



# Monitoring Control Characters on Asynchronous Lines

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The Asynchronous Line Monitoring feature introduced in Cisco IOS Release 12.2(4)T allows the monitoring of inbound and outbound asynchronous character mode traffic on another terminal line. The Monitoring Control Characters on Asynchronous Lines feature enhances the Asynchronous Line Monitoring feature by introducing the ability to monitor control characters along with printable characters. In addition, a keyboard lock has been introduced to prevent characters that are entered at the monitoring workstation from being displayed to the user of the line that is being monitored.

## Feature History for Monitoring Control Characters on Asynchronous Lines

Release	Modification
12.3(8)T	This feature was introduced.

## Finding Support Information for Platforms and Cisco IOS Software Images

Use Cisco Feature Navigator to find information about platform support and Cisco IOS software image support. Access Cisco Feature Navigator at <http://www.cisco.com/go/fn>. You must have an account on Cisco.com. If you do not have an account or have forgotten your username or password, click **Cancel** at the login dialog box and follow the instructions that appear.

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# Prerequisites for Monitoring Control Characters on Asynchronous Lines

You should understand the [Asynchronous Line Monitoring](#) feature before configuring the Monitoring Control Characters on Asynchronous Lines feature.

## Information About Monitoring Control Characters on Asynchronous Lines

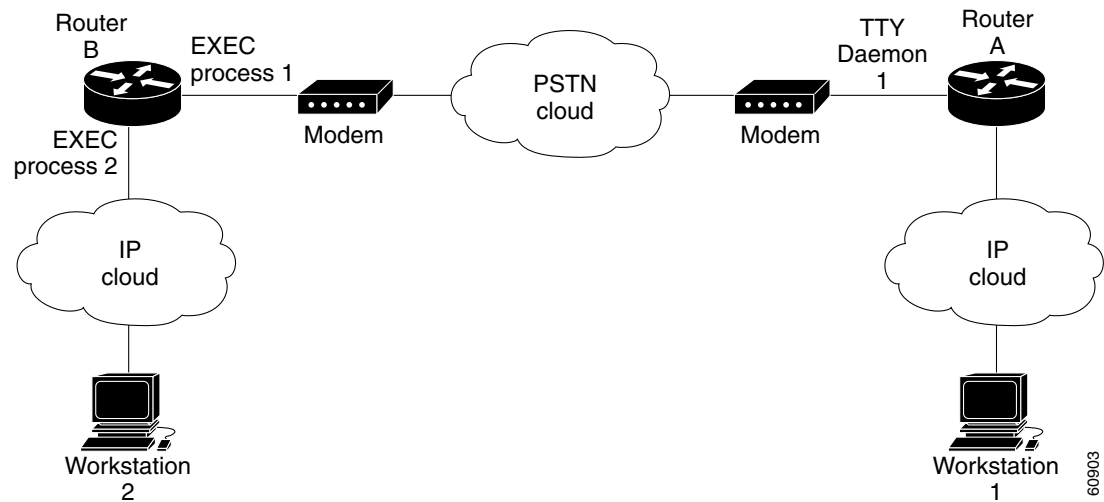
To configure the Monitoring Control Characters on Asynchronous Lines feature, you should understand the following concepts:

- [Asynchronous Line Monitoring, page 2](#)
- [Control Characters, page 3](#)
- [The Keyboard Lock, page 3](#)
- [Benefits of the Monitoring Control Characters on Asynchronous Lines Feature, page 3](#)

## Asynchronous Line Monitoring

[Figure 1](#) shows a scenario for asynchronous character mode traffic in which a remote user on Workstation 1 uses reverse Telnet to access an asynchronous port of Router A, causing a TTY Daemon process (such as TTY Daemon 1) to run on the asynchronous port of Router A. The user then dials in to an asynchronous port on Router B. The user commands are interpreted by an EXEC process (such as EXEC process 1) on Router B. To monitor the inbound or outbound asynchronous traffic on this port on Router A, you must log in to Router A through another terminal line—for example, another terminal line when logging in from Workstation 2—and enter the **monitor traffic line** command. The command is interpreted by a second EXEC process (such as EXEC process 2).

**Figure 1** Reverse Telnet to a Router Followed by a Dial over a PSTN Connection



## Control Characters

The ACSII character set consists of printable and nonprintable characters. Prior to Cisco IOS Release 12.3(8)T, only the printable ASCII characters could be monitored. The Monitoring Control Characters on Asynchronous Lines feature introduces the ability to monitor the nonprintable (control) ASCII characters.

## The Keyboard Lock

When asynchronous character traffic is being monitored, the user of the remote monitoring station can enter more commands on the line they are using. In releases prior to Cisco IOS Release 12.3(8)T, the output of the additional commands is displayed not only to the user of the remote monitoring station but also to the user of the terminal line that is being monitored.

In Release 12.3(8)T the default behavior of the **monitor traffic line** command has been changed so that commands entered by the user on the remote monitoring station are not displayed to the user on the terminal line being monitored. The display of commands entered by the user on the remote monitoring station to the user on the terminal line being monitored can be enabled if desired.

## Benefits of the Monitoring Control Characters on Asynchronous Lines Feature

The Monitoring Control Characters on Asynchronous Lines feature enhances the Asynchronous Line Monitoring feature. The following are benefits of the Monitoring Control Characters on Asynchronous Lines feature:

- The ability to monitor control characters along with printable characters.
- The ability to configure whether the display of commands entered by the user on the remote monitoring station are visible to the user on the terminal line being monitored.

# How to Configure Monitoring Control Characters on Asynchronous Lines

This section contains the following procedures:

- [Configuring the Display of Control Characters, page 4](#) (required)
- [Deactivating the Keyboard Lock, page 5](#) (optional)

## Configuring the Display of Control Characters

Perform this task to include control characters in the display.

### SUMMARY STEPS

1. `enable`
2. `monitor traffic line [aux | tty] line-number [in | out] [control-char] [interactive]`

### DETAILED STEPS

	Command or Action	Purpose
Step 1	<pre>enable</pre> <p><b>Example:</b> Router&gt; enable</p>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
Step 2	<pre>monitor traffic line [aux   tty] line-number [in   out] [control-char] [interactive]</pre> <p><b>Example:</b> Router# monitor traffic line tty 1 in control-char</p>	<p>Monitors inbound and outbound asynchronous character mode traffic on another terminal line.</p> <ul style="list-style-type: none"> <li>• <b>control-char</b>—Control characters are displayed along with asynchronous character mode traffic. Control character display is turned off by default.</li> <li>• <b>interactive</b>—Commands entered on the remote monitoring station are displayed to the user of the terminal line being monitored. By default, commands entered at the remote monitoring station are not displayed on the station being monitored (the keyboard lock is on).</li> </ul> <p><b>Note</b> To disable asynchronous line monitoring, enter the escape sequence (Ctrl-Shift-6, then x [Ctrl^x] by default).</p>

## Deactivating the Keyboard Lock

The keyboard lock is enabled by default. Perform this task to deactivate the keyboard lock.

### SUMMARY STEPS

1. `enable`
2. `monitor traffic line [aux | tty] line-number [in | out] [control-char] [interactive]`

### DETAILED STEPS

	Command or Action	Purpose
Step 1	<code>enable</code>  <b>Example:</b> Router> <code>enable</code>	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
Step 2	<code>monitor traffic line [aux   tty] line-number [in   out] [control-char] [interactive]</code>  <b>Example:</b> Router# <code>monitor traffic line tty 1 in interactive</code>	Monitors inbound and outbound asynchronous character mode traffic on another terminal line. <ul style="list-style-type: none"> <li>• <b>control-char</b>—Control characters are displayed along with asynchronous character mode traffic. Control character display is turned off by default.</li> <li>• <b>interactive</b>—Commands entered on the remote monitoring station are displayed to the user of the terminal line being monitored. By default, commands entered at the remote monitoring station are not displayed on the station being monitored (the keyboard lock is on).</li> </ul> <p><b>Note</b> To disable asynchronous line monitoring, enter the escape sequence (Ctrl-Shift-6, then x [Ctrl^x] by default).</p>

## Configuration Examples for Monitoring Control Characters on Asynchronous Lines

This section provides the following configuration examples:

- [Configuring the Display of Control Characters: Example, page 5](#)
- [Deactivating the Keyboard Lock: Example, page 6](#)

### Configuring the Display of Control Characters: Example

The following example allows the user to monitor inbound asynchronous character mode traffic, including control characters, on tty line 10:

```
Router# monitor traffic line tty 10 in control-char
```

## Deactivating the Keyboard Lock: Example

The following example allows the user to monitor inbound asynchronous character mode traffic on line 5. The **interactive** keyword turns off the keyboard lock, specifying that commands entered at the remote monitoring station will be displayed to the user of the line being monitored.

```
Router# monitor traffic line 5 in interactive
```

## Additional References

The following sections provide references related to the Monitoring Control Characters on Asynchronous Lines feature.

## Related Documents

Related Topic	Document Title
Asynchronous Line Monitoring feature documentation	<a href="#">Asynchronous Line Monitoring</a>
Configuration tasks related to Dial Technologies	<a href="#">Cisco IOS Dial Technologies Configuration Guide</a>
Dial Technologies commands: complete command syntax, command mode, defaults, usage guidelines, and examples	<a href="#">Cisco IOS Dial Technologies Command Reference</a>
Configuration tasks related to Terminal Services	<a href="#">Cisco IOS Dial Technologies Configuration Guide</a>
Terminal Services commands: complete command syntax, command mode, defaults, usage guidelines, and examples	<a href="#">Cisco IOS Terminal Services Command Reference</a>

## Standards

Standards	Title
None	—

## MIBs

MIBs	MIBs Link
None	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: <a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a>

## RFCs

RFCs	Title
None	—

## Technical Assistance

Description	Link
Technical Assistance Center (TAC) home page, containing 30,000 pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content.	<a href="http://www.cisco.com/public/support/tac/home.shtml">http://www.cisco.com/public/support/tac/home.shtml</a>

# Command Reference

The following commands are introduced or modified in the feature or features documented in this module. For information about these commands, see the *Cisco IOS Terminal Services Command Reference* at [http://www.cisco.com/en/US/docs/ios/termserv/command/reference/tsv\\_book.html](http://www.cisco.com/en/US/docs/ios/termserv/command/reference/tsv_book.html). For information about all Cisco IOS commands, go to the Command Lookup Tool at <http://tools.cisco.com/Support/CLILookup> or to the *Cisco IOS Master Commands List*.

- **monitor traffic line**

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