



# Configuring Terminal Settings and Sessions

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This chapter describes how to manage the terminal settings and sessions on a Cisco NX-OS device.

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## Information About Terminal Settings and Sessions

This section includes information about terminal settings and sessions.

### Terminal Session Settings

The Cisco NX-OS software features allow you to manage the following characteristics of terminals:

#### **Terminal type**

Name used by Telnet when communicating with remote hosts

#### **Length**

Number of lines of command output displayed before pausing

**Width**

Number of characters displayed before wrapping the line

**Inactive session timeout**

Number of minutes that a session remains inactive before the device terminates it

## Console Port

The console port is an asynchronous serial port that allows you to connect to the device for initial configuration through a standard RS-232 port with an RJ-45 connector. Any device connected to this port must be capable of asynchronous transmission. You can configure the following parameters for the console port:

**Data bits**

Specifies the number of bits in an 8-bit byte that is used for data.

**Inactive session timeout**

Specifies the number of minutes a session can be inactive before it is terminated.

**Parity**

Specifies the odd or even parity for error detection.

**Speed**

Specifies the transmission speed for the connection.

**Stop bits**

Specifies the stop bits for an asynchronous line.

Configure your terminal emulator with 9600 baud, 8 data bits, 1 stop bit, and no parity.

## COM1 Port

A COM1 port is an RS-232 port with a DB-9 interface that enables you to connect to an external serial communication device such as a modem. You can configure the following parameters for the COM1 port:

**Data bits**

Specifies the number of bits in an 8-bit byte that is used for data.

**Hardware flowcontrol**

Enables the flow-control hardware.

**Parity**

Specifies the odd or even parity for error detection.

**Speed**

Specifies the transmission speed for the connection.

**Stop bits**

Specifies the stop bits for an asynchronous line.

Configure your terminal emulator with 9600 baud, 8 data bits, 1 stop bit, and no parity.

## Virtual Terminals

You can use virtual terminal lines to connect to your Cisco NX-OS device. Secure Shell (SSH) and Telnet create virtual terminal sessions. You can configure an inactive session timeout and a maximum sessions limit for virtual terminals.

## Modem Support

You can connect a modem to the COM1 or console ports on the supervisor module. The following modems were tested on devices running the Cisco NX-OS software:

- MultiTech MT2834BA ([http://www.multitech.com/en\\_us/support/families/multimodemii/](http://www.multitech.com/en_us/support/families/multimodemii/))
- Hayes Accura V.92 ([http://www.zoom.com/products/dial\\_up\\_external\\_serial.html#hayes](http://www.zoom.com/products/dial_up_external_serial.html#hayes))

**Note**

Do not connect a modem when the device is booting. Only connect the modem when the device is powered-up.

The Cisco NX-OS software has the default initialization string (ATE0Q1&D2&C1S0=1\015) to detect connected modems. The default string is defined as follows:

**AT**

Attention

**E0 (required)**

No echo

**Q1**

Result code on

**&D2**

Normal data terminal ready (DTR) option

**&C1**

Enable tracking the state of the data carrier

**S0=1**

Pick up after one ring

**\015 (required)**

Carriage return in octal

# Licensing Requirements for Terminal Settings and Sessions

The following table shows the licensing requirements for this feature:

Product	License Requirement
Cisco NX-OS	Terminal setting configuration requires no license. Any feature not included in a license package is bundled with the Cisco NX-OS system images and is provided at no extra charge to you. For a complete explanation of the Cisco NX-OS licensing scheme, see the .

## Configuring the Console Port

You can set the following characteristics for the console port:

- Data bits
- Inactive session timeout
- Parity
- Speed
- Stop bits

### Before You Begin

Log in to the console port.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>configure terminal</b>  <b>Example:</b> switch# configure terminal switch(config)#	Enters global configuration mode.
<b>Step 2</b>	<b>line console</b>  <b>Example:</b> switch# line console switch(config-console)#	Enters console configuration mode.
<b>Step 3</b>	<b>databits <i>bits</i></b>  <b>Example:</b> switch(config-console)# databits 7	Configures the number of data bits per byte. The range is from 5 to 8. The default is 8.

	Command or Action	Purpose
<b>Step 4</b>	<b>exec-timeout</b> <i>minutes</i>  <b>Example:</b> <code>switch(config-console)# exec-timeout 30</code>	Configures the timeout for an inactive session. The range is from 0 to 525600 minutes (8760 hours). A value of 0 minutes disables the session timeout. The default is 30 minutes.
<b>Step 5</b>	<b>parity</b> {even   none   odd}  <b>Example:</b> <code>switch(config-console)# parity even</code>	Configures the parity. The default is <b>none</b> .
<b>Step 6</b>	<b>speed</b> {300   1200   2400   4800   9600   38400   57600   115200}  <b>Example:</b> <code>switch(config-console)# speed 115200</code>	Configures the transmit and receive speed. The default is <b>115200</b> .
<b>Step 7</b>	<b>stopbits</b> {1   2}  <b>Example:</b> <code>switch(config-console)# stopbits 2</code>	Configures the stop bits. The default is <b>1</b> .
<b>Step 8</b>	<b>exit</b>  <b>Example:</b> <code>switch(config-console)# exit</code> <code>switch(config)#</code>	Exits console configuration mode.
<b>Step 9</b>	<b>show line console</b>  <b>Example:</b> <code>switch(config)# show line console</code>	(Optional) Displays the console settings.
<b>Step 10</b>	<b>copy running-config startup-config</b>  <b>Example:</b> <code>switch(config)# copy running-config startup-config</code>	(Optional) Copies the running configuration to the startup configuration.

## Configuring the COM1 Port

You can set the following characteristics for the COM1 port:

- Data bits
- Flow control on the hardware
- Parity
- Speed
- Stop bits

## Before You Begin

Log in to the console port or COM1 port.

## Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>configure terminal</b>  <b>Example:</b> <pre>switch# configure terminal switch(config)#</pre>	Enters global configuration mode.
<b>Step 2</b>	<b>line com1</b>  <b>Example:</b> <pre>switch# line com1 switch(config-com1)#</pre>	Enters COM1 configuration mode.
<b>Step 3</b>	<b>databits <i>bits</i></b>  <b>Example:</b> <pre>switch(config-com1)# databits 7</pre>	Configures the number of data bits per byte. The range is from 5 to 8. The default is 8.
<b>Step 4</b>	<b>flowcontrol hardware</b>  <b>Example:</b> <pre>switch(config-com1)# flowcontrol hardware</pre>	<p>Enables flow control on the hardware. The default is enabled.</p> <p>Use the <b>no flowcontrol hardware</b> command to disable flow control on the hardware.</p>
<b>Step 5</b>	<b>parity {even   none   odd}</b>  <b>Example:</b> <pre>switch(config-com1)# parity even</pre>	Configures the parity. The default is <b>none</b> .
<b>Step 6</b>	<b>speed {300   1200   2400   4800   9600   38400   57600   115200}</b>  <b>Example:</b> <pre>switch(config-com1)# speed 115200</pre>	Configures the transmit and receive speed. The default is <b>9600</b> .
<b>Step 7</b>	<b>stopbits {1   2}</b>  <b>Example:</b> <pre>switch(config-com1)# stopbits 2</pre>	Configures the stop bits. The default is <b>1</b> .
<b>Step 8</b>	<b>exit</b>  <b>Example:</b> <pre>switch(config-com1)# exit switch(config)#</pre>	Exits COM1 configuration mode.
<b>Step 9</b>	<b>show line com1</b>  <b>Example:</b> <pre>switch(config)# show line com1</pre>	<p>(Optional)</p> <p>Displays the COM1 port settings.</p>

	Command or Action	Purpose
<b>Step 10</b>	<b>copy running-config startup-config</b>  <b>Example:</b> <pre>switch(config)# copy running-config startup-config</pre>	(Optional) Copies the running configuration to the startup configuration.

## Configuring Virtual Terminals

This section describes how to configure virtual terminals on Cisco NX-OS devices.

### Configuring the Inactive Session Timeout

You can configure a timeout for inactive virtual terminal sessions on a Cisco NX-OS device.

#### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>configure terminal</b>  <b>Example:</b> <pre>switch# configure terminal switch(config)#</pre>	Enters global configuration mode.
<b>Step 2</b>	<b>line vty</b>  <b>Example:</b> <pre>switch# line vty switch(config-line)#</pre>	Enters line configuration mode.
<b>Step 3</b>	<b>exec-timeout <i>minutes</i></b>  <b>Example:</b> <pre>switch(config-line)# exec-timeout 30</pre>	Configures the inactive session timeout. The range is from 0 to 525600 minutes (8760 hours). A value of 0 minutes disables the timeout. The default value is 30.
<b>Step 4</b>	<b>exit</b>  <b>Example:</b> <pre>switch(config-line)# exit switch(config)#</pre>	Exits line configuration mode.
<b>Step 5</b>	<b>show running-config all   begin vty</b>  <b>Example:</b> <pre>switch(config)# show running-config all   begin vty</pre>	(Optional) Displays the virtual terminal configuration.

	Command or Action	Purpose
<b>Step 6</b>	<b>copy running-config startup-config</b>  <b>Example:</b> <pre>switch(config)# copy running-config startup-config</pre>	(Optional) Copies the running configuration to the startup configuration.

## Configuring the Session Limit

You can limit the number of virtual terminal sessions on your Cisco NX-OS device.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>configure terminal</b>  <b>Example:</b> <pre>switch# configure terminal switch(config)#</pre>	Enters global configuration mode.
<b>Step 2</b>	<b>line vty</b>  <b>Example:</b> <pre>switch# line vty switch(config-line)#</pre>	Enters line configuration mode.
<b>Step 3</b>	<b>session-limit <i>sessions</i></b>  <b>Example:</b> <pre>switch(config-line)# session-limit 10</pre>	Configures the maximum number of virtual sessions for the Cisco NX-OS device. The range is from 1 to 60. The default is 32.
<b>Step 4</b>	<b>exit</b>  <b>Example:</b> <pre>switch(config-line)# exit switch(config)#</pre>	Exits line configuration mode.
<b>Step 5</b>	<b>show running-config all   begin vty</b>  <b>Example:</b> <pre>switch(config)# show running-config all   begin vty</pre>	(Optional) Displays the virtual terminal configuration.
<b>Step 6</b>	<b>copy running-config startup-config</b>  <b>Example:</b> <pre>switch(config)# copy running-config startup-config</pre>	(Optional) Copies the running configuration to the startup configuration.



# Configuring Modem Connections

You can connect a modem to either the COM1 port or the console port.

We recommend that you use the COM1 port to connect the modem.

## Enabling a Modem Connection

You must enable the modem connection on the port before you can use the modem.

### Before You Begin

Log in to the console port.

### Procedure

	Command or Action	Purpose
Step 1	<b>configure terminal</b>  <b>Example:</b> switch# configure terminal switch(config)#	Enters global configuration mode.
Step 2	Enter one of the following commands:	
	<b>Command</b>	<b>Purpose</b>
	<b>line com1</b>	Enters COM1 configuration mode.
	<b>line console</b>	Enters console configuration mode.
	 <b>Example:</b> switch# line com1 switch(config-com1)#	
Step 3	<b>modem in</b>  <b>Example:</b> switch(config-com1)# modem in	Enables modem input on the COM1 or console port.
Step 4	<b>exit</b>  <b>Example:</b> switch(config-com1)# exit switch(config)#	Exits COM1 or console configuration mode.
Step 5	<b>show line</b>  <b>Example:</b> switch(config)# show line	(Optional) Displays the console and COM1 settings.

	Command or Action	Purpose
<b>Step 6</b>	<b>copy running-config startup-config</b>  <b>Example:</b> <pre>switch(config)# copy running-config startup-config</pre>	(Optional) Copies the running configuration to the startup configuration.

## Downloading the Default Initialization String

The Cisco NX-OS software provides a default initialization string that you can download for connecting with the modem. The default initialization string is ATE0Q1&D2&C1S0=1\015.

### Before You Begin

Log in to the console port.

### Procedure

	Command or Action	Purpose
Step 1	<b>configure terminal</b>  <b>Example:</b> switch# configure terminal switch(config)#	Enters global configuration mode.
Step 2	Enter one of the following commands:	
	<b>Option</b>	<b>Description</b>
	<b>line com1</b>	Enters COM1 configuration mode.
	<b>line console</b>	Enters console configuration mode.
	 <b>Example:</b> switch# line com1 switch(config-com1)#	
Step 3	<b>modem init-string default</b>  <b>Example:</b> switch(config-com1)# modem init-string default	Writes the default initialization string to the modem.
Step 4	<b>exit</b>  <b>Example:</b> switch(config-com1)# exit switch(config)#	Exits COM1 or console configuration mode.

	Command or Action	Purpose
<b>Step 5</b>	<b>show line</b>  <b>Example:</b> <pre>switch(config)# show line</pre>	(Optional) Displays the COM1 and console settings.
<b>Step 6</b>	<b>copy running-config startup-config</b>  <b>Example:</b> <pre>switch(config)# copy running-config startup-config</pre>	(Optional) Copies the running configuration to the startup configuration.

## Configuring and Downloading a User-Specified Initialization String

You can configure and download your own initialization when the default initialization string is not compatible with your modem.

### Before You Begin

Log in to the console port.

### Procedure

	Command or Action	Purpose
Step 1	<b>configure terminal</b>  <b>Example:</b> switch# configure terminal switch(config)#	Enters global configuration mode.
Step 2	Enter one of the following commands:	
	<b>Option</b>	<b>Description</b>
	<b>line com1</b>	Enters COM1 configuration mode.
	<b>line console</b>	Enters console configuration mode.
	<b>Example:</b> switch# line com1 switch(config-com1)#	
Step 3	<b>modem set-string user-input <i>string</i></b>  <b>Example:</b> switch(config-com1)# modem set-string user-input ATE0Q1&D2&C1S0=3\015	Sets the user-specified initialization string for the COM1 or console port. The initialization string is alphanumeric and case sensitive, can contain special characters, and has a maximum of 100 characters.

	Command or Action	Purpose
		<b>Note</b> You must first set the user-input string before initializing the string.
<b>Step 4</b>	<b>modem init-string user-input</b>  <b>Example:</b> switch(config-com1) # modem init-string user-input	Writes the user-specified initialization string to the modem connected to the COM1 or console port.
<b>Step 5</b>	<b>exit</b>  <b>Example:</b> switch(config-com1) # exit switch(config) #	Exits COM1 or console configuration mode.
<b>Step 6</b>	<b>show line</b>  <b>Example:</b> switch(config) # show line	(Optional) Displays the COM1 and console settings.
<b>Step 7</b>	<b>copy running-config startup-config</b>  <b>Example:</b> switch(config) # copy running-config startup-config	(Optional) Copies the running configuration to the startup configuration.

## Initializing a Modem for a Powered-Up Cisco NX-OS Device

If you connect a modem to a powered-up physical device, you must initialize the modem before you can use it.

### Before You Begin

After waiting until the Cisco NX-OS device has completed the boot sequence and the system image is running, connect the modem to either the COM1 port or the console port on the device.

Enable the modem connection on the port.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>modem connect line {com1   console}</b>  <b>Example:</b> switch# modem connect line com1	Initializes the modem connected to the device.

**Related Topics**

[Enabling a Modem Connection, on page 9](#)

## Clearing Terminal Sessions

You can clear terminal sessions on the Cisco NX-OS device.

**Procedure**

	Command or Action	Purpose
<b>Step 1</b>	<b>show users</b>  <b>Example:</b> switch# show users	(Optional) Displays the user sessions on the device.
<b>Step 2</b>	<b>clear line <i>name</i></b>  <b>Example:</b> switch# clear line pts/0	Clears a terminal session on a specific line. The line name is case sensitive.

## Displaying Terminal and Session Information

To display terminal and session information, perform one of the following tasks:

Command	Purpose
<b>show terminal</b>	Displays terminal settings.
<b>show line</b>	Displays the COM1 and console ports settings.
<b>show users</b>	Displays virtual terminal sessions.
<b>show running-config [all]</b>	Displays the user account configuration in the running configuration. The <b>all</b> keyword displays the default values for the user accounts.

For detailed information about the fields in the output from these commands, see the .

## Default Settings for File System Parameters

This table lists the default settings for the file system parameters.

**Table 1: Default File System Settings**

Parameters	Default
Default filesystem	bootflash:

## Additional References for Terminal Settings and Sessions

This section includes additional references for terminal settings and sessions on NX-OS devices.

### Related Documents for Terminal Settings and Sessions

Related Topic	Document Title
Licensing	<i>Cisco NX-OS Licensing Guide</i>
Command reference	<i>Cisco Nexus 3000 Command Reference</i>