Terminal Services Commands on Cisco IOS XR Software

This chapter describes the Cisco IOS XR commands used for setting up physical and virtual terminal connections, managing terminals, and configuring virtual terminal line (vty) pools.

For detailed information about configuring physical and virtual terminals, see the *Implementing Physical and Virtual Terminals on Cisco IOS XR Software* module in *Cisco IOS XR System Management Configuration Guide*.

absolute-timeout

To set the absolute timeout for line disconnection, use the **absolute-timeout** command in line template configuration mode. To remove the **absolute-timeout** command from the configuration file and restore the system to its default condition, use the **no** form of this command.

absolute-timeout *minutes*

no absolute-timeout *minutes*

Syntax Description	*minutes* Absolute timeout interval, in minutes. Range is from 10 to 10000.

Defaults	*minutes*: 1440

Command Modes	Line template configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **absolute-timeout** command to terminate the connection after the specified time has elapsed, regardless of whether the connection is being used at the time of termination. You can specify an absolute-timeout value for each port. The user is notified 20 seconds before the session is terminated.

Task ID

Task ID	Operations
tty-access	read, write

Examples

The following example shows how to set the session timeout value to 2880 minutes (2 days) for the default line template:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# absolute-timeout 2880
```

Related Commands

Command	Description
exec-timeout	Sets the idle wait timeout interval for user input over a physical terminal connection.
session-timeout	Sets the idle wait timeout interval for user input over a virtual terminal connection.

access-class

To restrict incoming and outgoing connections using an IPv4 or IPv6 access list, use the **access-class** command in line template configuration mode. To remove the **access-class** command from the configuration file and restore the system to its default condition, use the **no** form of this command.

access-class *list-name* {**in** | **out**}

no access-class *list-name* {**in** | **out**}

Syntax Description

list-name	IPv4 or IPv6 access list name.
in	Filters incoming connections.
out	Filters outgoing connections.

Defaults

No access class is set.

Command Modes

Line template configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **access-class** command to restrict incoming or outgoing connections to addresses defined in an access list. Use the **ipv4 access-list** or **ipv6 access-list** command to define an access list by name.

Note To restrict access of incoming or outgoing connections over IPv4 and IPv6, the IPv4 access list and IPv6 access list must share the same name.

Task ID	Task ID	Operations
	tty-access	read, write

Examples

The following example shows how to specify an access class assigned to outgoing connections for the default line template:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# access-class vtyacl out
```

The following sample output from the **show ipv4 access-lists** command displays the IPv4 access list named vtyacl:

```
RP/0/0/CPU0:router# show ipv4 access-lists vtyacl

ipv4 access-list vtyacl
 10 permit ip host 10.32.162.48 any
 20 permit ip host 10.20.49.170 any
 30 permit ip host 10.60.3.5 any
```

The following sample output from the **show ipv6 access-lists** command displays the IPv6 access list name vtyacl:

```
RP/0/0/CPU0:router# show ipv6 access-lists vtyacl

ipv6 access-list vtyacl
 10 permit ipv6 host 2001:db8:2222:: any
 20 permit ipv6 host 2001:db8:0:4::2 any
```

Related Commands

Command	Description
ipv4 access-list	Defines an IPv4 access list by name.
ipv6 access-list	Defines an IPv6 access list by name.

autocommand

To automatically run one or more commands after a user logs in to a vty terminal session, use the **autocommand** command in line default or line template configuration mode. To remove the **autocommand** command from the configuration file and restore the system to its default condition, use the **no** form of this command.

> **autocommand** *command*

> **no autocommand** *command*

Syntax Description		
command	Command or command alias to be executed on user login to a vty session.	

Defaults
No default behavior or values

Command Modes
Line template configuration
Line default configuration

Command History

Release	Modification
Release 3.4.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines
To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **autocommand** command to automatically run a command or command alias when a user logs in to a vty session. To run multiple commands, use a command alias for the *command* argument. When the user logs in, the commands included in the alias are run sequentially.

Note The **autocommand** command is supported on vty connections only; it is not supported on console or aux line connections. Use this command to automatically run a command after user login.

Task ID

Task ID	Operations
tty-access	read, write

Examples   The following example shows how to use the **autocommand** command to automatically run the **show ip interface brief** command when a user logs in to a default vty session:

```
RP/0/RP0/CPU0:router# configure terminal
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# autocommand show ip interface brief
RP/0/RP0/CPU0:router(config-line)# end
Uncommitted changes found, commit them before exiting(yes/no/cancel)? [cancel]:yes
RP/0/RP0/CPU0:router# exit


<Your 'TELNET' connection has terminated>
```

The following example shows how the **show ip interface brief** command is automatically run when the user logs on to a vty session:

```
User Access Verification

Username: lab
Password:

Executing Autocommand 'show ip interface brief'
RP/0/RP0/CPU0:router# show ip interface brief

Interface                 IP-Address      Status            Protocol
MgmtEth0/RP0/CPU0/0       172.16.0.0      Up                Up
POS0/0/0/0                unassigned      Up                Up
POS0/0/0/1                unassigned      Up                Up
POS0/0/0/2                unassigned      Up                Up
POS0/0/0/3                unassigned      Up                Up
POS0/3/0/0                unassigned      Up                Up
POS0/3/0/1                unassigned      Up                Up
POS0/3/0/2                unassigned      Up                Up
POS0/3/0/3                unassigned      Up                Up
```

The following example shows how to disable the **autocommand** feature using the **no autocommand** command. In this example, the autocommand for the **show ip interface brief** command is disabled. When the user logs out, and logs back in, the autocommand does not run.

```
RP/0/RP0/CPU0:router# configure terminal
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# no autocommand ?
  LINE  Appropriate EXEC command
RP/0/RP0/CPU0:router(config-line)# no autocommand show ip interface brief
RP/0/RP0/CPU0:router(config-line)# end
Uncommitted changes found, commit them before exiting(yes/no/cancel)? [cancel]:yes
RP/0/RP0/CPU0:router# exit

<Your 'TELNET' connection has terminated>

User Access Verification

Username:
Username: lab
Password:
RP/0/RP0/CPU0:router#
```

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The following example shows how to a command alias with the **autocommand** feature to run more than one command when a user logs in to a default vty session. In this example, the alias "test" is created to include the **show ip interface brief** command and the **show users** command. The autocommand feature is then used to run the "test" alias when a user logs in to the vty terminal:

```
RP/0/RP0/CPU0:router# configure terminal
RP/0/RP0/CPU0:router(config)# alias test show ip interface brief; show users
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# autocommand test
RP/0/RP0/CPU0:router(config-line)# end


Uncommitted changes found, commit them before exiting(yes/no/cancel)? [cancel]:yes
RP/0/RP0/CPU0:router# exit

<Your 'TELNET' connection has terminated>



User Access Verification

Username: lab
Password:

Executing Autocommand 'test'
RP/0/RP0/CPU0:router# test

RP/0/RP0/CPU0:router# show ip interface brief

Interface                  IP-Address     Status            Protocol
MgmtEth0/RP0/CPU0/0        172.16.0.0     Up                Up
POS0/0/0/0                 unassigned     Up                Up
POS0/0/0/1                 unassigned     Up                Up
POS0/0/0/2                 unassigned     Up                Up
POS0/0/0/3                 unassigned     Up                Up
POS0/3/0/0                 unassigned     Up                Up
POS0/3/0/1                 unassigned     Up                Up
POS0/3/0/2                 unassigned     Up                Up
POS0/3/0/3                 unassigned     Up                Up

RP/0/RP0/CPU0:router# show users
   Line          User              Service  Conns  Idle       Location
*  vty0          lab               telnet       0  00:00:00   172.16.0.0
```

banner exec

To create a message that is displayed when an EXEC process is created (an EXEC banner), use the **banner exec** command in global configuration mode. To delete the EXEC banner, use the **no** form of this command.

> **banner exec** *delimiter message delimiter*

> **no banner exec**

Syntax Description

delimiter	Delimiting character is "c".
message	Message text. Text may include tokens in the form $(*token*) in the message text. Tokens are replaced with the corresponding configuration variable. Tokens are described in Table 93.

Defaults   No EXEC banner is displayed.

Command Modes   Global configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **banner exec** command to specify a message that is displayed when an EXEC process is created (a line is activated or an incoming connection is made to a vty). Follow this command with one or more blank spaces and the delimiting character (c). After entering one or more lines of text, terminate the message with the delimiting character (c).

When a user connects to a router, the message-of-the-day (MOTD) banner appears first, followed by the login banner and prompts. After the user logs in to the router, the EXEC banner or incoming banner is displayed, depending on the type of connection. For a reverse Telnet login, the incoming banner is displayed. For all other connections, the router displays the EXEC banner.

Use tokens in the form $(token) in the message text to customize the banner. Tokens display current configuration variables, such as the router hostname and IP address.

The tokens are described in

Table 93   banner exec Tokens

Token	Information Displayed in the Banner
$(hostname)	Displays the hostname for the router.
$(domain)	Displays the domain name for the router.
$(line)	Displays the vty or tty (asynchronous) line number.

Task ID

Task ID	Operations
tty-access	read, write

Examples

The following example shows how to set an EXEC banner that uses tokens:

```
RP/0/RP0/CPU0:router(config)# banner exec c
Enter TEXT message.  End with the character 'c'.
THIS IS AN EXEC BANNER
c
```

Related Commands

Command	Description
banner incoming	Defines and enables a customized message that is displayed when there is an incoming connection to a terminal line from a host on the network.
banner login	Defines and enables a customized banner that is displayed before the username and password login prompts.
banner motd	Defines a customized MOTD banner.
banner prompt-timeout	Defines a customized banner that is displayed when there is a login timeout.

banner incoming

To create a banner that is displayed when there is an incoming connection to a terminal line from a host on the network, use the **banner incoming** command in global configuration mode. To delete the incoming connection banner, use the **no** form of this command.

banner incoming *delimiter message delimiter*

no banner incoming

Syntax Description		
delimiter	Delimiting character is "c".
message	Message text. You can include tokens in the form $(*token*) in the message text. Tokens are replaced with the corresponding configuration variable. Tokens are described in Table 94.

Defaults No incoming banner is displayed.

Command Modes Global configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Follow the **banner incoming** command with one or more blank spaces and the delimiting character (c). After entering one or more lines of text, terminate the message with the second occurrence of the delimiting character (c).

An *incoming connection* is one initiated from the network side of the router. Incoming connections are also called reverse Telnet sessions. These sessions can display message-of-the-day (MOTD) banners and incoming banners, but they do not display EXEC banners.

When a user connects to a router, the MOTD banner (if configured) appears first, followed by the login banner and prompts. After the user logs in to the router, the EXEC banner or incoming banner is displayed, depending on the type of connection. For a reverse Telnet login, the incoming banner is displayed. For all other connections, the router displays the EXEC banner.

Incoming banners cannot be suppressed. If you do not want the incoming banner to appear, you must delete it with the **no banner incoming** command.

To customize the banner, use tokens in the form $(*token*) in the message text. Tokens display current variables, such as the router hostname and IP address. Tokens are described in Table 94.

Table 94   banner incoming Tokens

Token	Information Displayed in the Banner
$(hostname)	Displays the hostname for the router.
$(domain)	Displays the domain name for the router.
$(line)	Displays the vty or tty (asynchronous) line number.

Task ID

Task ID	Operations
tty-access	read, write

Examples

The following example shows how to create an incoming connection banner:

```
RP/0/RP0/CPU0:router(config)# banner incoming c
Enter TEXT message. End with the character 'c'
THIS IS AN INCOMING BANNER.
c
```

Related Commands

Command	Description
banner exec	Defines a customized banner that is displayed whenever the EXEC process is initiated.
banner login	Defines and enables a customized banner that is displayed before the username and password login prompts.
banner motd	Defines a customized MOTD banner.
banner prompt-timeout	Defines a customized banner that is displayed when there is a login timeout.

banner login

To create a customized banner that is displayed before the username and password login prompts, use the **banner login** command in global configuration mode. To disable the login banner, use **no** form of this command.

> **banner login** *delimiter message delimiter*

> **no banner login**

Syntax Description	*delimiter*	Delimiting character is "c".
	message	Message text. You can include tokens in the form $(*token*) in the message text. Tokens are replaced with the corresponding configuration variable. Tokens are described in Table 95.

Defaults No login banner is displayed.

Command Modes Global configuration

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.
	Release 3.6.0	No modification.
	Release 3.7.0	No modification.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Follow the **banner login** command with one or more blank spaces and the delimiting character (c). Then enter one or more lines of text, terminating the message with the second occurrence of the delimiting character (c).

When a user connects to the router, the message-of-the-day (MOTD) banner (if configured) appears first, followed by the login banner and prompts. After the user successfully logs in to the router, the EXEC banner or incoming banner is displayed, depending on the type of connection. For a reverse Telnet login, the incoming banner is displayed. For all other connections, the router displays the EXEC banner.

To customize the banner, use tokens in the form $(*token*) in the message text. Tokens display current configuration variables, such as the router hostname and IP address.

Tokens are described in Table 95.

Table 95   banner login Tokens

Token	Information Displayed in the Banner
$(hostname)	Displays the hostname for the router.
$(domain)	Displays the domain name for the router.
$(line)	Displays the vty or tty (asynchronous) line number.

Task ID

Task ID	Operations
tty-access	read, write

Examples

The following example shows how to set a login banner:

```
RP/0/RP0/CPU0:router(config)# banner login c
Enter TEXT message. End with the character 'c'.
THIS IS A LOGIN BANNER
c
```

Related Commands

Command	Description
banner exec	Defines a customized banner that is displayed whenever the EXEC process is initiated.
banner incoming	Defines and enables a customized message that is displayed when there is an incoming connection to a terminal line from a host on the network.
banner motd	Defines a customized MOTD banner.
banner prompt-timeout	Defines a customized banner that is displayed when there is a login timeout.

banner motd

To create a message-of-the-day (MOTD) banner, use the **banner motd** command in global configuration mode. To delete the MOTD banner, use the **no** form of this command.

> **banner motd** *delimiter message delimiter*

> **no banner motd**

Syntax Description

delimiter	Delimiting character is "c".
message	Message text. You can include tokens in the form $(*token*) in the message text. Tokens are replaced with the corresponding configuration variable.

Defaults

No MOTD banner is displayed.

Command Modes

Global configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Follow this command with one or more blank spaces and the delimiting character (c). Then enter one or more lines of text, terminating the message with the second occurrence of the delimiting character (c).

This MOTD banner is displayed to all terminals connected and is useful for sending messages that affect all users (such as impending system shutdowns). Use the **no motd-banner** command to disable the MOTD banner on a line.

When a user connects to the router, the MOTD banner (if configured) appears first, followed by the login banner and prompts. After the user successfully logs in to the router, the EXEC banner or incoming banner is displayed, depending on the type of connection. For a reverse Telnet login, the incoming banner is displayed. For all other connections, the router displays the EXEC banner.

To customize the banner, use tokens in the form $(token) in the message text. Tokens display current configuration variables, such as the router hostname and IP address.

Tokens are described in Table 96.

Table 96   banner motd Tokens

Token	Information Displayed in the Banner
$(hostname)	Displays the hostname for the router.
$(domain)	Displays the domain name for the router.
$(line)	Displays the vty or tty (asynchronous) line number.

Task ID

Task ID	Operations
tty-access	read, write

Examples

The following example shows how to configure an MOTD banner with a token:

```
RP/0/RP0/CPU0:router(config)# banner motd c
Enter TEXT message.  End with the character 'c'.
Notice: all routers in $(domain) will be upgraded beginning April 20
c
```

Related Commands

Command	Description
banner exec	Defines and enables a customized banner that is displayed whenever the EXEC process is initiated.
banner incoming	Defines and enables a customized message that is displayed when there is an incoming connection to a terminal line from a host on the network.
banner login	Defines and enables a customized banner that is displayed before the username and password login prompts.
banner prompt-timeout	Defines a customized banner that is displayed when there is a login timeout.

banner prompt-timeout

To create a banner that is displayed when there is a login authentication timeout, use the **banner prompt-timeout** command in global configuration mode. To delete the prompt timeout banner, use the **no** form of this command.

> **banner prompt-timeout** *delimiter message delimiter*

> **no banner prompt-timeou**t

Syntax Description

delimiter	Delimiting character is "c".
message	Message text. You can include tokens in the form $(*token*) in the message text. Tokens are replaced with the corresponding configuration variable.

Defaults   No banner is displayed when there is a login authentication timeout.

Command Modes   Global configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Follow this command with one or more blank spaces and the delimiting character (c). Then enter one or more lines of text, terminating the message with the second occurrence of the delimiting character (c).

This prompt-timeout banner is displayed when there is a login authentication timeout at the username and password prompt.

Task ID

Task ID	Operations
tty-access	read, write

Examples

The following example shows how to configure a prompt-timeout banner:

```
RP/0/RP0/CPU0:router(config)# banner prompt-timeout c
Enter TEXT message.  End with the character 'c'.
THIS IS A PROMPT TIMEOUT BANNER
c
```

Related Commands

Command	Description
banner exec	Defines and enables a customized banner that is displayed whenever the EXEC process is initiated.
banner incoming	Defines and enables a customized message that is displayed when there is an incoming connection to a terminal line from a host on the network.
banner login	Defines and enables a customized banner that is displayed before the username and password login prompts.
banner motd	Defines a customized MOTD banner.

clear line

To clear an auxiliary or console line to an idle state, use the **clear line location** command in EXEC mode.

> **clear line** {**aux** | **console**} **location** *node-id*

Syntax Description

node-id	Node ID, entered in the *rack*/*slot*/*module* notation. The location refers to a route processor (RP) where the auxiliary or console line to be cleared resides.
aux	Clears the auxiliary line.
console	Clears the console line.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
tty-access	execute

Examples

The following example shows how to clear the console line, putting it in an idle state:

```
RP/0/RP0/CPU0:router# clear line console location 0/RP1/CPU0
```

■ **clear line**

Related Commands

Command	Description
show users	Displays information about the active lines on the networking device.

clear line vty

To clear a virtual terminal line (vty) to an idle state, use the **clear line vty** command in EXEC mode.

>**clear line vty** *line-number*

Syntax Description

line-number	Line number in the range from 0 to 99.

Defaults   No default behavior or values

Command Modes   EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show users** command to determine the origin of the connection and which lines to clear. When a line is cleared to an idle state, the user on the other end of the connection receives notice that the connection was closed by a foreign host.

Task ID

Task ID	Operations
tty-access	execute

Examples   The following example shows how to reset vty 3 to the idle state:

```
RP/0/RP0/CPU0:router# clear line vty 3
```

Cisco IOS XR System Management Command Reference ■

Related Commands	Command	Description
	show users	Displays information about the active lines on the networking device.

cli interactive syntax check

To enable interactive syntax checking, use the **cli interactive syntax check** command in the appropriate line configuration mode. To disable interactive syntax checking, use the **no** form of this command.

cli interactive syntax check

no cli interactive syntax check

Syntax Description   This command has no arguments or keywords.

Defaults   Interactive syntax checking is disabled.

Command Modes   Line console configuration
Line default configuration
Line template configuration

Command History

Release	Modification
Release 3.3.0	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **cli interactive syntax check** command to check command syntax as you type. You are not allowed to enter incorrect syntax.

Task ID

Task ID	Operations
tty-access	read, write

Examples   The following example shows how to enable interactive syntax checking:

```
RP/0/RP0/CPU0:router(config)# line console
RP/0/RP0/CPU0:router(config-line)# cli interactive syntax check
```

■ **cli interactive syntax check**

Related Commands

Command	Description
cli whitespace completion	Enables completion of a command when you type the space key.

cli whitespace completion

To enable completion of a command when you type the space key, use the **cli whitespace completion** command in the appropriate line configuration mode. To disable whitespace completion, use the **no** form of this command.

> **cli whitespace completion**

> **no cli whitespace completion**

Syntax Description   This command has no arguments or keywords.

Defaults   Whitespace completion is disabled.

Command Modes   Line console configuration
Line default configuration
Line template configuration

Command History

Release	Modification
Release 3.3.0	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **cli whitespace completion** command to complete the next word of the command syntax if you type the space key before completing the word. If more than one option is valid, all options are displayed for you to choose one.

Task ID

Task ID	Operations
tty-access	read, write

Examples   The following example shows how to enable whitespace completion:

```
RP/0/RP0/CPU0:router(config)# line console
RP/0/RP0/CPU0:router(config-line)# cli whitespace completion
```

Cisco IOS XR System Management Command Reference ■

Related Commands	Command	Description
	cli interactive syntax check	Enables interactive syntax checking.

databits

To set the data bits per character for physical terminal connections, use the **databits** command in line console configuration mode. To restore the default value, use the **no** form of this command.

databits {**5** | **6** | **7** | **8**}

no databits

<table>
<tr><td rowspan="4">**Syntax Description**</td><td>**5**</td><td>Sets the data bits per character to 5.</td></tr>
<tr><td>**6**</td><td>Sets the data bits per character to 6.</td></tr>
<tr><td>**7**</td><td>Sets the data bits per character to 7.</td></tr>
<tr><td>**8**</td><td>Sets the data bits per character to 8.</td></tr>
</table>

Defaults   Eight databits per character.

Command Modes   Line console configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **databits** command to set the data bits attributes for physical terminal connections. Physical terminal connections use either the console or auxiliary line template.

The **databits** command masks the high bit on input from devices that generate 7 data bits with parity. If parity is being generated, specify 7 data bits per character. If no parity generation is in effect, specify 8 data bits per character. The keywords **5** and **6** are supplied for compatibility with older devices and generally are not used.

Task ID	**Task ID**	**Operations**
	tty-access	read, write

Examples

The following example shows how to set the data bits per character for the console terminal template to 7:

```
RP/0/RP0/CPU0:router(config)# line console
RP/0/RP0/CPU0:router(config-line)# databits 7
```

Related Commands

Command	**Description**
show users	Displays information about the active lines on the networking device.
stopbits	Sets the number of stop bits.

disconnect

To disconnect a network connection, use the **disconnect** command in EXEC mode.

> **disconnect** [*connection-number* | *network-name*]

Syntax Description

connection-number	(Optional) Number of the line of the active network connection to be disconnected. Range is from 1 to 20.
network-name	(Optional) Name of the active network connection to be disconnected.

EXEC

Defaults   Disconnects the existing network connection if no arguments are provided.

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Do not disconnect a line to end a session. Instead, log off the host before ending the session to clear the connection. If you cannot log out of an active session, disconnect the line.

Task ID

Task ID	Operations
tty-access	read, write

Examples   The following example shows how to disconnect from a device (in this example User1) to return to the router:

```
User1% disconnect
 Connection closed by remote host

RP/0/RP0/CPU0:router#
```

disconnect-character

To define a character to disconnect a session, use the **disconnect-character** command in line template configuration mode. To remove the **disconnect-character** command from the configuration file and restore the system to its default condition, use the **no** form of this command.

disconnect-character [*number* | *character*]

no disconnect-character

Syntax Description

number	(Optional) ASCII decimal equivalent of the disconnect character. Range is from 0 through 255.
character	(Optional) Disconnect character.

Defaults   No disconnect character is defined.

Command Modes   Line template configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The break character is represented by 0; null cannot be represented. Refer to the "ASCII Character Set and Hex Values" appendix for a list of ASCII characters.

Task ID

Task ID	Operations
tty-access	read, write

Examples   The following example shows how to set the disconnect character for the default line template to the Esc character, which is the ASCII decimal equivalent 27:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# disconnect-character 27
```

Related Commands

Command	Description
escape-character	Defines an escape character.

escape-character

To define a character to escape a session, use the **escape-character** command in line template configuration mode. To remove the **escape-character** command from the configuration file and restore the system to its default condition, use the **no** form of this command.

escape-character {**break** | *number* | *character* | **default** | **none**}

no escape-character

Syntax Description

break	Sets the escape character to the Break key.
number	ASCII decimal equivalent of the escape character. Range is from 0 through 255.
character	Escape character.
default	Specifies the default escape character (^^X).
none	Disables the escape function.

Defaults   The default escape character is ^^X.

Command Modes   Line template configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **escape-character** command to define an escape character sequence that is different from the default. Use the escape character to exit from an existing connection and return to the EXEC prompt. See the "ASCII Character Set and Hexidecimal Values" appendix for a list of ASCII characters.

The default escape key sequence is Ctrl-Shift-6, X (^^X). The **escape-character default** command sets the escape character to the Break key (the default setting for the Break key is Ctrl-C).

Task ID	Task ID	Operations
	tty-access	read, write

Examples

The following example shows how to set the escape character for the default line template to Ctrl-P, which is the ASCII decimal character 16:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# escape-character 16
```

Related Commands

Command	Description
disconnect-character	Defines a disconnect character.

exec-timeout

To set the interval that the EXEC command interpreter waits until user input is detected, use the **exec-timeout** command in the appropriate line configuration mode. To remove the **exec-timeout** command from the running configuration and restore the system to its default condition, use the **no** form of this command.

exec-timeout *minutes seconds*

no exec-timeout *minutes seconds*

Syntax Description	*minutes*	Minutes for the wait interval. Range is from 0 to 35791.
	seconds	Seconds for the wait interval. Range is from 0 to 2147483.

Defaults
minutes: 10
seconds: 0

Command Modes
Line console configuration
Line default configuration
Line template configuration

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.
	Release 3.6.0	No modification.
	Release 3.7.0	No modification.

Usage Guidelines
To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

If no input is detected during the interval, the EXEC facility resumes the current connection. If no connections exist, the EXEC facility returns the terminal to the idle state and disconnects the incoming session. To disable the EXEC timeout function so that the EXEC session never timeouts, enter the **exec-timeout 0 0** command.

Task ID	Task ID	Operations
	tty-access	read, write

Examples

The following example shows how to set the timeout interval for the console line template to 60 minutes, 0 seconds:

```
RP/0/RP0/CPU0:router(config)# line console
RP/0/RP0/CPU0:router(config-line)# exec-timeout 60 0
```

Related Commands

Command	Description
absolute-timeout	Sets the absolute timeout for line disconnection.
session-timeout	Sets the idle wait timeout interval for user input over a virtual terminal connection.

flowcontrol hardware

To configure the hardware flow control setting for physical terminal connections, use the **flowcontrol hardware** command in line console configuration mode. To remove the attribute from the configuration file and restore the system to its default condition, use the **no** form of this command.

flowcontrol hardware {**in** | **out** | **none**}

no flowcontrol hardware {**in** | **out** | **none**}

Syntax Description		
	in	Specifies inbound flow control.
	out	Specifies outbound flow control.
	none	Specifies no flow control.

Defaults　　　　No default behavior or values

Command Modes　　　　Line console configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines　　　　To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **flowcontrol hardware** command to set the flow control attribute for physical line connections. Physical line connections use either the console or auxiliary line template.

Task ID

Task ID	Operations
tty-access	read, write

Examples   The following example shows how to restrict the hardware flow control to inbound for the console line template:

```
RP/0/RP0/CPU0:router(config)# line console
RP/0/RP0/CPU0:router(config-line)# flowcontrol hardware in
```

Related Commands

Command	Description
show users	Displays information about the active lines on the networking device.

length

To set the number of lines that display at one time on the screen, use the **length** command in line template configuration mode. To remove the length command from the configuration file and restore the system to its default condition, use the **no** form of this command.

length *lines*

no length *lines*

Syntax Description	*lines*	Number of lines that displays on a screen. Range is from 0 through 512. 0 specifies no pausing. The default is 24 lines.

Defaults   *lines*: 24 lines

Command Modes   Line template configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the length command to modify the default length setting for the specified line template. The length setting determines when the screen pauses during the display of multiple-screen output. Specifying a value of 0 for the lines argument prevents the router from pausing between screens of output.

Task ID

Task ID	Operations
tty-access	read, write

Examples   The following example shows how to set the length of the default line template to 33 lines:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# length 33
```

Related Commands

Command	Description
terminal length	Sets the length of the display terminal for the current terminal session.

line

To specify the console, the default, or a user-defined line template and enter line template configuration mode, use the **line** command in global configuration mode.

> **line** {**console** | **default** | **template** *template-name*}

Syntax Description

console	Specifies the line template for the console line.
default	Specifies the default line template.
template *template-name*	Specifies a user-defined line template to be applied to a vty pool.

Defaults   No default behavior or values

Command Modes   Global configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	The **aux** keyword was not supported.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **line** command to specify a line template type and enter into line template configuration mode. Line templates are a collection of attributes used to configure and manage physical terminal line connections (the console and auxiliary ports) and vty connections. The following templates are available in the Cisco IOS XR software:

- Default line template—The default line template that applies to a physical and virtual terminal lines.

- Console line template—The line template that applies to the console line.

- User-defined line templates—User-defined line templates that can be applied to a range of virtual terminal lines.

Task ID	Task ID	Operations
	tty-access	read, write

Examples

The following example shows how to enter line template configuration mode to allow configuration changes to be made to the default line template:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)#
```

Related Commands

Command	Description
vty-pool	Creates or modifies a vty pool.

parity

To set the parity bit for physical terminal connections, use the **parity** command in line console configuration mode. To specify no parity, use the **no** form of this command.

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

> **no parity** {**even** | **none** | **odd**}

Syntax Description

even	Specifies even parity.
none	Specifies no parity.
odd	Specifies odd parity.

Defaults   No parity is set.

Command Modes   Line console configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	The **mark** and **space** keywords were removed.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Communication protocols provided by devices such as terminals and modems often require a specific parity bit setting.

Use the **parity** command for setting the parity attribute for physical terminal connections. Physical terminal connections use either the console or auxiliary line template.

Task ID

Task ID	Operations
tty-access	read, write

Examples   The following example shows how to set the line parity configuration to even for the console line template:

```
RP/0/RP0/CPU0:router(config)# line console
RP/0/RP0/CPU0:router(config-line)# parity even
```

Related Commands

Command	Description
show users	Displays information about the active lines on the networking device.

resume

To switch to another active Secure Shell (SSH) or Telnet session, use the **resume** command in EXEC mode.

resume [*connection*]

Syntax Description

connection	(Optional) Name or number of the active network connection; the default is the most recent connection. Number range is from 1 to 20.

Defaults

The most recent connection.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

SSH and Telnet sessions can be established to another router or server.

When the network session is being established and without disconnecting the network session, you can resume the router console session by typing a special sequence of characters as shown. After switching back to the router console, the network connection can be resumed by specifying the number of the connection or the name of the connection.

You can have several concurrent sessions open and switch back and forth between them. The number of sessions that can be open is defined using the **session-limit** command.

You can switch between sessions by escaping one session and resuming a previously opened session, as follows:

Step 1 Escape from the current session by pressing the escape sequence (Ctrl Shift-6, x [^^X]) to return to the EXEC prompt.

Step 2 Enter the **show sessions** command to list the open sessions. All open sessions associated with the current terminal line are displayed.

Step 3 Enter the **resume** command and the session number to make the connection.

You can also resume the previous session by pressing the **Return** key.

The **^^X** and **resume** commands are available for all supported connection protocols.

Task ID

Task ID	Operations
tty-access	read, write

Examples The following example shows how to escape from one connection and resume another. You can omit the connection name and simply enter the connection number to resume that connection.

```
host1% ^^X
RP/0/RP0/CPU0:router# resume 1
blg_router#
```

Related Commands

Command	Description
session-limit	Sets the maximum number of outgoing terminal sessions from the current terminal.
show sessions	Displays information about SSH and Telnet connections.
telnet	Logs in to a host that supports Telnet.

send

To send messages to one or all terminal lines, use the **send** command in EXEC mode.

send {***** | *line-number* | **aux 0** | **console 0** | **vty** *number*}

Syntax Description

*	Sends a message to all tty lines.
line-number	Line number to which the message is sent. A number from 0 to 101.
aux 0	Sends a message to the auxiliary line.
console 0	Sends a message to the console line.
vty *number*	Sends a message to a virtual terminal line (vty). Range is 0 to 99.

Defaults   No default behavior or values

Command Modes   EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The system prompts for the message, which can be up to 500 characters long. Enter **Ctrl-Z** to end the message. Enter **Ctrl-C** to abort this command.

Task ID

Task ID	Operations
tty-access	read, write

Examples   The following example shows how to send a message to all lines:

```
RP/0/RP0/CPU0:router# send *
```

```
Enter message, end with CTRL/Z; abort with CTRL/C:
The system will be shut down in 10 minutes for repairs.^Z
Send message? [confirm]
RP/0/RP0/CPU0:router#

***
***
*** Message from tty to all terminals:
***
The system will be shut down in 10 minutes for repairs.
```

session-limit

To set the maximum number of outgoing terminal sessions from the current terminal, use the **session-limit** command in the appropriate line configuration mode. To remove any specified session limit, use the **no** form of this command.

> **session-limit** *connections*

> **no session-limit**

Syntax Description

connections	Maximum number of outgoing connections. Range is from 0 through 20.

Defaults

connections: 6

Command Modes

Line console configuration
Line default configuration
Line template configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
tty-access	read, write

Examples

The following example shows how to limit the number of active outgoing connections for the default line template to eight:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# session-limit 8
```

session-timeout

To set the timeout interval for all outgoing connections from the current terminal, use the **session-timeout** command in the appropriate line configuration mode. To remove the **session-timeout** command from the configuration file and restore the system to its default condition, use the **no** form of this command.

> **session-timeout** *minutes* [**output**]

> **no session-timeout** *minutes*

Syntax Description

minutes	Timeout interval in minutes. Range is 0 to 35791 minutes. The default is 10 minutes.
output	(Optional) Specifies that when traffic is sent to an asynchronous line from the router (within the specified interval), the connection is retained.

Defaults   *minutes*: 10 minutes

Command Modes   Line console configuration
Line default configuration
Line template configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **session-timeout** command to set the interval that the Cisco IOS XR software waits for traffic before closing the connection to a remote device and returning the terminal to an idle state. If the **output** keyword is not specified, the session timeout interval is based solely on detected input from the user. If the **output** keyword is specified, the interval is based on input and output traffic.

Task ID	Task ID	Operations
	tty-access	read, write

Examples

The following example shows how to set the session timeout value for the default line template to 120 minutes (2 hours):

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# session-timeout 120
```

show line

To display the parameters of terminal lines, use the **show line** command in EXEC mode.

show line [**aux location** *node-id* | **console location** *node-id* | **vty** *number*]

Syntax Description

location *node-id*	(Optional) Specifies the location for the route processor (RP) on which the auxiliary or console port resides. The *node-id* argument is entered in the *rack/slot/module* notation.
aux	Displays the terminal line parameters for the auxiliary line.
console	Displays the terminal line parameters for the console line.
vty *number*	(Optional) Specifies a virtual terminal line (vty) number. Range is from 0 through 99.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
tty-access	read

Examples

The following is sample output from the **show line** command. The asterisk (*) indicates the current terminal session.

```
RP/0/RP0/CPU0:router# show line
```

```
  Tty              Speed    Modem  Uses   Noise Overruns      Acc I/O
    aux0_0_0       9600       -      -      -      0/0           -/-
*   con0_0_0       9600       -      -      -      0/0           -/-
    vty0           0/0        -      -      -      0/0           -/-
    vty1           0/0        -      -      -      0/0           -/-
    vty2           0/0        -      -      -      0/0           -/-
    vty3           0/0        -      -      -      0/0           -/-
    vty4           0/0        -      -      -      0/0           -/-
    vty100         0/0        -      -      -      0/0           -/-
    vty101         0/0        -      -      -      0/0           -/-
    vty102         0/0        -      -      -      0/0           -/-
    vty103         0/0        -      -      -      0/0           -/-
    vty104         0/0        -      -      -      0/0           -/-
    vty105         0/0        -      -      -      0/0           -/-
```

Table 97 describes the significant fields shown in the display.

Table 97   show line Field Descriptions

Field	Description
Tty	Available ttys and vtys.
Speed	Baud rate that the inbound serial connection is using, in bps.
Modem	Not implemented in the Cisco IOS XR software.
Uses	Not implemented in the Cisco IOS XR software.
Noise	Not implemented in the Cisco IOS XR software.
Overruns	Hardware Universal Asynchronous Receiver/Transmitter (UART) overruns or software buffer overflows, both defined as the number of overruns or overflows that have occurred on the specified line since the system was restarted. Hardware overruns are buffer overruns; the UART chip has received bits from the software faster than it can process them. A software overflow occurs when the software has received bits from the hardware faster than it can process them.
Acc I/O	Not implemented in the Cisco IOS XR software.

The following is sample output from the **show line** command with the console line specified:

```
RP/0/RP0/CPU0:router# show line console location 0/rp0/cpu0

  Tty            Speed    Overruns            Acc I/O
  con0/RP0/CPU0  9600       0/0                  -/-

Line con0_RP0_CPU0, Location "0/RP0/CPU0", Type "Console"
Length: 24 lines, Width: 80 columns
Baud rate (TX/RX) is 9600, 1 parity, 2 stopbits, 8 databits
Template: console
Capabilities: Timestamp Disabled
Allowed transports are none.
```

Table 98 describes the significant fields shown in the display.

Table 98 *show line location Field Descriptions*

Field	Description
Tty	Unique identifier of the tty; it contains the type of tty and, for physical ttys, it indicates the physical location of the tty.
Speed	Baud rate that the inbound serial connection is using in bps.
Modem	Not been implemented on the Cisco IOS XR software.
Uses	Not been implemented on the Cisco IOS XR software.
Noise	Not been implemented on the Cisco IOS XR software.
Overruns	Hardware UART overruns or software buffer overflows, both defined as the number of overruns or overflows that have occurred on the specified line since the system was restarted. Hardware overruns are buffer overruns; the UART chip has received bits from the software faster than it can process them. A software overflow occurs when the software has received bits from the hardware faster than it can process them.
Acc I/O	Not implemented in the Cisco IOS XR software.
Line	Unique identifier of the TTY. This field displays the type of TTY and the physical location of physical TTYs.
Location	Not implemented in the Cisco IOS XR software.
Type	Not implemented in the Cisco IOS XR software.
Length	Length of the terminal or screen display, in rows.
Width	Width of the terminal or screen display, in columns.
Baud rate (TX/RX)	Transmit rate/receive rate of the line, in bps.
parity	Parity bits value used for physical terminal connections.
stopbits	Stop bits value used for physical terminal connections.
databits	Data bits value used for physical terminal connections.
Template	Line template being sourced by the particular connection.
Config	Configuration applied to the tty. This field indicates the allowed incoming transports that can be used to access the router from this tty.
Allowed transports are	Incoming transport protocols that can be used by this tty to access the router.

show sessions

To display information about suspended Secure Shell (SSH) and Telnet connections launched from the terminal session, use the **show sessions** command in EXEC mode.

>**show sessions**

Syntax Description   This command has no arguments or keywords.

Defaults   No default behavior or values

Command Modes   EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show sessions** command to display the hostname, remote connection service used by the router to access the host, idle time, and connection name.

Task ID

Task ID	Operations
tty-access	read

Examples   The following is sample output from the **show sessions** command:

```
RP/0/RP0/CPU0:router# show sessions

Conn Host              Address             Service Idle Conn Name
*  1 10.26.25.40       10.26.25.40         telnet   15 10.26.25.40
```

The asterisk (*) indicates the current terminal session.

Table 99 describes the significant fields shown in the display.

Table 99 ***show sessions Field Descriptions***

Field	Description
Conn	Identifier for the connection used for resuming and disconnecting suspended sessions. An asterisk (*) indicates the current terminal session.
Host	Remote host to which the router is connected. This field displays either the IP address or hostname of the remote host. If the IP address of the remote host is mapped to hostname (that is, if Domain Name System [DNS] services are enabled) and the session is initiated with the hostname, the output for this field displays the hostname of the host rather than the IP address of the host.
Address	IP address of the remote host.
Service	Remote connection service used.
Idle	Interval (in seconds) since data was last sent on the line.
Conn Name	Equivalent to the "Host" field in the Cisco IOS XR software.

Related Commands

Command	Description
disconnect	Disconnects a network connection.
resume	Switches to another active Telnet session.

show terminal

To obtain information about the terminal configuration attribute settings for the current terminal line, use the **show terminal** command in EXEC mode.

> **show terminal**

Syntax Description   This command has no arguments or keywords.

Defaults   No default behavior or values

Command Modes   EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
tty-access	read

Examples   The following is sample output from the **show terminal** command:

```
RP/0/RP0/CPU0:router# show terminal

Line con0_0_0, Location "Unknown", Type "Unknown"
Length: 0 lines, Width: 0 columns
Baud rate (TX/RX) is 9600/9600, 1 parity, 2 stopbits, 8 databits
Template: console
Config:
Allowed transports are none.
```

Table 100 describes the significant fields shown in the display.

Table 100   show terminal Field Descriptions

Field	Description
Line	Line that is currently being used.
Location	Not implemented in the Cisco IOS XR software.
Type	Not implemented in the Cisco IOS XR software.
Length	Length of the terminal or screen display, in rows.
Width	Width of the terminal or screen display, in columns.
Baud rate (TX/RX)	Transmit or receive rate of the line, in bps.
parity	Parity bits value used for physical terminal connections.
stopbits	Stop bits value used for physical terminal connections.
databits	Data bits value used for physical terminal connections.
Template	Line template being sourced by the particular connection.
Config	Configuration applied to the tty. This field indicates the allowed incoming transports that can be used to access the router from this tty.
Allowed transports are	Incoming transport protocols that can be used by this tty to access the router.

show users

To display information about the active lines on the router, use the **show users** command in EXEC mode.

show users

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show users** command to display the line number, connection name, idle time, hosts, and terminal location. An asterisk (*) indicates the current terminal session.

Note To display all user groups and task IDs associated with the currently logged-in user, use the **show user** command in EXEC mode. See *Authentication, Authorization, and Accounting Commands on Cisco IOS XR Software*.

Task ID

Task ID	Operations
tty-access	read

Examples

The following is sample output identifying an active vty terminal session:

```
RP/0/RP0/CPU0:router# show users
```

```
        Line            User                  Service  Conns   Idle        Location
        con0_RP0_CPU0   cisco                 hardware     0   18:33:48
        vty0            cisco                 telnet       0   00:30:36    10.33.54.132
    *   vty1            cisco                 telnet       0   00:00:00    10.33.54.132
```

Table 101 describes the significant fields shown in the display.

Table 101   show users Field Descriptions

Field	Description
Line	All current connections. An asterisk (*) indicates the active connection.
User	Username of the user logged into the line.
Service	Physical or remote login service used.
Conns	Number of outgoing connections.
Idle	Interval (in hours:minutes:seconds) since last keystroke.
Location	IP address of remote login host. For local (physical) terminal connections, this field is blank.

Related Commands

Command	Description
show line	Displays the parameters of a terminal line.
show user	Displays all user groups and task IDs associated with the currently logged-in user.

Cisco IOS XR System Management Command Reference

stopbits

To set the stop bits used for physical terminal connections, use the **stopbits** command in line console configuration mode. To restore the default, use the **no** form of this command.

>**stopbits** {**1** | **2**}

>**no stopbits**

Syntax Description		
1	Specifies one stop bit.	
2	Specifies two stop bits. This is the default.	

Defaults   Two stop bits.

Command Modes   Line console configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **stopbits** command to set the data bits attributes for physical terminal connections. Physical terminal connections use either the console or auxiliary terminal templates.

Communication protocols provided by devices such as terminals and modems often require a specific stop-bit setting.

Task ID

Task ID	Operations
tty-access	read, write

Examples   The following example shows how to change the default from two stop bits to one for the console line template:

```
RP/0/RP0/CPU0:router(config)# line console
RP/0/RP0/CPU0:router(config-line)# stopbits 1
```

Related Commands

Command	Description
databits	Sets the number of data bits.

terminal exec

To specify attributes for the current terminal session, use the **terminal exec** command in EXEC mode.

terminal exec prompt {**no-timestamp** | **timestamp**}

Syntax Description

prompt	Specifies the prompt attributes.
no-timestamp	Disables the time-stamp printing before each command.
timestamp	Enables the time-stamp printing before each command.

Defaults   No default behavior or values

Command Modes   EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **terminal exec prompt timestamp** command to show the timestamp display after each command is entered. Use the **terminal exec prompt no-timestamp** command to disable the timestamp display.

Note   The **terminal** commands are active for the current terminal session only. To apply a setting to all sessions, use the **line** commands.

Task ID

Task ID	Operations
tty-access	read

Examples

The following example shows how to enable the timestamp prompt. When enabled, the date and time are displayed after each command. In this example, the **show version** command is entered, and the date and time is displayed.

```
RP/0/RP0/CPU0:router# terminal exec prompt timestamp

RP/0/RP0/CPU0:router# show version

Thu Jun  1 14:31:31.200 UTC

Cisco IOS XR Software, Version 3.3.0[00]
Copyright (c) 2006 by cisco Systems, Inc.

ROM: System Bootstrap, Version 1.38(20060207:032757) [CRS-1 ROMMON],

router uptime is 1 hour, 18 minutes
System image file is "disk0:hfr-os-mbi-3.3.0/mbihfr-rp.vm"

cisco CRS-8/S (7457) processor with 4194304K bytes of memory.
7457 processor at 1197Mhz, Revision 1.2

16 Packet over SONET/SDH network interface(s)
16 SONET/SDH Port controller(s)
2 Ethernet/IEEE 802.3 interface(s)
16 GigabitEthernet/IEEE 802.3 interface(s)
2043k bytes of non-volatile configuration memory.
38079M bytes of hard disk.
1000592k bytes of ATA PCMCIA card at disk 0 (Sector size 512 bytes).
1000640k bytes of ATA PCMCIA card at disk 1 (Sector size 512 bytes).

Package active on node 0/1/SP:
hfr-diags, V 3.3.0[00], Cisco Systems, at disk0:hfr-diags-3.3.0
```

The following example shows how to disable the time-stamp prompt:

```
RP/0/RP0/CPU0:router# terminal exec prompt no-timestamp
```

Related Commands

Command	Description
show terminal	Display the terminal configuration settings for the current terminal line.

terminal length

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

terminal length *lines*

Syntax Description	*lines*	Number of lines that display on a screen. Range is from 0 through 512.

Defaults   No default behavior or values

Command Modes   EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **terminal length** command to set the terminal length value for only the current terminal session and not save it to the running configuration; exiting from the terminal session returns the terminal length value to the value configured with the **length** command.

Specifying a value of 0 for the *lines* argument prevents the router from pausing between screens of output.

Note   The **terminal** commands are active for the current terminal session only. To apply a setting to all sessions, use the **line** commands.

Task ID

Task ID	Operations
tty-access	read, write

Examples   The following example shows how to set the length for the current terminal session to 120 lines:

```
RP/0/RP0/CPU0:router# terminal length 120
```

Related Commands

Command	Description
length	Sets the length of the display terminal.

terminal monitor

To display **debug** command output and system error messages for the current terminal and session, use the **terminal monitor** command in EXEC mode.

> **terminal monitor** [**disable**]

Syntax Description	disable	(Optional) Disables the terminal monitor. Debug command output and system error messages are not displayed.

Defaults   The terminal monitor is disabled by default.

Command Modes   EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
logging	execute

Examples   In the following example, the system is configured to display **debug** command output and error messages during the current terminal session:

```
RP/0/RP0/CPU0:router# terminal monitor
```

Related Commands

Command	Description
length	Sets the length of the display terminal.

terminal width

To set the width of the display terminal for the current terminal session, use the **terminal width** command in EXEC mode.

terminal width *characters*

Syntax Description		
characters	Number of characters to display on a screen. Range is from 0 to 512.	

Defaults   No default behavior or values

Command Modes   EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **terminal width** command to set the terminal width value for only the current terminal session and not save it to the running configuration; exiting from the terminal session returns the terminal width value to the value configured with the **width (display)** command.

Task ID

Task ID	Operations
tty-access	read, write

Examples   The following example shows how to set the terminal width for the current terminal session to 120 characters:

```
RP/0/RP0/CPU0:router# terminal width 120
```

Related Commands	Command	Description
	width (display)	Sets the width of the display terminal.

timestamp

To enable time-stamp recording at the top of each command output, use the **timestamp** command in the appropriate line configuration mode. To disable time-stamp recording if enabled, use the **no** form of this command.

> **timestamp**

> **no timestamp**

Syntax Description   This command has no arguments or keywords.

Defaults   Time-stamp recording at the top of each command output is disabled.

Command Modes   Line console configuration
Line default configuration
Line template configuration

Command History

Release	Modification
Release 3.3.0	This command was introduced on the Cisco CRS-1 and on the Cisco XR 12000 Series Router.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **timestamp** command to configure a terminal line template so that a timestamp is displayed at the top of every command output, recording the time at which the command was issued. This setting applies to all command outputs on any terminal line to which the current line template applies.

Task ID

Task ID	Operations
tty-access	read, write

Examples   The following example shows how to enable time-stamp recording for the console line template:

```
RP/0/RP0/CPU0:router(config)# line console
RP/0/RP0/CPU0:router(config-line)# timestamp
```

Cisco IOS XR System Management Command Reference

transport input

To define the transport protocols that can be used to access the router, use the **transport input** command in the appropriate line configuration mode. To change or remove the protocol, use the **no** form of this command.

transport input {**all** | **none** | **ssh** | **telnet**}

no transport input {**all** | **none** | **ssh** | **telnet**}

Syntax Description		
	all	Specifies the Secure Shell (SSH) and Telnet protocols
	none	Specifies that the router rejects incoming SSH and Telnet transport protocol connections.
	ssh	Specifies the SSH transport protocol.
	telnet	Specifies the Telnet transport protocol.

Defaults All protocols are allowed on the line.

Command Modes Line console configuration
Line default configuration
Line template configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

To be accepted, incoming network connections to an asynchronous port (terminal line) must use a transport protocol specified with the **transport input** command. This command can be useful in limiting the acceptable transport protocols to include or exclude those used by different types of users, or to restrict a line to secure connections (SSH connections).

Task ID	Task ID	Operations
	tty-access	read, write

Examples

The following example shows how to set the transport input setting for the default line template to SSH connections:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# transport input ssh
```

Related Commands

Command	Description
transport output	Determines the protocols that can be used for outgoing connections from a line.
transport preferred	Specifies the transport protocol that the Cisco IOS XR software uses if the user does not specify one when initiating a connection.

transport output

To specify the transport protocols that can be used for outgoing connections from a line, use the **transport output** command in the appropriate line configuration mode. To change or remove the protocol, use the **no** form of this command.

transport output {**all** | **none** | **ssh** | **telnet**}

no transport output {**all** | **none** | **ssh** | **telnet**}

Syntax Description

all	Specifies the Secure Shell (SSH) and Telnet transport protocols.
none	Specifies that the router rejects outgoing SSH and Telnet transport protocol connections.
ssh	Specifies the SSH transport protocol.
telnet	Specifies the Telnet transport protocol.

Defaults

All protocols are allowed on the line.

Command Modes

Line console configuration
Line default configuration
Line template configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Any settings made with the **transport output** command override settings made with the **transport preferred** command.

Task ID	Task ID	Operations
	tty-access	read, write

Examples

The following example shows how to set the default line template to prevent any outgoing transport protocol connections:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# transport output none
```

Related Commands

Command	Description
transport input	Defines which protocols to use to connect to a specific line of the router.
transport preferred	Specifies the transport protocol that the Cisco IOS XR software uses if the user does not specify one when initiating a connection.

transport preferred

To specify the default outgoing transport protocol to be used for initiating network connections, use the **transport preferred** command in the appropriate line configuration mode. To change or remove the protocol, use the **no** form of this command.

transport preferred {**none** | **ssh** | **telnet**}

no transport preferred {**none** | **ssh** | **telnet**}

Syntax Description		
	none	Disables the feature.
	ssh	Specifies the Secure Shell (SSH) transport protocol.
	telnet	Specifies the Telnet transport protocol.

Defaults No transport protocol is set as the default outgoing protocol.

Command Modes Line console configuration
Line default configuration
Line template configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **transport preferred** command to provide a default transport protocol to use when initiating outgoing connections. The preferred outgoing transport protocol specified with the **transport preferred** command enables you to initiate an outgoing connection without explicitly specifying the transport protocol.

The Cisco IOS XR software assumes that any unrecognized command is a hostname and the software attempts a connection. When the protocol is set to **none**, the system ignores unrecognized commands entered at the EXEC prompt, and does not attempt a connection.

The default setting, the **transport preferred none** command, prevents errant connection attempts.

Task ID	Task ID	Operations
	tty-access	read, write

Examples

The following example shows how to set the preferred transport setting for the default line template to SSH:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# transport preferred ssh
```

Related Commands

Command	Description
transport input	Defines which protocols to use to connect to a specific line of the router.
transport output	Determines the protocols that can be used for outgoing connections from a line.

vty-pool

To create or modify a virtual terminal line (vty) pool, use the **vty-pool** command in global configuration mode. To delete a vty pool, use the **no** form of this command.

vty-pool {**default** | **fm** | *pool-name*} *first-vty last-vty* [**line-template** {**default** | *template-name*}]

no vty-pool {**default** | **fm** | *pool-name*} *first-vty last-vty* [**line-template** {**default** | *template-name*}]

Syntax Description

default	Specifies the default vty pool.
fm	Specifies the fault manager vty pool.
pool-name	User-defined vty pool.
first-vty	First vty line in the pool. • For the default vty pool, you must specify **0** for the first vty line. • For a user-defined vty pool, the range is 5 to 99. • For the fault manager vty pool, you must specify **100** for the first vty line.
last-vty	Last vty line in the pool. • The default vty pool must contain at least five vtys. Range is 4 to 99. • For a user-defined vty pool, the range is 5 to 99. • The fault manager vty pool must contain at least six vtys. Range is 105 to 199.
line-template	(Optional) Specifies the terminal template to be used in the configuration of virtual terminals in the vty pool.
default	Specifies that the vty pool should reference the default template.
template-name	User-defined template to be applied to the vtys in the vty pool.

Defaults

default *vty-pool*: 5 vtys (vty 0 through 4) referencing the default line template.
fm *vty pool*: 6 vtys (vty 100 through 105) referencing the default line template.

Command Modes

Global configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.

Release	Modification
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

When creating or modifying vty pools, follow these usage guidelines:

- Before creating or modifying the vty pools, enable the Telnet server using the **telnet server** command in global configuration mode. See *Cisco IOS XR IP Addresses and Services Configuration Guide* and *Cisco IOS XR IP Addresses and Services Command Reference* for more information.

- The vty range for the default vty pool must start at vty 0 and must contain a minimum of five vtys.

- The vty range from 0 through 99 can reference the default vty pool.

- The vty range from 5 through 99 can reference a user-defined vty pool.

- The vty range from 100 is reserved for the fault manager vty pool.

- The vty range for fault manager vty pools must start at vty 100 and must contain a minimum of six vtys.

- A vty can be a member of only one vty pool. A vty pool configuration fails if the vty pool includes a vty that is already in another pool.

If you attempt to remove an active vty from the active vty pool when configuring a vty pool, the configuration for that vty pool fails.

Task ID

Task ID	Operations
tty-access	read, write

Examples

This example shows how to configure a user-defined vty pool (test1) that contains vtys 10 through14 and references the user-defined line template test2:

```
RP/0/RP0/CPU0:router(config)# vty-pool test1 10 14 line-template test2
```

Related Commands

Command	Description
line	Enters line template configuration mode for the specified line template.

width (display)

To set the width of the display terminal, use the **width** command in the appropriate line configuration mode. To remove the **width** command from the configuration file and restore the system to its default condition, use the **no** form of this command.

width *characters*

no width *characters*

Syntax Description	*characters*	Number of characters to display on a screen. Range is from 0 to 512.

Defaults	*characters*: 80

Command Modes	Line console configuration
	Line default configuration
	Line template configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines   To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **width** command to modify the default width setting for the specified line template.

Task ID

Task ID	Operations
tty-access	read, write

Examples   The following example shows how to set the terminal width for the default line template to 99 characters:

```
RP/0/RP0/CPU0:router(config)# line default
RP/0/RP0/CPU0:router(config-line)# width 99
```

Related Commands	Command	Description
	terminal width	Sets the width of the display terminal for the current terminal session.

width (display)