



Configuring Filters

This chapter describes how to configure and manage MAC address, IP, and Ethertype filters on the bridge using the web-browser interface. This chapter contains these sections:

- [Understanding Filters, page 14-2](#)
- [Configuring Filters Using the CLI, page 14-2](#)
- [Configuring Filters Using the Web-Browser Interface, page 14-2](#)

Understanding Filters

Protocol filters (IP protocol, IP port, and EtherType) prevent or allow the use of specific protocols through the bridge's Ethernet and radio ports. You can set up individual protocol filters or sets of filters. You can filter protocols for wireless client devices, users on the wired LAN, or both. For example, an SNMP filter on the bridge's radio port prevents SNMP access through the radio but does not block SNMP access from the wired LAN.

IP address and MAC address filters allow or disallow the forwarding of unicast and multicast packets either sent from or addressed to specific IP or MAC addresses. You can create a filter that passes traffic to all addresses except those you specify, or you can create a filter that blocks traffic to all addresses except those you specify.

You can configure filters using the web-browser interface or by entering commands in the CLI.



Tip

You can include filters in the bridge's QoS policies. Refer to [Chapter 13, "Configuring QoS,"](#) for detailed instructions on setting up QoS policies.

Configuring Filters Using the CLI

To configure filters using IOS commands, you use access control lists (ACLs) and bridge groups. You can find explanations of these concepts and instructions for implementing them in these documents:

- *Cisco IOS Bridging and IBM Networking Configuration Guide, Release 12.2.* Click this link to browse to the "Configuring Transparent Bridging" chapter:
http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122cgr/fibm_c/bcfpart1/bcftb.htm
- *Catalyst 4908G-L3 Cisco IOS Release 12.0(10)W5(18e) Software Feature and Configuration Guide.* Click this link to browse to the "Command Reference" chapter:
http://www.cisco.com/univercd/cc/td/doc/product/13sw/4908g_13/ios_12/10w518e/config/cmd_ref.htm

Configuring Filters Using the Web-Browser Interface

This section describes how to configure and enable filters using the web-browser interface. You complete two steps to configure and enable a filter:

1. Name and configure the filter using the filter setup pages.
2. Enable the filter using the Apply Filters page.

These sections describe setting up and enabling three filter types:

- [Configuring and Enabling MAC Address Filters, page 14-3](#)
- [Configuring and Enabling IP Filters, page 14-5](#)
- [Configuring and Enabling EtherType Filters, page 14-8](#)

Configuring and Enabling MAC Address Filters

MAC address filters allow or disallow the forwarding of unicast and multicast packets either sent from or addressed to specific MAC addresses. You can create a filter that passes traffic to all MAC addresses except those you specify, or you can create a filter that blocks traffic to all MAC addresses except those you specify. You can apply the filters you create to either or both the Ethernet and radio ports and to either or both incoming and outgoing packets.



Note

MAC address filters are powerful, and you can lock yourself out of the bridge if you make a mistake setting up the filters. If you accidentally lock yourself out of your bridge, use the CLI to disable the filters, or use the Mode button on the bridge power injector to reset the bridge to factory defaults.

Use the MAC Address Filters page to create MAC address filters for the bridge. [Figure 14-1](#) shows the MAC Address Filters page.

Figure 14-1 MAC Address Filters Page

The screenshot displays the 'MAC Address Filters' configuration page. On the left is a navigation sidebar with a tree view including 'HOME', 'EXPRESS SET-UP', 'EXPRESS SECURITY', 'NETWORK MAP', 'ASSOCIATION', 'NETWORK INTERFACES', 'SECURITY', 'SERVICES' (with sub-items like Telnet/SSH, CDP, DNS, HTTP, QoS, SNMP, NTP, VLAN, STP, SYSTEM SOFTWARE, and EVENT LOG), and 'Filters'. The main content area has a breadcrumb trail: 'APPLY FILTERS' > 'MAC ADDRESS FILTERS' > 'IP FILTERS' > 'ETHERTYPE FILTERS'. Below this, it shows 'Hostname Mal-BR1410-R' and 'Mal-BR1410-R uptime is 3 days, 22 hours, 10 minutes'. The main section is titled 'Services: Filters - MAC Address Filters'. It contains a 'Create/Edit Filter Index' dropdown set to '<NEW>', a 'Filter Index' input field with the value '700-799', and an 'Add MAC Address' field with a 'Mask' field set to '0000.0000.0000'. Below these are 'Action' (a dropdown set to 'Forward') and 'Add' buttons. A 'Default Action' dropdown is set to 'Block All'. At the bottom, there is a 'Filters Classes' section with an empty box and a 'Delete Class' button. At the very bottom right, there are 'Apply', 'Delete', and 'Cancel' buttons.

Follow this link path to reach the Address Filters page:

1. Click **Services** in the page navigation bar.
2. In the Services page list, click **Filters**.
3. On the Apply Filters page, click the **MAC Address Filters** tab at the top of the page.

Creating a MAC Address Filter

Follow these steps to create a MAC address filter:

- Step 1** Follow the link path to the MAC Address Filters page.
- Step 2** If you are creating a new MAC address filter, make sure **<NEW>** (the default) is selected in the Create/Edit Filter Index menu. To edit a filter, select the filter number from the Create/Edit Filter Index menu.
- Step 3** In the Filter Index field, name the filter with a number from 700 to 799. The number you assign creates an access control list (ACL) for the filter.
- Step 4** Enter a MAC address in the Add MAC Address field. Enter the address with periods separating the three groups of four characters (0040.9612.3456, for example).
- Step 5** Use the Mask entry field to indicate how many bits, from left to right, the filter checks against the MAC address. For example, to require an exact match with the MAC address (to check all bits) enter **FFFF.FFFF.FFFF**. To check only the first 4 bytes, enter **FFFF.FFFF.0000**.
- Step 6** Select **Forward** or **Block** from the Action menu.
- Step 7** Click **Add**. The MAC address appears in the Filters Classes field. To remove the MAC address from the Filters Classes list, select it and click **Delete Class**.
- Step 8** Repeat [Step 4](#) through [Step 7](#) to add addresses to the filter.
- Step 9** Select **Forward All** or **Block All** from the Default Action menu. The filter's default action must be the opposite of the action for at least one of the addresses in the filter. For example, if you enter several addresses and you select **Block** as the action for all of them, you must choose **Forward All** as the filter's default action.
- Step 10** Click **Apply**. The filter is saved on the bridge, but it is not enabled until you apply it on the Apply Filters page.
- Step 11** Click the **Apply Filters** tab to return to the Apply Filters page. [Figure 14-2](#) shows the Apply Filters page.

Figure 14-2 Apply Filters Page

The screenshot shows the 'Apply Filters' page in a web browser interface. The page has a navigation menu on the left with options like HOME, EXPRESS SET-UP, EXPRESS SECURITY, NETWORK MAP, ASSOCIATION, NETWORK INTERFACES, SECURITY, SERVICES, Telnet/SSH, CDP, DNS, Filters, HTTP, QoS, SNMP, NTP, VLAN, STP, SYSTEM SOFTWARE, and EVENT LOG. The main content area shows the 'APPLY FILTERS' tab selected, with sub-tabs for 'MAC ADDRESS FILTERS', 'IP FILTERS', and 'ETHERTYPE FILTERS'. The page displays the hostname 'Mal-BR1410-R' and the uptime 'Mal-BR1410-R uptime is 3 days, 22 hours, 16 minutes'. Below this, there is a table titled 'Services: Filters - Apply Filters' with columns for 'FastEthernet' and 'Radio0-802.11A'. The table has rows for 'Incoming' and 'Outgoing' traffic, and columns for 'MAC', 'EtherType', and 'IP' filters. Each cell in the table contains a dropdown menu with '< NONE >' selected. At the bottom right, there are 'Apply' and 'Cancel' buttons.

	FastEthernet		Radio0-802.11A	
Incoming	MAC	< NONE >	MAC	< NONE >
	EtherType	< NONE >	EtherType	< NONE >
	IP	< NONE >	IP	< NONE >
Outgoing	MAC	< NONE >	MAC	< NONE >
	EtherType	< NONE >	EtherType	< NONE >
	IP	< NONE >	IP	< NONE >

- Step 12** Select the filter number from one of the MAC drop-down menus. You can apply the filter to either or both the Ethernet and radio ports, and to either or both incoming and outgoing packets.
- Step 13** Click **Apply**. The filter is enabled on the selected ports.
-

Configuring and Enabling IP Filters

IP filters (IP address, IP protocol, and IP port) prevent or allow the use of specific protocols through the bridge's Ethernet and radio ports, and IP address filters allow or prevent the forwarding of unicast and multicast packets either sent from or addressed to specific IP addresses. You can create a filter that passes traffic to all addresses except those you specify, or you can create a filter that blocks traffic to all addresses except those you specify. You can create filters that contain elements of one, two, or all three IP filtering methods. You can apply the filters you create to either or both the Ethernet and radio ports and to either or both incoming and outgoing packets.

Use the IP Filters page to create IP filters for the bridge. [Figure 14-3](#) shows the IP Filters page.

Figure 14-3 IP Filters Page

HOME
EXPRESS SET-UP
EXPRESS SECURITY
NETWORK MAP
ASSOCIATION +
NETWORK INTERFACES +
SECURITY +
SERVICES
Telnet/SSH
CDP
DNS
Filters
HTTP
QoS
SNMP
NTP
VLAN
STP
SYSTEM SOFTWARE +
EVENT LOG +

APPLY FILTERS MAC ADDRESS FILTERS IP FILTERS ETHERTYPE FILTERS

Hostname Mal-BR1410-R Mal-BR1410-R uptime is 3 days, 22 hours, 22 minutes

Services: Filters - IP Filters

Create/Edit Filter Name: <NEW>

Filter Name:

Default Action: Block All

IP Address

Destination Address: Mask: 0.0.0.0

Source Address: 0.0.0.0 Mask: 255.255.255.255

Action: Forward Add

IP Protocol

IP Protocol: Authentication Header Protocol (51) Action: Forward Add

Custom (0-255)

UDP/TCP Port

TCP Port: Border Gateway Protocol (179) Action: Forward Add

Custom (0-65535)

UDP Port: Biff (mail notification, comsat, 512) Action: Forward Add

Custom (0-65535)

Filters Classes

Delete Class

Apply Delete Cancel

103634

Follow this link path to reach the IP Filters page:

1. Click **Services** in the page navigation bar.
2. In the Services page list, click **Filters**.
3. On the Apply Filters page, click the **IP Filters** tab at the top of the page.

Creating an IP Filter

Follow these steps to create an IP filter:

- Step 1** Follow the link path to the IP Filters page.
- Step 2** If you are creating a new filter, make sure **<NEW>** (the default) is selected in the Create/Edit Filter Index menu. To edit an existing filter, select the filter name from the Create/Edit Filter Index menu.
- Step 3** Enter a descriptive name for the new filter in the Filter Name field.
- Step 4** Select **Forward all** or **Block all** as the filter's default action from the Default Action menu. The filter's default action must be the opposite of the action for at least one of the addresses in the filter. For example, if you create a filter containing an IP address, an IP protocol, and an IP port and you select **Block** as the action for all of them, you must choose **Forward All** as the filter's default action.
- Step 5** To filter an IP address, enter an address in the IP Address field.



Note If you plan to block traffic to all IP addresses except those you specify as allowed, put the address of your own PC in the list of allowed addresses to avoid losing connectivity to the bridge.

- Step 6** Type the mask for the IP address in the Mask field. Enter the mask with periods separating the groups of characters (112.334.556.778, for example). If you enter 255.255.255.255 as the mask, the bridge accepts any IP address. If you enter 0.0.0.0, the bridge looks for an exact match with the IP address you entered in the IP Address field. The mask you enter in this field behaves the same way that a mask behaves when you enter it in the CLI.
- Step 7** Select **Forward** or **Block** from the Action menu.
- Step 8** Click **Add**. The address appears in the Filters Classes field. To remove the address from the Filters Classes list, select it and click **Delete Class**. Repeat [Step 5](#) through [Step 8](#) to add addresses to the filter.
If you do not need to add IP protocol or IP port elements to the filter, skip to [Step 15](#) to save the filter on the bridge.
- Step 9** To filter an IP protocol, select one of the common protocols from the IP Protocol drop-down menu, or select the **Custom** radio button and enter the number of an existing ACL in the Custom field. Enter an ACL number from 0 to 255. See [Appendix B, "Protocol Filters,"](#) for a list of IP protocols and their numeric designators.
- Step 10** Select **Forward** or **Block** from the Action menu.
- Step 11** Click **Add**. The protocol appears in the Filters Classes field. To remove the protocol from the Filters Classes list, select it and click **Delete Class**. Repeat [Step 9](#) to [Step 11](#) to add protocols to the filter.
If you do not need to add IP port elements to the filter, skip to [Step 15](#) to save the filter on the bridge.
- Step 12** To filter a TCP or UDP port protocol, select one of the common port protocols from the TCP Port or UDP Port drop-down menus, or select the **Custom** radio button and enter the number of an existing protocol in one of the Custom fields. Enter a protocol number from 0 to 65535. See [Appendix B, "Protocol Filters,"](#) for a list of IP port protocols and their numeric designators.
- Step 13** Select **Forward** or **Block** from the Action menu.
- Step 14** Click **Add**. The protocol appears in the Filters Classes field. To remove the protocol from the Filters Classes list, select it and click **Delete Class**. Repeat [Step 12](#) to [Step 14](#) to add protocols to the filter.
- Step 15** When the filter is complete, click **Apply**. The filter is saved on the bridge, but it is not enabled until you apply it on the Apply Filters page.
- Step 16** Click the **Apply Filters** tab to return to the Apply Filters page. [Figure 14-4](#) shows the Apply Filters page.

Figure 14-4 Apply Filters Page

Services: Filters - Apply Filters		
	FastEthernet	Radio0-802.11A
Incoming	MAC	MAC
	EtherType	EtherType
	IP	IP
Outgoing	MAC	MAC
	EtherType	EtherType
	IP	IP

Step 17 Select the filter name from one of the IP drop-down menus. You can apply the filter to either or both the Ethernet and radio ports, and to either or both incoming and outgoing packets.

Step 18 Click **Apply**. The filter is enabled on the selected ports.

Configuring and Enabling Ethertype Filters

Ethertype filters prevent or allow the use of specific protocols through the bridge's Ethernet and radio ports. You can apply the filters you create to either or both the Ethernet and radio ports and to either or both incoming and outgoing packets.

Use the Ethertype Filters page to create Ethertype filters for the bridge. [Figure 14-5](#) shows the Ethertype Filters page.

Figure 14-5 Ethertype Filters Page

HOME APPLY FILTERS MAC ADDRESS FILTERS IP FILTERS ETHERTYPE FILTERS

EXPRESS SET-UP
EXPRESS SECURITY
NETWORK MAP
ASSOCIATION +
NETWORK INTERFACES +
SECURITY +

Hostname Mal-BR1410-R Mal-BR1410-R uptime is 3 days, 22 hours, 21 minutes

Services: Filters - EtherType Filters

Create/Edit Filter Index: <NEW>

Filter Index: (200-299)

Add EtherType: Mask: 0000 Action: Forward Add
(0-FFFF) (0-FFFE)

Default Action: Block All

Filters Classes:
Delete Class

Apply Delete Cancel

Follow this link path to reach the Ethertype Filters page:

1. Click **Services** in the page navigation bar.
2. In the Services page list, click **Filters**.
3. On the Apply Filters page, click the **Ethertype Filters** tab at the top of the page.

Creating an Ethertype Filter

Follow these steps to create an Ethertype filter:

- Step 1** Follow the link path to the Ethertype Filters page.
- Step 2** If you are creating a new filter, make sure **<NEW>** (the default) is selected in the Create/Edit Filter Index menu. To edit an existing filter, select the filter number from the Create/Edit Filter Index menu.
- Step 3** In the Filter Index field, name the filter with a number from 200 to 299. The number you assign creates an access control list (ACL) for the filter.
- Step 4** Enter an Ethertype number in the Add Ethertype field. See [Appendix B, “Protocol Filters,”](#) for a list of protocols and their numeric designators.
- Step 5** Enter the mask for the Ethertype in the Mask field.
- Step 6** Select **Forward** or **Block** from the Action menu.
- Step 7** Click **Add**. The Ethertype appears in the Filters Classes field. To remove the Ethertype from the Filters Classes list, select it and click **Delete Class**. Repeat [Step 4](#) through [Step 7](#) to add Ethertypes to the filter.

- Step 8** Select **Forward All** or **Block All** from the Default Action menu. The filter's default action must be the opposite of the action for at least one of the Ethertypes in the filter. For example, if you enter several Ethertypes and you select **Block** as the action for all of them, you must choose **Forward All** as the filter's default action.
- Step 9** Click **Apply**. The filter is saved on the bridge, but it is not enabled until you apply it on the Apply Filters page.
- Step 10** Click the **Apply Filters** tab to return to the Apply Filters page. [Figure 14-6](#) shows the Apply Filters page.

Figure 14-6 Apply Filters Page

Hostname Mal-BR1410-R Mal-BR1410-R uptime is 3 days, 22 hours, 16 minutes

Services: Filters - Apply Filters				
	FastEthernet		Radio0-802.11A	
Incoming	MAC	< NONE >	MAC	< NONE >
	EtherType	< NONE >	EtherType	< NONE >
	IP	< NONE >	IP	< NONE >
Outgoing	MAC	< NONE >	MAC	< NONE >
	EtherType	< NONE >	EtherType	< NONE >
	IP	< NONE >	IP	< NONE >

Apply Cancel

- Step 11** Select the filter number from one of the Ethertype drop-down menus. You can apply the filter to either or both the Ethernet and radio ports, and to either or both incoming and outgoing packets.
- Step 12** Click **Apply**. The filter is enabled on the selected ports.