CHAPTER 4

Configuring Terminal Settings and Sessions

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

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- Licensing Requirements for Terminal Settings and Sessions, page 4-3
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Information About Terminal Settings and Sessions

This section includes the following topics:

- Terminal Session Settings, page 4-2
- Console Port, page 4-2
- COM1 Port, page 4-2
- Virtual Terminals, page 4-2
- Modem Support, page 4-3
- Virtualization Support, page 4-3

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 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/PRODUCTS/Families/MultiModemII/)
- Hayes Accura V.92 (http://www.hayesmicro.com/Products/accura-prod-v92.htm)

Note Do not connect a modem when the device is booting. Follow the procedure specified in the "Initializing a Modem for a Powered-Up Device" section on page 4-15.

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

Virtualization Support

You can configure the COM1 and consoles ports on in the default VDC. You can configure terminal sessions and virtual terminals on both the default and nondefault VDCs. For more information on VDCs, see the *Cisco Nexus 7000 Series NX-OS Virtual Device Context Configuration Guide, Release 4.0*.

Licensing Requirements for Terminal Settings and Sessions

The following table shows the licensing requirements for this feature:

Product	License Requirement
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 NX-OS licensing scheme, see the *Cisco NX-OS Licensing Guide*.

Configuring the Terminal Settings

You can set the following terminal type and display characteristics for your terminal session:

- Terminal type
- Screen length
- Screen width

- Inactive session timeout

Note Any changes that you make to these settings exist only for the duration of the session.

SUMMARY STEPS

1. **terminal terminal-type** *type*
   terminal length *lines*
   terminal width *columns*
   terminal session-timeout *minutes*
2. **show terminal**

DETAILED STEPS

	Command	Purpose
Step 1	**terminal terminal-type** *type* **Example:** `switch# terminal terminal-type vt100`	Sets the terminal type. The *terminal-type* string is case sensitive, must be a valid type (for example, **vt100** or **xterm**), and has a maximum of 80 characters. The default type is **ansi**.
	terminal length *lines* **Example:** `switch# terminal length 24`	Sets the terminal length for displaying command output before pausing. The range is from 0 to 511 lines. Use 0 to not pause while displaying output. The initial default for the console is 0. The initial default for virtual terminal sessions is 31.
	terminal width *columns* **Example:** `switch# terminal width 70`	Sets the terminal width for displaying command output. The range is from 24 to 511 columns. The default is 80 characters.
	terminal session-timeout *minutes* **Example:** `switch# terminal session-timeout 60`	Sets the inactivity timeout for your terminal session. The range is from 0 to 525600 minutes (8760 hours). A value of 0 minutes disables the session timeout. The default is 0.
Step 2	**show terminal** **Example:** `switch# show terminal`	(Optional) Displays the terminal settings.

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.

Ensure that you are in the default VDC.

SUMMARY STEPS

1. **configure terminal**
2. **line console**
3. **databits** *bits*

   exec-timeout *minutes*

   parity {**even** | **none** | **odd**}

   speed {**300** | **1200** | **2400** | **4800** | **9600** | **38400** | **57600** | **115200**}

   stopbits {1 | 2}
4. **exit**
5. **show line console**
6. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose
Step 1	**configure terminal** **Example:** switch# configure terminal switch(config)#	Enters global configuration mode.
Step 2	**line console** **Example:** switch# line console switch(config-console)#	Enters console configuration mode.

	Command	Purpose
Step 3	**databits** *bits* **Example:** switch(config-console)# databits 7	Configures the number of data bits per byte. The range is 5 to 8. The default is 8.
	exec-timeout *minutes* **Example:** switch(config-console)# exec-timeout 30	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 0 minutes.
	parity {**even** | **none** | **odd**} **Example:** switch(config-console)# parity even	Configures the parity. The default is **none**.
	speed {**300** | **1200** | **2400** | **4800** | **9600** | **38400** | **57600** | **115200**} **Example:** switch(config-console)# speed 115200	Configures the transmit and receive speed. The default is **115200**.
	stopbits {**1** | **2**} **Example:** switch(config-console)# stopbits 2	Configures the stop bits. The default is **1**.
Step 4	**exit** **Example:** switch(config-console)# exit switch(config)#	Exits console configuration mode.
Step 5	**show line console** **Example:** switch(config)# show line console	(Optional) Displays the console settings.
Step 6	**copy running-config startup-config** **Example:** switch(config)# copy running-config startup-config	(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.

Ensure that you are in the default VDC.

SUMMARY STEPS

1. **configure terminal**
2. **line com1**
3. **databits** *bits*
   flowcontrol hardware
   parity {**even** | **none** | **odd**}
   speed {**300** | **1200** | **2400** | **4800** | **9600** | **38400** | **57600** | **115200**}
   stopbits {**1** | **2**}
4. **exit**
5. **show line console**
6. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose
Step 1	**configure terminal** **Example:** switch# configure terminal switch(config)#	Enters global configuration mode.
Step 2	**line com1** **Example:** switch# line com1 switch(config-com1)#	Enters COM1 configuration mode.
Step 3	**databits** *bits* **Example:** switch(config-com1)# databits 7	Configures the number of data bits per byte. The range is from 5 to 8. The default is 8.
	flowcontrol hardware **Example:** switch(config-com1)# flowcontrol hardware	Enables flow control on the hardware. The default is enabled. Use the **no flowcontrol hardware** command to disable flow control on the hardware.
	parity {**even** | **none** | **odd**} **Example:** switch(config-com1)# parity even	Configures the parity. The default is **none**.
	speed {**300** | **1200** | **2400** | **4800** | **9600** | **38400** | **57600** | **115200**} **Example:** switch(config-com1)# speed 115200	Configures the transmit and receive speed. The default is **9600**.
	stopbits {**1** | **2**} **Example:** switch(config-com1)# stopbits 2	Configures the stop bits. The default is **1**.

	Command	Purpose

Step 4	**exit**
	
	Example:
	`switch(config-com1)# exit`
	`switch(config)#`
		Exits COM1 configuration mode.

Step 5	**show line console** **Example:** `switch(config)# show line console`	(Optional) Displays the console settings.
Step 6	**copy running-config startup-config** **Example:** `switch(config)# copy running-config startup-config`	(Optional) Copies the running configuration to the startup configuration.

Configuring Virtual Terminals

This section includes the following topics:

- Configuring the Inactive Session Timeout, page 4-8
- Configuring the Session Limit, page 4-9

Configuring the Inactive Session Timeout

You can configure a timeout for inactive virtual terminal sessions on a VDC.

SUMMARY STEPS

1. **configure terminal**
2. **line vty**
3. **exec-session** *minutes*
4. **exit**
5. **show running-config all | begin vty**
6. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose
Step 1	**configure terminal** **Example:** switch# configure terminal switch(config)#	Enters global configuration mode.
Step 2	**line vty** **Example:** switch# line vty switch(config-line)#	Enters line configuration mode.
Step 3	**exec-session** *minutes* **Example:** switch(config-line)# exec-session 30	Configures the inactive session timeout for the VDC. The range is from 0 to 525600 minutes (8760 hours). A value of 0 minutes disables the timeout. The default value is 0.
Step 4	**exit** **Example:** switch(config-line)# exit switch(config)#	Exits line configuration mode.
Step 5	**show running-config all | begin vty** **Example:** switch(config)# show running-config all | begin vty	(Optional) Displays the virtual terminal configuration.
Step 6	**copy running-config startup-config** **Example:** switch(config)# copy running-config startup-config	(Optional) Copies the running configuration to the startup configuration.

Configuring the Session Limit

You can limit the number of virtual terminal sessions on your device.

SUMMARY STEPS

1. **configure terminal**
2. **line vty**
3. **session-limit** *sessions*
4. **exit**
5. **show running-config all | begin vty**
6. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose
Step 1	**configure terminal** **Example:** switch# configure terminal switch(config)#	Enters global configuration mode.
Step 2	**line vty** **Example:** switch# line vty switch(config-line)#	Enters line configuration mode.
Step 3	**session-limit** *sessions* **Example:** switch(config-line)# session-limit 10	Configures the maximum number of virtual sessions for the VDC. The range is from 1 to 64. The default is 32.
Step 4	**exit** **Example:** switch(config-line)# exit switch(config)#	Exits line configuration mode.
Step 5	**show running-config all | begin vty** **Example:** switch(config)# show running-config all | begin vty	(Optional) Displays the virtual terminal configuration.
Step 6	**copy running-config startup-config** **Example:** switch(config)# copy running-config startup-config	(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.

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

This section includes the following topics:

- Enabling a Modem Connection, page 4-11
- Downloading the Default Initialization String, page 4-12
- Configuring and Downloading a User-Specified Initialization String, page 4-14
- Initializing a Modem for a Powered-Up Device, page 4-15

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.

SUMMARY STEPS

1. **configure terminal**
2. **line com1**

   line console
3. **modem in**
4. **exit**
5. **show line**
6. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose

Step 1	**configure terminal**
	
	Example:
	`switch# configure terminal`
	`switch(config)#`
		Enters global configuration mode.

Step 2	**line com1**
	
	Example:
	`switch# line com1`
	`switch(config-com1)#`
		Enters COM1 configuration mode.

	line console
	
	Example:
	`switch# line console`
	`switch(config-console)#`
		Enters console configuration mode.

	Command	Purpose
Step 3	**modem in** **Example:** `switch(config-com1)# modem in`	Enables modem input on the COM1 port.
	modem in **Example:** `switch(config-console)# modem in`	Enables modem input on the console port.

Step 4	**exit**
	
	Example:
	`switch(config-com1)# exit`
	`switch(config)#`
		Exits COM1 configuration mode.

	exit
	
	Example:
	`switch(config-console)# exit`
	`switch(config)#`
		Exits console configuration mode.

Step 5	**show line** **Example:** `switch(config)# show line`	(Optional) Displays the console and COM1 settings.
Step 6	**copy running-config startup-config** **Example:** `switch(config)# copy running-config startup-config`	(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.

SUMMARY STEPS

1. **configure terminal**
2. **line com1**

   line console
3. **modem init-string default**
4. **exit**
5. **show line**
6. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose
Step 1	**configure terminal** **Example:** switch# configure terminal switch(config)#	Enters global configuration mode.
Step 2	**line com1** **Example:** switch# line com1 switch(config-com1)#	Enters COM1 configuration mode.
	line console **Example:** switch# line console switch(config-console)#	Enters console configuration mode.
Step 3	**modem init-string default** **Example:** switch(config-com1)# modem init-string default	Writes the default initialization string to the modem.
	modem init-string default **Example:** switch(config-console)# modem init-string default	Writes the default initialization string to the modem.
Step 4	**exit** **Example:** switch(config-com1)# exit switch(config)#	Exits COM1 configuration mode.
	exit **Example:** switch(config-console)# exit switch(config)#	Exits console configuration mode.
Step 5	**show line** **Example:** switch(config)# show line	(Optional) Displays the console and COM1 settings.
Step 6	**copy running-config startup-config** **Example:** switch(config)# copy running-config startup-config	(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.

SUMMARY STEPS

1. **configure terminal**
2. **line com1**

   line console
3. **modem set-string user-input** *string*
4. **modem init-string user-input**
5. **exit**
6. **show line**
7. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose

Step 1	**configure terminal**
	
	Example:
	`switch# configure terminal`
	`switch(config)#`
		Enters global configuration mode.

Step 2	**line com1**
	
	Example:
	`switch# line com1`
	`switch(config-com1)#`
		Enters COM1 configuration mode.

	line console
	
	Example:
	`switch# line console`
	`switch(config-console)#`
		Enters console configuration mode.

	Command	Purpose
Step 3	**modem set-string user-input** *string* **Example:** `switch(config-com1)# modem set-string user-input ATE0Q1&D2&C1S0=3\015`	Sets the user-specified initialization string for the COM1 port. The initialization string is alphanumeric and case sensitive, can contain special characters, and has a maximum of 100 characters. **Note** You must first set the user-input string before initializing the string.
	modem set-string user-input *string* **Example:** `switch(config-console)# modem set-string user-input ATE0Q1&D2&C1S0=3\015`	Sets the user-specified initialization string for the console port. The initialization string is alphanumeric and case sensitive, can contain special characters, and has a maximum of 100 characters. **Note** You must first set the user-input string before initializing the string.
Step 4	**modem init-string user-input** **Example:** `switch(config-com1)# modem init-string user-input`	Writes the user-specified initialization string to the modem connected to the COM1 port.
	modem init-string user-input **Example:** `switch(config-console)# modem init-string user-input`	Writes the user-specified initialization string to the modem connected to the console port.

Step 5	**exit**
	
	Example:
	`switch(config-com1)# exit`
	`switch(config)#`
		Exits COM1 configuration mode.

	exit
	
	Example:
	`switch(config-console)# exit`
	`switch(config)#`
		Exits console configuration mode.

Step 6	**show line** **Example:** `switch(config)# show line`	(Optional) Displays the COM1 and console settings.
Step 7	**copy running-config startup-config** **Example:** `switch(config)# copy running-config startup-config`	(Optional) Copies the running configuration to the startup configuration.

Initializing a Modem for a Powered-Up 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 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 (see the "Enabling a Modem Connection" section on page 4-11).

SUMMARY STEPS

1. **modem connect line** {**com1** | **console**}

DETAILED STEPS

	Command	Purpose
Step 1	**modem connect line** {**com1** | **console**} **Example:** switch# modem connect line com1	Initializes the modem connected to the device.

Clearing Terminal Sessions

You can clear terminal sessions on the device.

SUMMARY STEPS

1. **show users**
2. **clear line** *name*

DETAILED STEPS

	Command	Purpose
Step 1	**show users**	(Optional) Displays the user sessions on the device.
Step 2	**clear line** *name* **Example:** 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
show terminal	Displays terminal settings.
show line	Displays the COM1 and console ports settings.
show users	Displays virtual terminal sessions.
show running-config [**all**]	Displays the user account configuration in the running configuration. The **all** keyword displays the default values for the user accounts.

For detailed information about the fields in the output from these commands, see the *Cisco Nexus 7000 Series NX-OS Fundamentals Command Reference, Release 4.0*.

Default Settings

Table 4-1 lists the default settings for terminal displays and session parameters.

Table 4-1 Default Terminal Display and Session Parameters

Parameters	Default
Terminal type	**ansi**
Terminal length	0 lines for console sessions 31 lines for virtual terminal sessions
Terminal width	80 columns
Terminal inactive session timeout	Disabled (0 minutes)
Console session data bits	8
Console inactive session timeout	Disabled (0 minutes)
Console session parity	**none**
Console session speed	11520 bps
Console session stop bits	1
COM1 session data bits	8
COM1 hardware flow control	Enabled
COM1 session parity	**none**
COM1 session speed	9600 bps
COM1 session stop bits	1
Virtual terminal inactive session timeout	Disabled (0 minutes)
Virtual terminal sessions limit	32
Modem default initialization string	ATE0Q1&D2&C1S0=1\015

Additional References

For additional information related to implementing Feature-1, see the following sections:

- Related Documents, page 4-17

Related Documents

Related Topic	Document Title
Licensing	*Cisco Nexus 7000 Series NX-OS Licensing Guide, Release 4.0*
Command reference	*Cisco Nexus 7000 Series NX-OS Fundamentals Command Reference, Release 4.0*