.

The Cisco EPNM command prompt appears. You can now enter Cisco EPNM CLI commands.

---

## Opening CLI Using a Local PC

If you need to configure Cisco EPNM locally (without connecting to a wired LAN), you can connect a PC to the console port on the Cisco EPNM appliance using a null-modem cable.

The serial console connector (port) provides access to CLI locally by connecting a terminal to the console port. The terminal is a PC running terminal-emulation software or an ASCII terminal. The console port (EIA/TIA-232 asynchronous) requires only a null-modem cable.

To connect a PC running terminal-emulation software to the console port, use a DB-9 female to DB-9 female null-modem cable.

To connect an ASCII terminal to the console port, use a DB-9 female to DB-25 male straight-through cable with a DB-25 female to DB-25 female gender changer.

The default parameters for the console port are 9600 baud, 8 data bits, no parity, 1 stop bit, and no hardware flow control.



---

**Note** If you are using a Cisco switch on the other side of the connection, set the switchport to duplex auto, speed auto (the default).

---

**Step 1** Connect a null-modem cable to the console port on the Cisco EPNM and to the COM port on your PC.

**Step 2** Set up a terminal emulator to communicate with the Cisco EPNM. Use these settings for the terminal emulator connection: 9600 baud, 8 data bits, no parity, 1 stop bit, and no flow control.

**Step 3** When the terminal emulator activates, press **Enter**.

**Step 4** At the console, enter your username, then press **Enter**.

**Step 5** Enter the password, then press **Enter**.

When CLI activates, you can enter the CLI commands to configure the Cisco EPNM.

---

# Understanding Command Modes

This section describes the Cisco EPNM command modes in detail.

## EXEC Mode

When you start a session on the Cisco EPNM, you begin in admin or EXEC mode. From EXEC mode, you can enter configuration mode. Most of the EXEC commands (one-time commands), such as **show** commands, display the current configuration status. The admin or EXEC mode prompt consists of the device name or hostname before a pound sign (#), as shown:

```
ncs/admin# (Admin or EXEC mode)
```

You can always tell when you are in EXEC mode or configuration mode by looking at the prompt.

- In EXEC mode, a pound sign (#) appears after the NCS server hostname and your username.

For example:

```
ncs/admin#
```

- In configuration mode, the 'config' keyword and a pound sign (#) appear after the hostname of the Cisco EPNM server and your username.

For example:

```
ncs/admin# configure
Enter configuration commands, one per line. End with CNTL/Z.
ncs/admin(config)# (configuration mode)
```

If you are familiar with UNIX, you can equate EXEC mode to *root* access. You could also equate it to the administrator level in Windows NT or the supervisor in NetWare. In this mode, you have permission to access everything in the Cisco EPNM server, including the configuration commands. However, you cannot enter configuration commands directly. Before you can change the actual configuration of the Cisco EPNM server, you must enter configuration mode by entering the **configure** or **configure terminal (conf t)** command. Enter this command only when in EXEC mode.

For example:

```
ncs/admin# conf t
Enter configuration commands, one per line. End with CNTL-Z.
ncs(config)# (configuration mode)
```

The configuration mode has several submodes; each has its own prompt. To enter these submodes, you must first enter configuration mode by entering the **configure terminal** command.

To exit configuration mode, enter the **end**, **exit**, or **Ctrl-z** command. To exit EXEC mode, enter the **exit** command. To exit both configuration and EXEC modes, enter this sequence of commands:

```
ncs/admin(config)# exit
ncs/admin# exit
```

To obtain a listing of commands in EXEC mode, enter a question mark (?):

```
ncs/admin# ?
```

## Configuration Mode

Use configuration mode to make changes to the existing configuration. When you save the configuration, these commands remain across Cisco EPNM server reboots, but only if you run either of these commands:

- **copy running-config startup-config**
- **write memory**

To enter configuration mode, run the **configure** or **configure terminal (conf t)** command in EXEC mode. When in configuration mode, the Cisco EPNM expects configuration commands.

For example:

```
ncs/admin# configure
Enter configuration commands, one per line. End with CNTL-Z.
ncs/admin(config)# (configuration mode)
```

From this level, you can enter commands directly into the Cisco EPNM configuration. To obtain a listing of commands in this mode, enter a question mark (?):

```
ncs/admin(config)# ?
```

The configuration mode has several configuration submodes. Each of these submodes places you deeper in the prompt hierarchy. When you enter the **exit** command, the Cisco EPNM returns you to the previous level. When you enter the **exit** command again, the Cisco EPNM backs you out to the EXEC level.




---

**Note** In configuration mode, you can alternatively press the **Ctrl-z** instead of entering the **end** or **exit** command.

---

## Configuration Submodes

In the configuration submodes, you can enter commands for specific configurations. For example:

```
ncs/admin# config t
ncs/admin(config)# interface GigabitEthernet 0
ncs/admin(config-GigabitEthernet)#
```

To obtain a list of commands in this mode, enter a question mark (?):

```
ncs/admin(config-GigabitEthernet)# ?
```

Use the **exit** or **end** command to exit this prompt and return to the configuration prompt.

The following table lists the commands in the interface GigabitEthernet 0 configuration submode. Other configuration submodes exist including those specific to the **kron**, **repository**, and **password policy** commands.

Table 5: Command Options in the Interface GigabitEthernet 0 Configuration Submode

	Comment
<pre> ncs/admin(config)# <b>interface GigabitEthernet</b> <b>0</b> ncs/admin(config-GigabitEthernet)# ? Configure ethernet interface: do          EXEC command end        Exit from configure mode exit      Exit from this submode ip        Configure IP features ipv6     Configure IPv6 features no        Negate a command or set its defaults shutdown  Shutdown the interface virtual-ip Configure virtual IP features ncs/admin(config-GigabitEthernet)# </pre>	<p>Enter the command that you want to configure for the interface. This example uses the <b>interface GigabitEthernet</b> command.</p> <p>Enter ? to display what you must enter next on the command line. This example shows the available <b>interface GigabitEthernet</b> configuration submode commands.</p>
<pre> ncs/admin(config-GigabitEthernet)# <b>ip</b> ? access-group Specify access control for packets address       Configure IP address ncs/admin(config-GigabitEthernet)# <b>ip</b> </pre>	<p>Enter the command that you want to configure for the interface. This example uses the <b>ip</b> command.</p> <p>Enter ? to display what you must enter next on the command line. This example shows the available <b>ip</b> configuration submode commands.</p>
<pre> ncs/admin(config-GigabitEthernet)# <b>ip address</b> ? &lt;A.B.C.D&gt; IPv4 address ncs/admin(config-GigabitEthernet) <b>ip address</b> </pre>	<p>Enter the command that you want to configure for the interface. This example uses the <b>ip address</b> command.</p> <p>Enter ? to display what you must enter next on the command line. In this example, you must enter an IPv4 address.</p> <p>A carriage return &lt;cr&gt; does not appear; therefore, you must enter additional arguments to complete the command.</p>
<pre> ncs/admin(config-GigabitEthernet)# <b>ip address</b> <b>172.16.0.1</b> ? &lt;A.B.C.D&gt; Network mask ncs/admin(config-GigabitEthernet)# <b>ip address</b> <b>172.16.0.1</b> </pre>	<p>Enter the keyword or argument that you want to use. This example uses the 172.16.0.1 IP address.</p> <p>Enter ? to display what you must enter next on the command line. In this example, you must enter a network mask.</p> <p>A carriage return &lt;cr&gt; does not display; therefore, you must enter additional arguments to complete the command.</p>
<pre> ncs/admin(config-GigabitEthernet)# <b>ip address</b> <b>172.16.0.1 255.255.255.224</b> ? &lt;cr&gt; Carriage Return ncs/admin(config-GigabitEthernet)# <b>ip address</b> <b>172.16.0.1 255.255.255.224</b> ? </pre>	<p>Enter the network mask. This example uses the 255.255.255.224 IP address.</p> <p>Enter ? to display what you must enter next on the command line. In this example, you can press <b>Enter</b>.</p> <p>A carriage return &lt;cr&gt; displays; you can press <b>Enter</b> to complete the command.</p>

# Navigating the CLI Commands

This section describes how to navigate the commands and modes on the Cisco EPNM

## Getting Help

Use the question mark (?) and the arrow keys to help you enter commands:

- For a list of available commands, enter a question mark (?):

```
ncs/admin# ?
```

- To complete a command, enter a few known characters before ? (with no space):

```
ncs/admin# s?
```

- To display keywords and arguments for a command, enter ? at the prompt or after entering part of a command followed by a space:

```
ncs/admin# show ?
```

The Cisco EPNM displays a list and brief description of available keywords and arguments.




---

**Note** The <cr> symbol in command help stands for “carriage return”, which means to press the **Return** or the **Enter** key). The <cr> at the end of command help output indicates that you have the option to press **Enter** to complete the command and that the arguments and keywords in the list preceding the <cr> symbol are optional. The <cr> symbol by itself indicates that no more arguments or keywords are available, and that you must press **Enter** to complete the command.

---

- To redisplay a command that you previously entered, press the **Up Arrow** key. Continue to press the **Up Arrow** key to see more commands.

## Using the No and Default Forms of Commands

Some EXEC or configuration commands have a **no** form. In general, use the **no** form to disable a function. Use the command without the **no** keyword to re-enable a disabled function or to enable a function disabled by default; for example, an IP address enabled by default. To disable the IP address, use the **no ip address** command; to re-enable the IP address, use the **ip address** command.

Configuration commands can also have a **default** form, which returns the command settings to the default values. Most commands disabled by default, so in such cases using the **default** form has the same result as using the **no** form of the command. However, some commands are enabled by default and have variables set to certain default values. In these cases, the **default** form of the command enables the command and sets the variables to their default values.

See [Configuration Commands, on page 8](#) for a description of the complete syntax of the configuration commands, and the **no** and **default** forms of a command.



## Command-Line Conventions

This section contains some basic command-line convention and operation information that is essential to the use of this guide.

### Command-Line Editing Key Conventions

The Cisco EPNM provides a number of keyboard shortcuts that you can use to edit an entered line.

#### Tab

Press **Tab** to try to finish the current command.

If you press the **Tab** key:

- At the beginning of a line, the system lists all of the short-form options.
- When you enter a partial command, the system lists all of the short form options beginning with those characters.
- When only one possible option is available, the system fills in the option automatically.

#### Ctrl-c

Press **Ctrl-c** to abort the sequence. Pressing this key sequence breaks out of any executing command and returns to the previous mode.

#### Ctrl-z

Press **Ctrl-z** to exit configuration mode and return to previous configuration mode.

#### ?

Enter a question mark (?) at the prompt to list the available commands.

## Command Line Completion

Command-line completion makes the Cisco EPNM CLI more user-friendly. It saves you extra key strokes and helps out when you cannot remember the syntax of a command.

For example, for the **show running-config** command:

```
ncs/admin# show running-config
```

You can:

```
ncs/admin# sh run
```

The Cisco EPNM expands the command **sh run** to **show running-config**.

Another shortcut is to press the **Tab** key after you type **sh**; the Cisco EPNM CLI fills in the rest of the command, in this case **show**.

If the Cisco NCS CLI does not understand a command, it repeats the entire command line and places a caret symbol (^) under the point at which it is unable to parse the command.

For example:

```
ncs/admin# show unning-configuration
                ^
% Invalid input detected at '^' marker.
```

The caret symbol (^) points to the first letter in the command line that the Cisco EPNM does not understand. Usually, this means that you need to provide additional arguments to complete the command or you misspelled the command. In this case, you omitted the “r” in the “unning” command. To fix the error, retype the command.

In another form of command-line completion, you can start a command by entering the first few characters, then pressing the **Tab** key. As long as you can match one command, the Cisco EPNM CLI will complete the command. For example, if you type **sh** and press **Tab**, the Cisco EPNM completes the **sh** with **show**. If the Cisco EPNM does not complete the command, you can enter a few more letters and press **Tab** again.

## Continuing Output at the --More-- Prompt

When working with the CLI, output often extends beyond the visible screen length. For cases where output continues beyond the bottom of the screen, such as with the output of many **?** or **show** commands, the output pauses and a --More-- prompt appears at the bottom of the screen. To resume output, press **Return** to scroll down one line, or press the **spacebar** to display the next full screen of output.



---

**Tip** If the output pauses on your screen but you do not see the --More-- prompt, try entering a smaller value for the screen length by using the **terminal length EXEC** command. Command output will not pause if you set the length value to zero (0).

---

## Where to Go Next

Now that you are familiar with some of the Cisco EPNM CLI basics, you can begin to configure the Cisco EPNM using CLI.

Remember that:

- You can use the question mark (?) and arrow keys to help you enter commands.
- Each command mode restricts you to a set of commands. If you have difficulty entering a command, check the prompt and then enter the question mark (?) to see a list of available commands.
- To disable a feature, enter the keyword **no** before the command; for example, **no ip address**.
- You must save your configuration changes so that you preserve them during a system reload or power outage.





## APPENDIX **A**

# Cisco EPNM Command Reference

---

This appendix contains necessary information on disk space management for all types of Cisco Evolved Programmable Network Manager (EPNM) deployments and an alphabetical listing of the commands specific to the Cisco EPNM. The Cisco EPNM comprises the following modes:

- EXEC
  - System-level
  - Show
- Configuration
  - configuration submode

Use EXEC mode system-level **config** or **configure** command to access configuration mode.

Each of the commands in this appendix is followed by a brief description of its use, command syntax, any command defaults, command modes, usage guidelines, and one or more examples.



---

**Note** If an error occurs in any command usage, use the **debug** command to determine the cause of the error.

---

- [EXEC Commands, on page 25](#)
- [show Commands, on page 89](#)
- [Configuration Commands, on page 120](#)

## EXEC Commands

This section lists each EXEC command and each command page includes a brief description of its use, command syntax, any command defaults, command modes, usage guidelines, and an example of the command and any related commands.

### application install

To install an application bundle file, use the **application install** command in EXEC mode. There is no **No** form of this command.

**application install** *bundle-name remote-repository*

<b>Syntax Description</b>	<i>bundle-name</i>	Name of the application bundle file. Up to 255 alphanumeric characters.
	<i>remote-repository</i>	Name of the configured remote repository. Up to 255 alphanumeric characters.

**Command Default** No default behavior or values.

**Command Modes** EXEC

<b>Related Commands</b>		<b>Description</b>
	<a href="#">application start</a>	Starts or enables an application.
	<a href="#">show application</a>	Shows application information for the installed application packages on the system.

## application remove

To uninstall an application, use the **application remove** command in EXEC mode. There is no **No** form of this command.

**application remove** *bundle-name remote-repository*

<b>Syntax Description</b>	<i>bundle-name</i>	Name of the application bundle file to be removed. Up to 255 alphanumeric characters.
	<i>remote-repository</i>	Name of the configured remote repository. Up to 255 alphanumeric characters.

**Command Default** No default behavior or values.

**Command Modes** EXEC

**Usage Guidelines** Uninstalls an application.

```
epnm-ha-imeir-prim/admin# application remove NCS
Continue with application removal? [y/n]
```

<b>Related Commands</b>		<b>Description</b>
	<a href="#">application start</a>	Starts or enables an application.
	<a href="#">show application</a>	Shows application information for the installed application packages on the system.

## application start

To start the application process, use the **application start** command in EXEC mode. There is no **NO** form of this command.

**application start** *application-name*

<b>Syntax Description</b>	<i>application-name</i>	Name of the predefined application that you want to enable (maximum 255 alphanumeric characters).
---------------------------	-------------------------	---

**Command Default** No default behavior or values.

**Command Modes** EXEC

**Usage Guidelines** Enables an application.

You cannot use this command to start the Cisco EPNM application. If you use this command to start the application, you can see that the Cisco EPNM is already running.

```
epnm-system-168/admin# application start NCS
Starting EPNM...
This may take a while (10 minutes or more) ...
EPNM started successfully.
Redirecting to /bin/systemctl restart rsyslog.service
Completed in 1029 seconds
```

Related Commands	Command	Description
	<a href="#">application stop</a>	Stops or disables an application.
	<a href="#">show application</a>	Shows the application information for the installed application packages on the system.

## application stop

To stop the process, use the **application stop** command in EXEC mode. There is no **No** form of this command.

**application stop** *application-name*

<b>Syntax Description</b>	<i>application-name</i>	Name of the predefined application that you want to disable. Up to 255 alphanumeric characters.
---------------------------	-------------------------	---

**Command Default** No default behavior or values.

**Command Modes** EXEC

**Usage Guidelines** Disables an application.

```

EPNM-system-117/admin# application stop NCS
EPNM-system/admin# application stop NCS
Stopping EPNM...
This may take a few minutes...
EPNM successfully shutdown.
Stopping SAM daemon...
Checking for SAM daemon again ...
SAM Daemon not found...
Stopping DA daemon ...
Checking for DA daemon again ...
DA Daemon not found...
Completed shutdown of all services

```

**Related Commands**

	Description
<a href="#">application start</a>	Starts or enables an application.
<a href="#">show application</a>	Shows application information for the installed application packages on the system.

## application upgrade

To upgrade an application bundle, use the **application upgrade** command in EXEC mode. There is no **No** form of this command.

**application upgrade** *bundle-name remote-repository*

**Syntax Description**

<i>bundle-name</i>	Name of the application bundle file. Up to 255 alphanumeric characters.
<i>remote-repository</i>	Name of the configured remote repository. Up to 255 alphanumeric characters.

**Command Default**

No default behavior or values.

**Command Modes**

EXEC

**Related Commands**

	Description
<a href="#">application start</a>	Starts or enables an application.
<a href="#">show application</a>	Shows application information for the installed application packages on the system.

## backup

**Appliance Backup:** To perform a backup (including the Cisco EPNM and Cisco ADE OS data) and place the backup in a repository, use the **backup** command in EXEC mode.



**Application Backup:** To perform a backup of only the Cisco EPNM application data without the Cisco ADE OS data, use the **application** keyword command.

**Command for Appliance Backup:**

**backup** *backup-name* **repository** *repository-name*

**Command for Application Backup**

**backup** *backup-name* **repository** *repository-name* **application** *application-name*

<b>Syntax Description</b>	<i>backup-name</i>	Name of the backup file. Up to 26 alphanumeric characters is recommended.
	<i>repository-name</i>	Name of the location where the files should be backed up to. Up to 80 alphanumeric characters.
	<i>application-name</i>	Application name. Up to 255 alphanumeric characters.
	<b>Note</b>	Enter the application name in uppercase.

**Command Default** No default behavior or values.

**Command Modes** EXEC

**Usage Guidelines** Performs a backup of the Cisco EPNM and Cisco ADE OS data and places the backup in a repository. To perform a backup of only the Cisco EPNM application data without the Cisco ADE OS data, use the **application** command.

**Example for Appliance Backup**

```
epnm-system/admin# backup Appliancebkp repository test
```

```
DO NOT press ^C while the backup is in progress
Aborting backup with a ^C may terminate the backup operation or the backup file may be corrupted
```

To restore this backup you will have to enter this password

```
Password :
Password Again :
  Backup Started at : 11/27/18 19:08:57
  Stage 1 of 7: Database backup ...
  Database size: 7.1G
  -- completed at 11/27/18 19:10:20
  Stage 2 of 7: Database copy ...
  -- completed at 11/27/18 19:10:20
  Stage 3 of 7: Backing up support files ...
  -- completed at 11/27/18 19:10:24
  Stage 4 of 7: Compressing Backup ...
  -- completed at 11/27/18 19:10:46
  Stage 5 of 7: Building backup file ...
  -- completed at 11/27/18 19:11:03
  Stage 6 of 7: Encrypting backup file ...
  -- completed at 11/27/18 19:11:09
  Stage 7 of 7: Transferring backup file ...
```

```

-- completed at 11/27/18 19:11:11
% Backup file created is:
Appliancebcp-201203-1035__VER3.10.0.0.164_BKSZ11G_CPU4_MEM3G_RAM11G_SWAP15G_SYS_CK1242187374.tar.gpg

Total Backup duration is: 0h:2m:18s
epnm-system/admin#

```

```
*****
```

### Example for Application Backup

```
epnm-system/admin# backup Applicationbcp repository test application NCS
```

DO NOT press ^C while the backup is in progress  
Aborting backup with a ^C may terminate the backup operation or the backup file may be corrupted

To restore this backup you will have to enter this password

```

Password :
Password Again :
Backup Started at : 11/27/18 19:13:33
Stage 1 of 7: Database backup ...
Database size: 7.1G
-- completed at 11/27/18 19:14:17
Stage 2 of 7: Database copy ...
-- completed at 11/27/18 19:14:17
Stage 3 of 7: Backing up support files ...
-- completed at 11/27/18 19:14:19
Stage 4 of 7: Compressing Backup ...
-- completed at 11/27/18 19:14:34
Stage 5 of 7: Building backup file ...
-- completed at 11/27/18 19:14:50
Stage 6 of 7: Encrypting backup file ...
-- completed at 11/27/18 19:14:55
Stage 7 of 7: Transferring backup file ...
-- completed at 11/27/18 19:14:56
% Backup file created is:
Applicationbcp-201203-1035__VER3.10.0.0.164_BKSZ11G_CPU4_MEM3G_RAM11G_SWAP15G_APP_CK1242187374.tar.gpg

Total Backup duration is: 0h:1m:26s
epnm-system/admin#

```

```
*****
```

### Related Commands

Command	Description
<a href="#">delete</a>	Deletes a file from the Cisco EPNM server.
<a href="#">repository</a>	Enters the repository submode for configuration of backups.
<a href="#">restore</a>	Restores from backup the file contents of a specific repository.
<a href="#">show backup history</a>	Displays the backup history of the system.

Command	Description
<a href="#">show repository</a>	Displays the available backup files located on a specific repository.

## backup-logs

To back up system logs, use the **backup-logs** command in EXEC mode. There is no **no** form of this command.

**backup-logs** *backup-name* **repository** *repository-name*

### Syntax Description

<i>backup-name</i>	Name of one or more files to back up. Up to 100 alphanumeric characters.
<i>repository-name</i>	Location where files should be backed up to. Up to 80 alphanumeric characters.

### Command Default

No default behavior or values.

### Command Modes

EXEC

### Usage Guidelines

Backs up system logs.

```
EPNM-admin/admin# backup-logs log-backup repository defaultRepo
% Creating log backup with timestamped filename: log-backup-150621-1618.tar.gz
  Transferring file ...
  -- complete.
EPNM-system/admin#
```

### Related Commands

Command	Description
<a href="#">repository</a>	Enters the repository submode for configuration of backups.
<a href="#">show repository</a>	Shows the available backup files located on a specific repository.

## banner

To set up messages while logging (pre-login) in to CLI, use the **banner install pre-login** command.

**banner install pre-login** *banner-text-filename* **repository** *Repository-name*

### Syntax Description

<i>banner-text-filename</i>	Banner text file name.
<i>repository-name</i>	Repository name.

## change-password

**Command Default** No default behavior or values.

**Command Modes** EXEC

```
admin# banner install pre-login test.txt repository defaultRepo
```

**Related Commands**

Command	Description
<a href="#">show banner pre-login, on page 91</a>	Enables you to display a pre-login banner.

## change-password

To change the password you use to log in to CLI interface, use the **change-password** command.

**change-password** *password*

**Syntax Description**

<i>password</i>	New password
-----------------	--------------

**Command Default**

No default behavior or values.

**Command Modes**

EXEC

```
epnm-system/admin# change-password
Changing password for user admin.
Changing password for admin.
(current) UNIX password:
New password:
Retype new password:
passwd: all authentication tokens updated successfully.
```

## clock

To set the system clock, use the **clock** command in EXEC mode. You cannot remove this function but reset the clock.

**clock set** [*mmm dd hh:mm:ss yyyy*]

**Syntax Description**

<i>mmm</i>	Current month of the year by name. Up to three alphabetic characters. For example, Jan for January.
<i>dd</i>	Current day (by date) of the month. Value = 0 to 31. Up to two numbers.
<i>hh:mm:ss</i>	Current time in hours (24-hour format), minutes, and seconds.
<i>yyyy</i>	Current year (no abbreviation).

**Command Default** No default behavior or values.

**Command Modes** EXEC

**Usage Guidelines** Sets the system clock. You must restart the Cisco EPNM server after you reset the clock for the change to take effect.

```
epnm-system-208/admin# clock set dec 4 12:00:00 2020
epnm-system-208/admin# show clock
Fri Dec 4 12:00:10 IST 2020
epnm-system-208/admin#
```

**Related Commands**

Command	Description
<a href="#">show clock</a>	Displays the time and date set on the system software clock.

## configure

To enter configuration mode, use the **configure** command in EXEC mode. If the **replace** option is used with this command, copies a remote configuration to the system which overwrites the existing configuration.

### configure terminal

**Syntax Description**

terminal	Executes configuration commands from the terminal.
----------	--

**Command Default** No default behavior or values.

**Command Modes** EXEC

**Usage Guidelines** Use this command to enter configuration mode. Note that commands in this mode write to the running configuration file when you enter them (press **Enter**).

To exit configuration mode and return to EXEC mode, enter **end**, **exit**, or press **Ctrl-z**.

To view the changes that you have made to the configuration, use the **show running-config** command in EXEC mode.

### Example 1

```
ncs/admin# configure
Enter configuration commands, one per line. End with CNTL/Z.
ncs/admin(config)#
```

### Example 2

```
ncs/admin# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
ncs/admin(config)#
```

Related Commands	Command	Description
	<a href="#">show running-config</a>	Displays the contents of the currently running configuration file or the configuration.
	<a href="#">show startup-config</a>	Displays the contents of the startup configuration file or the configuration.

## copy

To copy any file from a source to a destination, use the **copy** command in EXEC mode.

Syntax Description		
	running-config	Represents the current running configuration file.
	startup-config	Represents the configuration file used during initialization (startup).
	<i>protocol</i>	See <a href="#">Table 6: Protocol Prefix Keywords, on page 36</a> for protocol keyword options.
	<i>hostname</i>	Hostname of destination.
	<i>location</i>	Location of disk: /<dirpath>.
	logs	The system log files.
	all	Copies all the Cisco EPNM log files from the system to another location. All logs are packaged as ncslogs.tar.gz and transferred to the specified directory on the remote host.
	filename	Allows you to copy a single Cisco EPNM log file and transfer it to the specified directory on the remote host, with its original name.
	<i>log_filename</i>	Name of the Cisco EPNM log file, as displayed by the <b>show logs</b> command (up to 255 characters).
	mgmt	Copies the Cisco EPNM management debug logs and Tomcat logs from the system, bundles them as mgmtlogs.tar.gz, and transfers them to the specified directory on the remote host.
	runtime	Copies the Cisco EPNM runtime debug logs from the system, bundles them as runtimelogs.tar.gz, and transfers them to the specified directory on the remote host.

**Command Default** No default behavior or values.

**Command Modes** EXEC

## Usage Guidelines

The fundamental function of the **copy** command allows you to copy a file (such as a system image or configuration file) from one location to another location. The source and destination for the file specified uses the Cisco EPNM file system, through which you can specify any supported local or remote file location. The file system being used (a local memory source or a remote system) dictates the syntax used in the command.

You can enter on the command line all of the necessary source and destination information and the username and password to use; or, you can enter the **copy** command and have the server prompt you for any missing information. You can enter up to a maximum of 2048 characters of source and destination URL information on the command line.

The **copy** command in the Cisco EPNM copies a configuration (running or startup).

The Cisco EPNM active configuration stores itself in the Cisco EPNM RAM. Every configuration command you enter resides in the running configuration. If you reboot your Cisco EPNM server, you lose the running configuration. If you make changes that you want to save, you must copy the running configuration to a safe location, such as a network server, or save it as the Cisco EPNM server startup configuration.

You cannot edit a startup configuration directly. All commands that you enter store themselves in the running configuration, which you can copy into the startup configuration.

In other words, when you boot a Cisco EPNM server, the startup configuration becomes the initial running configuration. As you modify the configuration, the two diverge: the startup configuration remains the same; the running configuration reflects the changes that you have made. If you want to make your changes permanent, you must save the running configuration to the startup configuration using the **write memory** command. The **write memory** command makes the current running configuration permanent.



---

**Note** If you do not save the running configuration, you will lose all your configuration changes during the next reboot of the Cisco EPNM server. You can also save a copy of the running and startup configurations using the following commands, to recover in case of loss of configuration:

**copy startup-config** *location*

**copy running-config** *location*

---



---

**Note** The **copy** command is supported only for the local disk and not for a repository.

---



---

**Tip** Aliases reduce the amount of typing that you need to do. For example, type **copy run start** (the abbreviated form of the **copy running-config startup-config** command).

---

The entire copying process might take several minutes and differs from protocol to protocol and from network to network.

Use the filename relative to the directory for file transfers.

Possible error is the standard FTP error message.

Table 6: Protocol Prefix Keywords

Keyword	Destination
<b>ftp</b>	URL for FTP network server. The syntax for this alias: <b>ftp://location/directory</b>
<b>sftp</b>	<p>URL for an SFTP network server. The syntax for this alias: sftp://location/directory</p> <p>SFTP Repositories may require the // between the IP address/FQDN and the physical path on the SFTP store. If you find that you cannot access the SFTP repository with single slashes, add the additional slash and try the operation again. For example: url sftp://server/path</p> <p><b>Note</b> The remote sftp servers need to be enabled for 'password authentication' (keyboard-interactive mode does not work for sftp transfers). See the documentation on sshd server used at the remote end, to enable password authentication.</p> <p>Depending on the SFTP software used with the remote server, you may need to enable "password authentication" instead of "keyboard-interactive mode". Enabling "password authentication" is required; copy to remote SFTP servers will not work unless it is enabled. For example: With OpenSSH 6.6x, "keyboard-interactive mode" is the default. To enable "password authentication", edit the OpenSSH sshd_config file to set the PasswordAuthentication parameter to "yes", as follows: PasswordAuthentication yes.</p>
<b>tftp</b>	URL for a TFTP network server. The syntax for this alias: <b>tftp://location/directory</b>

**Example 1**

```
ncs/admin# copy run start
Generating configuration...
ncs/admin#
```

**Example 2**

```
ncs/admin# copy running-config startup-config
Generating configuration...
ncs/admin#
```



**Example 3**

```
ncs/admin# copy start run
ncs/admin#
```

**Example 4**

```
ncs/admin# copy startup-config running-config
ncs/admin#
```

**Example 5**

```
ncs/admin# copy logs disk:/
Collecting logs...
ncs/admin#
```

**Example 6**

This command is used to copy the certificate from tftp to pnp.

```
copy tftp://<EPNM Server IP Address>/server.key disk:/
copy tftp://<EPNM Server IP Address>/server.crt disk:/
copy tftp://<EPNM Server IP Address>/ncs_server_certificate.crt disk:/
```

**Related Commands**

Command	Description
<a href="#">delete</a>	Deletes a file from the Cisco EPNM server.
<a href="#">dir</a>	Lists a file from the Cisco EPNM server.

**debug**

To display errors or events for command situations, use the **debug** command in EXEC mode.

**debug**{all | application | backup-restore | cdp | config | icmp | copy | locks | logging | snmp | system | transfer | user | utils}

**Syntax Description**

<b>all</b>	Enables all debugging.
------------	------------------------

---

**application**

Application files.

- *all*—Enables all application debug output. Set level between 0 and 7, with 0 being severe and 7 being all.
- *install*—Enables application install debug output. Set level between 0 and 7, with 0 being severe and 7 being all.
- *operation*—Enables application operation debug output. Set level between 0 and 7, with 0 being severe and 7 being all.
- *uninstall*—Enables application uninstall debug output. Set level between 0 and 7, with 0 being severe and 7 being all.

---

**backup-restore**

Backs up and restores files.

- *all*—Enables all debug output for backup-restore. Set level between 0 and 7, with 0 being severe and 7 being all.
- *backup*—Enables backup debug output for backup-restore. Set level between 0 and 7, with 0 being severe and 7 being all.
- *backup-logs*—Enables backup-logs debug output for backup-restore. Set level between 0 and 7, with 0 being severe and 7 being all.
- *history*—Enables history debug output for backup-restore. Set level between 0 and 7, with 0 being severe and 7 being all.
- *restore*—Enables restore debug output for backup-restore. Set level between 0 and 7, with 0 being severe and 7 being all.

---

**cdp**

Cisco Discovery Protocol configuration files.

- *all*—Enables all Cisco Discovery Protocol configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.
  - *config*—Enables configuration debug output for Cisco Discovery Protocol. Set level between 0 and 7, with 0 being severe and 7 being all.
  - *infra*—Enables infrastructure debug output for Cisco Discovery Protocol. Set level between 0 and 7, with 0 being severe and 7 being all.
-

---

<b>config</b>	Configuration files. <ul style="list-style-type: none"><li>• <i>all</i>—Enables all configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li><li>• <i>backup</i>—Enables backup configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li><li>• <i>clock</i>—Enables clock configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li><li>• <i>infra</i>—Enables configuration infrastructure debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li><li>• <i>kron</i>—Enables command scheduler configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li><li>• <i>network</i>—Enables network configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li><li>• <i>repository</i>—Enables repository configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li><li>• <i>service</i>—Enables service configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li></ul>
<b>copy</b>	Copy commands. Set level between 0 and 7, with 0 being severe and 7 being all.
<b>icmp</b>	Internet Control Message Protocol (ICMP) echo response configuration. <p><i>all</i>—Enable all debug output for ICMP echo response configuration. Set level between 0 and 7, with 0 being severe and 7 being all.</p>
<b>locks</b>	Resource locking. <ul style="list-style-type: none"><li>• <i>all</i>—Enables all resource locking debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li><li>• <i>file</i>—Enables file locking debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li></ul>

---

<b>logging</b>	<p>Logging configuration files.</p> <p><i>all</i>—Enables all logging configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</p>
<b>snmp</b>	<p>SNMP configuration files.</p> <p><i>all</i>—Enables all SNMP configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</p>
<b>system</b>	<p>System files.</p> <ul style="list-style-type: none"> <li>• <i>all</i>—Enables all system files debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li>• <i>id</i>—Enables system ID debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li>• <i>info</i>—Enables system info debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li>• <i>init</i>—Enables system init debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> </ul>
<b>transfer</b>	<p>File transfer. Set level between 0 and 7, with 0 being severe and 7 being all.</p>
<b>user</b>	<p>User management.</p> <ul style="list-style-type: none"> <li>• <i>all</i>—Enables all user management debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</li> <li>• <i>password-policy</i>—Enables user management debug output for password-policy. Set level between 0 and 7, with 0 being severe and 7 being all.</li> </ul>
<b>utils</b>	<p>Utilities configuration files.</p> <p><i>all</i>—Enables all utilities configuration debug output. Set level between 0 and 7, with 0 being severe and 7 being all.</p>

**Command Default** No default behavior or values.

**Command Modes** EXEC

**Usage Guidelines**

Use the **debug** command to identify various failures within the Cisco EPNM server; for example, setup failures or configuration failures.

```
ncs/admin# debug all
ncs/admin# mkdir disk:/1
ncs/admin# 6 [15347]: utils: vsh_root_stubs.c[2742] [admin]: mkdir operation success

ncs/admin# rmdir disk:/1
6 [15351]: utils: vsh_root_stubs.c[2601] [admin]: Invoked Remove Directory disk:/1 command
6 [15351]: utils: vsh_root_stubs.c[2663] [admin]: Remove Directory operation success
ncs/admin#

ncs/admin# undebug all
ncs/admin#
```

**Related Commands**

Command	Description
<a href="#">undebug</a>	Disables the output (display of errors or events) of the <b>debug</b> command for various command situations.

## delete

To delete a file from the server, use the **delete** command in EXEC mode. There is no **no** form of this command.

**delete** *filename* [*disk:/path*]

**Syntax Description**

<i>filename</i>	Filename.
<i>disk:/path</i>	Location.

**Command Default**

No default behavior or values.

**Command Modes**

EXEC

**Usage Guidelines**

If you attempt to delete the configuration file or image, the system prompts you to confirm the deletion. Also, if you attempt to delete the last valid system image, the system prompts you to confirm the deletion.

```
ncs/admin# delete disk:/hs_err_pid19962.log
ncs/admin#
```

**Related Commands**

Command	Description
<a href="#">dir</a>	Lists all of the files on the Cisco EPNM server.

## dir

To list a file from the Cisco EPNM server, use the **dir** command in EXEC mode. To remove this function, use the **no** form of this command.

**dir** [*word*][**recursive**]

<b>Syntax Description</b>	<i>word</i>	Directory name. Up to 80 alphanumeric characters. Requires <b>disk:/</b> preceding the directory name.
	<b>recursive</b>	Lists a local directory or filename recursively.

**Command Default** No default behavior or values.

**Command Modes** EXEC

```
epnm-system-208/admin# dir
Directory of disk:/

20 Dec 02 2020 09:07:53 crash
4096 Dec 03 2020 10:48:22 defaultRepo/
4096 Dec 04 2020 12:27:33 ftp/
4096 Dec 03 2020 12:18:28 logs/
16384 Dec 01 2020 15:25:15 lost+found/
4096 Dec 02 2020 22:49:13 sftp/
4096 Dec 02 2020 09:06:12 ssh/
4096 Dec 02 2020 09:06:12 telnet/
4096 Dec 02 2020 09:46:31 tftp/

Usage for disk: filesystem
1031405568 bytes total used
42919706624 bytes free
46310408192 bytes available
epnm-system-208/admin#
```

**Related Commands**

Command	Description
<a href="#">delete</a>	Deletes a file from the Cisco EPNM server.

**exit**

To close an active terminal session by logging out of the Cisco EPNM server or to move up one mode level from configuration mode, use the **exit** command in EXEC mode.

**exit**

**Syntax Description** This command has no arguments or keywords.

**Command Default** No default behavior or values.

**Command Modes** EXEC

**Usage Guidelines** Use the **exit** command in EXEC mode to exit an active session (log out of the Cisco EPNM server) or to move up from configuration mode.

```
epnm-system/admin# exit
Connection closing...Socket close.
```

```
Connection closed by foreign host.
Disconnected from remote host(10.197.71.160:22) at 10:51:43.
```

Related Commands	Command	Description
	<a href="#">end</a>	Exits the configuration mode.
	<a href="#">exit</a>	Exits the configuration mode or EXEC mode.
	<b>Ctrl-z</b>	Exits configuration mode.

## forceout

To force users out of an active terminal session by logging them out of the Cisco EPNM server, use the **forceout** command in EXEC mode.

**forceout** *username*

Syntax Description	<i>username</i>	The name of the user. Up to 31 alphanumeric characters.

**Command Default** No default behavior or values.

**Command Modes** EXEC

```
ncs/admin# forceout user1
ncs/admin#
```

Related Commands	Description
<a href="#">show users, on page 119</a>	Displays the list of users logged in to the Cisco EPNM server.

## halt

To shut down and power off the system, use the **halt** command in EXEC mode.

**halt**

This command has no arguments or keywords.

**Command Default** No default behavior or values.

**Command Modes** EXEC

**Usage Guidelines** Before you enter the **halt** command, ensure that the Cisco EPNM is not performing any backup, restore, installation, upgrade, or remove operation. If you enter the **halt** command while the Cisco EPNM is performing any of these operations, you get one of the following warning messages:

WARNING: A backup or restore is currently in progress! Continue with halt?

WARNING: An install/upgrade/remove is currently in progress! Continue with halt?

If you get any of these warnings, enter **yes** to halt the operation, or enter **no** to cancel the halt.

If no processes are running when you use the **halt** command or if you enter **Yes** in response to the warning message displayed, the Cisco EPNM asks you to respond to the following option:

Do you want to save the current configuration ?

Enter **YES** to save the existing Cisco EPNM configuration. The Cisco EPNM displays the following message:

Saved the running configuration to startup successfully

```
epnm-system/admin# halt
Save the current ADE-OS running configuration? (yes/no) [yes] ? yes
Generating configuration...
Saved the ADE-OS running configuration to startup successfully
Continue with shutdown? [y/n] y
Broadcast message from root (pts/0) (Wed May  5 18:37:02 2010):
The system is going down for system halt NOW!
Server is shutting down...
```

#### Related Commands

Command	Description
<a href="#">reload</a>	Reboots the system.

## mkdir

To create a new directory on the Cisco EPNM server, use the **mkdir** command in EXEC mode.

**mkdir** *directory-name* [*disk:/path*]

#### Syntax Description

<i>directory-name</i>	The name of the directory to create. Up to 80 alphanumeric characters.
<i>disk:/path</i>	Use <i>disk:/path</i> with the directory name.

#### Command Default

No default behavior or values.

#### Command Modes

EXEC

#### Usage Guidelines

Use *disk:/path* with the directory name; otherwise, an error appears that indicates that the *disk:/path* must be included.

```
ncs/admin# mkdir disk:/test
ncs/admin# dir
```

Directory of disk:/



```

4096 May 06 2010 13:34:49 activemq-data/
4096 May 06 2010 13:40:59 logs/
16384 Mar 01 2010 16:07:27 lost+found/
4096 May 06 2010 13:42:53 target/
4096 May 07 2010 12:26:04 test/

```

```

Usage for disk: filesystem
      181067776 bytes total used
      19084521472 bytes free
      20314165248 bytes available

```

```
ncs/admin#
```

Related Commands	Command	Description
	<a href="#">dir</a>	Displays a list of files on the Cisco EPNM server.
	<a href="#">rmdir</a>	Removes an existing directory.

## ncs certvalidation certificate-check

To enable or disable the certificate validation, use **ncs certvalidation certificate-check** command in EXEC mode.

```
ncs certvalidation certificate-check { disable | enable | trust-on-first-use } trustzone trustzone_name
```

Syntax Description		
<i>disable</i>		Disable certificate validation
<i>enable</i>		Enable certificate validation
<i>trust-on-first-use</i>		Trust and pin the host certificate on first use
<i>trustzone_name</i>		Name of the trustzone

**Command Default** No default behavior or values.

**Command Modes** EXEC

```
epnm-system/admin# ncs certvalidation certificate-check trust-on-first-use trustzone system
```

```
ncs certvalidation certificate-check enable trustzone system
```

## ncs certvalidation custom-ocsp-responder

To configure a custom OCSP responder, use **ncs certvalidation custom-ocsp-responder** command in EXEC mode.

```
ncs certvalidation custom-ocsp-responder { clear url | disable | enable | set url }
```

Syntax Description	clear	Clear OCSP responder URL
--------------------	-------	--------------------------

<b>disable</b>	Disable custom OCSP responder
<b>enable</b>	Enable custom OCSP responder
<b>set</b>	Set OCSP responder URL



**Note** You must restart the EPNM after using any of the above **ncs certvalidation** entries.

**Command Default** No default behavior or values.

**Command Modes** EXEC

```
epnm-system/admin# ncs certvalidation custom-ocsp-responder enable
epnm-system/admin# ncs certvalidation custom-ocsp-responder set url1 http://10.104.119.201
epnm-system/admin# ncs certvalidation custom-ocsp-responder clear url1
epnm-system/admin# ncs certvalidation custom-ocsp-responder disable
```

## ncs certvalidation revocation-check

To enable or disable revocation check using OCSP or CRL, use **ncs certvalidation revocation-check** command in EXEC mode.

**ncs certvalidation revocation-check** { *disable* | *enable* } **trustzone** { **devicemgmt** | **pubnet** | **system** | **user** }

**Syntax Description**

<i>disable</i>	Disable certificate revocation
<i>enable</i>	Enable certificate revocation

**Command Default** No default behavior or values.

**Command Modes** EXEC

```
epnm-system/admin# ncs certvalidation revocation-check enable trustzone system
epnm-system/admin#
```

## ncs certvalidation tofu-certs

To view and delete the certificates trusted on the first use, use **ncs certvalidation tofu-certs** command in EXEC mode.

**ncs certvalidation tofu-certs** { **listcerts** | **deletecert host** *host\_name* }

**Syntax Description**

<i>deletecert</i>	Delete a trust-on-first-use cert for a host
<i>listcerts</i>	List certificates trusted on first use

**Command Default** No default behavior or values.

**Command Modes** EXEC

**Example 1: listcert**

```
epnm-system/admin# ncs certvalidation tofu-certs listcerts
Host certificate are automatically added to this list on first connection, if
trust-on-first-use is configured - ncs certvalidation certificate-check ...
host=10.197.71.121_8082; subject= /C=US/ST=CA/L=SJ/O=Cisco Systems/OU=EPNM/CN=epnm-system-121
epnm-system/admin#
```

**Example 2: deletecerts**

```
epnm-system/admin# ncs certvalidation tofu-certs deletecert host 10.197.71.121_8082
Deleted entry for 10.197.71.121_8082
epnm-system/admin#
```

## ncs certvalidation trusted-ca-store

To configure a trusted CA certificate store, use **ncs certvalidation trusted-ca-store** command in EXEC mode.

```
ncs certvalidation trusted-ca-store { auto-ca-update { enable | disable } truststore truststore_name
} | deletecert alias { alias_name truststore truststore_name { devicemgmt | pubnet | system |
user } } | importcert alias alias_name repository repository_name truststore truststore_name |
listcerts truststore truststore_name }
```

Syntax Description		
<i>auto-ca-update</i>		Auto update list of trusted CA certs during software update
<i>deletecert</i>		Enable certificate validation
<i>importcert</i>		Import a certificate to the trust store
<i>listcerts</i>		List all trusted CA certificates
<i>truststore_name</i>		Name of the truststore
<b>devicemgmt</b>		Trust store used for validating cert from managed devices
<b>pubnet</b>		Trust store used for validating cert from public internet
<b>system</b>		Trust store used for validating cert from other peer systems
<b>user</b>		Trust store used for validating cert for user login

**Command Default** No default behavior or values.

**Command Modes** Configuration

**Example 1: auto-ca-update**

```
epnm-system/admin# ncs certvalidation trusted-ca-store auto-ca-update enable truststore
system
epnm-system/admin# ncs certvalidation trusted-ca-store auto-ca-update disable truststore
system
epnm-system/admin#
```

### Example 2: deletecacert

```
epnm-system/admin# ncs certvalidation trusted-ca-store deletecacert alias quovadisroot
truststore system
Deleted CA certificate from trust store. Changes will take affect on the next server restart
epnm-system/admin#
```

### Example 3: importcacert

```
epnm-system/admin# ncs certvalidation trusted-ca-store importcacert alias ALIAS repository
defaultRepo epnm.cer truststore system
Imported CA certificate to trust store. Changes will take affect on the next server restart
epnm-system/admin#
```

### Example 3: listcacert

```
epnm-system/admin# ncs certvalidation trusted-ca-store listcacerts truststore pubnet
ciscoeccrootca, Nov 28, 2018, trustedCertEntry,
Certificate fingerprint (SHA1): 52:EC:7D:BB:5C:65:11:DD:C1:C5:46:DB:BC:29:49:B5:AB:E9:D0:EE
ciscorootcam2, Nov 28, 2018, trustedCertEntry,
Certificate fingerprint (SHA1): 93:3D:63:3A:4E:84:0D:A4:C2:8E:89:5D:90:0F:D3:11:88:86:F7:A3
ciscorootca2048, Nov 28, 2018, trustedCertEntry,
Certificate fingerprint (SHA1): DE:99:0C:ED:99:E0:43:1F:60:ED:C3:93:7E:7C:D5:BF:0E:D9:E5:FA
ciscorootcam1, Nov 28, 2018, trustedCertEntry,
Certificate fingerprint (SHA1): 45:AD:6B:B4:99:01:1B:B4:E8:4E:84:31:6A:81:C2:7D:89:EE:5C:E7
quovadisrootca2, Nov 28, 2018, trustedCertEntry,
Certificate fingerprint (SHA1): CA:3A:FB:CF:12:40:36:4B:44:B2:16:20:88:80:48:39:19:93:7C:F7
ciscorootca2099, Nov 28, 2018, trustedCertEntry,
Certificate fingerprint (SHA1): AC:1E:DE:2E:1C:97:0F:ED:3E:E8:5F:8C:3A:CF:E2:BA:C0:4A:13:76
ciscolicensingrootca, Nov 28, 2018, trustedCertEntry,
Certificate fingerprint (SHA1): 5C:A9:5F:B6:E2:98:0E:C1:5A:FB:68:1B:BB:7E:62:B5:AD:3F:A8:B8
verisignclass3publicprimarycertificationauthorityg5, Nov 28, 2018, trustedCertEntry,
Certificate fingerprint (SHA1): 4E:B6:D5:78:49:9B:1C:CF:5F:58:1E:AD:56:BE:3D:9B:67:44:A5:E5
ciscorxcr2, Nov 28, 2018, trustedCertEntry,
Certificate fingerprint (SHA1): 2C:8A:FF:CE:96:64:30:BA:04:C0:4F:81:DD:4B:49:C7:1B:5B:81:A0
digicertglobalrootca, Nov 28, 2018, trustedCertEntry,
Certificate fingerprint (SHA1): A8:98:5D:3A:65:E5:E5:C4:B2:D7:D6:6D:40:C6:DD:2F:B1:9C:54:36
epnm-system/admin#
```

## ncs cleanup

To clean up the data that are listed below and reclaim the disk space, use the **ncs cleanup** command in EXEC mode.

- Files under /opt/backup
- \*.m-n.logs, \*.n.logs, \*.log.n log files under /opt/CSColumos/logs
- Regular files under /localdisk
- .hprof file under opt/CSColumos/crash
- Matlab\*.log under /opt/tmp/
- .trm and .trc files under /opt/oracle/base/diag/rdbms/\*/\*/trace
- Older expired Archive logs and backup set under /opt/oracle/base/fast\_recovery\_area/WCS

**ncs cleanup**

<b>Syntax Description</b>	This command has no arguments or keywords.
<b>Command Default</b>	No default behavior or values.
<b>Command Modes</b>	EXEC
<b>Usage Guidelines</b>	When the Cisco EPNM does not have enough disk space, an alarm is raised to free up and reclaim the disk space. If you enter the <b>ncs cleanup</b> command, you see the following confirmation message:  Do you want to delete all the files in the local disk partition? (Y/N)

```

epnm-system-117/admin# ncs cleanup
Starting Cleanup: Wed Feb 28 01:50:44 IST 2019
=====
{Wed Aug 12 01:50:47 IST 2019} Removing all files in backup staging directory
{Wed Aug 12 01:50:47 IST 2019} Removing all Matlab core related files
  {Wed Aug 12 01:50:47 IST 2019} Removing all older log files
  {Wed Aug 12 01:50:47 IST 2019} Cleaning older archive logs
{Wed Aug 12 01:51:03 IST 2019} Cleaning database backup and all archive logs
{Wed Aug 12 01:51:03 IST 2019} Cleaning older database trace files
  {Wed Aug 12 01:51:03 IST 2019} Removing all user local disk files
  {Wed Aug 12 01:51:03 IST 2019} Cleaning database
{Wed Aug 12 01:51:05 IST 2019} Stopping server
{Wed Aug 12 01:52:05 IST 2019} Not all server processes stop. Attempting to stop \ remaining

  {Wed Aug 12 01:52:05 IST 2019} Stopping database
  {Wed Aug 12 01:52:07 IST 2019} Starting database
  {Wed Aug 12 01:52:20 IST 2019} Starting database clean
  {Wed Aug 12 01:58:50 IST 2019} Completed database clean
  {Wed Aug 12 01:58:50 IST 2019} Stopping database
  {Wed Aug 12 01:59:14 IST 2019} Starting server
=====
Completed Cleanup
Start Time: Mon Aug 28 01:50:44 IST 2019
Completed Time: Mon Aug 28 02:07:07 IST 2019
epnm-system-117/admin#

```

**ncs ha authkey**

To enter the authentication key for high availability (HA), use the **ncs ha authkey** command in EXEC mode.

**ncs ha authkey** *authorization key*

<b>Syntax Description</b>	<i>authorization key</i> The authorization key for high availability. Up to 80 alphanumeric characters.
<b>Command Default</b>	No default behavior or values.
<b>Command Modes</b>	EXEC
<b>Usage Guidelines</b>	The <b>ncs ha authkey</b> command changes the authorization for the health monitor.

This example shows how to set up the authorization key for high availability:

```
epnm-system/admin#ncs ha authkey cisco123
Going to update primary authentication key
Successfully updated primary authentication key
Successfully intimated Primary updated authentication key to Secondary Server
epnm-system/admin#
```

#### Related Commands

Command	Description
<a href="#">ncs ha remove</a>	Removes the high availability configuration settings from Cisco EPNM.
<a href="#">ncs ha status</a>	Provides the current status of high availability.

## ncs ha configure

To control high availability (HA) operations, use the **ncs ha configure** command in EXEC mode.

### ncs ha configure

#### Syntax Description

This command has no arguments or keywords.

#### Command Default

No default behavior or values.

#### Command Modes

EXEC

#### Usage Guidelines

To control HA operations.

If you enter the **ncs ha configure** command, you see the following sub-commands:

```
epnm-dev-vm-54/admin# ncs ha configure ?
 dptimeout      Update the DataGuard Time out for high availability
 hbinterval     Update the HM interval for high availability
 hbretry        Update the HM retry for high availability
 sqlexpiretime  Update the DB SqlExpireTime for high availability
 sqlinboundtimeout Update the DB SqlInBoundTimeout for high availability
 tcpkeepaliveintvl Update the Tcp Keep Alive Intvl for high availability
 tcpkeepaliveprobes Update the Tcp Keep Alive Probes for high availability
 tcpkeepalivetime Update the Tcp Keep Alive Time for high availability
 updatecheckreadiness Update CheckReadiness
```

#### Related Commands

Command	Description
<a href="#">ncs ha authkey</a>	Allows you to enter the authentication key for high availability in Cisco EPNM. This command also changes the authorization for the health monitor.
<a href="#">ncs ha remove</a>	Removes the high availability configuration.

## ncs ha monitor interface add

You can add interface to high availability monitoring using **ncs ha monitor interface add** command in EXEC mode.

```
ncs ha monitor interface add [ GigabitEthernet | Team ] [ interface number ]
```

---

**Command Default** No default behavior or values.

---

**Command Modes** EXEC

## ncs ha monitor interface del

You can delete interface from high availability monitoring using **ncs ha monitor interface del** command in EXEC mode.

```
ncs ha monitor interface del [ GigabitEthernet | Team ] [ interface number ] }
```

---

**Command Default** No default behavior or values.

---

**Command Modes** EXEC

## ncs ha northbound interface

You can set northbound interface using **ncs ha northbound interface** command in EXEC mode.

```
ncs ha northbound interface [ GigabitEthernet | Team ] [ interface number ]
```

---

**Command Default** Default mode is GigabitEthernet 0.

---

**Command Modes** EXEC

## ncs ha remove

To remove the high availability configuration settings from Cisco EPNM, use the **ncs ha remove** command in EXEC mode.

```
ncs ha remove
```

---

**Syntax Description** This command has no arguments or keywords.

---

**Command Default** No default behavior or values.

---

**Command Modes** EXEC

---

**Usage Guidelines** The **ncs ha remove** command removes the high availability configuration settings from the Cisco EPNM. If you enter this command, you will see the following confirmation message:

```
High availability configuration will be removed.
Do you wish to continue? (Y/N)
```

## Example

```
epnm-system/admin# ncs ha remove
High availability configuration will be removed
Do you wish to continue? (y/N) y

Removing primary configuration will remove all database information
Primary is attempting to remove high availability configuration from both primary \
and secondary
Successfully removed high availability configuration
epnm-system/admin#
```

### Related Commands

Command	Description
<a href="#">ncs ha authkey</a>	Allows you to enter the authentication key for high availability in Cisco EPNM. This command also changes the authorization for the health monitor.
<a href="#">ncs ha status</a>	Provides the current status of high availability.

## ncs ha status

To display the current status of high availability (HA), use the **ncs ha status** command in EXEC mode.

### ncs ha status

#### Syntax Description

This command has no arguments or keywords.

#### Command Default

No default behavior or values.

#### Command Modes

EXEC

#### Usage Guidelines

Displays the current status of HA.

If you enter the **ncs ha status** command, you see the following response:

#### Example 1: When HA is not configured

```
epnm-system/admin# ncs ha status
[Role] Primary [State] HA not Configured
epnm-systems/admin#
```

#### Example 2: When HA is configured

In Primary server:



```
epnm-system/admin# ncs ha status
[Role] Primary [Secondary Server] 10.197.71.162(10.197.71.162) [State] Primary
Active [Failover Type] Automatic
epnm-system/admin#
```

In Secondary server:

```
epnm-system/admin# ncs ha status
[Role] Secondary [Primary Server] epnm-system-161(10.197.71.161) [State] Secondary
Syncing [Failover Type] Automatic
epnm-system/admin#
```

### Related Commands

Command	Description
<a href="#">ncs ha authkey</a>	Allows you to enter the authentication key for high availability in Cisco EPNM. This command also changes the authorization for the health monitor.
<a href="#">ncs ha remove</a>	Removes the high availability configuration.

## ncs key genkey

To generate a new RSA key and self-signed certificate, use the **ncs key genkey** command. You can use this command in the following ways:

**ncs key genkey -newdn -csr csrfilename repository repositoryname**

### Syntax Description

<b>genkey</b>	Generates a new RSA key and self-signed certificate. You can use the following options with this command:  <b>-csr</b> : Generates Certificate Signing Request (CSR) file.  <b>-newdn</b> : Generates a new RSA key and self-signed certificate with domain information.  <b>&lt;cr&gt;</b> : Carriage return.
<b>-newdn</b>	Generates a new RSA key and self-signed cert with domain information. You can use the following options with this command:  <b>-csr</b> : Generates Certificate Signing Request(CSR) file.  <b>&lt;cr&gt;</b> : Carriage return.
<b>-csr</b>	Generates a new CSR certificate file. You can use the following option with this command:  <b>&lt;WORD&gt;</b> : Types in a certificate file name (Max Size - 80).

<i>csrfilename</i>	CSR filename.
<b>repository</b>	Repository command. This option is available when you use the -csr option.
<i>repositoryname</i>	Location where the files should be backed up to. Up to 80 alphanumeric characters.

**Command Default** No default behavior or values.

**Command Modes** EXEC

This example shows how to generate a new rsa key and certificate files in the Cisco EPNM server:

```
epnm-cluster-88/admin# ncs key genkey -newdn -csr test.csr repository defaultRepo
```

```
Changes will take affect on the next server restart
Enter the fully qualified domain name of the server !!!!!: epnm-cluster-88.cisco.com
Enter the name of your organization unit !!!!!!!!!!!!!!!: cisco
Enter the name of your organization !!!!!!!!!!!!!!!: hcl
Enter the name of your city or locality !!!!!!!!!!!!!!!: chennai
Enter the name of your state or province !!!!!!!!!!!!!!!: tn
Enter the two letter code for your country !!!!!!!!!!!!!!!: US
Specify subject alternate names.
If none specified, CN will be used.
Use comma seperated list - DNS:<name>,IP:<address> !!!!!: \
DNS:epnm-cluster-88.cisco.com,IP:10.126.168.88

Specify the public key algorithm [rsa/ec] !!!!!!!!!!!!!!!: rsa
Specify the RSA key size [2048/4096/8192] !!!!!!!!!!!!!!!: 4096
Specify the signature algorithm [sha256/sha512] !!!!!!!!!!!!!!!: sha256

Key and CSR/Certificate will be generated with following details
Subject : \
/C=US/ST=tn/L=chennai/O=hcl/OU=cisco/CN=epnm-cluster-88.cisco.com
Subject Alternate Name : DNS:epnm-cluster-88.cisco.com,IP:10.126.168.88
Public Key Alg : rsa, 4096
Signature Alg : sha256

Continue [yes] : yes
Generating...
Completed generating new key...Changes will take affect on the next server restart
Note: You can provide comma separated list of FQDN and IP of EPNM servers where you want
to import the same certificate received from CA.
To import same CA in other server, you need to import the key from the server where you
generate CSR and them import the CA certiiicates.
```



**Note** You will get a csr file generated in the location where the repository is pointing. Use that csr file get a CA certificate or signed certificate from any CA agent.

#### Related Commands

Command	Description
<a href="#">ncs key importsignedcert</a>	Applies an RSA key and signed certificate to Cisco EPNM.

Command	Description
<a href="#">ncs key importkey</a>	Applies an RSA key and certificate to Cisco EPNM.



**Note** After entering this command, enter the **ncs stop** and **ncs start** command to restart the Cisco EPNM server.

## ncs key importkey

To apply an RSA key and signed certificate to the Cisco EPNM, use the **ncs key importkey** command in EXEC mode.

**To export key:**

**ncs key exportkey** *key-filename cert-filename repository repositoryname*

**To import key:**

**ncs key importkey** *key-filename cert-filename repository repositoryname*

Syntax Description		
<i>key-filename</i>		RSA private key file name.
<i>cert-filename</i>		Certificate file name.
<b>repository</b>		Repository command
<i>repositoryname</i>		The repository name configured in the Cisco EPNM where the key-file and cert-file are hosted.

**Command Default** No default behavior or values.

**Command Modes** EXEC

This example shows how to apply the new RSA key and certificate files to the server.

```
ncs key exportkey private.key server.cer repository defaultRepo
```

```
ncs key importkey keyfile certfile repository ncs-sftp-repo
```



**Note** After applying this command, enter the **ncs stop** and **ncs start** command to restart the server.

Related Commands	Command	Description
	<a href="#">ncs key genkey</a>	Generates a new RSA key and a self-signed certificate.

Command	Description
<a href="#">ncs key importsignedcert</a>	Applies an RSA key and signed certificate to Cisco EPNM.

## ncs key importsignedcert

To apply an RSA key and signed certificate, use the **ncs key importsignedcert** command EXEC mode.

**ncs key importsignedcert** *signed-cert-filename* **repository** *repositoryname*

Syntax Description		
	<i>signed-cert-filename</i>	Signed certificate filename.
	<b>repository</b>	Repository command
	<i>repositoryname</i>	The repository name that is configured in Cisco EPNM where the key-file and cert-file is hosted.

**Command Default** No default behavior or values.

**Command Modes** EXEC

This example shows how to apply signed certificate files to the Cisco EPNM server:

```
> ncs key importsignedcert signed-certfile repository ncs-sftp-repo
```



**Note** After applying this command, enter the **ncs stop** and the **ncs start** command to restart the Cisco EPNM server to make changes take effect.

Related Commands	Command	Description
	<a href="#">ncs key genkey</a>	Generates a new RSA key and self-signed certificate.
	<a href="#">ncs key importkey</a>	Applies an RSA key and signed certificate to Cisco EPNM.

## ncs password ftpuser

To change the FTP username and password, use the **ncs password ftpuser** command in EXEC mode.



**Note** The value for ftpuser in the above command should always be set to ftp-user.

After you enable the `ftp-user`, you can FTP files to and from the `/localdisk/ftp` folder on standalone or, if configured, High Availability primary servers only. You cannot use change directory (`cd`) or list directory (`ls`) functionality with `ftp-user`.

**ncs password ftpuser** *ftp-user* **password** *password*

<b>Syntax Description</b>	<i>ftp-user</i>	The FTP user name
<b>Command Default</b>	No default behavior or values.	
<b>Command Modes</b>	EXEC	

This example shows how to change the FTP username and password:

```
epnm-system-65/admin# ncs password ftpuser ftp-user password Password123
Updating FTP password
Saving FTP account password in credential store
Synching FTP account passwd to database store - location-ftp-user
Synching FTP account password to system store
Completed FTP password update
epnm-system-65/admin#
```

## ncs password root password

To change the root password, use the **ncs password root password** command in EXEC mode.

**ncs password root password** *userpassword*

<b>Syntax Description</b>	<i>userpassword</i>	Password for the root user.
<b>Command Default</b>	No default behavior or values.	
<b>Command Modes</b>	EXEC	

This example shows how to change the root password:

```
epnm-systems/admin# ncs password root password Userpassword
Password updated for web root user
epnm-systems/admin#
```

## ncs run client-auth

You can enable client certificate authentication on your Cisco EPNM application using **ncs run client-auth** command.

**ncs run client-auth enable**

**ncs run client-auth disable**

---

**Command Default** No default behavior or values.

---

**Command Modes** EXEC

```
epnm-system-117/admin# ncs run client-auth enable
```

```
WARNING :
```

```
This feature requires the CA certificate to be installed on the system.
Please use the command 'ncs key importcacert ...' to
import the certificate of the CA used to sign the client certificates.
Ignore this warning if the CA certificate is already installed.
```

```
Use the 'disable' option of this command, to disable client authentication,
if not required.
```

```
client_auth status : enabled
epnm-system-117/admin#
```

```
epnm-system-117/admin# ncs run client-auth disable
client_auth status : disabled
epnm-system-117/admin#
```

## ncs run csrf

The cross-site request forgery check can be disabled (not recommended). The CLI provided only for backward compatibility with API clients which are not programmed for CSRF protection. For CSRF protection, this option should be enabled using the following command.

**ncs run csrf enable**

To disable, use the following command:

**ncs run csrf disable**

---

**Command Default** No default behavior or values.

---

**Command Modes** EXEC

```
epnm-cluster-93/admin# ncs run csrf enable
```

```
epnm-cluster-93/admin# ncs run csrf disable
```

## ncs run custom-subject-oid-type-regex

You can set custom OID type regular expression using **ncs run custom-subject-oid-type-regex** command in EXEC mode.

**ncs run custom-subject-oid-type-regex** { *regex* }

---

**Command Default** No default behavior or values.

---

**Command Modes** EXEC

## ncs run custom-subject-oid-type

You can set custom OID type using **ncs run custom-subject-oid-type** command in EXEC mode.

```
ncs run custom-subject-oid-type { disable | cn | sn | serialnumber | c | l | st | s | street | o | ou | t | title | g | gn | e | emailaddress | email | uid | dc }
```

---

**Command Default** No default behavior or values.

---

**Command Modes** EXEC

## ncs run gen-sec-pwd

To generate a secure password, you can use the **ncs run gen-sec-pwd** command in EXEC mode.

```
ncs run gen-sec-pwd
```

---

**Command Default** No default behavior or values.

---

**Command Modes** EXEC

```
epnm-imeir-ha-prim/admin# ncs run gen-sec-pwd  
Ukx(mr0j  
epnm-imeir-ha-prim/admin#
```

## ncs run jms

Cisco EPNM can send notifications to a Java Message Server (JMS) whenever there are changes in the inventory or configuration parameters that are a part of an audit you have defined. You can enable or disable this feature using **ncs run jms** command.

```
ncs run jms enable
```

```
ncs run jms disable
```

---

**Command Default** No default behavior or values.

---

**Command Modes** EXEC

```
epnm-cluster-93/admin# ncs run jms enable
```

```
epnm-cluster-93/admin# ncs run jms disable  
Connectivity to the JMS (message bus) from external servers disabled.  
Connectivity is required for external PnP Gateway servers to interact  
with the EPNM server.
```

Use the 'enable' option of this command, to enable connectivity again.

## ncs run list

To display the list of commands associated with NCS, use **ncs run list** command in EXEC mode.

### ncs run list

**Command Default** No default behavior or arguments

**Command Modes** EXEC

```

commands :
  list - prints this list

  test iops - tests the disk write performance
  reset [db|keys] - reset database and keys to default factory settings

  csrf [disable|enable] - enable or disable CSRF protection
  client-auth [disable|enable] - enable or disable client certificate based authentication
  jms [disable|enable] - enable or disable message bus connectivity (port 61617)

  sshclient-nonfips-ciphers [disable|enable] - enable or disable non fips compliant ciphers
  for outgoing ssh client connections to devices
  ssh-server-legacy-algorithms [disable|enable] - enable or disable legacy algorithms for
  SSH service.
  tls-server-versions <tls_versions> - set the TLS versions to be enabled for TLS service
  - TLSv1.2 TLSv1.1 TLSv1
  tls-server-ciphers <tls_cipher_groups> - set the TLS cipher group to be enabled for TLS
  service - tls-ecdh-sha2 tls-ecdh-sha1 tls-dhe-sha2 tls-dhe-sha1 tls-static-sha2
  tls-static-sha1
  livelogs [all|secure|ade|messages] - view live audit logs
  loghistory [all|secure|ade|messages] - view audit logs
  gen-sec-pwd - Generate secure password
  ssh-server-single-legacy-algorithm [list | reset | algorithms] -algorithms with space
  seperated
  oosp-responder [disable|enable] - enable or disable OOSP Responder (requires EPNM restart)

  custom-subject-oid-type
  [disable|cn|sn|serialnumber|c|l|st|s|street|o|ou|t|title|g|gn|e|emailaddress|email|uid|dc]
  - custom OID type
  custom-subject-oid-type-regex [regex] - custom OID type regular expression

```

## ncs run livelogs

You can run **ncs run livelogs** command to view live audit logs.

**ncs run livelogs** { *all* | *secure* | *ade* | *messages* }

**Command Default** No default behavior or values.

**Command Modes** EXEC

```

epnm-system-120/admin# ncs run livelogs
***Available filter options to limit logs - all secure ade messages***
*****Press Ctrl+C for stop logging*****
2018-02-28T01:48:39.407787+05:30 epnm-system-120 sshd[10309]: pam_unix(sshd:session): \
session closed for user admin

```



```

2018-02-28T01:50:14.109435+05:30 epm-system-120 sshd[32038]: \
pam_tally2(sshd:account): option unlock_time=60 allowed in auth phase only
2018-02-28T01:50:14.109456+05:30 epm-system-120 sshd[32038]: \
pam_tally2(sshd:account): unknown option: no_reset
2018-02-28T01:50:14.112152+05:30 epm-system-120 sshd[32038]: pam_unix(sshd:session): \
session opened for user admin by (uid=0)
2018-02-28T02:00:57.499844+05:30 epm-system-120 sshd[32038]: pam_unix(sshd:session): \
session closed for user admin
2018-02-28T02:04:28.870085+05:30 epm-system-120 su: pam_unix(su:session): session \
opened for user oracle by (uid=0)
2018-02-28T02:04:28.976462+05:30 epm-system-120 su: pam_unix(su:session): session \
closed for user oracle
2018-02-28T02:21:30.485537+05:30 epm-system-120 sshd[6381]: \
pam_tally2(sshd:account): option unlock_time=60 allowed in auth phase only
2018-02-28T02:21:30.485556+05:30 epm-system-120 sshd[6381]: \
pam_tally2(sshd:account): unknown option: no_reset
2018-02-28T02:21:30.488589+05:30 epm-system-120 sshd[6381]: pam_unix(sshd:session): \
session opened for user admin by (uid=0)

2018-02-28T02:25:04.370446+05:30 epm-system-120 debugd[3229]: [7471]: \
config:network: sysconfig.c[1116] [admin]: Getting ipaddress for eth1
2018-02-28T02:25:04.377607+05:30 epm-system-120 debugd[3229]: [7471]: \
config:network: syscfg_cli.c[1098] [admin]: No ipaddress for interface eth1
2018-02-28T02:25:04.384642+05:30 epm-system-120 ADEOSShell[7471]: Change Audit \
Details:SUCCESS:CARS
CLI:carsGetIfState::root:/opt/system/bin/carssh:NotFromTerminal:5:
2018-02-28T02:25:04.384720+05:30 epm-system-120 debugd[3229]: [7471]: \
config:network: syscfg_cli.c[1105] [admin]: Interface eth1 is down
2018-02-28T02:25:04.384777+05:30 epm-system-120 debugd[3229]: [7471]: \
config:network: syscfg_cli.c[1011] [admin]: Getting dhcpv6 enabled for eth1
2018-02-28T02:25:04.405866+05:30 epm-system-120 ADEOSShell[7471]: Change Audit \
Details:SUCCESS:CARS
CLI:carsGetNameserver::root:/opt/system/bin/carssh:NotFromTerminal:6:
2018-02-28T02:25:04.412912+05:30 epm-system-120 ADEOSShell[7471]: Change Audit \
Details:SUCCESS:CARS
CLI:carsGetNameserver::root:/opt/system/bin/carssh:NotFromTerminal:7:
2018-02-28T02:25:04.420049+05:30 epm-system-120 ADEOSShell[7471]: Change Audit \
Details:SUCCESS:CARS
CLI:carsGetNameserver::root:/opt/system/bin/carssh:NotFromTerminal:8:
2018-02-28T02:25:04.427224+05:30 epm-system-120 ADEOSShell[7471]: Change Audit \
Details:SUCCESS:CARS
CLI:carsGetGateway::root:/opt/system/bin/carssh:NotFromTerminal:9:
2018-02-28T02:28:16.411167+05:30 epm-system-120 ADEOSShell[8312]: Change Audit \
Details:SUCCESS:CARS CLI:run_command::root:/opt/system/bin/carssh:/dev/pts/1:1:

2018-02-28T02:21:25.649026+05:30 epm-system-120 sshd[6381]: Operating in CiscoSSL \
Common Criteria mode
2018-02-28T02:21:25.654950+05:30 epm-system-120 sshd[6381]: FIPS mode initialized
2018-02-28T02:21:25.806409+05:30 epm-system-120 sshd[6381]: Outbound-ReKey for \
10.77.144.125:16285 [preauth]
2018-02-28T02:21:25.889051+05:30 epm-system-120 sshd[6381]: Inbound-ReKey for \
10.77.144.125:16285 [preauth]
2018-02-28T02:21:30.487757+05:30 epm-system-120 sshd[6381]: Accepted password for \
admin from 10.77.144.125 port 16285 ssh2
2018-02-28T02:21:30.490420+05:30 epm-system-120 sshd[6390]: Inbound-ReKey for \
10.77.144.125:16285
2018-02-28T02:21:30.490437+05:30 epm-system-120 sshd[6390]: Outbound-ReKey for \
10.77.144.125:16285
2018-02-28T02:21:32.124237+05:30 epm-system-120 rsyslogd: [origin \
software="rsyslogd" swVersion="5.8.10" x-pid="3216" \
x-info="http://www.rsyslog.com ] rsyslogd was HUPed
2018-02-28T02:25:04.601075+05:30 epm-system-120 rsyslogd-2177: imuxsock begins to \
drop messages from pid 3229 due to rate-limiting
2018-02-28T02:25:30.938945+05:30 epm-system-120 rsyslogd-2177: imuxsock lost 463 \

```

```

messages from pid 3229 due to rate-limiting
^CERROR: cmd '/opt/CSColumos/bin/run_command.sh livelogs' failed
epnm-system-120/admin#

```

## ncs run loghistory

You can run **ncs run loghistory** command to view a list of audit logs.

**ncs run loghistory** { *all* | *secure* | *ade* | *messages* }

**Command Default** No default behavior or values.

**Command Modes** EXEC

```

epnm-system-120/admin# ncs run loghistory
***Available filter options to limit logs - all secure ade messages***
:::::::::::::
/var/log/secure
:::::::::::::
2018-02-25T04:22:03.091312+05:30 epnm-system-120 passwd: pam_unix(passwd:chauthtok): \
password changed for scpuser
2018-02-25T05:47:52.693460+05:30 epnm-system-120 su: pam_unix(su:session): session \
opened for user oracle by (uid=0)
2018-02-25T05:47:52.746896+05:30 epnm-system-120 su: pam_unix(su:session): session \
closed for user oracle
2018-02-25T07:48:08.551061+05:30 epnm-system-120 su: pam_unix(su:session): session \
opened for user oracle by (uid=0)
2018-02-25T07:48:08.607276+05:30 epnm-system-120 su: pam_unix(su:session): session \
closed for user oracle
2018-02-25T09:48:29.616066+05:30 epnm-system-120 su: pam_unix(su:session): session \
opened for user oracle by (uid=0)
2018-02-25T09:48:29.675890+05:30 epnm-system-120 su: pam_unix(su:session): session \
closed for user oracle
2018-02-25T11:48:49.792055+05:30 epnm-system-120 su: pam_unix(su:session): session \
opened for user oracle by (uid=0)
2018-02-25T11:48:49.845594+05:30 epnm-system-120 su: pam_unix(su:session): session \
closed for user oracle
2018-02-25T13:49:13.712070+05:30 epnm-system-120 su: pam_unix(su:session): session \
opened for user oracle by (uid=0)
2018-02-25T13:49:13.764692+05:30 epnm-system-120 su: pam_unix(su:session): session \
closed for user oracle
2018-02-25T15:49:28.165108+05:30 epnm-system-120 su: pam_unix(su:session): session \
opened for user oracle by (uid=0)
2018-02-25T15:49:28.231362+05:30 epnm-system-120 su: pam_unix(su:session): session \
closed for user oracle
2018-02-25T17:49:46.089296+05:30 epnm-system-120 su: pam_unix(su:session): session \
opened for user oracle by (uid=0)
2018-02-25T17:49:46.143475+05:30 epnm-system-120 su: pam_unix(su:session): session \
closed for user oracle
2018-02-25T19:50:06.775083+05:30 epnm-system-120 su: pam_unix(su:session): session \
opened for user oracle by (uid=0)
2018-02-25T19:50:06.828332+05:30 epnm-system-120 su: pam_unix(su:session): session \
closed for user oracle
2018-02-25T21:50:33.338183+05:30 epnm-system-120 su: pam_unix(su:session): session \
opened for user oracle by (uid=0)
2018-02-25T21:50:33.393056+05:30 epnm-system-120 su: pam_unix(su:session): session \
closed for user oracle
2018-02-25T23:50:59.225069+05:30 epnm-system-120 su: pam_unix(su:session): session \
opened for user oracle by (uid=0)
2018-02-25T23:50:59.278849+05:30 epnm-system-120 su: pam_unix(su:session): session \
closed for user oracle

```

```

2018-02-26T01:51:23.433628+05:30 epm-system-120 su: pam_unix(su-l:session): session \
opened for user oracle by (uid=0)
2018-02-26T01:52:00.541797+05:30 epm-system-120 su: pam_unix(su-l:session): session \
closed for user oracle
2018-02-26T01:52:00.582068+05:30 epm-system-120 su: pam_unix(su:session): session \
opened for user oracle by (uid=0)
2018-02-26T01:52:00.635314+05:30 epm-system-120 su: pam_unix(su:session): session \
closed for user oracle
2018-02-26T03:30:00.737839+05:30 epm-system-120 su: pam_unix(su-l:session): session \
opened for user oracle by (uid=0)
2018-02-26T03:30:01.308384+05:30 epm-system-120 su: pam_unix(su-l:session): session \
closed for user oracle
2018-02-26T03:30:01.318405+05:30 epm-system-120 su: pam_unix(su-l:session): session \
opened for user oracle by (uid=0)
2018-02-26T03:30:01.373111+05:30 epm-system-120 su: pam_unix(su-l:session): session \
closed for user oracle
2018-02-26T03:30:01.411957+05:30 epm-system-120 su: pam_unix(su-l:session): session \
opened for user oracle by (uid=0)
2018-02-26T03:30:03.176254+05:30 epm-system-120 su: pam_unix(su-l:session): session \
closed for user oracle
2018-02-26T03:30:03.196829+05:30 epm-system-120 su: pam_unix(su-l:session): session \
opened for user oracle by (uid=0)
2018-02-26T03:30:03.252549+05:30 epm-system-120 su: pam_unix(su-l:session): session \
closed for user oracle
2018-02-26T03:30:06.105604+05:30 epm-system-120 su: pam_unix(su-l:session): session \
opened for user oracle by (uid=0)
2018-02-26T03:30:07.126919+05:30 epm-system-120 su: pam_unix(su-l:session): session \
closed for user oracle
2018-02-26T03:30:07.131747+05:30 epm-system-120 su: pam_unix(su-l:session): session \
opened for user oracle by (uid=0)
2018-02-26T03:30:14.916295+05:30 epm-system-120 su: pam_unix(su-l:session): session \
closed for user oracle
2018-02-26T03:30:14.923602+05:30 epm-system-120 su: pam_unix(su-l:session): session \
opened for user oracle by (uid=0)
epnm-system-120/admin#

```

## ncs run ocsrp-responder

You can enable or disable OCSRP Responder (requires EPNM restart) using **ncs run ocsrp-responder** command in EXEC mode.

```
ncs run ocsrp-responder { enable | disable }
```

<b>Syntax Description</b>	enable	Enables OCSRP Responder.
	disable	Disables OCSRP Responder.
<b>Command Default</b>	No default behavior or values.	
<b>Command Modes</b>	EXEC	



**Note** For the OCSRP Responder command to work, it is necessary to *enable* the **ncs run client-auth** command. Please refer to [ncs run client-auth, on page 57](#) to enable it.

## ncs run reset

You can use **ncs run reset** command to delete all the private keys from your Cisco EPNM server and to clean a corrupted database. Resetting DB clears all the existing data and replaces it with empty data.

**ncs run reset { db | keys }**

<b>Syntax Description</b>	db	Resets DB wth empty data.
	keys	Deletes all the private keys from Cisco EPNM server.

**Command Default** No default behavior or values.

**Command Modes** EXEC

```
epnm-system-160/admin# ncs run reset db
***** Warning *****
This script will delete the existing data in database (network data) and reset
database to default factory settings.
Do you want to proceed [yes/no] [no]? yes
Stopping EPNM...
This may take a few minutes...
EPNM successfully shutdown.
Stopping SAM daemon...
Checking for SAM daemon again ...
SAM Daemon not found...
Stopping DA daemon ...
Checking for DA daemon again ...
DA Daemon not found...
Completed shutdown of all services
Listener wctns is down.
Listener already stopped.
Database is already stopped. Cannot stop again.
This script is intended to run database configuration utilities
to provision and create the embedded database
Running database network config assistant tool (netca)...
Running oracle ZIP DB creation script...
configuring Oracle memory size
Running standby database creation script...
currentState is ...
sid being set wcs
SQL*Plus: Release 12.1.0.2.0 Production on Wed Nov 14 11:25:18 2018
Copyright (c) 1982, 2014, Oracle. All rights reserved.
Connected to an idle instance.
SQL> ORACLE instance started.
Total System Global Area 2147483648 bytes
Fixed Size          2926472 bytes
Variable Size       1023412344 bytes
Database Buffers    1107296256 bytes
Redo Buffers        13848576 bytes
Database mounted.
Database opened.
SQL>
User altered.
SQL> Database closed.
Database dismounted.
ORACLE instance shut down.
SQL> Disconnected from Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - \
64bit Production
```

```

With the Partitioning, OLAP, Advanced Analytics and Real Application Testing options
SQL*Plus: Release 12.1.0.2.0 Production on Wed Nov 14 11:25:52 2018
Copyright (c) 1982, 2014, Oracle. All rights reserved.
Connected to an idle instance.
SQL> ORACLE instance started.
Total System Global Area 1287651328 bytes
Fixed Size          2934984 bytes
Variable Size       331351864 bytes
Database Buffers    947912704 bytes
Redo Buffers        5451776 bytes
Database mounted.
Database opened.
SQL>
User altered.
SQL> Database closed.
Database dismounted.
ORACLE instance shut down.
SQL> Disconnected from Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - \
64bit Production
With the Partitioning, OLAP, Advanced Analytics and Real Application Testing options
Listener wcostns is up
Database is already stopped. Cannot stop again.
INFO: reset db command executed successfully. Please restore the system data from a \
backup file

```

This example shows how to delete all private keys in the Cisco EPNM server:

```

epnm-system-61/admin# ncs run reset keys
This will delete all the private keys and may impact webserver, SSH service etc.
Do you want to proceed [yes/no] [no]? yes

```

## ncs run ssh-server-single-legacy-algorithm

You can enable or disable ssh server legacy algorithms using **ncs run ssh-server-single-legacy-algorithm** command in EXEC mode.

```
ncs run ssh-server-single-legacy-algorithm { list | reset | algorithms }
```

Syntax Description		
	list	lists all the supported algorithms.
	reset	Resets to default settings.
	algorithms	Sets algorithms.



**Note** If customer has moved to EPNM 3.7.x or 3.8.x via upgrade path, some of the Kex, and Ciphers algorithms would have changed in 3.7.x or 3.8.x upgrade, though the ssh legacy algorithms settings were enabled or disabled in the previous EPNM versions. Now, if you upgrade to 3.9 from 3.7.x or 3.8.x, you can see the same list of Kex, and Ciphers algorithms in 3.9 as available in the 3.7.x or 3.8.x upgrade servers.

The following steps explain the workaround, listing all the required ssh algorithms:

- a) When you upgrade from any previous versions to 3.7.x or 3.8.x version, please disable or enable the legacy ssh algorithms. Execute the below commands before upgrading to 3.9.

```
admin# ncs run ssh-server-legacy-algorithms disable
```

```
admin# ncs run ssh-server-legacy-algorithms enable
```

- b) If you upgraded from any previous versions to 3.7.x or 3.8.x and also upgraded to 3.9 version, please execute below commands to disable or enable the ssh legacy ciphers.

```
admin# ncs run ssh-server-legacy-algorithms disable
```

```
admin# ncs run ssh-server-legacy-algorithms enable
```

## ncs run sshclient-nonfips-ciphers

To enable or disable non fips compliant ciphers for outgoing ssh client connections to devices you can use **ncs run sshclient-nonfips-ciphers** command in EXEC mode.

```
ncs run sshclient-nonfips-ciphers { enable | disable }
```

### Syntax Description

enable	Enables non fips compliant ciphers for outgoing ssh client connections.
disable	Disables non fips compliant ciphers for outgoing ssh client connections.

### Command Default

Default mode is `enable`.

EXEC

```
epnm-ha-imeir-prim/admin# ncs run sshclient-nonfips-ciphers disable
```



**Note** This command is available only in the federal information processing standard (FIPS) mode

## ncs run test iops

To test and view the details of the input output operations on your Cisco EPNM, use the **ncs run test iops** command in the EXEC mode.

```
ncs run test iops
```

**Command Default** No default behavior or values.

**Command Modes** EXEC

```
epnm-242/admin# ncs run test iops
Testing disk write speed ...
8388608+0 records in
8388608+0 records out
8589934592 bytes (8.6 GB) copied, 33.4561 s, 257 MB/s
```

## ncs run tls-server-ciphers

You can enable a TLS cipher group using **ncs run tls-server-ciphers** command in EXEC mode.

**ncs run tls-server-ciphers** { *tls-ecdhe-sha2* | *tls-ecdhe-sha1* | *tls-dhe-sha2* | *tls-dhe-sha1* | *tls-static-sha2* | *tls-static-sha1* }

Syntax Description		
tls-ecdhe-sha2		Refers to tls cipher group, ecdhe sha2
tls-ecdhe-sha1		Refers to tls cipher group, ecdhe sha1
tls-dhe-sha2		Refers to tls cipher group, dhe sha2
tls-dhe-sha1		Refers to tls cipher group, dhe sha1
tls-static-sha2		Refers to tls cipher group, static sha2
tls-static-sha1		Refers to tls cipher group, static sha1

**Command Default** The default cipher group is **tls-ecdhe-sha2**

EXEC

```
epnm/admin# ncs run tls-server-ciphers tls-ecdhe-sha1
Enabled TLS cipher groups are - tls-ecdhe-sha1
Restart is required for the changes to take effect
```

## ncs run tls-server-versions

To set the TLS (Transport Layer Security) version, use the **ncs run tls-server-versions** command in EXEC mode.

**ncs run tls-server-version** <TLS version>

**Command Default** No default behavior or values.

**Command Modes** EXEC

The following example illustrates the usage of the ncs run set-tls-versions command:

```
epnm-system-168/admin# ncs run tls-server-versions TLSv1 TLSv1.1 TLSv1.2
Enabled TLS version are - TLSv1,TLSv1.1,TLSv1.2
Restart is required for the changes to take effect
epnm-system-168/admin#
```



**Warning** Running this command requires an immediate software restart. It is suggested you perform a failover and failback so that the changes are reflected in primary and secondary servers.

## ncs start

To start the EPNM server, use the **ncs start** command.

**ncs start [verbose]**

<b>Syntax Description</b>	verbose	Displays the detailed messages during the start process.
---------------------------	---------	--

<b>Command Default</b>	No default behavior or values.
------------------------	--------------------------------

<b>Command Modes</b>	EXEC
----------------------	------

<b>Usage Guidelines</b>	To see the messages in the console, use the <b>ncs start verbose</b> command.
-------------------------	---

This example shows how to start the EPNM server:

```
Starting Evolved Programmable Network Manager...
```

```
This may take a while (10 minutes or more) ...
```

```
Evolved Programmable Network Manager started successfully.
```

### Related Commands

Command	Description
<a href="#">ncs stop</a>	Stops the EPNM server.
<a href="#">ncs status</a>	Displays the current status of the EPNM server.

## ncs status

To display the EPNM server status, use the **ncs status** command in EXEC mode.

**ncs status**

This command has no arguments or keywords.



**Command Default** No default behavior or values.

**Command Modes** EXEC

This example shows how to display the status of the EPNM server:

```
ncs status
Health Monitor Server is running. ( [Role] Primary [State] Primary Active )
Database server is running
Distributed Cache Service is running.
Messaging Service is running.
FTP Service is disabled
TFTP Service is disabled
NMS Server is running.
LCM Monitor is running.
SAM Daemon is running ...
DA Daemon is running ...
```

**Related Commands**

Command	Description
<a href="#">ncs start</a>	Starts the EPNM server.
<a href="#">ncs stop</a>	Stops the EPNM server.

## ncs stop

To stop the EPNM server, use the **ncs stop** command in EXEC mode. To see the detailed messages, use the **ncs stop verbose** command.

**ncs stop [verbose]**

**Syntax Description**

<b>verbose</b>	Displays the detailed messages during the stop process.
----------------	---

**Command Default** No default behavior or values.

**Command Modes** EXEC

**Usage Guidelines** To see the detailed messages, use the **ncs stop verbose** command.

This example shows how to stop the EPNM server:

```
Stopping Evolved Programmable Network Manager...

This may take a few minutes...
Database is not running.
FTP Service is not running.
TFTP Service is not running.
NMS Server is not running!.

Evolved Programmable Network Manager successfully shutdown.
```

```

Stopping SAM daemon...
Checking for SAM daemon again ...
SAM Daemon not found...
Stopping DA daemon ...
Checking for DA daemon again ...
DA Daemon not found...
Completed shutdown of all services

```

**Related Commands**

Command	Description
<a href="#">ncs start</a>	Starts the EPNM server.
<a href="#">ncs status</a>	Displays the current status of the EPNM server.

## nslookup

To look up the hostname of a remote system on the Cisco EPNM server, use the **nslookup** command in EXEC mode.

**nslookup** *word*

**Syntax Description**

<i>word</i>	IPv4 address or hostname of a remote system. Up to 63 alphanumeric characters.
-------------	--

**Command Default**

No default behavior or values.

**Command Modes**

EXEC

**Example 1**

```

ncs/admin# nslookup 209.165.200.225
Trying "209.165.200.225.in-addr.arpa"
Received 127 bytes from 172.16.168.183#53 in 1 ms
Trying "209.165.200.225.in-addr.arpa"
Host 209.165.200.225.in-addr.arpa. not found: 3(NXDOMAIN)
Received 127 bytes from 172.16.168.183#53 in 1 ms

ncs/admin#

```

**Example 2**

```

ncs/admin# nslookup 209.165.200.225
Trying "225.200.165.209.in-addr.arpa"
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 65283
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 2, ADDITIONAL: 0

;; QUESTION SECTION:
;225.200.165.209.in-addr.arpa. IN PTR

;; ANSWER SECTION:
225.200.165.209.in-addr.arpa. 86400 IN PTR 209-165-200-225.got.net.

```

```
;; AUTHORITY SECTION:
192.168.209.in-addr.arpa. 86400 IN      NS      ns1.got.net.
192.168.209.in-addr.arpa. 86400 IN      NS      ns2.got.net.

Received 119 bytes from 172.16.168.183#53 in 28 ms

ncs/admin#
```

## ocsp responder

Online Certificate Status Protocol (OCSP) enables certificate-based authentication for web clients using OCSP responders. Typically, the OCSP responder's URL is read from the certificate's Authority Information Access (AIA). As a failover mechanism, you can configure the same URL on the Cisco EPNM server as well. You can enable or disable a custom OCSP responder, and set/remove OCSP responder URLs using **ocsp responder** command in EXEC mode.

**ocsp responder** { *remove* / *set* / *show* }

### Syntax Description

<b>clear</b>	Clears the OCSP responder URL.
<b>custom</b>	Enables or disables the custom OCSP responder.
<b>set</b>	Sets the OCSP responder URL.

### Command Default

No default behaviour.

### Command Modes

EXEC

```
ncs/admin# ocsp responder
ncs/admin# ocsp responder custom enable

ncs/admin# ocsp responder set url1 <WORD>
<WORD> Enter ocsp url (Max Size - 1024)

ncs/admin# ocsp responder clear url1
```

## ping

To diagnose the basic IPv4 network connectivity to a remote system, use the **ping** command in EXEC mode.

**ping** {*ip-address* | *hostname*} [**Df**df][**packetsize***packetsize*][**pingcount***pingcount*]

### Syntax Description

<i>ip-address</i>	IP address of the system to ping. Up to 32 alphanumeric characters.
<i>hostname</i>	Hostname of the system to ping. Up to 32 alphanumeric characters.
<b>df</b>	Specification for packet fragmentation.

<i>df</i>	Specifies the value as <b>1</b> to prohibit packet fragmentation, or <b>2</b> to fragment the packets locally, or <b>3</b> to not set df.
<b>packetsize</b>	Size of the ping packet.
<i>packetsize</i>	Specifies the size of the ping packet; the value can be between 0 and 65507.
<b>pingcount</b>	Number of ping echo requests.
<i>pingcount</i>	Specifies the number of ping echo requests; the value can be between 1 and 10.

**Command Default** No default behavior or values.

**Command Modes** EXEC

**Usage Guidelines** The **ping** command sends an echo request packet to an address, then awaits a reply. The ping output can help you evaluate path-to-host reliability, delays over the path, and whether you can reach a host.

```
ncs/admin# ping 172.16.0.1 df 2 packetsize 10 pingcount 2
PING 172.16.0.1 (172.16.0.1) 10(38) bytes of data.
18 bytes from 172.16.0.1: icmp_seq=0 ttl=40 time=306 ms
18 bytes from 172.16.0.1: icmp_seq=1 ttl=40 time=300 ms

--- 172.16.0.1 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 300.302/303.557/306.812/3.255 ms, pipe 2
ncs/admin#
```

#### Related Commands

Command	Description
<a href="#">ping6</a>	Pings a remote IPv6 address.

## ping6

To diagnose the basic IPv6 network connectivity to a remote system, use the **ping6** command in EXEC mode.

**ping6** *{ip-address | hostname}* [**GigabitEthernet***packetsize**packetsize*][**pingcount***pingcount*]

#### Syntax Description

<i>ip-address</i>	IP address of the system to ping. Up to 64 alphanumeric characters.
<i>hostname</i>	Hostname of the system to ping. Up to 64 alphanumeric characters.
<b>GigabitEthernet</b>	Selects the ethernet interface.
<b>packetsize</b>	Size of the ping packet.

<i>packetsize</i>	Specifies the size of the ping packet; the value can be between 0 and 65507.
<b>pingcount</b>	Number of ping echo requests.
<i>pingcount</i>	Specifies the number of ping echo requests; the value can be between 1 and 10.

**Command Default**

No default behavior or values.

**Command Modes**

EXEC

**Usage Guidelines**

The IPv6 **ping6** command sends an echo request packet to an address, then awaits a reply. The ping output can help you evaluate path-to-host reliability, delays over the path, and whether you can reach a host.

The IPv6 **ping6** command is similar to the existing IPv4 ping command that does not support the IPv4 ping fragmentation (df in IPv4) options, but allows an optional specification of an interface. The interface option is primarily useful for pinning with link-local addresses that are interface-specific. The *packetsize* and *pingcount* options work identically the same as they do with the IPv4 command.

**Example 1**

```

nsc/admin# ping6 3ffe:302:11:2:20c:29ff:feaf:da05
PING 3ffe:302:11:2:20c:29ff:feaf:da05(3ffe:302:11:2:20c:29ff:feaf:da05) from
3ffe:302:11:2:20c:29ff:feaf:da05 eth0: 56 data bytes
64 bytes from 3ffe:302:11:2:20c:29ff:feaf:da05: icmp_seq=0 ttl=64 time=0.599 ms
64 bytes from 3ffe:302:11:2:20c:29ff:feaf:da05: icmp_seq=1 ttl=64 time=0.150 ms
64 bytes from 3ffe:302:11:2:20c:29ff:feaf:da05: icmp_seq=2 ttl=64 time=0.070 ms
64 bytes from 3ffe:302:11:2:20c:29ff:feaf:da05: icmp_seq=3 ttl=64 time=0.065 ms

--- 3ffe:302:11:2:20c:29ff:feaf:da05 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3118ms
rtt min/avg/max/mdev = 0.065/0.221/0.599/0.220 ms, pipe 2

nsc/admin#

```

**Example 2**

```

nsc/admin# ping6 3ffe:302:11:2:20c:29ff:feaf:da05 GigabitEthernet 0 packetsize 10 pingcount
2
PING 3ffe:302:11:2:20c:29ff:feaf:da05(3ffe:302:11:2:20c:29ff:feaf:da05) from
3ffe:302:11:2:20c:29ff:feaf:da05 eth0: 10 data bytes
18 bytes from 3ffe:302:11:2:20c:29ff:feaf:da05: icmp_seq=0 ttl=64 time=0.073 ms
18 bytes from 3ffe:302:11:2:20c:29ff:feaf:da05: icmp_seq=1 ttl=64 time=0.073 ms

--- 3ffe:302:11:2:20c:29ff:feaf:da05 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1040ms
rtt min/avg/max/mdev = 0.073/0.073/0.073/0.000 ms, pipe 2

nsc/admin#

```

**Related Commands**

	Description
<a href="#">ping</a>	Pings a remote IP address.

# reload

To reload the Cisco EPNM operating system, use the **reload** command in EXEC mode.

## reload

**Syntax Description** This command has no arguments or keywords.

**Command Default** The command has no default behavior or values.

**Command Modes** EXEC

**Usage Guidelines** The **reload** command reboots the system. Use the **reload** command after you enter configuration information into a file and save the running-configuration to the persistent startup-configuration on the CLI and save any settings in the web Administration user interface session.

Before you enter the **reload** command, ensure that the Cisco EPNM is not performing any backup, restore, installation, upgrade, or remove operation. If the Cisco EPNM performs any of these operations and you enter the **reload** command, you will notice any of the following warning messages:

```
WARNING: A backup or restore is currently in progress! Continue with reload?
```

```
WARNING: An install/upgrade/remove is currently in progress! Continue with reload?
```

If you get any of these warnings, enter YES to halt the operation, or enter NO to cancel the halt.

If no processes are running when you use the **reload** command or you enter YES in response to the warning message displayed, the Cisco EPNM asks you to respond to the following option:

```
Do you want to save the current configuration ?
```

Enter YES to save the existing Cisco EPNM configuration. The Cisco EPNM displays the following message:

```
Saved the running configuration to startup successfully
```

```
ncs/admin# reload
Do you want to save the current configuration ? (yes/no) [yes] ? yes
Generating configuration...
Saved the running configuration to startup successfully
Continue with reboot? [y/n] y
```

```
Broadcast message from root (pts/0) (Fri Aug 7 13:26:46 2010):
```

```
The system is going down for reboot NOW!
```

```
ncs/admin#
```

## Related Commands

Command	Description
<a href="#">halt</a>	Disables the system.

## restore

To perform a restore of a previous backup, use the **restore** command in EXEC mode.

### Application Backup Restore:

Use the following command to restore data related only to the Cisco EPNM application:

```
restore filename repository repository-name application application-name
```

### Application Backup Restore

Use the following command to restore data related to the Cisco EPNM application and Cisco ADE OS:

```
restore filename repository repository-name
```

### Syntax Description

<i>filename</i>	Name of the backed-up file that resides in the repository. Up to 120 alphanumeric characters. <b>Note</b> You must add the .tar.gpg extension after the filename (for example, myfile.tar.gpg).
<b>repository</b>	The repository keyword.
<i>repository-name</i>	Name of the repository you want to restore from backup.
<b>application</b>	The application keyword.
<i>application-name</i>	The name of the application data to be restored. Up to 255 alphanumeric characters. <b>Note</b> Enter the application name as 'EPNM' in upper case.

### Command Default

No default behavior or values.

### Command Modes

EXEC

### Usage Guidelines

A restore operation restores data related to the Cisco EPNM and Cisco ADE OS. To perform a restore of a previous backup of the application data of the Cisco EPNM only, add the **application** command to the **restore** command in EXEC mode.

When you use these two commands in the Cisco EPNM, the Cisco EPNM server restarts automatically.

```
epnm-system-120/admin# restore
epnm-system-173-190908-0334__VER3.7.0.0.159_BKSZ26G_CPU4_MEM3G_RAM11G_SWAP15G_APP_CK218281319.tar.gpg
 repository defaultRepo application NCS
* NOTE *
If the system console is disconnected or got cleared on session timeout
run 'show restore log' to see the output of the last restore session.

Restore will restart the application services. Continue? (yes/no) [yes] ?

DO NOT press ^C while the restoration is in progress
Aborting restore with a ^C may leave the system in a unrecoverable state
```

Enter the backup password, if your backup is password protected. Otherwise, press Enter to continue the data restoration.

```

Password :
Initiating restore. Please wait...
Restore Started at 08/09/19 22:59:05
Stage 1 of 9: Transferring backup file ...
-- completed at 08/09/19 22:59:15
Stage 2 of 9: Decrypting backup file ...
-- completed at 08/09/19 23:02:24
Stage 3 of 9: Unpacking backup file ...
-- completed at 08/09/19 23:02:25
Stopping EPNM server ...
Stage 4 of 9: Decompressing backup ...
-- completed at 08/09/19 23:18:58
Stage 5 of 9: Restoring Support Files ...
-- completed at 08/09/19 23:19:07
Stage 6 of 9: Restoring Database Files ...
-- completed at 08/09/19 23:19:43
Stage 7 of 9: Recovering Database ...
-- completed at 08/09/19 23:28:42
Stage 8 of 9: Updating Database Schema ...
This could take long time based on the existing data size.
Stage 1 of 5: Pre Migration Schema Upgrade ...
-- completed at: 2019-08-09 23:32:46.091, Time Taken
: 0 hr, 4 min, 1 sec
Stage 2 of 5: Schema Upgrade ...
-- completed at: 2019-08-09 23:53:56.668, Time Taken
: 0 hr, 21 min, 9 sec
Stage 3 of 5: Post Migration Schema Upgrade ...
-- completed at: 2019-08-09 23:54:17.489, Time Taken
: 0 hr, 0 min, 19 sec
Stage 4 of 5: Enabling DB Constraints ...
-- completed at: 2019-08-09 23:54:53.179, Time Taken
: 0 hr, 0 min, 34 sec
Stage 5 of 5: Finishing Up ...
-- completed at: 2019-08-09 23:55:12.431, Time Taken
: 0 hr, 0 min, 18 sec
-- completed at 08/09/19 23:55:43
Stage 9 of 9: Re-enabling Database Settings ...
-- completed at 08/10/19 00:24:32
Total Restore duration is: 01h:25m:27s
INFO: Restore completed successfully.

Starting Evolved Programmable Network Manager...

This may take a while (10 minutes or more) ...

Evolved Programmable Network Manager started successfully.

Redirecting to /bin/systemctl restart rsyslog.service
Completed in 1207 seconds

```

## Related Commands

Command	Description
<a href="#">backup</a>	Performs a backup (Cisco EPNM and Cisco ADE OS) and places the backup in a repository.
<a href="#">show restore, on page 109</a>	Displays the restore history.



Command	Description
<a href="#">repository</a>	Enters the repository submode for configuration of backups.
<a href="#">show repository</a>	Displays the available backup files located on a specific repository.
<a href="#">show backup history</a>	Displays the backup history of the system.

## rmdir

To remove an existing directory, use the **rmdir** command in EXEC mode.

**rmdir** *directory-name* [*disk:/path*]

### Syntax Description

<i>directory-name</i>	The name of the directory to create. Up to 80 alphanumeric characters.
<i>disk:/path</i>	Use <i>disk:/path</i> with the directory name.

### Command Default

No default behavior or values.

### Command Modes

EXEC

```

ncs/admin# mkdir disk:/test
ncs/admin# dir

Directory of disk:/

   4096 May 06 2010 13:34:49  activemq-data/
   4096 May 06 2010 13:40:59  logs/
 16384 Mar 01 2010 16:07:27  lost+found/
   4096 May 06 2010 13:42:53  target/
   4096 May 07 2010 12:26:04  test/

Usage for disk: filesystem
      181067776 bytes total used
      19084521472 bytes free
      20314165248 bytes available

ncs/admin#

ncs/admin# rmdir disk:/test
ncs/admin# dir

Directory of disk:/

   4096 May 06 2010 13:34:49  activemq-data/
   4096 May 06 2010 13:40:59  logs/
 16384 Mar 01 2010 16:07:27  lost+found/
   4096 May 06 2010 13:42:53  target/

Usage for disk: filesystem
      181063680 bytes total used
      19084525568 bytes free

```

```

20314165248 bytes available
ncs/admin#

```

### Related Commands

Command	Description
<a href="#">dir</a>	Displays a list of files on the Cisco EPNM server.
<a href="#">mkdir</a>	Creates a new directory.

## rsakey

To display a configured RSA key or to set a new RSA public key for user authentication, use **rsakey** command in EXEC mode. You can also use it to remove a configured RSA key.

```
rsakey { remove | set | show }
```

### Syntax Description

<b>remove</b>	Remove RSA public key for user authentication.
<b>set</b>	Set RSA public key for user authentication.
<b>show</b>	Show RSA public key for user authentication.

### Command Default

No default behaviour.

### Command Modes

EXEC

```

ncs/admin# rsakey
ncs/admin# rsakey show
No RSA key configured for user 'admin'

```

```

ncs/admin# rsakey remove
No RSA key configured for user 'admin'

```

```

ncs/admin# rsakey set <WORD>
<WORD> Filename of RSA public key (Max Size - 256)

```

## show

To show the running system information, use the **show** command in EXEC mode. The **show** commands are used to display the Cisco EPNM settings and is one of the most useful commands.

The commands that are given in the table [Table 7: Summary of show Commands, on page 79](#) require the **show** command to be followed by a keyword; for example, **show application status**. Some **show** commands require an argument or variable after the keyword to function. For example, **show application version**.

For detailed information on all the Cisco EPNM **show** commands, see [show Commands](#).

**show** keyword

## Syntax Description

Table 7: Summary of show Commands

Command(1)	Description
application (requires keyword)(2)	Displays information about the installed application. For example, the status or version.
backup (requires keyword)	Displays information about the backup.
banner	Displays login banners.
cdp (requires keyword)	Displays information about the enabled Cisco Discovery Protocol interfaces.
clock	Displays the day, date, time, time zone, and year of the system clock.
cpu	Displays CPU information.
disks	Displays file-system information of the disks.
icmp_status	Displays information about the icmp echo response configuration.
interface	Displays statistics for all the interfaces that are configured on the Cisco ADE OS.
inventory	Displays information about the hardware inventory.
ip	Displays IP information.
logging (requires keyword)	Displays system logging information.
logins (requires keyword)	Displays login history.
memory	Displays memory usage by all running processes.
netstat	Displays information about the netstat and firewall.
ntp	Displays the status of the Network Time Protocol (NTP).
ports	Displays all the processes listening on the active ports.
process	Displays information about the active processes of the Cisco EPNM server.
repository (requires keyword)	Displays the file contents of a specific repository.

Command(1)	Description
restore (requires keyword)	Displays the restore history on the Cisco EPNM server.
running-config	Displays the contents of the currently running configuration file on the Cisco EPNM server.
security-status	Displays various information such as services/ports enabled/disabled.
startup-config	Displays the contents of the startup configuration on the Cisco EPNM server.
tech-support	Displays the system and configuration information that you can provide to TAC when you report a problem.
terminal	Displays information about the terminal configuration parameter settings for the current terminal line.
timezone	Displays the time zone of the Cisco EPNM server.
timezones	Displays all the time zones available for use on the Cisco EPNM server.
udi	Displays information about the unique device identifier (UDI) of the Cisco EPNM.
uptime	Displays how long the system you are logged in to has been up and running.
users	Displays information for currently logged in users.
version	Displays information about the installed application version.
<a href="#">12</a>	

<sup>1</sup> (1) The commands in this table require that the show command precedes a keyword; for example, show application.

<sup>2</sup> (2) Some show commands require an argument or variable after the keyword to function; for example, show application version. This show command displays the version of the application that is installed on the system (see [show application](#) ).

**Command Default** No default behavior or values.

**Command Modes** EXEC

**Usage Guidelines** All **show** commands require at least one keyword to function.

```
epnm-imeir-secon/admin# show version
Cisco Application Deployment Engine OS Release: 6.7
```

```
ADE-OS Build Version: 6.7.9.001
ADE-OS System Architecture: x86_64

Copyright (c) 2009-2020 by Cisco Systems, Inc.
All rights reserved.
Hostname: errez-esxi-12-vm6
```

```
Version information of installed applications
-----
```

```
Cisco EPN Manager
*****
Version : 6.0.0 [FIPS not Enabled]
Build : 6.0.0.0.000
```

## ssh

To start an encrypted session with a remote system, use the **ssh** command in EXEC mode.



**Note** An Admin or Operator (user) can use this command (see [Table](#)).

```
ssh [ip-address / hostname] usernameport[number]version[1|2] delete hostkeyword
```

Syntax Description		
<i>ip-address</i>		IP address of the remote system. Up to 64 alphanumeric characters.
<i>hostname</i>		Hostname of the remote system. Up to 64 alphanumeric characters.
<i>username</i>		Username of the user logging in through SSH.
<b>port</b> [ <i>number</i> ]		(Optional) Indicates the port number of the remote host. From 0 to 65,535. Default 22.
<b>version</b> [1   2]		(Optional) Indicates the version number. Default 2.
<b>delete</b> <i>hostkey</i>		Deletes the SSH fingerprint of a specific host.
<i>word</i>		IPv4 address or hostname of a remote system. Up to 64 alphanumeric characters.

**Command Default** Disabled.

**Command Modes** EXEC (Admin or Operator).

**Usage Guidelines** The **ssh** command enables a system to make a secure, encrypted connection to another remote system or server. This connection provides functionality similar to that of an outbound Telnet connection except that the connection is encrypted. With authentication and encryption, the SSH client allows for secure communication over an insecure network.

**Example 1**

```
ncs/admin# ssh ncs1 admin
admin@ncs1's password:
Last login: Wed Jul 11 05:53:20 2008 from ncs.cisco.com

ncs1/admin#
```

**Example 2**

```
ncs/admin# ssh delete host ncs
ncs/admin#
```

## tech dumptcp

To dump a Transmission Control Protocol (TCP) package to the console, use the **tech dumptcp** command in EXEC mode.

**tech dumptcp** *gigabit-ethernet*

<b>Syntax Description</b>	<i>gigabit-ethernet</i>	Gigabit Ethernet interface number 0 to 1.
<b>Command Default</b>	Disabled.	
<b>Command Modes</b>	EXEC	

```
ncs/admin# tech dumptcp 0
140816:141088(272) ack 1921 win 14144
08:26:12.034630 IP NCS.cisco.com.ssh > dhcp-64-102-82-153.cisco.com.2221: P 141088:141248(160)
  ack 1921 win 14144
08:26:12.034635 IP dhcp-64-102-82-153.cisco.com.2221 > NCS.cisco.com.ssh: . ack 139632 win
  64656
08:26:12.034677 IP NCS.cisco.com.ssh > dhcp-64-102-82-153.cisco.com.2221: P 141248:141520(272)
  ack 1921 win 14144
08:26:12.034713 IP NCS.cisco.com.ssh > dhcp-64-102-82-153.cisco.com.2221: P 141520:141680(160)
  ack 1921 win 14144
08:26:12.034754 IP NCS.cisco.com.ssh > dhcp-64-102-82-153.cisco.com.2221: P 141680:141952(272)
  ack 1921 win 14144
08:26:12.034756 IP dhcp-64-102-82-153.cisco.com.2221 > NCS.cisco.com.ssh: . ack 140064 win
  65520
08:26:12.034796 IP NCS.cisco.com.ssh > dhcp-64-102-82-153.cisco.com.2221: P 141952:142112(160)
  ack 1921 win 14144
1000 packets captured
1000 packets received by filter
0 packets dropped by kernel
ncs/admin#
```

## telnet

To log in to a host that supports Telnet, use the **telnet** command in operator (user) or EXEC mode.

**telnet** *[ip-address / hostname] port number*

<b>Syntax Description</b>	<i>ip-address</i>	IP address of the remote system. Up to 64 alphanumeric characters.
	<i>hostname</i>	Hostname of the remote system. Up to 64 alphanumeric characters.
	<i>port number</i>	(Optional) Indicates the port number of the remote host. From 0 to 65,535.

**Command Default** No default behavior or values.

**Command Modes** EXEC

```
ncs/admin# telnet 172.16.0.11 port 23
ncs.cisco.com login: admin
password:
Last login: Mon Jul  2 08:45:24 on ttyS0
ncs/admin#
```

## terminal length

To set the number of lines on the current terminal screen for the current session, use the **terminal length** command in EXEC mode.

**terminal length** *integer*

<b>Syntax Description</b>	<i>integer</i>	Number of lines on the screen. Contains between 0 to 511 lines, inclusive. A value of zero (0) disables pausing between screens of output.
---------------------------	----------------	--

**Command Default** 24 lines.

**Command Modes** EXEC

**Usage Guidelines** The system uses the length value to determine when to pause during multiple-screen output.

```
ncs/admin# terminal length 0
ncs/admin#
```

## terminal session-timeout

To set the inactivity timeout for all sessions, use the **terminal session-timeout** command in EXEC mode.

**terminal session-timeout** *minutes*

**terminal session-welcome**

<b>Syntax Description</b>	<i>minutes</i>	Sets the number of minutes for the inactivity timeout. From 0 to 525,600. Zero (0) disables the timeout.
<b>Command Default</b>	30 minutes.	
<b>Command Modes</b>	EXEC	
<b>Usage Guidelines</b>	Setting the <b>terminal session-timeout</b> command to zero (0) results in no timeout being set.	

```
ncs/admin# terminal session-timeout 40
ncs/admin#
```

Related Commands	Command	Description
	<a href="#">terminal session-welcome</a>	Sets a welcome message on the system for all users who log in to the system.

## terminal session-welcome

To set a welcome message on the system for all users who log in to the system, use the **terminal session-welcome** command in EXEC mode.

**terminal session-welcome** *string*

<b>Syntax Description</b>	<i>string</i>	Welcome message. Up to 2,023 alphanumeric characters.
<b>Command Default</b>	No default behavior or values.	
<b>Command Modes</b>	EXEC	
<b>Usage Guidelines</b>	Specify a message using up to 2048 characters.	

```
ncs/admin# terminal session-welcome Welcome
ncs/admin#
```

Related Commands	Command	Description
	<a href="#">terminal session-timeout</a>	Sets the inactivity timeout for all sessions.

## terminal terminal-type

To specify the type of terminal connected to the current line for the current session, use the **terminal terminal-type** command in EXEC mode.



**terminal terminal-type** *type*

<b>Syntax Description</b>	<i>type</i>	Defines the terminal name and type, and permits terminal negotiation by hosts that provide that type of service. Up to 80 alphanumeric characters.
<b>Command Default</b>	VT100.	
<b>Command Modes</b>	EXEC	
<b>Usage Guidelines</b>	Indicate the terminal type if it is different from the default of VT100.	

```
ncs/admin# terminal terminal-type vt220
ncs/admin#
```

## traceroute

To discover the routes that packets take when traveling to their destination address, use the **traceroute** command in EXEC mode.

**traceroute** [*ip-address* | *hostname*]

<b>Syntax Description</b>	<i>ip-address</i>	IP address of the remote system. Up to 32 alphanumeric characters.
	<i>hostname</i>	Hostname of the remote system. Up to 32 alphanumeric characters.
<b>Command Default</b>	No default behavior or values.	
<b>Command Modes</b>	EXEC	

```
ncs/admin# traceroute 172.16.0.11
traceroute to 172.16.0.11 (172.16.0.11), 30 hops max, 38 byte packets
 1 172.16.0.11 0.067 ms 0.036 ms 0.032 ms

ncs/admin#
```

## undebug

To disable debugging functions, use the **undebug** command in EXEC mode.

**undebug** {*all* | *application* | *backup-restore* | *cdp* | *config* | *copy* | *icmp* | *locks* | *logging* | *snmp* | *system* | *transfer* | *user* | *utils*}

<b>Syntax Description</b>	<i>all</i>	Disables all debugging.
---------------------------	------------	-------------------------

---

<i>application</i>	Application files. <ul style="list-style-type: none"><li>• <i>all</i>—Disables all application debug output.</li><li>• <i>install</i>—Disables application install debug output.</li><li>• <i>operation</i>—Disables application operation debug output.</li><li>• <i>uninstall</i>—Disables application uninstall debug output.</li></ul>
<i>backup-restore</i>	Backs up and restores files. <ul style="list-style-type: none"><li>• <i>all</i>—Disables all debug output for backup-restore.</li><li>• <i>backup</i>—Disables backup debug output for backup-restore.</li><li>• <i>backup-logs</i>—Disables backup-logs debug output for backup-restore.</li><li>• <i>history</i>—Disables history debug output for backup-restore.</li><li>• <i>restore</i>—Disables restore debug output for backup-restore.</li></ul>
<i>cdp</i>	Cisco Discovery Protocol configuration files. <ul style="list-style-type: none"><li>• <i>all</i>—Disables all Cisco Discovery Protocol configuration debug output.</li><li>• <i>config</i>—Disables configuration debug output for Cisco Discovery Protocol.</li><li>• <i>infra</i>—Disables infrastructure debug output for Cisco Discovery Protocol.</li></ul>

---

<i>config</i>	<p>Configuration files.</p> <ul style="list-style-type: none"> <li>• <i>all</i>—Disables all configuration debug output.</li> <li>• <i>backup</i>—Disables backup configuration debug output.</li> <li>• <i>clock</i>—Disables clock configuration debug output.</li> <li>• <i>infra</i>—Disables configuration infrastructure debug output.</li> <li>• <i>kron</i>—Disables command scheduler configuration debug output.</li> <li>• <i>network</i>—Disables network configuration debug output.</li> <li>• <i>repository</i>—Disables repository configuration debug output.</li> <li>• <i>service</i>—Disables service configuration debug output.</li> </ul>
<i>copy</i>	Copy commands.
<i>icmp</i>	<p>ICMP echo response configuration.</p> <p><i>all</i>—Disable all debug output for ICMP echo response configuration. Set level between 0 and 7, with 0 being severe and 7 being all.</p>
<i>locks</i>	<p>Resource locking.</p> <ul style="list-style-type: none"> <li>• <i>all</i>—Disables all resource locking debug output.</li> <li>• <i>file</i>—Disables file locking debug output.</li> </ul>
<i>logging</i>	<p>Logging configuration files.</p> <p><i>all</i>—Disables all debug output for logging configuration.</p>
<i>snmp</i>	<p>SNMP configuration files.</p> <p><i>all</i>—Disables all debug output for SNMP configuration.</p>
<i>system</i>	<p>System files.</p> <ul style="list-style-type: none"> <li>• <i>all</i>—Disables all system files debug output.</li> <li>• <i>id</i>—Disables system ID debug output.</li> <li>• <i>info</i>—Disables system info debug output.</li> <li>• <i>init</i>—Disables system init debug output.</li> </ul>

<i>transfer</i>	File transfer.
<i>user</i>	User management. <ul style="list-style-type: none"> <li>• <i>all</i>—Disables all user management debug output.</li> <li>• <i>password-policy</i>—Disables user management debug output for password-policy.</li> </ul>
<i>utils</i>	Utilities configuration files. <p><i>all</i>—Disables all utilities configuration debug output.</p>

**Command Default** No default behavior or values.

**Command Modes** EXEC

```
ncs/admin# undebug all
ncs/admin#
```

**Related Commands**

Command	Description
<a href="#">debug</a>	Displays errors or events for command situations.

## write

To copy, display, or erase the Cisco EPNM server configurations, use the **write** command with the appropriate argument in EXEC mode.

**write** {*erase* | *memory* | *terminal*}

**Syntax Description**

<i>erase</i>	Erases the startup configuration. This command is disabled by default.
<i>memory</i>	Copies the running configuration to the startup configuration.
<i>terminal</i>	Copies the running configuration to the console.

**Command Default** No default behavior or values.

**Command Modes** EXEC

The following is an example of the write command with an erase keyword:

```
epnm-system/admin# write erase
% Warning: 'write erase' functionality has been disabled by application: NCS
epnm-system/admin#
```

# show Commands

This section lists Cisco EPNM **show** commands. Each command includes a brief description of its use, any command defaults, command modes, usage guidelines, an example of the command syntax and any related commands.

## show application

To show application information of the installed application packages on the system, use the **show application** command in EXEC mode.

**show application** [**status** | **version** [app\_name]]

Syntax Description	status	Displays the status of the installed application.
	<b>version</b>	Displays the application version for an installed application—EPNM.
	app_name	Name of the installed application.

**Table 8: Output Modifier Variables for Count or Last**

	<p>Output modifier variables:</p> <ul style="list-style-type: none"> <li>• <i>begin</i>—Matched pattern. Up to 80 alphanumeric characters.</li> <li>• <i>count</i>—Counts the number of lines in the output. Add number after the word <i>count</i>.  —Output modifier variables.</li> <li>• <i>end</i>—Ends with line that matches. Up to 80 alphanumeric characters.</li> <li>• <i>exclude</i>—Excludes lines that match. Up to 80 alphanumeric characters.</li> <li>• <i>include</i>—Includes lines that match. Up to 80 alphanumeric characters.</li> <li>• <i>last</i>—Displays last few lines of output. Add number after the word <i>last</i>. Up to 80 lines to display. Default 10.  —Output modifier variables.</li> </ul>
--	--

**Command Default** No default behavior or values.

**Command Modes** EXEC

## Example

```
show application
<name>          <Description>
NCS             EPNM
```

### Related Commands

	Description
<a href="#">application start</a>	Starts or enables an application.
<a href="#">application stop</a>	Stops or disables an application.

## show backup history

To display the backup history of the system, use the **show backup history** command in EXEC mode.

### show backup history

#### Syntax Description

This command has no arguments or keywords.

#### Command Default

No default behavior or values.

#### Command Modes

EXEC

### Example 1

```
erez-esxi-12-vm6/admin# show restore log
Started at: Mon Dec 20 14:30:11 2021
Initiating restore. Please wait ...
Restore Started at 12/20/21 14:30:11
Stage 1 of 9: Transferring backup file ...
- completed at 12/20/21 14:30:11
Stage 2 of 9: Decrypting backup file ...
- completed at 12/20/21 14:30:19
Stage 3 of 9: Unpacking backup file ...
- completed at 12/20/21 14:30:20
Stopping Cisco Evolved Programmable Network Manager server ...
Stage 4 of 9: Decompressing backup ...
- completed at 12/20/21 14:32:13
Stage 5 of 9: Restoring Support Files ...
- completed at 12/20/21 14:32:29
Stage 6 of 9: Restoring Database Files ...
- completed at 12/20/21 14:33:49
Stage 7 of 9: Recovering Database ...
completed at 12/20/21 14:35:23
Stage 8 of 9: Updating Database Schema ...
- completed at 12/20/21 14:35:34
Stage 9 of 9: Re-enabling Database Settings ...
completed at 12/20/21 14:47:22
Total Restore duration is: 0h:17m: 11s
INFO: Restore completed successfully.

Starting Evolved Programmable Network Manager ...
```

```

This may take a while (10 minutes or more) ...

Evolved Programmable Network Manager started successfully.

Completed in 2189 seconds
Finished at: Mon Dec 20 15:24:26 2021

```

Related Commands	Command	Description
	<a href="#">backup</a>	Performs a backup (Cisco EPNM) and places the backup in a repository.
	<a href="#">restore</a>	Restores the file contents of a specific repository from the backup.
	<a href="#">repository</a>	Enters the repository submode for configuration of backups.
	<a href="#">show repository</a>	Displays the available backup files located on a specific repository.

## show banner pre-login

To display the banner that you installed, use the **show banner pre-login** command in EXEC mode.

### show banner pre-login

**Syntax Description** This command has no arguments or keywords.

**Command Default** No default behavior or values.

**Command Modes** EXEC

### Example

```

epnm-system/admin# show banner pre-login
Banner-Test
epnm-system/admin#

```

Related Commands	Command	Description
	<a href="#">banner, on page 31</a>	Enables you to install a pre-login banner.

## show cdp

To display information about the enabled Cisco Discovery Protocol interfaces, use the **show cdp** command in EXEC mode.

**show cdp** {all | neighbors}

<b>Syntax Description</b>	<b>all</b>	Shows all of the enabled Cisco Discovery Protocol interfaces.
	<b>neighbors</b>	Shows the Cisco Discovery Protocol neighbors.

**Command Default** No default behavior or values.

**Command Modes** EXEC

### Example 1

```
ncs/admin# show cdp all
CDP protocol is enabled ...
    broadcasting interval is every 60 seconds.
    time-to-live of cdp packets is 180 seconds.

    CDP is enabled on port GigabitEthernet0.
ncs/admin#
```

### Example 2

```
ncs/admin# show cdp neighbors
CDP Neighbor : 000c297840e5
    Local Interface   : GigabitEthernet0
    Device Type       : L-NCS-1.0-50
    Port              : eth0
    Address           : 172.23.90.114

CDP Neighbor : isexp-esw5
    Local Interface   : GigabitEthernet0
    Device Type       : cisco WS-C3560E-24TD
    Port              : GigabitEthernet0/5
    Address           : 172.23.90.45

CDP Neighbor : 000c29e29926
    Local Interface   : GigabitEthernet0
    Device Type       : L-NCS-1.0-50
    Port              : eth0
    Address           : 172.23.90.115

CDP Neighbor : 000c290fba98
    Local Interface   : GigabitEthernet0
    Device Type       : L-NCS-1.0-50
    Port              : eth0
    Address           : 172.23.90.111

ncs/admin#
```

### Related Commands

Command	Description
<a href="#">cdp holdtime</a>	Specifies the length of time that the receiving device should hold a Cisco Discovery Protocol packet from your router before discarding it.
<a href="#">cdp run</a>	Enables the Cisco Discovery Protocol.



Command	Description
<a href="#">cdp timer</a>	Specifies how often the Cisco EPNM server sends Cisco Discovery Protocol updates.

## show clock

To display the day, month, date, time, time zone, and year of the system software clock, use the **show clock** command in EXEC mode.

### show clock

**Syntax Description** This command has no arguments or keywords.

**Command Default** No default behavior or values.

**Command Modes** EXEC

```
epnm-system-196/admin# show clock
Tue Jan 28 04:11:38 IST 2020
```



**Note** The **show clock** output in the previous example includes Coordinated Universal Time (UTC) or Greenwich Mean Time (GMT), Great Britain, or Zulu time.

### Related Commands

Command	Description
<a href="#">clock</a>	Sets the system clock for display purposes.

## show cpu

To display CPU information, use the **show cpu** command in EXEC mode.

**show cpu** [statistics] [[]] [[]]

**Syntax Description** statistics Displays CPU statistics.

/

Output modifier variables:

- *begin*—Matched pattern. Up to 80 alphanumeric characters.
- *count*—Counts the number of lines in the output. Add number after the word *count*.  
|—Output modifier variables.
- *end*—Ends with line that matches. Up to 80 alphanumeric characters.
- *exclude*—Excludes lines that match. Up to 80 alphanumeric characters.
- *include*—Includes lines that match. Up to 80 alphanumeric characters.
- *last*—Displays last few lines of output. Add number after the word *last*. Up to 80 lines to display. Default 10.  
|—Output modifier variables.

**Command Default**

No default behavior or values.

**Command Modes**

EXEC

**Example 1**

```

ncs/admin# show cpu

processor : 0
model      : Intel(R) Xeon(R) CPU           E5320 @ 1.86GHz
speed(MHz): 1861.914
cache size: 4096 KB

ncs/admin#

```

**Example 2**

```

ncs/admin# show cpu statistics
user time:          265175
kernel time:        166835
idle time:           5356204
i/o wait time:      162676
irq time:            4055

ncs/admin#

```

**Related Commands**

Command	Description
<a href="#">show disks</a>	Displays the system information of all disks.

Command	Description
<a href="#">show memory</a>	Displays the amount of system memory that each system process uses.

## show disks

To display the disks file-system information, use the **show disks** command in EXEC mode.

**show disks** [[] []]

### Syntax Description

/

Output modifier variables:

- *begin*—Matched pattern. Up to 80 alphanumeric characters.
- *count*—Counts the number of lines in the output. Add number after the word *count*.  
|—Output modifier variables.
- *end*—Ends with line that matches. Up to 80 alphanumeric characters.
- *exclude*—Excludes lines that match. Up to 80 alphanumeric characters.
- *include*—Includes lines that match. Up to 80 alphanumeric characters.
- *last*—Displays last few lines of output. Add number after the word *last*. Up to 80 lines to display. Default 10.  
|—Output modifier variables.

### Command Default

No default behavior or values.

### Command Modes

EXEC

### Usage Guidelines

Only platforms that have a disk file system support the **show disks** command.

```
ncs/admin# show disks

temp. space 2% used (17828 of 988116)
disk: 3% used (143280 of 5944440)

Internal filesystems:
  all internal filesystems have sufficient free space

ncs/admin#
```

Related Commands	Command	Description
	<a href="#">show cpu</a>	Displays CPU information.
	<a href="#">show memory</a>	Displays the amount of system memory that each system process uses.

## show icmp\_status

To display the Internet Control Message Protocol echo response configuration information, use the **show icmp\_status** command in EXEC mode.

```
show icmp_status {> file | |}
```

Syntax Description		
>		Output direction.
<i>file</i>		Name of file to redirect standard output (stdout).
/		Output modifier commands: <ul style="list-style-type: none"> <li>• <i>begin</i>—Matched pattern. Up to 80 alphanumeric characters.</li> <li>• <i>count</i>—Counts the number of lines in the output. Add number after the word count. <ul style="list-style-type: none"> <li>•  —Output modifier commands.</li> </ul> </li> <li>• <i>end</i>—Ends with line that matches. Up to 80 alphanumeric characters.</li> <li>• <i>exclude</i>—Excludes lines that match. Up to 80 alphanumeric characters.</li> <li>• <i>include</i>—Includes lines that match. Up to 80 alphanumeric characters.</li> <li>• <i>last</i>—Displays last few lines of output. Add number after the word last. Up to 80 lines to display. Default 10. <ul style="list-style-type: none"> <li>•  —Output modifier commands.</li> </ul> </li> </ul>

**Command Default** No default behavior or values.

**Command Modes** EXEC

### Example 1

```
ncs/admin# show icmp_status
icmp echo response is turned on
ncs/admin#
```

**Example 2**

```
ncs/admin# show icmp_status
icmp echo response is turned off
ncs/admin#
```

Related Commands	Command	Description
	<a href="#">icmp echo</a>	Configures the Internet Control Message Protocol (ICMP) echo requests.

**show ip route**

To display details the ip route details of the application, use **show ip route** command in EXEC mode.

```
show ip route { | }
```

Syntax Description	>	Output redirection
		Output modifiers

**Command Default** No default behaviour.

**Command Modes** EXEC

```
ncs/admin# show ip route
Kernel IP routing table
Destination      Gateway          Genmask          Flags Metric Ref    Use Iface
10.126.168.0    0.0.0.0         255.255.255.0   U        0      0      0 eth0
0.0.0.0         10.126.168.1   0.0.0.0         UG       0      0      0 eth0
Kernel IPv6 routing table
Destination                               Next Hop                               Flags
Metric Ref    Use Iface
2001::/64                                   ::                                       UA
256    0      0 eth0
fe80::/64                                   ::                                       U
256    0      0 eth0
::/0                                         fe80::217:dfff:fe29:9800             UGDA
1024   18     0 eth0
::1/128                                      ::                                       U
0      10127   1 lo
2001::20c:29ff:fe6c:8f28/128               ::                                       U
0      0       1 lo
2001::813d:2d75:7d6:564f/128               ::                                       U
0      37     1 lo
2001::d992:4889:c9e1:f238/128              ::                                       U
0      0       1 lo
fe80::20c:29ff:fe6c:8f28/128              ::                                       U
0      3       1 lo
ff00::/8
```

## show interface

To display the usability status of interfaces configured for IP, use the **show interface** command in EXEC mode.

**show interface** [GigabitEthernet | Team]

Syntax	Description
GigabitEthernet	Shows the Gigabit Ethernet details.
Team	Shows the Team interface (virtual network adapters) details.
/	Output modifier variables: <ul style="list-style-type: none"> <li>• <i>begin</i>—Matched pattern. Up to 80 alphanumeric characters.</li> <li>• <i>count</i>—Counts the number of lines in the interface. Add number after the word <i>count</i>.</li> <li>• <i>end</i>—Ends with line that matches. Up to 80 alphanumeric characters.</li> <li>• <i>exclude</i>—Excludes lines that match. Up to 80 alphanumeric characters.</li> <li>• <i>include</i>—Includes lines that match. Up to 80 alphanumeric characters.</li> <li>• <i>last</i>—Displays the last few lines of output. Add number after the word <i>last</i>. Up to 80 lines to display (default 10).</li> </ul>

**Command Default** No default behavior or values.

**Command Modes** EXEC

**Usage Guidelines** In the **show interface** output, you can find that the interface has three IPv6 addresses. The first internet address (starting with 3ffe) is the result of using the stateless autoconfiguration. For this to work, you must have IPv6 route advertisement enabled on that subnet. The next address (starting with fe80) is a link local address that does not have any scope outside the host. You always see a link local address regardless of the IPv6 autoconfiguration or DHCPv6 configuration. The last address (starting with 2001) is the result that is obtained from an IPv6 DHCP server.

### Example 1

```
ncs/admin# show interface
eth0      Link encap:Ethernet  HWaddr 00:0C:29:6A:88:C4
          inet addr:172.23.90.113  Bcast:172.23.90.255  Mask:255.255.255.0
          inet6 addr: fe80::20c:29ff:fe6a:88c4/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:48536 errors:0 dropped:0 overruns:0 frame:0
          TX packets:14152 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
```

```

RX bytes:6507290 (6.2 MiB) TX bytes:12443568 (11.8 MiB)
Interrupt:59 Base address:0x2000

lo      Link encap:Local Loopback
        inet addr:127.0.0.1  Mask:255.0.0.0
        inet6 addr: ::1/128 Scope:Host
        UP LOOPBACK RUNNING MTU:16436 Metric:1
        RX packets:1195025 errors:0 dropped:0 overruns:0 frame:0
        TX packets:1195025 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:0
        RX bytes:649425800 (619.3 MiB) TX bytes:649425800 (619.3 MiB)

sit0    Link encap:IPv6-in-IPv4
        NOARP MTU:1480 Metric:1
        RX packets:0 errors:0 dropped:0 overruns:0 frame:0
        TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:0
        RX bytes:0 (0.0 b) TX bytes:0 (0.0 b)

ncs/admin#

```

## Example 2

```

ncs/admin# show interface GigabitEthernet 0
eth0    Link encap:Ethernet HWaddr 00:0C:29:AF:DA:05
        inet addr:172.23.90.116 Bcast:172.23.90.255 Mask:255.255.255.0
        inet6 addr: 3ffe:302:11:2:20c:29ff:feaf:da05/64 Scope:Global
        inet6 addr: fe80::20c:29ff:feaf:da05/64 Scope:Link
        inet6 addr: 2001:558:ff10:870:8000:29ff:fe36:200/64 Scope:Global
        UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
        RX packets:77848 errors:0 dropped:0 overruns:0 frame:0
        TX packets:23131 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:10699801 (10.2 MiB) TX bytes:3448374 (3.2 MiB)
        Interrupt:59 Base address:0x2000

```

Related Commands	Command	Description
	<a href="#">interface</a>	Configures an interface type and enters the interface configuration submode.
	<a href="#">ipv6 address autoconfig</a>	Enables IPv6 stateless autoconfiguration on an interface.
	<a href="#">ipv6 address dhcp</a>	Enables IPv6 address DHCP on an interface.

## show inventory

To display information about the hardware inventory, including the Cisco EPNM appliance model and serial number, use the **show inventory** command in EXEC mode.

**show inventory** |

**Syntax Description**

/

Output modifier variables:

- *begin*—Matched pattern. Up to 80 alphanumeric characters.
- *count*—Counts the number of lines in the interface. Add number after the word *count*.
- *end*—Ends with line that matches. Up to 80 alphanumeric characters.
- *exclude*—Exclude lines that match. Up to 80 alphanumeric characters.
- *include*—Includes lines that match. Up to 80 alphanumeric characters.
- *last*—Displays last few lines of output. Add number after the word *last*. Up to 80 lines to display. Default 10.

**Command Default**

No default behavior or values.

**Command Modes**

EXEC

```
epnm-system/admin# show inventory
```

```
NAME: "Cisco-VM chassis", DESCR: "Cisco-VM chassis"
PID: Cisco-VM-SPID      , VID: V01 , SN: GITQA6QC26B
Total RAM Memory: 12167972 kB
CPU Core Count: 4
CPU 0: Model Info: Intel(R) Xeon(R) CPU E5-4640 0 @ 2.40GHz
CPU 1: Model Info: Intel(R) Xeon(R) CPU E5-4640 0 @ 2.40GHz
CPU 2: Model Info: Intel(R) Xeon(R) CPU E5-4640 0 @ 2.40GHz
CPU 3: Model Info: Intel(R) Xeon(R) CPU E5-4640 0 @ 2.40GHz
Hard Disk Count(*): 1
Disk 0: Device Name: /dev/sda
Disk 0: Capacity: 322.10 GB
Disk 0: Geometry: 255 heads 63 sectors/track 39162 cylinders
NIC Count: 1
NIC 0: Device Name: eth0
NIC 0: HW Address: 00:0C:29:11:51:83
NIC 0: Driver Descr: e1000: eth0: e1000_probe: Intel(R) PRO/1000 Network Connection

(*) Hard Disk Count may be Logical.
epnm-system-61/admin#
```

## show logging

To display the state of system logging (syslog) and the contents of the standard system logging buffer, use the **show logging** command in EXEC mode.

```
show logging {application [application-name]} {internal} {system} |
```

**Syntax Description****application**

Displays application logs.



<i>application-name</i>	Application name. Up to 255 alphanumeric characters. <ul style="list-style-type: none"> <li>• <i>tail</i>—Tail system syslog messages.</li> <li>• <i>count</i>—Tail last count messages. 0–4,294,967,295.</li> </ul> <p>—Output modifier variables (see below).</p>
<b>internal</b>	Displays the syslogs configuration.
<b>security</b>	Displays the security syslog messages.
<b>sync-logs</b>	Displays the sync-logs status.
<b>system</b>	Displays the system syslogs.
	Output modifier variables: <ul style="list-style-type: none"> <li>• <i>begin</i>—Matched pattern. Up to 80 alphanumeric characters.</li> <li>• <i>count</i>—Counts the number of lines in the interface. Add number after the word <i>count</i>.</li> <li>• <i>end</i>—Ends with line that matches. Up to 80 alphanumeric characters.</li> <li>• <i>exclude</i>—Excludes lines that match. Up to 80 alphanumeric characters.</li> <li>• <i>include</i>—Includes lines that match. Up to 80 alphanumeric characters.</li> <li>• <i>last</i>—Displays last few lines of output. Add number after the word <i>last</i>. Up to 80 lines to display. Default 10.</li> </ul>

**Command Default** No default behavior or values.

**Command Modes** EXEC

**Usage Guidelines** This command displays the state of syslog error and event logging, including host addresses, and for which, logging destinations (console, monitor, buffer, or host) logging is enabled.

### Example 1

```
ncs/admin# show logging system
ADEOS Platform log:
-----
```

```
Aug 5 10:44:32 localhost debugd[1943]: [16618]: config:network: main.c[252] [setup]: Setup
is complete
Aug 5 10:45:02 localhost debugd[1943]: [17291]: application:install cars_install.c[242]
[setup]: Install initiated with bundle - ncs.tar.gz,
repo - SystemDefaultPkgRepos
```

```

Aug  5 10:45:02 localhost debugd[1943]: [17291]: application:install cars_install.c[256]
[setup]: Stage area - /storeddata/Installing/.1281030
302
Aug  5 10:45:02 localhost debugd[1943]: [17291]: application:install cars_install.c[260]
[setup]: Getting bundle to local machine
Aug  5 10:45:03 localhost debugd[1943]: [17291]: transfer: cars_xfer.c[58] [setup]: local
copy in of ncs.tar.gz requested
Aug  5 10:45:46 localhost debugd[1943]: [17291]: application:install cars_install.c[269]
[setup]: Got bundle at - /storeddata/Installing/.1281
030302/ncs.tar.gz
Aug  5 10:45:46 localhost debugd[1943]: [17291]: application:install cars_install.c[279]
[setup]: Unbundling package ncs.tar.gz
Aug  5 10:47:06 localhost debugd[1943]: [17291]: application:install cars_install.c[291]
[setup]: Unbundling done. Verifying input parameters.
..
Aug  5 10:47:06 localhost debugd[1943]: [17291]: application:install cars_install.c[313]
[setup]: Manifest file is at - /storeddata/Installing
/.1281030302/manifest.xml
Aug  5 10:47:07 localhost debugd[1943]: [17291]: application:install cars_install.c[323]
[setup]: Manifest file appname - ncs
Aug  5 10:47:09 localhost debugd[1943]: [17291]: application:install cars_install.c[386]
[setup]: Manifest file pkgtype - CARS
Aug  5 10:47:09 localhost debugd[1943]: [17291]: application:install cars_install.c[398]
[setup]: Verify dependency list -
Aug  5 10:47:09 localhost debugd[1943]: [17291]: application:install cars_install.c[410]
[setup]: Verify app license -
Aug  5 10:47:09 localhost debugd[1943]: [17291]: application:install cars_install.c[420]
[setup]: Verify app RPM's
Aug  5 10:47:09 localhost debugd[1943]: [17291]: application:install cars_install.c[428]
[setup]: No of RPM's - 9
Aug  5 10:47:09 localhost debugd[1943]: [17291]: application:install cars_install.c[439]
[setup]: Disk - 50
Aug  5 10:47:09 localhost debugd[1943]: [17291]: application:install ci_util.c[325] [setup]:
Disk requested = 51200 KB
Aug  5 10:47:09 localhost debugd[1943]: [17291]: application:install ci_util.c[345] [setup]:
More disk found Free = 40550400, req_disk = 51200
Aug  5 10:47:09 localhost debugd[1943]: [17291]: application:install cars_install.c[450]
[setup]: Mem requested by app - 100
Aug  5 10:47:09 localhost debugd[1943]: [17291]: application:install ci_util.c[369] [setup]:
Mem requested = 102400
Aug  5 10:47:09 localhost debugd[1943]: [17291]: application:install ci_util.c[384] [setup]:
Found MemFree = MemFree:          13028 kB
Aug  5 10:47:09 localhost debugd[1943]: [17291]: application:install ci_util.c[390] [setup]:
Found MemFree value = 13028
Aug  5 10:47:09 localhost debugd[1943]: [17291]: application:install ci_util.c[393] [setup]:
Found Inactive = Inactive:        948148 kB
Aug  5 10:47:09 localhost debugd[1943]: [17291]: application:install ci_util.c[399] [setup]:
Found Inactive MemFree value = 948148
Aug  5 10:47:09 localhost debugd[1943]: [17291]: application:install ci_util.c[409] [setup]:
Sufficient mem found
Aug  5 10:47:09 localhost debugd[1943]: [17291]: application:install ci_util.c[415] [setup]:
Done checking memory...
Aug  5 10:47:09 localhost debugd[1943]: [17291]: application:install cars_install.c[461]
[setup]: Verifying RPM's...
--More--
(prompt Spacebar to continue)

```

## Example 2

```

ncs/admin# show logging internal

log server:          localhost
Global loglevel:    6

```

```
Status:           Enabled
ncs/admin#
```

### Example 3

```
ncs/admin# show logging internal

log server:       localhost
Global loglevel: 6
Status:           Disabled
ncs/admin#
```

## show logins

To display the state of system logins, use the **show logins** command in EXEC mode.

### show logins cli

<b>Syntax Description</b>	<b>cli</b>	Lists the <b>cli</b> login history.
<b>Command Default</b>	No default behavior or values.	
<b>Command Modes</b>	EXEC	
<b>Usage Guidelines</b>	Requires the <b>cli</b> keyword; otherwise, an error occurs.	

```
ncs/admin# show logins cli
root pts/2 10.126.184.230 Fri Aug 9 14:50 still logged in
admin pts/3 10.126.184.230 Thu Aug 1 14:41 - 10:25 (3+19:44)
admin pts/3 10.126.184.230 Thu Aug 1 12:59 - 13:10 (00:10)
admin pts/2 10.126.184.230 Wed Jul 31 19:33 - 10:25 (4+14:51)
admin ttyl Tue Jul 30 20:16 - 08:18 (12:01)
reboot system boot 3.10.0-957.21.3. Wed Jul 31 01:01 - 20:17 (12+19:15)
setup ttyl Thu Jul 25 00:59 - 19:31 (5+18:31)
reboot system boot 3.10.0-957.21.3. Wed Jul 24 17:48 - 19:31 (6+01:42)

wtmp begins Wed Jul 24 17:48:44 2019
```

## show memory

To display the memory usage of all of the running processes, use the **show memory** command in EXEC mode.

### show memory

<b>Syntax Description</b>	This command has no arguments or keywords.
<b>Command Default</b>	No default behavior or values.
<b>Command Modes</b>	EXEC

```

ncs/admin# show memory
total memory: 1035164 kB
free memory: 27128 kB
cached: 358888 kB
swap-cached: 142164 kB

ncs/admin#

```

## show netstat

To display statistics about your network connection, use **show netstat** command in EXEC mode.

**show netstat{ > | }**

<b>Syntax Description</b>	>	Output redirection.
		Output modifiers.
<b>Command Default</b>	No default behavior.	
<b>Command Modes</b>	EXEC	

```

ncs/admin# show netstat
TCP Listeners -----
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp      0      0 0.0.0.0:65000          0.0.0.0:*              LISTEN
tcp      0      0 0.0.0.0:39949          0.0.0.0:*              LISTEN
tcp      0      0 0.0.0.0:111            0.0.0.0:*              LISTEN
tcp      0      0 127.0.0.1:2000         0.0.0.0:*              LISTEN
tcp      0      0 0.0.0.0:6100           0.0.0.0:*              LISTEN
tcp      0      0 0.0.0.0:21             0.0.0.0:*              LISTEN
tcp      0      0 0.0.0.0:22             0.0.0.0:*              LISTEN
tcp      0      0 0.0.0.0:2012           0.0.0.0:*              LISTEN
tcp      0      0 0.0.0.0:2013           0.0.0.0:*              LISTEN
tcp      0      0 :::61603                :::*                    LISTEN
tcp      0      0 :::10755                 :::*                    LISTEN
tcp      0      0 :::61604                 :::*                    LISTEN
tcp      0      0 :::31204                 :::*                    LISTEN
tcp      0      0 :::9992                  :::*                    LISTEN
tcp      0      0 :::65000                 :::*                    LISTEN
tcp      0      0 :::8009                  :::*                    LISTEN
tcp      0      0 :::5001                  :::*                    LISTEN
tcp      0      0 :::1199                  :::*                    LISTEN
tcp      0      0 :::111                   :::*                    LISTEN
tcp      0      0 :::80                    :::*                    LISTEN
tcp      0      0 :::35088                 :::*                    LISTEN
tcp      0      0 :::21648                 :::*                    LISTEN
tcp      0      0 :::16113                 :::*                    LISTEN
tcp      0      0 :::2001                  :::*                    LISTEN
tcp      0      0 :::61617                 :::*                    LISTEN
tcp      0      0 :::1522                  :::*                    LISTEN
tcp      0      0 :::8082                  :::*                    LISTEN
tcp      0      0 :::6100                  :::*                    LISTEN
tcp      0      0 :::21                    :::*                    LISTEN
tcp      0      0 :::22                    :::*                    LISTEN

```

```

tcp          0          0 :::48504          :::*              LISTEN
tcp          0          0 :::443           :::*              LISTEN
tcp          0          0 :::10555         :::*              LISTEN

TCP Connections -----
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address           Foreign Address        State
tcp          0          0 10.126.168.61:22      10.65.57.243:55027    ESTABLISHED

```

## show ntp

To show the status of the NTP associations, use the **show ntp** command in EXEC mode.

### show ntp

#### Syntax Description

This command has no arguments or keywords.

#### Command Default

No default behavior or values.

#### Command Modes

EXEC

#### Related Commands

Command	Description
<a href="#">ntp server</a>	Allows synchronization of the software clock by the NTP server for the system.

## show ports

To display information about all of the processes listening on active ports, use the **show ports** command in EXEC mode.

**show ports** [] []

**Syntax Description**

/

Output modifier variables:

- *begin*—Matched pattern. Up to 80 alphanumeric characters.
- *count*—Counts the number of lines in the interface. Add number after the word *count*.  
|—Output modifier variables.
- *end*—Ends with line that matches. Up to 80 alphanumeric characters.
- *exclude*—Excludes lines that match. Up to 80 alphanumeric characters.
- *include*—Includes lines that match. Up to 80 alphanumeric characters.
- *last*—Displays last few lines of output. Add number after the word *last*. Up to 80 lines to display. Default 10.  
|—Output modifier variables.

**Command Default**

No default behavior or values.

**Command Modes**

EXEC

**Usage Guidelines**When you run the **show ports** command, the port must have an associated active session.

```

ncs/admin# show ports
Process : timestensubd (21372)
         tcp: 127.0.0.1:11298
Process : timestenorad (21609)
         tcp: 127.0.0.1:51715
         udp: ::1:28314, ::1:59055, ::1:45113, ::1:49082, ::1:64737, ::1:62570, ::1:19577,
         ::1:29821
Process : ttcserver (21382)
         tcp: 127.0.0.1:16612, 0.0.0.0:53385
Process : timestenrepd (21579)
         tcp: 127.0.0.1:62504, 0.0.0.0:18047
         udp: ::1:51436
Process : timestend (21365)
         tcp: 0.0.0.0:53384
Process : rpc.statd (2387)
         tcp: 0.0.0.0:873
         udp: 0.0.0.0:867, 0.0.0.0:870
Process : timestensubd (21373)
         tcp: 127.0.0.1:43407
Process : portmap (2350)
         tcp: 0.0.0.0:111
         udp: 0.0.0.0:111
Process : Decap_main (21468)
         tcp: 0.0.0.0:2000
         udp: 0.0.0.0:9993
Process : timestensubd (21369)
         tcp: 127.0.0.1:37648

```

```
Process : timestensubd (21374)
         tcp: 127.0.0.1:64211
Process : sshd (2734)
         tcp: 172.23.90.113:22
Process : java (21432)
         tcp: 127.0.0.1:8888, :::2080, :::2020, ::ffff:127.0.0.1:8005, :::8009, :::8905, :::8010,
         :::2090, :::1099, :::9999, :::61616, :::8080, ::
         :80, :::60628, :::8443, :::443
         udp: 0.0.0.0:1812, 0.0.0.0:1813, 0.0.0.0:1700, 0.0.0.0:10414, 0.0.0.0:3799, 0.0.0.0:1645,
         0.0.0.0:1646, :::8905, :::8906
Process : monit (21531)
         tcp: 127.0.0.1:2812
Process : java (21524)
         tcp: :::62627
Process : java (21494)
         tcp: ::ffff:127.0.0.1:20515
         udp: 0.0.0.0:20514
Process : tnslsnr (21096)
         tcp: :::1521
Process : ora_d000_ncs1 (21222)
         tcp: :::26456
         udp: ::1:63198
Process : ntpd (2715)
         udp: 172.23.90.113:123, 127.0.0.1:123, 0.0.0.0:123, ::1:123, fe80::20c:29ff:fe6a:123,
         :::123
Process : ora_pmon_ncs1 (21190)
         udp: ::1:51994
Process : ora_mmon_ncs1 (21218)
         udp: :::38941
Process : ora_s000_ncs1 (21224)
         udp: ::1:49864

ncs/admin#
```

## show process

To display information about active processes, use the **show process** command in the EXEC mode.

**show process** |

**Syntax Description**

/

(Optional) Output modifier variables:

- *begin*—Matched pattern. Up to 80 alphanumeric characters.
- *count*—Count the number of lines in the interface. Add number after the word *count*.
- *end*—Ends with line that matches. Up to 80 alphanumeric characters.
- *exclude*—Excludes lines that match. Up to 80 alphanumeric characters.
- *include*—Includes lines that match. Up to 80 alphanumeric characters.
- *last*—Displays last few lines of output. Add number after the word *last*. Up to 80 lines to display. Default 10.

**Command Default**

No default behavior or values.

**Command Modes**

EXEC

```

/adminin# show process
USER      PID      TIME TT      COMMAND
root      1 00:00:02 ?      init
root      2 00:00:00 ?      migration/0
root      3 00:00:00 ?      ksoftirqd/0
root      4 00:00:00 ?      watchdog/0
root      5 00:00:00 ?      events/0
root      6 00:00:00 ?      khelper
root      7 00:00:00 ?      kthread
root      10 00:00:01 ?      kblockd/0
root      11 00:00:00 ?      kacpid
root      170 00:00:00 ?      cqueue/0
root      173 00:00:00 ?      khubd
root      175 00:00:00 ?      kseriod
root      239 00:00:32 ?      kswapd0
root      240 00:00:00 ?      aio/0
root      458 00:00:00 ?      kpsmoused
root      488 00:00:00 ?      mpt_poll_0
root      489 00:00:00 ?      scsi_eh_0
root      492 00:00:00 ?      ata/0
root      493 00:00:00 ?      ata_aux
root      500 00:00:00 ?      kstriped
root      509 00:00:07 ?      kjournald
root      536 00:00:00 ?      kauditd
root      569 00:00:00 ?      udevd
root      1663 00:00:00 ?      kmpathd/0
root      1664 00:00:00 ?      kmpath_handlerd
root      1691 00:00:00 ?      kjournald
root      1693 00:00:00 ?      kjournald
root      1695 00:00:00 ?      kjournald
root      1697 00:00:00 ?      kjournald
root      2284 00:00:00 ?      auditd
root      2286 00:00:00 ?      audispd

```



```

root      2318 00:00:10 ?      debugd
rpc       2350 00:00:00 ?      portmap
root      2381 00:00:00 ?      rpciod/0

```

```
eptm-admin/admin#
```

**Table 9: Show Process Field Descriptions**

Field	Description
USER	Logged-in user.
PID	Process ID.
TIME	The time that the command was last used.
TT	Terminal that controls the process.
COMMAND	Type of process or command used.

## show repository

To display the file contents of the repository, use the **show repository** command in EXEC mode.

**show repository** repository-name

Syntax Description	repository-name	Name of the repository whose contents you want to view. Up to 30 alphanumeric characters.

**Command Default** No default behavior or values.

**Command Modes** EXEC

Related Commands	Command	Description
	<a href="#">backup</a>	Performs a backup (Cisco EPNM and Cisco ADE OS) and places the backup in a repository.
	<a href="#">restore</a>	Restores from backup the file contents of a specific repository.
	<a href="#">repository</a>	Enters the repository submode for configuration of backups.
	<a href="#">show backup history</a>	Displays the backup history of the system.

## show restore

To display the restore history, use the **show restore** command in EXEC mode.

**show restore** {**history**}

## show restore log

<b>Syntax Description</b>	<b>history</b>	Displays the restore history.
---------------------------	----------------	-------------------------------

<b>Command Default</b>	No default behavior or values.	
------------------------	--------------------------------	--

<b>Command Modes</b>	EXEC	
----------------------	------	--

```
epnm-system-176/admin# show restore history
Wed Dec 2 21:55:39 IST 2020: restore iol-epnm-discovery-191113-
0832__VER3.7.0.0.159_BKSZ18G_CPU16_MEM3G_RAM15G_SWAP15G_APP_CK2443318487.tar.gpg from
repository
test: success
epnm-system-176/admin#
```

Related Commands	Command	Description
	<a href="#">backup</a>	Performs a backup (Cisco EPNM and Cisco ADE OS) and places the backup in a repository.
	<a href="#">restore</a>	Restores from backup the file contents of a specific repository.
	<a href="#">repository</a>	Enters the repository submode for configuration of backups.
	<a href="#">show backup history</a>	Displays the backup history of the system.

## show restore log

To display the last restore operation in the case of Auto logout console, use the **show restore log** command in EXEC mode. You can run this command even while performing a restore operation and a successful restore operation.

### show restore log

<b>Syntax Description</b>	This command has no arguments or keywords.
---------------------------	--

<b>Command Default</b>	No default behavior or values.
------------------------	--------------------------------

<b>Command Modes</b>	EXEC
----------------------	------

### Example 1

```
epnm-system/admin# show restore log
Started at : Thu Aug 1 14:48:08 2019
Initiating restore. Please wait...
  Restore Started at 08/01/19 14:48:08
  Stage 1 of 9: Transferring backup file ...
  -- completed at 08/01/19 14:48:56
  Stage 2 of 9: Decrypting backup file ...
  -- completed at 08/01/19 14:50:16
  Stage 3 of 9: Unpacking backup file ...
  -- completed at 08/01/19 14:50:19
  Stopping EPNM server ...
```

```

Stage 4 of 9: Decompressing backup ...
-- completed at 08/01/19 14:52:12
Stage 5 of 9: Restoring Support Files ...
-- completed at 08/01/19 14:52:21
Stage 6 of 9: Restoring Database Files ...
-- completed at 08/01/19 14:53:04
Stage 7 of 9: Recovering Database ...
-- completed at 08/01/19 15:21:01
Stage 8 of 9: Updating Database Schema ...
  This could take long time based on the existing data size.
-- completed at 08/01/19 16:10:50
Stage 9 of 9: Re-enabling Database Settings ...
-- completed at 08/01/19 16:49:13
  Total Restore duration is: 02h:01m:05s
INFO: Restore completed successfully.

Starting Evolved Programmable Network Manager...

This may take a while (10 minutes or more) ...

Evolved Programmable Network Manager started successfully.

Completed in 1477 seconds
Finished at : Thu Aug 1 17:14:13 2019

```

**Related Commands**

Command	Description
<a href="#">restore</a>	Restores from backup the file contents of a specific repository.

## show running-config

To display the contents of the currently running configuration file or the configuration, use the **show running-config** command in EXEC mode.

**show running-config****Syntax Description**

This command has no arguments or keywords.

**Command Default**

The **show running-config** command displays all the configuration information.

**Command Modes**

EXEC

```

ncs/admin# show running-config
Generating configuration...
!
hostname ncs
!
ip domain-name cisco.com
!
interface GigabitEthernet 0
  ip address 172.23.90.113 255.255.255.0
  ipv6 address autoconfig
!
ip name-server 172.16.168.183
!

```

**show startup-config**

```

ip default-gateway 172.23.90.1
!
clock timezone UTC
!
ntp server time.nist.gov
!
username admin password hash $1$JbbHvKVG$xMZ/XL4tH15Knf.FfcZZr. role admin
!
service sshd
!
password-policy
  lower-case-required
  upper-case-required
  digit-required
  no-username
  disable-cisco-passwords
  min-password-length 6
!
logging localhost
logging loglevel 6
!
cdp timer 60
cdp holdtime 180
cdp run GigabitEthernet 0
!
icmp echo on
!

ncs/admin#

```

**Related Commands**

Command	Description
<a href="#">configure</a>	Enters configuration mode.
<a href="#">show startup-config</a>	Displays the contents of the startup configuration file or the configuration.

## show startup-config

To display the contents of the startup configuration file or the configuration, use the **show startup-config** command in EXEC mode.

**show startup-config****Syntax Description**

This command has no arguments or keywords.

**Command Default**

The **show startup-config** command displays all the startup configuration information.

**Command Modes**

EXEC

```

ncs/admin# show startup-config
!
hostname ncs
!
ip domain-name cisco.com
!

```

```

interface GigabitEthernet 0
  ip address 172.23.90.113 255.255.255.0
  ipv6 address autoconfig
  !
ip name-server 172.16.168.183
!
ip default-gateway 172.23.90.1
!
clock timezone UTC
!
ntp server time.nist.gov
!
username admin password hash $1$JbbHvKVG$xmZ/XL4tH15Knf.FfcZZr. role admin
!
service sshd
!
password-policy
  lower-case-required
  upper-case-required
  digit-required
  no-username
  disable-cisco-passwords
  min-password-length 6
!
logging localhost
logging loglevel 6
!
cdp timer 60
cdp holdtime 180
cdp run GigabitEthernet 0
!
icmp echo on
!
ncs/admin#

```

**Related Commands**

Command	Description
<a href="#">configure</a>	Enters the configuration mode.
<a href="#">show running-config</a>	Displays the contents of the currently running configuration file or the configuration.

## show security-status

To display the security-related configuration information, use the **show security-status** command in EXEC mode.

**show security-status****Syntax Description**

This command has no arguments or keywords.

**Command Default**

No default behavior or values.

**Command Modes**

EXEC

**Example**

```

epnm-system/admin# show security-status

Open TCP Ports : 21 22 80 443 1522 8078 8080 8082 8087 9992 20828 61617
Open UDP Ports : 69 162 514 9991

FIPS Mode      : disabled
SSH Legacy
Algorithms    : enabled

TFTP Service  : enabled
FTP Service   : enabled

JMS port(61617) : enabled
Root Access   : enabled

Certificate validation settings for pubnet
Cert check    : enabled
OCSP check    : disabled
Auto CA update : enabled

Certificate validation settings for system
Cert check    : trust-on-first-use
OCSP check    : disabled
Auto CA update : disabled

Certificate validation settings for devicemgmt
Cert check    : enabled
OCSP check    : disabled
Auto CA update : enabled

Certificate validation settings for user
Cert check    : enabled
OCSP check    : disabled
Auto CA update : disabled

Algorithm settings enabled for SSH service
KexAlgorithms :
diffie-hellman-group16-sha512,diffie-hellman-group14-sha256,ecdh-sha2-nistp521,ecdh-sha2-nistp384,ecdh-s
ha2-nistp256,diffie-hellman-group18-sha512,diffie-hellman-group14-sha1,diffie-hellman-group-exchange-sha256,diffie-hellman
-group-exchange-sha1,diffie-hellman-group1-sha1
MACs          : hmac-sha2-512,hmac-sha2-256,hmac-sha1
Ciphers       :
aes128-gcm@openssh.com,aes128-ctr,chacha20-poly1305@openssh.com,aes256-ctr,aes256-gcm@openssh.com,aes192
-ctr,3des-cbc,aes128-cbc,aes256-cbc

TLS versions  : TLSv1.2
TLS ciphers   : tls-ecdhe-sha1

Note : Shows currently configured values
Changes made after last system start if any,
will be effective after next restart

```

## show tech-support

To display technical support information, including email, use the **show tech-support** command in EXEC mode.

**show tech-support file** [word]

<b>Syntax Description</b>	file	Saves any technical support data as a file in the local disk.
	word	Filename to save. Up to 80 alphanumeric characters.

**Command Default** Passwords and other security information do not appear in the output.

**Command Modes** EXEC

**Usage Guidelines** The **show tech-support** command is useful for collecting a large amount of information about your Cisco EPNM server for troubleshooting purposes. You can then provide output to technical support representatives when reporting a problem.

```

ncs/admin# show tech-support
#####
Application Deployment Engine(ADE) - 2.0.0.568
Technical Support Debug Info follows...
#####

*****
Checking dmidecode Serial Number(s)
*****
None
VMware-56 4d 14 cb 54 3d 44 5d-49 ee c4 ad a5 6a 88 c4

*****
Displaying System Uptime...
*****
12:54:34 up 18:37, 1 user, load average: 0.14, 0.13, 0.12

*****
Display Memory Usage(KB)
*****
          total         used         free      shared    buffers     cached
Mem:      1035164      1006180       28984          0       10784     345464
-/+ buffers/cache:      649932       385232
Swap:      2040244       572700       1467544

*****
Displaying Processes(ax --forest)...
*****
  PID TTY          STAT TIME  COMMAND
   1 ?            Ss   0:02  init [3]
   2 ?            S<   0:00  [migration/0]
   3 ?            SN   0:00  [ksoftirqd/0]
   4 ?            S<   0:00  [watchdog/0]
   5 ?            S<   0:00  [events/0]
--More--
(prompt Spacebar to continue)

ncs/admin#

```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<a href="#">show interface</a>	Displays the usability status of the interfaces.

Command	Description
<a href="#">show process</a>	Displays information about active processes.
<a href="#">show running-config</a>	Displays the contents of the current running configuration.

## show terminal

To obtain information about the terminal configuration parameter settings, use the **show terminal** command in EXEC mode.

### show terminal

**Syntax Description** This command has no arguments or keywords.

**Command Default** No default behavior or values.

**Command Modes** EXEC

```
ncs/admin# show terminal
TTY: /dev/pts/0 Type: "vt100"
Length: 27 lines, Width: 80 columns
Session Timeout: 30 minutes
ncs/admin#
```

**show terminal** describes the fields of the **show terminal** output.

**Table 10: Show Terminal Field Descriptions**

Field	Description
TTY: /dev/pts/0	Displays standard output to type of terminal.
Type: "vt100"	Type of current terminal used.
Length: 24 lines	Length of the terminal display.
Width: 80 columns	Width of the terminal display, in character columns.
Session Timeout: 30 minutes	Length of time, in minutes, for a session, after which the connection closes.

## show timezone

To display the time zone set on the system, use the **show timezone** command in EXEC mode.

### show timezone

**Syntax Description** This command has no arguments or keywords.



**Command Default** No default behavior or values.

**Command Modes** EXEC

```
epnm-system/admin# show timezone
Asia/Kolkata
epnm-system/admin#
```

**Related Commands**

Command	Description
<a href="#">clock timezone</a>	Sets the time zone on the system.
<a href="#">show timezones</a>	Displays the time zones available on the system.

## show timezones

To obtain a list of time zones from which you can select, use the **show timezones** command in EXEC mode.

**show timezones**

**Syntax Description** This command has no arguments or keywords.

**Command Default** No default behavior or values.

**Command Modes** EXEC

**Usage Guidelines** See the [clock timezone](#) command, for examples of the time zones available for the Cisco EPNM server.

```
ncs/admin# show timezones
Africa/Blantyre
Africa/Dar_es_Salaam
Africa/Dakar
Africa/Maputo
Africa/Accra
Africa/Kigali
Africa/Tunis
Africa/Nouakchott
Africa/Ouagadougou
Africa/Windhoek
Africa/Douala
Africa/Johannesburg
Africa/Luanda
Africa/Lagos
Africa/Djibouti
Africa/Khartoum
Africa/Monrovia
Africa/Bujumbura
Africa/Porto-Novo
Africa/Malabo
Africa/Ceuta
Africa/Banjul
Africa/Cairo
Africa/Mogadishu
Africa/Brazzaville
```

```

Africa/Kampala
Africa/Sao_Tome
Africa/Algiers
Africa/Addis_Ababa
Africa/Ndjamena
Africa/Gaborone
Africa/Bamako
Africa/Freetown
--More--
(prompt Spacebar to continue)

ncs/admin#

```

**Related Commands**

Command	Description
<a href="#">show timezone</a>	Displays the time zone set on the system.
<a href="#">clock timezone</a>	Sets the time zone on the system.

## show udi

To display information about the UDI of the Cisco EPNM appliance, use the **show udi** command in EXEC mode.

**show udi****Syntax Description**

This command has no arguments or keywords.

**Command Default**

No default behavior or values.

**Command Modes**

EXEC

The following output appears when you run the **show udi** on **Gen 2** appliance server.

**Example 1**

```

epnm-system/admin# sh udi
PID: EPNM-UCS-APL-K9
VPID: A0
Serial: FCH1842V1EH

epnm-system-117/admin#

```

## show uptime

To display the length of time that you have been logged in to the Cisco EPNM server, use the **show uptime** command in EXEC mode.

**show uptime** |

<b>Syntax Description</b>	/	<p>(Optional) Output modifier variables:</p> <ul style="list-style-type: none"> <li>• <i>begin</i>—Matched pattern. Up to 80 alphanumeric characters.</li> <li>• <i>count</i>—Counts the number of lines in the output. Add number after the word <i>count</i>.</li> <li>• <i>end</i>—Ends with line that matches. Up to 80 alphanumeric characters.</li> <li>• <i>exclude</i>—Excludes lines that match. Up to 80 alphanumeric characters.</li> <li>• <i>include</i>—Include lines that match. Up to 80 alphanumeric characters.</li> <li>• <i>last</i>—Displays last few lines of output. Add number after the word <i>last</i>. Up to 80 lines to display. Default 10.</li> </ul>
---------------------------	---	--

**Command Default** No default behavior or values.

**Command Modes** EXEC

```
ncs/admin# show uptime
3 day(s), 18:55:02
ncs/admin#
```

## show users

To display the list of users who are logged in to the Cisco EPNM server, use the **show users** command in EXEC mode.

**show users**

<b>Syntax Description</b>	<b>show users status</b>	Displays the details of all users, which include roles, disabled status, and locked status.
---------------------------	--------------------------	---

**Command Default** No default behavior or values.

**Command Modes** EXEC

```
ncs/admin# show users
  USERNAME      ROLE      HOST          TTY      LOGIN      DATETIME
  admin         Admin    10.77.137.60 pts/0    Fri0000    Aug 6 09:45:47 2019
ncs/admin#
```

## show version

To display information about the software version of the system, use the **show version** command in EXEC mode.

### show version

<b>Syntax Description</b>	This command has no arguments or keywords.
<b>Command Default</b>	No default behavior or values.
<b>Command Modes</b>	EXEC
<b>Usage Guidelines</b>	This command displays the version information about the Cisco ADE-OS software running on the Cisco EPNM server, and displays the Cisco EPNM version.

```
Cisco Application Deployment Engine OS Release: 6.7
ADE-OS Build Version: 6.7.9.001
ADE-OS System Architecture: x86_64
```

```
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Hostname: erez-esxi-12-vm6
```

```
Version information of installed applications
-----
```

```
Cisco EPN Manager
*****
Version : 6.0.0 [FIPS not Enabled]
Build : 6.0.0.0.000
```

## Configuration Commands

This section lists the **configuration commands** along with a brief description of their use, command defaults, command syntax, command modes, usage guidelines, command examples, and related commands, where applicable.

Configuration commands include **interface** and **repository**.



**Note** Some of the configuration commands require you to enter the configuration submode to complete the command configuration.

To access configuration mode, you must use the **configure** command in EXEC mode.

## aaa authentication

To configure an external authentication, use the **aaa authentication** command in the configuration mode.

**aaa authentication tacacs+ server** *TACACS server address* **key plain** *shared-key*

<b>Syntax Description</b>	<i>TACACS server address</i>	IP address or hostname of the TACACS+ server.
	<i>shared-key</i>	Indicates the shared secret text string.
<b>Command Default</b>	No default behavior or values.	
<b>Command Modes</b>	Configuration	

```
admin# aaa authentication tacacs+ server 1.1.1.5 key plain Secret
admin# username tacacsuser password remote role network-admin
```

Ensure that the TACACS+ server has the same username as that of the Cisco EPNM server, and the Cisco EPNM and TACACS+ servers are integrated properly.

## backup-staging-url

You can use this option to configure a Network File System (NFS) share on the Cisco EPNM when partition is low on disk space and a backup cannot be taken. You can do so by using the **backup-staging-url** command in the configuration mode.

**backup-staging-url** *word*

<b>Syntax Description</b>	<i>word</i>	NFS URL for staging area. Up to 2048 alphanumeric characters. Use <b>nfs://server:path</b> .
<b>Command Default</b>	No default behavior or values.	
<b>Command Modes</b>	Configuration	
<b>Usage Guidelines</b>	The URL is NFS only. The format of the command is <b>backup-staging-url nfs://server:path</b> .	



**Caution** Ensure that you secure your NFS server in such a way that the directory can be accessed only by the IP address of the Cisco EPNM server.

```
ncs/admin(config)# backup-staging-url nfs://loc-filer02a:/vol/local1/private1/jdoe
ncs/admin(config)#
```

## cdp holdtime

To specify the amount of time for which the receiving device should hold a Cisco Discovery Protocol packet from the Cisco EPNM server before discarding it, use the **cdp holdtime** command in configuration mode. To revert to the default setting, use the **no** form of this command.

**[no] cdp holdtime** *seconds*

<b>Syntax Description</b>	<i>seconds</i>	Specifies the hold time, in seconds. Value from 10 to 255 seconds.
---------------------------	----------------	--

<b>Command Default</b>	180 seconds
------------------------	-------------

<b>Command Modes</b>	Configuration
----------------------	---------------

<b>Usage Guidelines</b>	Cisco Discovery Protocol packets transmit with a time to live, or hold time, value. The receiving device will discard the Cisco Discovery Protocol information in the Cisco Discovery Protocol packet after the hold time has elapsed.
-------------------------	--

The **cdp holdtime** command takes only one argument; otherwise, an error occurs.

```
ncs/admin(config)# cdp holdtime 60
ncs/admin(config)#
```

Related Commands	Description
<a href="#">cdp timer</a>	Specifies how often the Cisco EPNM server sends Cisco Discovery Protocol updates.
<a href="#">cdp run</a>	Enables the Cisco Discovery Protocol.

## cdp run

To enable the Cisco Discovery Protocol, use the **cdp run** command in configuration mode. To disable the Cisco Discovery Protocol, use the **no** form of this command.

**[no] cdp run** [*GigabitEthernet | Team*]

<b>Syntax Description</b>	<i>GigabitEthernet</i>	Specifies the Gigabit Ethernet interface on which the Cisco Discovery Protocol will be enabled.
---------------------------	------------------------	---

	<i>Team</i>	Specifies the Teaming interface on which the Cisco Discovery Protocol will be enabled.
--	-------------	--

<b>Command Default</b>	No default behavior or values.
------------------------	--------------------------------

<b>Command Modes</b>	Configuration
----------------------	---------------

<b>Usage Guidelines</b>	The command has one optional argument, which is an interface name. Without an optional interface name, the command enables the Cisco Discovery Protocol on all interfaces.
-------------------------	--



**Note** The default for this command is on interfaces that are already up and running. When you are bringing up an interface, stop the Cisco Discovery Protocol first; then, start the Cisco Discovery Protocol again.

```
ncs/admin(config)# cdp run GigabitEthernet 0
ncs/admin(config)#
```

Related Commands	Description
<a href="#">cdp holdtime</a>	Specifies the length of time that the receiving device should hold a Cisco Discovery Protocol packet from the Cisco EPNM server before discarding it.
<a href="#">cdp timer</a>	Specifies how often the Cisco EPNM server sends Cisco Discovery Protocol updates.

## cdp timer

To specify how often the Cisco EPNM server sends Cisco Discovery Protocol updates, use the **cdp timer** command in configuration mode. To revert to the default setting, use the **no** form of this command.

**[no] cdp timer** *seconds*

<b>Syntax Description</b>	<i>seconds</i>	Specifies how often, in seconds, the Cisco EPNM server sends Cisco Discovery Protocol updates. Value from 5 to 254 seconds.
---------------------------	----------------	---

**Command Default** 60 seconds

**Command Modes** Configuration

**Usage Guidelines** Cisco Discovery Protocol packets transmit with a time to live, or hold time, value. The receiving device will discard the Cisco Discovery Protocol information in the Cisco Discovery Protocol packet after the hold time has elapsed.

The **cdp timer** command takes only one argument; otherwise, an error occurs.

```
ncs/admin(config)# cdp timer 60
ncs/admin(config)#
```

Related Commands	Description
<a href="#">cdp holdtime</a>	Specifies the amount of time that the receiving device should hold a Cisco Discovery Protocol packet from the Cisco EPNM server before discarding it.

	Description
<code>cdp run</code>	Enables the Cisco Discovery Protocol.

## clock timezone

To set the time zone, use the **clock timezone** command in configuration mode. To disable this function, use the **no** form of this command.

**clock timezone** *timezone*

### Syntax Description

*timezone* Name of the time zone visible when in standard time. Up to 64 alphanumeric characters.

### Command Default

UTC

### Command Modes

Configuration

### Usage Guidelines

The system internally keeps time in Coordinated Universal Time (UTC). If you do not know your specific time zone, you can enter the region, country, and city.

**Table 11: Common Time Zones**

Acronym or name	Time Zone Name
Europe	
GMT, GMT0, GMT-0, GMT+0, UTC, Greenwich, Universal, Zulu	Greenwich Mean Time, as UTC
GB	British
GB-Eire, Eire	Irish
WET	Western Europe Time, as UTC
CET	Central Europe Time, as UTC + 1 hour
EET	Eastern Europe Time, as UTC + 2 hours
United States and Canada	
EST, EST5EDT	Eastern Standard Time, as UTC -5 hours
CST, CST6CDT	Central Standard Time, as UTC -6 hours
MST, MST7MDT	Mountain Standard Time, as UTC -7 hours
PST, PST8PDT	Pacific Standard Time, as UTC -8 hours
HST	Hawaiian Standard Time, as UTC -10 hours



Table 12: Australia Time Zones

AustraliaFootnote.			
ACTFootnote.	Adelaide	Brisbane	Broken_Hill
Canberra	Currie	Darwin	Hobart
Lord_Howe	Lindeman	LHIFootnote.	Melbourne
North	NSWFootnote.	Perth	Queensland
South	Sydney	Tasmania	Victoria
West	Yancowinna		

<sup>3</sup> (1) Enter the country and city together with a forward slash (/) between them; for example, Australia/Currie.

<sup>4</sup> (2) ACT = Australian Capital Territory

<sup>5</sup> (3) LHI = Lord Howe Island

<sup>6</sup> (4) NSW = New South Wales

Table 13: Asia Time Zones

AsiaFootnote.			
AdenFootnote.	Almaty	Amman	Anadyr
Aqtau	Aqtobe	Ashgabat	Ashkhabad
Baghdad	Bahrain	Baku	Bangkok
Beirut	Bishkek	Brunei	Calcutta
Choibalsan	Chongqing	Columbo	Damascus
Dhakar	Dili	Dubai	Dushanbe
Gaza	Harbin	Hong_Kong	Hovd
Irkutsk	Istanbul	Jakarta	Jayapura
Jerusalem	Kabul	Kamchatka	Karachi
Kashgar	Katmandu	Kuala_Lumpur	Kuching
Kuwait	Krasnoyarsk		

<sup>7</sup> (1) The Asia time zone includes cities from East Asia, Southern Southeast Asia, West Asia, and Central Asia.

<sup>8</sup> (2) Enter the region and city or country together separated by a forward slash (/); for example, Asia/Aden.



**Note** Several more time zones are available to you. On your Cisco EPNM server, enter the **show timezones** command. A list of all of the time zones available in the Cisco EPNM server appears. Choose the most appropriate one for your time zone.

```
epnm-admin/admin(config)# conf t
Enter configuration commands, one per line. End with CNTL/Z.
epnm-admin/admin(config)# clock timezone Asia/Kolkata
epnm-admin/admin(config)#
```

### Related Commands

	Description
<a href="#">show timezones, on page 117</a>	Displays a list of available time zones on the system.
<a href="#">show timezone, on page 116</a>	Displays the current time zone set on the system.

## do

To execute an EXEC-level command from configuration mode or any configuration submode, use the **do** command in any configuration mode.

### do

### Syntax Description

This command has no arguments or keywords.

*Table 14: Command Options for the Do Command*

	Description
<b>application install</b>	Installs a specific application.
<b>application remove</b>	Removes a specific application.
<b>application start</b>	Starts or enables a specific application
<b>application stop</b>	Stops or disables a specific application.
<b>application upgrade</b>	Upgrades a specific application.
<b>backup</b>	Performs a backup (Cisco EPNM and Cisco ADE OS) and places the backup in a repository.
<b>backup-logs</b>	Performs a backup of all the logs on the Cisco EPNM server to a remote location.
<b>clock</b>	Sets the system clock on the Cisco EPNM server.
<b>configure</b>	Enters configuration mode.

	<b>Description</b>
<b>copy</b>	Copies any file from a source to a destination.
<b>debug</b>	Displays any errors or events for various command situations; for example, backup and restore, configuration, copy, resource locking, file transfer, and user management.
<b>delete</b>	Deletes a file on the Cisco EPNM server.
<b>dir</b>	Lists files on the Cisco EPNM server.
<b>forceout</b>	Forces the logout of all the sessions of a specific Cisco EPNM node user.
<b>halt</b>	Disables or shuts down the Cisco EPNM server.
<b>mkdir</b>	Creates a new directory.
<b>nslookup</b>	Queries the IPv4 address or hostname of a remote system.
<b>patch</b>	Install System or Application patch.
pep	Configures the Inline PEP node.
<b>ping</b>	Determines the IPv4 network activity on a remote system.
<b>ping6</b>	Determines the IPv6 network activity on a IPv6 remote system.
<b>reload</b>	Reboots the Cisco EPNM server.
<b>restore</b>	Performs a restore and retrieves the backup out of a repository.
<b>rmdir</b>	Removes an existing directory.
<b>show</b>	Provides information about the Cisco EPNM server.
<b>ssh</b>	Starts an encrypted session with a remote system.
<b>tech</b>	Provides Technical Assistance Center (TAC) commands.
<b>telnet</b>	Establishes a Telnet connection to a remote system.
<b>terminal length</b>	Sets terminal line parameters.
<b>terminal session-timeout</b>	Sets the inactivity timeout for all terminal sessions.
<b>terminal session-welcome</b>	Sets the welcome message on the system for all terminal sessions.

	Description
<b>terminal terminal-type</b>	Specifies the type of terminal that is connected to the current line of the current session.
<b>traceroute</b>	Traces the route of a remote IP address.
<b>undebug</b>	Disables the output (display of errors or events) of the <b>debug</b> command for various command situations; for example, backup and restore, configuration, copy, resource locking, file transfer, and user management.
<b>write</b>	Erases the startup configuration that forces the setup utility to run and prompts the network configuration, copies the running configuration to the startup configuration, and displays the running configuration on the console.

**Command Default** No default behavior or values.

**Command Modes** Configuration

**Usage Guidelines** Use this command to execute EXEC commands (such as **show**, **clear**, and **debug** commands) while configuring your server. After the EXEC command executes, the system will return to the configuration mode that you were using.

```

ncs/admin(config)# do show run
Generating configuration...
!
hostname ncs
!
ip domain-name cisco.com
!
interface GigabitEthernet 0
 ip address 172.23.90.113 255.255.255.0
 ipv6 address autoconfig
!
ip name-server 172.16.168.183
!
ip default-gateway 172.23.90.1
!
clock timezone EST
!
ntp server time.nist.gov
!
username admin password hash $1$JbbHvKVG$xMZ/XL4tH15Knf.FfcZzr. role admin
!
service sshd
!
backup-staging-url nfs://loc-filer02a:/vol/local1/private1/jdoe
!
password-policy
 lower-case-required
 upper-case-required
 digit-required
 no-username
 disable-cisco-passwords

```

```

    min-password-length 6
    !
    logging localhost
    logging loglevel 6
    !
    --More--

ncs/admin(config)#

```

## end

To end the current configuration session and return to EXEC mode, use the **end** command in configuration mode.

**end**

**Syntax Description** This command has no arguments or keywords.

**Command Default** No default behavior or values.

**Command Modes** Configuration

**Usage Guidelines** This command brings you back to EXEC mode regardless of what configuration mode or submode you are in.

Use this command when you finish configuring the system and you want to return to EXEC mode to perform verification steps.

```

ncs/admin(config)# end
ncs/admin#

```

### Related Commands

Command	Description
<a href="#">exit</a>	Exits the configuration mode.
<a href="#">exit (EXEC)</a>	Closes the active terminal session by logging out of the Cisco EPNM server.

## exit

To exit any configuration mode to the next-highest mode in the CLI mode hierarchy, use the **exit** command in configuration mode.

**exit**

**Syntax Description** This command has no arguments or keywords.

**Command Default** No default behavior or values.

**Command Modes** Configuration

**Usage Guidelines**

The **exit** command is used in the Cisco EPNM server to exit the current command mode to the next highest command mode in the CLI mode hierarchy.

For example, use the **exit** command in configuration mode to return to EXEC mode. Use the **exit** command in the configuration submodes to return to configuration mode. At the highest level, EXEC mode, the **exit** command exits the EXEC mode and disconnects from the Cisco EPNM server (see [exit](#), for a description of the **exit** (EXEC) command).

```
ncs/admin(config)# exit
ncs/admin#
```

**Related Commands**

Command	Description
<a href="#">end</a>	Exits the configuration mode.
<a href="#">exit</a> (EXEC)	Closes the active terminal session by logging out of the Cisco EPNM server.

## hostname

To set the hostname of the system, use the **hostname** command in configuration mode. To delete the hostname from the system, use the **no** form of this command, which resets the system to localhost.

**[no] hostname word**

**Syntax Description**

<i>word</i>	Name of the host. Contains at least 2 to 64 alphanumeric characters and an underscore ( _ ). The hostname must begin with a character that is not a space.
-------------	--

**Command Default**

No default behavior or values.

**Command Modes**

Configuration

**Usage Guidelines**

A single instance type of command, **hostname** only occurs once in the configuration of the system. The hostname must contain one argument; otherwise, an error occurs.

```
ncs/admin(config)# hostname ncs-1
Changing the hostname or IP may result in undesired side effects,
such as installed application(s) being restarted.
Are you sure you want to proceed? [y/n] y
Stopping NCS Monitoring & Troubleshooting Log Processor...
Stopping NCS Monitoring & Troubleshooting Log Collector...
Stopping NCS Monitoring & Troubleshooting Alert Process...
Stopping NCS Application Server...
Stopping NCS Monitoring & Troubleshooting Session Database...
Stopping NCS Database processes...
Starting NCS Database processes...
Starting NCS Monitoring & Troubleshooting Session Database...
Starting NCS Application Server...
Starting NCS Monitoring & Troubleshooting Log Collector...
Starting NCS Monitoring & Troubleshooting Log Processor...
```

```

Starting NCS Monitoring & Troubleshooting Alert Process...
Note: NCS Processes are initializing. Use 'show application status ncs'
      CLI to verify all processes are in running state.

ncs-1/admin(config)#

ncs-1/admin# show application status ncs

NCS Database listener is running, PID: 11142
NCS Database is running, number of processes: 29
NCS Application Server is still initializing.
NCS M&T Session Database is running, PID: 11410
NCS M&T Log Collector is running, PID: 11532
NCS M&T Log Processor is running, PID: 11555
NCS M&T Alert Process is running, PID: 11623

ncs-1/admin#

```

## icmp echo

To configure the Internet Control Message Protocol (ICMP) echo responses, use the **icmp echo** command in configuration mode.

**icmp echo** {off | on}

### Syntax Description

off Disables ICMP echo response.

on Enables ICMP echo response.

### Command Default

The system behaves as if the ICMP echo response is on (enabled).

### Command Modes

Configuration

```

ncs/admin(config)# icmp echo off
ncs/admin(config)#

```

### Related Commands

Command	Description
<a href="#">show icmp_status</a>	Display ICMP echo response configuration information.

## interface

To configure an interface type and enter interface configuration mode, use the **interface** command in configuration mode.



**Note** VMware virtual machine may have a number of interfaces available. This depends on how many network interfaces (NIC) are added to the virtual machine.

**interface GigabitEthernet ip-address**

Syntax Description	GigabitEthernet	Configures the Gigabit Ethernet interface.
	0 - 3	Number of the Gigabit Ethernet port to configure.
	Team	Configures the Team interface.
	0 - 255	Number of the Team port to configure.



**Note** After you enter the Gigabit Ethernet port number in the **interface** command, you enter config-GigabitEthernet configuration submode (see the following Syntax Description).

do	EXEC command. Allows you to perform any EXEC commands in this mode (see <a href="#">do</a> ).
end	Exits config- <a href="#">{GigabitEthernet Team}</a> submode and returns you to EXEC mode.
exit	Exits the config- <a href="#">{GigabitEthernet Team}</a> configuration submode.
ip	Sets IP address and netmask for the Ethernet interface (see <a href="#">ip address</a> ).
ipv6	Configures the IPv6 autoconfiguration address and IPv6 address from DHCPv6 server. (see <a href="#">ipv6 address autoconfig</a> and <a href="#">ipv6 address dhcp</a> ).
no	Negates the command in this mode. Two keywords are available: <ul style="list-style-type: none"> <li>• ip—Sets the IP address and netmask for the interface.</li> <li>• shutdown—Shuts down the interface.</li> </ul>
shutdown	Shuts down the interface (see <a href="#">shutdown</a> ).
virtual-ip	Configures the virtual IP features. Adds an additional sub-interface/ip to the existing IP. Supports all the regular "interface" commands.

**Command Default** No default behavior or values.

**Command Modes** Configuration

**Usage Guidelines** You can use the **interface** command to configure subinterfaces to support various requirements.



```
ncs/admin(config)# interface GigabitEthernet 0
ncs/admin(config-GigabitEthernet)#
```

Related Commands	Command	Description
	<a href="#">show interface</a>	Displays information about the system interfaces.
	<a href="#">ip address</a> (interface configuration mode)	Sets the IP address and netmask for the interface.
	<a href="#">shutdown</a> (interface configuration mode)	Shuts down the interface (see <a href="#">shutdown</a> ).

## ipv6 address autoconfig

To enable the IPv6 stateless autoconfiguration, use the **ipv6 address autoconfig** command in configuration mode. To remove the address from the interface, use the **no** form of this command.

**[no] ipv6 address autoconfig [default]0**

Syntax Description	default	(Optional) If a default router is selected on this interface, the default keyword causes a default route to be installed.  The <b>default</b> keyword can be specified only on one interface.

**Command Default** No default behavior or values.

**Command Modes** Configuration

**Usage Guidelines** IPv6 stateless autoconfiguration has the security downfall of having predictable IP addresses. This downfall is resolved with privacy extensions. You can verify that the privacy extensions feature is enabled using the **show** command.

IPv6 address autoconfiguration is enabled by default in Linux. Cisco ADE shows the IPv6 address autoconfiguration in the running configuration for any enabled interface.

### Example 1

```
ncs/admin# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
ncs/admin(config)# interface GigabitEthernet 0
ncs/admin(config)# (config-GigabitEthernet)# ipv6 address autoconfig
ncs/admin(config)# (config-GigabitEthernet)# end
ncs/admin#
```

When the IPv6 autoconfiguration is enabled, the running configuration displays a similar interface settings output:

```
!
interface GigabitEthernet 0
 ip address 172.23.90.116 255.255.255.0
```

```
ipv6 address autoconfig
!
```

You can use the **show interface** command to display the interface settings. In example 2, you can see that the interface has three IPv6 addresses. The first address (starting with 3ffe) is obtained using the stateless autoconfiguration. For the stateless autoconfiguration to work, you must have IPv6 route advertisement enabled on that subnet. The next address (starting with fe80) is a link-local address that does not have any scope outside the host. You will always see a link local address regardless of the IPv6 autoconfiguration or DHCPv6 configuration. The last address (starting with 2001) is obtained from a IPv6 DHCP server.

### Example 2

```
ncs/admin# show interface GigabitEthernet 0
eth0    Link encap:Ethernet HWaddr 00:0C:29:AF:DA:05
        inet addr:172.23.90.116 Bcast:172.23.90.255 Mask:255.255.255.0
        inet6 addr: 3ffe:302:11:2:20c:29ff:feaf:da05/64 Scope:Global
        inet6 addr: fe80::20c:29ff:feaf:da05/64 Scope:Link
        inet6 addr: 2001:558:ff10:870:8000:29ff:fe36:200/64 Scope:Global
        UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
        RX packets:77848 errors:0 dropped:0 overruns:0 frame:0
        TX packets:23131 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:10699801 (10.2 MiB) TX bytes:3448374 (3.2 MiB)
        Interrupt:59 Base address:0x2000
```

```
ncs/admin#
```

To verify that the privacy extensions feature is enabled, you can use the **show interface** command. You can see two autoconfiguration addresses: address without the privacy extensions and address with the privacy extensions.

In the example 3 below, the MAC is 3ffe:302:11:2:20c:29ff:feaf:da05/64 and the non-RFC3041 address contains the MAC, and the privacy-extension address is 302:11:2:9d65:e608:59a9:d4b9/64.

A displayed output is given in the following example:

### Example 3

```
ncs/admin# show interface GigabitEthernet 0
eth0    Link encap:Ethernet HWaddr 00:0C:29:AF:DA:05
        inet addr:172.23.90.116 Bcast:172.23.90.255 Mask:255.255.255.0
        inet6 addr: 3ffe:302:11:2:9d65:e608:59a9:d4b9/64 Scope:Global
        inet6 addr: 3ffe:302:11:2:20c:29ff:feaf:da05/64 Scope:Global
        inet6 addr: fe80::20c:29ff:feaf:da05/64 Scope:Link
        UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
        RX packets:60606 errors:0 dropped:0 overruns:0 frame:0
        TX packets:2771 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:9430102 (8.9 MiB) TX bytes:466204 (455.2 KiB)
        Interrupt:59 Base address:0x2000
```

```
ncs/admin#
```

#### Related Commands

Command	Description
<a href="#">show interface</a>	Displays information about the system interfaces.
<a href="#">ip address</a> (interface configuration mode)	Sets the IP address and netmask for the interface.

Command	Description
<a href="#">shutdown</a> (interface configuration mode)	Shuts down the interface (see <a href="#">shutdown</a> ).
<a href="#">ipv6 address dhcp</a>	Enables IPv6 address DHCP on an interface.
<a href="#">show running-config</a>	Displays the contents of the currently running configuration file or the configuration.

## ipv6 address dhcp

To enable IPv6 address DHCP, use the **ipv6 address dhcp** command in configuration mode. To remove the address from the interface, use the **no** form of this command.

**[no] ipv6 address dhcp [rapid-commit] 0**

<b>Syntax Description</b>	<b>[rapid-commit]</b>	(Optional) Allows the two-message exchange method for address assignment.
	<b>0</b>	GigabitEthernet/Team and virtual-ip port numbers to be configured.
<b>Command Default</b>	No default behavior or values.	
<b>Command Modes</b>	Configuration	
<b>Usage Guidelines</b>	None.	

```

ncs/admin# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
ncs/admin(config)# interface GigabitEthernet 0
ncs/admin(config-GigabitEthernet)# ipv6 address dhcp
ncs/admin(config-GigabitEthernet)# end
ncs/admin#

```

When IPv6 DHCPv6 is enabled, the running configuration shows the interface settings similar to the following:

```

!
interface GigabitEthernet 0
 ip address 172.23.90.116 255.255.255.0
 ipv6 address dhcp
!

```



**Note** The IPv6 stateless autoconfiguration and IPv6 address DHCP are not mutually exclusive. It is possible to have both IPv6 stateless autoconfiguration and IPv6 address DHCP on the same interface. You can use the **show interface** to display what IPv6 addresses are in use for a particular interface.

When both the IPv6 stateless autoconfiguration and IPv6 address DHCP are enabled, the running configuration shows the interface settings similar to the following:

## ipv6 address static

```
!
interface GigabitEthernet 0
 ip address 172.23.90.116 255.255.255.0
 ipv6 address dhcp
!
```

### Related Commands

Command	Description
<a href="#">show interface</a>	Displays information about the system interfaces.
<a href="#">ip address</a> (interface configuration mode)	Sets the IP address and netmask for the interface.
<a href="#">shutdown</a> (interface configuration mode)	Shuts down the interface (see <a href="#">shutdown</a> ).
<a href="#">ipv6 address autoconfig</a>	Enables IPv6 stateless autoconfiguration on an interface.
<a href="#">show running-config</a>	Displays the contents of the currently running configuration file or the configuration.

## ipv6 address static

To assign static IPv6 address, use the **ipv6 address static** command in configuration mode. To remove the address from the interface, use the **no** form of this command.

**ipv6 address static [ipv6 address] 0**

### Command Default

No default behavior or values.

### Command Modes

Configuration

### Usage Guidelines

None.

```
admin(config-GigabitEthernet)# ipv6 address static 0:0:0:0:ffff:a7e:a9d2
admin(config-GigabitEthernet)# ipv6 default-gateway 0:0:0:0:0:ffff:ffff:ffe0
```

### Related Commands

Command	Description
<a href="#">ipv6 address autoconfig</a>	Enables IPv6 stateless autoconfiguration on an interface.
<a href="#">ipv6 address dhcp</a> , on page 135	Enables IPv6 address DHCP on an interface.

## ip address

To set the IP address and netmask for the interface, use the **ip address** command in interface configuration mode. To remove an IP address or disable IP processing, use the **no** form of this command.

**[no] ip address** ip-address netmask



**Note** You can configure the same IP address on multiple interfaces. You might want to do this to limit the configuration steps that are needed to switch from using one interface to another.

<b>Syntax Description</b>	ip-address	IPv4 version IP address.
	netmask	Mask of the associated IP subnet.
<b>Command Default</b>	Enabled.	
<b>Command Modes</b>	Interface configuration	
<b>Usage Guidelines</b>	Requires exactly one address and one netmask; otherwise, an error occurs.	

```

ncs/admin(config)# interface GigabitEthernet 1
ncs/admin(config-GigabitEthernet)# ip address 209.165.200.227 255.255.255.224
Changing the hostname or IP may result in undesired side effects,
such as installed application(s) being restarted.
.....
To verify that NCS processes are running, use the
'show application status ncs' command.
ncs/admin(config-GigabitEthernet)#

```

Related Commands	Command	Description
	<a href="#">shutdown</a> (interface configuration mode)	Disables an interface (see <a href="#">shutdown</a> ).
	<a href="#">ip default-gateway</a>	Sets the IP address of the default gateway of an interface.
	<a href="#">show interface</a>	Displays information about the system IP interfaces.
	<a href="#">interface</a>	Configures an interface type and enters the interface mode.

## ip default-gateway

To define or set a default gateway with an IP address, use the **ip default-gateway** command in configuration mode. To disable this function, use the **no** form of this command.

**[no] ip default-gateway** ip-address

**ip domain-name**

<b>Syntax Description</b>	ip-address	IP address of the default gateway.
<b>Command Default</b>	Disabled.	
<b>Command Modes</b>	Configuration	
<b>Usage Guidelines</b>	If you enter more than one argument or no arguments at all, an error occurs.	

```
ncs/admin(config)# ip default-gateway 209.165.202.129
ncs/admin(config)#
```

Related Commands	Command	Description
	<a href="#">ip address</a> (interface configuration mode)	Sets the IP address and netmask for the Ethernet interface.

## ip domain-name

To define a default domain name that the Cisco EPNM server uses to complete hostnames, use the **ip domain-name** command in configuration mode. To disable this function, use the **no** form of this command.

**[no] ip domain-name word**

<b>Syntax Description</b>	word	Default domain name used to complete the hostnames. Contains at least 2 to 64 alphanumeric characters.
<b>Command Default</b>	Enabled.	
<b>Command Modes</b>	Configuration	
<b>Usage Guidelines</b>	If you enter more or fewer arguments, an error occurs.	

```
ncs/admin(config)# ip domain-name cisco.com
ncs/admin(config)#
```

Related Commands	Command	Description
	<a href="#">ip name-server</a>	Sets the DNS servers for use during a DNS query.

## ip name-server

To set the Domain Name Server (DNS) servers for use during a DNS query, use the **ip name-server** command in configuration mode. You can configure one to three DNS servers. To disable this function, use the **no** form of this command.



**Note** Using the **no** form of this command removes all of the name servers from the configuration. Using the **no** form of this command and one of the IP names removes only that IP name server.

**[no] ip name-server** *ip-address* [*ip-address\**]

<b>Syntax Description</b>	<i>ip-address</i>	Address of a name server.
	<i>ip-address*</i>	(Optional) IP addresses of additional name servers.
		<b>Note</b> You can configure a maximum of three name servers.

**Command Default** No default behavior or values.

**Command Modes** Configuration

**Usage Guidelines** The first name server that is added with the **ip name-server** command occupies the first position and the system uses that server first to resolve the IP addresses.

You can add name servers to the system one at a time or all at once, until you reach the maximum (3). If you already configured the system with three name servers, you must remove at least one server to add additional name servers.

To place a name server in the first position so that the subsystem uses it first, you must remove all name servers with the **no** form of this command before you proceed.

```
ncs/admin(config)# ip name-server 209.165.201.1
```

To verify that NCS processes are running, use the 'show application status ncs' command.

```
ncs/admin(config)#
```

You can choose not to restart the Cisco EPNM server; nevertheless, the changes will take effect.

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<a href="#">ip domain-name</a>	Defines a default domain name that the server uses to complete hostnames.

## ip route

To configure the static routes, use the **ip route** command in configuration mode. To remove static routes, use the **no** form of this command.

**ip route** prefix mask **gateway** ip-address

**no ip route** prefix mask

<b>Syntax Description</b>	prefix	IP route prefix for the destination.
	mask	Prefix mask for the destination.
	<b>gateway</b>	Route-specific gateway
	ip-address	IP address of the next hop that can be used to reach that network.

**Command Default** No default behavior or values.  
Configuration.

**Usage Guidelines** Static routes are manually configured, which makes them inflexible (they cannot dynamically adapt to network topology changes), but extremely stable. Static routes optimize bandwidth utilization, because no routing updates need to be sent to maintain them. They also make it easy to enforce routing policy.

```
ncs/admin(config)# ip route 192.168.0.0 255.255.0.0 gateway 172.23.90.2
ncs/admin(config)#
```

## logging

To enable the system to forward logs to a remote system or to configure the log level, use the **logging** command in configuration mode. To disable this function, use the **no** form of this command.

**[no] logging** {*ip-address* | *hostname*} {**loglevel** *level*}

<b>Syntax Description</b>	<i>ip-address</i>	IP address of remote system to which you forward the logs. Up to 32 alphanumeric characters.
	<i>hostname</i>	Hostname of remote system to which you forward the logs. Up to 32 alphanumeric characters.
	<b>loglevel</b>	The command to configure the log level for the <b>logging</b> command.
	security	The command for Security logging.
	sync-logs	The command to configure and enable the continuous logs to sync into a repository.



*level*

Number of the desired priority level at which you set the log messages. Priority levels are (enter the number for the keyword):

- 0-emerg—Emergencies: System unusable
- 1-alert—Alerts: Immediate action needed
- 2-crit—Critical: Critical conditions
- 3-err—Error: Error conditions
- 4-warn—Warning: Warning conditions
- 5-notif—Notifications: Normal but significant conditions
- 6-inform—(Default) Informational messages
- 7-debug—Debugging messages

**Command Default**

No default behavior or values.

**Command Modes**

Configuration

**Usage Guidelines**

This command requires an IP address or hostname or the **loglevel** keyword; an error occurs if you enter two or more of these arguments.

**Example 1**

```
ncs/admin(config)# logging 209.165.200.225
ncs/admin(config)#
```

**Example 2**

```
ncs/admin(config)# logging loglevel 0
ncs/admin(config)#
```

**Related Commands**

Command	Description
<a href="#">show logging</a>	Displays the list of logs for the system.

## ntp server

To allow for software clock synchronization by the NTP server for the system, use the **ntp server** command in configuration mode. Allows up to five servers.

**ntp server** *{ntp-server}*

For the unauthenticated NTP servers, use the following command:

**ntp server** *{ntp-server}*

<b>Syntax Description</b>	<code>ntp-server  </code>	IP address or hostname of the server providing the clock synchronization. Arguments are limited to 255 alphanumeric characters.
---------------------------	---------------------------	---

**Command Default** No servers are configured by default.

**Command Modes** Configuration

**Usage Guidelines** Use this command if you want to allow the system to synchronize with a specified server.



**Note** The synchronization process can take up to 20 minutes to complete.

#### Related Commands

Command	Description
<a href="#">show ntp</a>	Displays the status information about the NTP associations.

#### Example - NTP Server Addition

```
ncs/admin(config)# ntp server 192.0.2.1 10 plain password
ncs/admin(config)# ntp server 192.0.2.2 20 plain pass123
```

#### Example - NTP Server Initialization

```
ncs/admin# sh ntp
epnm-ha-test-237-75/admin# sh ntp
NTP Server 1 : 192.0.2.1 : keyid=10
NTP Server 2 : 192.0.2.2
NTP Server 3 : 192.0.2.3 : keyid=10

unsynchronised
time server re-starting
polling server every 64 s

      remote          refid      st t when poll reach  delay  offset jitter
=====
192.0.2.1  .INIT.          16 u  -   64   0   0.000   0.000   0.000
192.0.2.2  .GPS.            1 u  43  64   7 250.340   0.523   1.620
192.0.2.3  192.0.2.2       2 u  41  64   7 231.451   7.517   3.434
```

#### Example - NTP Synchronization

```
ncs/admin# sh ntp
NTP Server 1 : 192.0.2.1 : keyid=10
NTP Server 2 : 192.0.2.2
NTP Server 3 : 192.0.2.3 : keyid=10
```

```
synchronised to NTP server (10.81.254.131) at stratum 2
time correct to within 569 ms
polling server every 64 s
```

```

remote          refid          st t when poll reach  delay  offset jitter
=====
192.0.2.1      .INIT.          16 u   -   64    0    0.000  0.000  0.000
*192.0.2.2    .GPS.           1 u   12  64   37  243.863  3.605  4.240
192.0.2.3    192.0.2.2      2 u   8   64   37  231.451  7.517  3.784
```

Warning: Output results may conflict during periods of changing synchronization.

## password-policy

To enable or configure the passwords on the system, use the **password-policy** command in configuration mode. To disable this function, use the **no** form of this command.

**[no] password-policy** option



**Note** The **password-policy** command requires a policy option (see Syntax Description). You must enter the **password-expiration-enabled** command before the other password-expiration commands.

### Syntax Description

option Different command options.



**Note** After you enter the **password-policy** command, you can enter config-password-policy configuration submode.

digit-required	Requires a digit in the password.
disable-repeat-characters	Disables the ability of the password to contain more than four identical characters.
disable-cisco-password	Disables the ability to use the word Cisco or any combination as the password.
do	EXEC command.
end	Exits from configure mode.
exit	Exits from this submode.
lower-case-required	Requires a lowercase letter in the password.
min-password-length	Specifies a minimum number of characters for a valid password. Integer length 8–40.
no	Negates a command or set its defaults.

no-previous-password	Prevents users from reusing a part of their previous password.
no-username	Prohibits users from reusing their username as a part of a password.
password-expiration-days	Number of days until a password expires. Integer length 1–3600.
password-expiration-enabled	Enables password expiration. <b>Note</b> You must enter the <b>password-expiration-enabled</b> command before the other password-expiration commands.
password-expiration-warning	Number of days before expiration that warnings of impending expiration begin. Integer length 0–3600.
password-lock-enabled	Locks a password after several failures.
password-lock-retry-count	Number of failed attempts before password locks. Integer length 1–20. <b>Note</b> This command has a sub-command: <b>lock-time</b> . lock-time—The amount of time (in minutes) an account remains locked after failed attempts. Integer length 0–120.
upper-case-required	Requires an uppercase letter in the password.
special-required	Requires a special character in the password.

**Command Default** No default behavior or values.

**Command Modes** Configuration

```
ncs/admin(config)# password-policy
ncs/admin(config-password-policy)# password-expiration-days 30
ncs/admin(config-password-policy)# exit
ncs/admin(config)#
```

## repository

To enter the repository submode for configuration of backups, use the **repository** command in configuration mode.

**repository** *repository-name*

**Syntax Description** *repository-name* Name of repository. Up to 80 alphanumeric characters.



**Note** After you enter the name of the repository in the **repository** command, you enter repository configuration submode.

do	EXEC command.
end	Exits repository config submode and returns you to EXEC mode.
exit	Exits this mode.
no	Negates the command in this mode.  Two keywords are available: <ul style="list-style-type: none"> <li>• url—Repository URL.</li> <li>• user—Repository username and password for access.</li> </ul>
url	URL of the repository. Up to 80 alphanumeric characters (see <a href="#">Table 15: URL Keywords, on page 145</a> ).
user	Configure the username and password for access. Up to 30 alphanumeric characters.

**Table 15: URL Keywords**

Keyword	Source of Destination
<i>word</i>	Enter the repository URL, including server and path info. Up to 80 alphanumeric characters.
<b>disk:</b>	Local storage.  You can enter the <b>show repository repository_name</b> command to view all the files in the local repository.  <b>Note</b> All local repositories are created on the /localdisk partition. When you specify <b>disk:/</b> in the repository URL, the system creates directories in a path that is relative to /localdisk. For example, if you entered <b>disk:/backup</b> , the directory is created at /localdisk/backup.
<b>ftp:</b>	Source or destination URL for an FTP network server. Use url ftp://server/path(1) .
<b>nfs:</b>	Source or destination URL for an NFS network server. Use url nfs://server:path1.

Keyword	Source of Destination
<b>sftp:</b>	<p>Source or destination URL for an SFTP network server. Use url sftp://server/path1.</p> <p><b>Note</b> SFTP Repositories may require the // between the ip address/FQDN and the physical path on the SFTP store. If you find that you cannot access the SFTP repository with single slashes, add the additional slash and try the operation again.</p> <p>Example:</p> <p>Repository SFTP-Store</p> <p>url sftp://server//path</p>
<b>tftp:</b>	<p>Source or destination URL for a TFTP network server. Use url tftp://server//path1.</p> <p><b>Note</b> You cannot use a TFTP repository for performing a Cisco EPNM upgrade.</p>

**Command Default** No default behavior or values.

**Command Modes** Configuration

### Example 1

```
ncs/admin#
ncs/admin(config)# repository myrepository
ncs/admin(config-Repository)# url sftp://example.com//repository//system1
ncs/admin(config-Repository)# user abcd password plain example
ncs/admin(config-Repository)# exit
ncs/admin(config)# exit
ncs/admin#
```

### Example 2

```
ncs/admin# configure terminal
ncs/admin(config)# repository myrepository
ncs/admin(config-Repository)# url disk:/
ncs/admin(config-Repository)# exit
ncs/admin(config)# exit
```

### Related Commands

Command	Description
<a href="#">backup</a>	Performs a backup (Cisco EPNM and Cisco ADE OS) and places the backup in a repository.
<a href="#">restore</a>	Performs a restore and takes the backup out of a repository.

Command	Description
<a href="#">show backup history</a>	Displays the backup history of the system.
<a href="#">show repository</a>	Displays the available backup files that are located on a specific repository.

## service

To manage a specific service, use the **service** command in configuration mode. To disable this function, use the **no** form of this command.

**[no] service sshd**

Syntax Description	Description
sshd	Secure Shell Daemon. The daemon program for SSH.

**Command Default** No default behavior or values.

**Command Modes** Configuration

```
ncs/admin(config)# service sshd
ncs/admin(config)#
```

## shutdown

To shut down an interface, use the **shutdown** command in the interface configuration mode. To disable this function, use the **no** form of this command.

**[no] shutdown**

**Syntax Description** This command has no arguments or keywords.

**Command Default** No default behavior or values.

**Command Modes** Interface

**Usage Guidelines** When you shut down an interface using this command, you lose connectivity to the Cisco EPNM appliance through that interface (even though the appliance is still powered on). However, if you have configured the second interface on the appliance with a different IP and have not shut down that interface, you can access the appliance through that second interface.

Related Commands	Command	Description
	<a href="#">interface</a>	Configures an interface type and enters the interface mode.
	<a href="#">ip address</a> (interface configuration mode)	Sets the IP address and netmask for the Ethernet interface.

<a href="#">show interface</a>	Displays information about the system IP interfaces.
<a href="#">ip default-gateway</a>	Sets the IP address of the default gateway of an interface.

## snmp-server community

To set up the community access string to permit access to the Simple Network Management Protocol (SNMP), use the **snmp-server community** command in configuration mode. To disable this function, use the **no** form of this command.

**[no] snmp-server community** *word* **ro**

<b>Syntax Description</b>	<i>word</i>	Accessing string that functions much like a password and allows access to SNMP. No blank spaces allowed. Up to 255 alphanumeric characters.
	<b>ro</b>	Specifies read-only access.

**Command Default** No default behavior or values.

**Command Modes** Configuration

**Usage Guidelines** The **snmp-server community** command requires a community string and the **ro** argument; otherwise, an error occurs.

```
ncs/admin(config)# snmp-server community new ro
ncs/admin(config)#
```

Related Commands	Command	Description
	<a href="#">snmp-server host</a>	Sends traps to a remote system.
	<a href="#">snmp-server location</a>	Configures the SNMP location MIB value on the system.
	<a href="#">snmp-server contact</a>	Configures the SNMP contact MIB value on the system.

## snmp-server contact

To configure the SNMP contact Management Information Base (MIB) value on the system, use the **snmp-server contact** command in configuration mode. To remove the system contact information, use the **no** form of this command.

**[no] snmp-server contact** *word*



<b>Syntax Description</b>	<i>word</i>	String that describes the system contact information of the node. Up to 255 alphanumeric characters.
<b>Command Default</b>	No default behavior or values.	
<b>Command Modes</b>	Configuration	
<b>Usage Guidelines</b>	None.	

```
ncs/admin(config)# snmp-server contact Abcd
ncs/admin(config)#
```

Related Commands	Command	Description
	<a href="#">snmp-server host</a>	Sends traps to a remote system.
	<a href="#">snmp-server community</a>	Sets up the community access string to permit access to the SNMP.
	<a href="#">snmp-server location</a>	Configures the SNMP location MIB value on the system.

## snmp-server host

To send SNMP traps to a remote user, use the **snmp-server host** command in configuration mode. To remove trap forwarding, use the **no** form of this command.

**[no] snmp-server host** *{ip-address / hostname}* **version** {1 | 2c} *community*

<b>Syntax Description</b>	<i>ip-address</i>	IP address of the SNMP notification host. Up to 32 alphanumeric characters.
	<i>hostname</i>	Name of the SNMP notification host. Up to 32 alphanumeric characters.
	<b>version</b> {1   2c}	(Optional) Version of the SNMP used to send the traps. Default = 1.  If you use the version keyword, specify one of the following keywords: <ul style="list-style-type: none"> <li>• 1—SNMPv1.</li> <li>• 2c—SNMPv2C.</li> </ul>
	<i>community</i>	Password-like community string that is sent with the notification operation.
<b>Command Default</b>	Disabled.	

**Command Modes** Configuration

**Usage Guidelines** The command takes arguments as listed; otherwise, an error occurs.

```
ncs/admin(config)# snmp-server community new ro
ncs/admin(config)# snmp-server host 209.165.202.129 version 1 password
ncs/admin(config)#
```

**Related Commands**

Command	Description
<a href="#">snmp-server community</a>	Sets up the community access string to permit access to SNMP.
<a href="#">snmp-server location</a>	Configures the SNMP location MIB value on the system.
<a href="#">snmp-server contact</a>	Configures the SNMP contact MIB value on the system.

## snmp-server location

To configure the SNMP location MIB value on the system, use the **snmp-server location** command in configuration mode. To remove the system location information, use the **no** form of this command.

**[no] snmp-server location** *word*

**Syntax Description**

*word* String that describes the physical location information of the system. Up to 255 alphanumeric characters.

**Command Default** No default behavior or values.

**Command Modes** Configuration

**Usage Guidelines** We recommend that you use underscores (\_) or hyphens (-) between the terms within the *word* string. If you use spaces between terms within the *word* string, you must enclose the string in quotation marks ("").

**Example 1**

```
ncs/admin(config)# snmp-server location Building_3/Room_214
ncs/admin(config)#
```

**Example 2**

```
ncs/admin(config)# snmp-server location "Building 3/Room 214"
ncs/admin(config)#
```

**Related Commands**

Command	Description
<a href="#">snmp-server host</a>	Sends traps to a remote system.

Command	Description
<a href="#">snmp-server community</a>	Sets up the community access string to permit access to SNMP.
<a href="#">snmp-server contact</a>	Configures the SNMP location MIB value on the system.

## username

To add a user who can access the Cisco EPNM using SSH, use the **username** command in configuration mode. If the user already exists, the password, the privilege level, or both change with this command. To delete the user from the system, use the **no** form of this command.

**[no] username** *username* **password** {**hash** | **plain**} *password* **role** {**user** | **network-admin** | **security-admin**} [**disabled** [**email** *email-address*]] [**email** *email-address*]

For an existing user, use the following command option:

**username** *username* **password** **role** {**user** | **network-admin** | **security-admin**} *password*

### Syntax Description

<i>username</i>	You should enter only one word which can include hyphen (-), underscore (_), and period (.). <b>Note</b> Only alphanumeric characters are allowed at an initial setup.
<b>password</b>	The command to specify the password and user role.
<i>password</i>	Password character length up to 40 alphanumeric characters. You must specify the password for all new users.
<b>hash</b>   <b>plain</b>	Type of password. Up to 34 alphanumeric characters.
<b>role</b> <b>user</b>   <b>network-admin</b>   <b>security-admin</b>	Sets the privilege level for the user.
<b>disabled</b>	Disables the user according to the user's email address.
<b>email</b> <i>email-address</i>	The user's email address. For example, <code>user1@example.com</code> .

### Command Default

The initial user during setup.

### Command Modes

Configuration

### Usage Guidelines

The **username** command requires that the username and password keywords precede the hash / plain and the admin / user options.

#### Example 1

```
ncs/admin(config)# username testuser password hash ##### role network-admin
ncs/admin(config)#
```

### Example 2

```
ncs/admin(config)# username testuser password plain Secr3tp@swd role network-admin
ncs/admin(config)#
```

### Example 3

```
ncs/admin(config)# username testuser password plain Secr3tp@swd role network-admin email
admin123@example.com
ncs/admin(config)#
```

## Related Commands

	Description
<a href="#">password-policy</a>	Enables and configures the password policy.
<a href="#">show users</a>	Displays a list of users and their privilege level. It also displays a list of logged-in users.



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