



Controlling Access to a Virtual Terminal Line

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You can control who can access the virtual terminal lines (vty) to a router by applying an access list to inbound vtys. You can also control the destinations that the vtys from a router can reach by applying an access list to outbound vtys.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the [“Feature Information for Controlling Access to a Virtual Terminal Line”](#) section on page 9.

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Restrictions for Controlling Access to a Virtual Terminal Line

When you apply an access list to a vty (by using the **access-class** command), the access list must be a numbered access list, not a named access list.

Information About Controlling Access to a Virtual Terminal Line

- [Benefits of Controlling Access to a Virtual Terminal Line, page 2](#)

Benefits of Controlling Access to a Virtual Terminal Line

By applying an access list to an inbound vty, you can control who can access the lines to a router. By applying an access list to an outbound vty, you can control the destinations that the lines from a router can reach.

How to Control Access to a Virtual Terminal Line

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Controlling Inbound Access to a vty

Perform this task when you want to control access to a vty coming into the router by using an access list. Access lists are very flexible; this task illustrates one **access-list deny** command and one **access-list permit** command. You will decide how many of each command you should use and their order to achieve the restrictions you want.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **access-list** *access-list-number* **deny** {*source* [*source-wildcard*] | **any**} [**log**]
4. **access-list** *access-list-number* **permit** {*source* [*source-wildcard*] | **any**} [**log**]
5. **line vty** *line-number* [*ending-line-number*]
6. **access-class** *access-list-number* **in** [**vrf-also**]
7. **exit**
8. Repeat Steps 5 and 6 for each line to set identical restrictions on all the virtual terminal lines because a user can connect to any of them.
9. **end**
10. **show line** [*line-number* | **summary**]

DETAILED STEPS

	Command or Action	Purpose
Step 1	<p>enable</p> <p>Example: Router> enable</p>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> Enter your password if prompted.
Step 2	<p>configure terminal</p> <p>Example: Router# configure terminal</p>	<p>Enters global configuration mode.</p>
Step 3	<p>access-list <i>access-list-number</i> deny {<i>source</i> [<i>source-wildcard</i>] any} [log]</p> <p>Example: Router(config)# access-list 1 deny 172.16.7.34</p>	<p>(Optional) Denies the specified source based on a source address and wildcard mask.</p> <ul style="list-style-type: none"> If the <i>source-wildcard</i> is omitted, a wildcard mask of 0.0.0.0 is assumed, meaning match on all bits of the source address. Optionally use the keyword any as a substitute for the <i>source source-wildcard</i> to specify the source and source wildcard of 0.0.0.0 255.255.255.255. In this example, host 172.16.7.34 is denied passing the access list.
Step 4	<p>access-list <i>access-list-number</i> permit {<i>source</i> [<i>source-wildcard</i>] any} [log]</p> <p>Example: Router(config)# access-list 1 permit 172.16.0.0 0.0.255.255</p>	<p>Permits the specified source based on a source address and wildcard mask.</p> <ul style="list-style-type: none"> If the <i>source-wildcard</i> is omitted, a wildcard mask of 0.0.0.0 is assumed, meaning match on all bits of the source address. Optionally use the keyword any as a substitute for the <i>source source-wildcard</i> to specify the source and source wildcard of 0.0.0.0 255.255.255.255. In this example, hosts on network 172.16.0.0 (other than the host denied in the prior step) pass the access list, meaning they can access the vtys identified in the line command.
Step 5	<p>line vty <i>line-number</i> [<i>ending-line-number</i>]</p> <p>Example: Router(config)# line vty 5 10</p>	<p>Identifies a specific line for configuration and enters line configuration mode.</p> <ul style="list-style-type: none"> Entering the line command with the optional line type vty designates the line number as a relative line number. You also can use the line command without specifying a line type. In this case, the line number is treated as an absolute line number.

	Command or Action	Purpose
Step 6	<p>access-class <i>access-list-number</i> in [vrf-also]</p> <p>Example: Router(config-line)# access-class 1 in vrf-also</p>	<p>Restricts incoming connections between a particular vty (into a Cisco device) and the networking devices associated with addresses in the access list.</p> <ul style="list-style-type: none"> If you do not specify the vrf-also keyword, incoming Telnet connections from interfaces that are part of a VPN routing and forwarding (VRF) instance are rejected.
Step 7	<p>exit</p> <p>Example: Router(config-line)# exit</p>	Returns the user to the next highest configuration mode.
Step 8	Repeat Steps 5 and 6 for each line to set identical restrictions on all the vtys because a user can connect to any of them.	If you indicated the full range of vty lines in Step 5 with the line command, you do not need to repeat Steps 5 and 6.
Step 9	<p>end</p> <p>Example: Router(config-line)# end</p>	Returns the user to privileged EXEC mode.
Step 10	<p>show line [<i>line-number</i> summary]</p> <p>Example: Router# show line 5</p>	Displays parameters of a terminal line.

Controlling Outbound Access to a vty

Perform this task when you want to control access from a vty to a destination. Access lists are very flexible; this task illustrates one **access-list deny** command and one **access-list permit** command. You will decide how many of each command you should use and their order to achieve the restrictions you want.

When a standard access list is applied to a line with the **access-class out** command, the address specified in the access list is not a source address (as it is in an access list applied to an interface), but a destination address.

SUMMARY STEPS

- enable**
- configure terminal**
- access-list** *access-list-number* **deny** {*destination* [*destination-wildcard*] | **any**} [**log**]
- access-list** *access-list-number* **permit** {*destination* [*destination-wildcard*] | **any**} [**log**]
- line vty** *line-number* [*ending-line-number*]
- access-class** *access-list-number* **out**
- exit**
- Repeat Steps 5 and 6 for each line to set identical restrictions on all the virtual terminal lines because a user can connect to any of them.

9. `end`
10. `show line [line-number | summary]`

DETAILED STEPS

	Command or Action	Purpose
Step 1	<p><code>enable</code></p> <p>Example: Router> enable</p>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> Enter your password if prompted.
Step 2	<p><code>configure terminal</code></p> <p>Example: Router# configure terminal</p>	<p>Enters global configuration mode.</p>
Step 3	<p><code>access-list access-list-number deny</code> {destination [destination-wildcard] any} [log]</p> <p>Example: Router(config)# access-list 2 deny 172.16.7.34</p>	<p>Denies line access to the specified destination based on a destination address and wildcard mask.</p> <ul style="list-style-type: none"> If the <i>destination-wildcard</i> is omitted, a wildcard mask of 0.0.0.0 is assumed, meaning match on all bits of the source address. Optionally use the keyword any as a substitute for the <i>destination destination-wildcard</i> to specify the source and source wildcard of 0.0.0.0 255.255.255.255. In this example, host 172.16.7.34 is denied passing the access list, meaning the line cannot connect to it.
Step 4	<p><code>access-list access-list-number permit</code> {source [source-wildcard] any} [log]</p> <p>Example: Router(config)# access-list 2 permit 172.16.0.0 0.0.255.255</p>	<p>Permits the specified source based on a source address and wildcard mask.</p> <ul style="list-style-type: none"> If the <i>source-wildcard</i> is omitted, a wildcard mask of 0.0.0.0 is assumed, meaning match on all bits of the source address. Optionally use the keyword any as a substitute for the <i>source source-wildcard</i> to specify the source and source wildcard of 0.0.0.0 255.255.255.255. In this example, hosts on network 172.16.0.0 (other than the host denied in the prior step) pass the access list, meaning they can be connected to by the vty identified in the line command.
Step 5	<p><code>line vty line-number [ending-line-number]</code></p> <p>Example: Router(config)# line vty 5 10</p>	<p>Identifies a specific line for configuration and enter line configuration mode.</p> <ul style="list-style-type: none"> Entering the line command with the optional line type vty designates the line number as a relative line number. You also can use the line command without specifying a line type. In this case, the line number is treated as an absolute line number.

	Command or Action	Purpose
Step 6	<code>access-class access-list-number out</code> Example: Router(config-line)# access-class 2 out	Restricts connections between a particular vty (into a Cisco device) out to the networking devices associated with addresses in the access list.
Step 7	<code>exit</code> Example: Router(config-line)# exit	Returns the user to the next highest configuration mode.
Step 8	Repeat Steps 5 and 6 for each line to set identical restrictions on all the vtys because a user can connect to any of them.	If you indicated the full range of vtys in Step 5 with the line command, you do not need to repeat Steps 5 and 6.
Step 9	<code>end</code> Example: Router(config-line)# end	Returns the user to privileged EXEC mode.
Step 10	<code>show line [line-number summary]</code> Example: Router# show line 5	Displays parameters of a terminal line.

Configuration Examples for Controlling Access to a Virtual Terminal Line

- [Example: Controlling Inbound Access on vtys, page 6](#)
- [Example: Controlling Outbound Access on vtys, page 6](#)

Example: Controlling Inbound Access on vtys

The following example defines an access list that permits only hosts on network 172.19.5.0 to connect to the virtual terminal lines 1 through 5 on the router. Because the **vty** keyword is omitted from the **line** command, the line numbers 1 through 5 are absolute line numbers.

```
access-list 12 permit 172.19.5.0 0.0.0.255
line 1 5
 access-class 12 in
```

Example: Controlling Outbound Access on vtys

The following example defines an access list that denies connections to networks other than network 171.20.0.0 on terminal lines 1 through 5. Because the **vty** keyword is omitted from the **line** command, the line numbers 1 through 5 are absolute line numbers.

```
access-list 10 permit 172.20.0.0 0.0.255.255
line 1 5
 access-class 10 out
```

Where to Go Next

You can further secure a vty by configuring a password with the **password** line configuration command. See the **password** (line configuration) command in the *Cisco IOS Security Command Reference*.

Additional References

Related Documents

Related Topic	Document Title
Cisco IOS commands	<i>Cisco IOS Master Commands List, All Releases</i>
Configuring a password on a line	<i>Cisco IOS Security Command Reference</i>

Standards

Standard	Title
None	—

MIBs

MIB	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: http://www.cisco.com/go/mibs

RFCs

RFC	Title
None	—

Technical Assistance

Description	Link
<p>The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.</p>	<p>http://www.cisco.com/cisco/web/support/index.html</p>

Feature Information for Controlling Access to a Virtual Terminal Line

[Table 1](#) lists the features in this module and provides links to specific configuration information.

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to <http://www.cisco.com/go/cfn>. An account on Cisco.com is not required.



Note

[Table 1](#) lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Table 1 *Feature Information for Controlling Access to a Virtual Terminal Line*

Feature Name	Releases	Feature Configuration Information
Controlling Access to a Virtual Terminal Line	12.0(32)S4	You can control who can access the virtual terminal lines (vty) to a router by applying an access list to inbound vty. You can also control the destinations that the vty from a router can reach by applying an access list to outbound vty.

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