

source-bridge

To configure an interface for source-route bridging (SRB), use the **source-bridge** command in interface configuration mode. To disable source-route bridging on an interface, use the **no** form of this command.

source-bridge *source-ring-number* *bridge-number* *target-ring-number* [**conserve-ring**]

no source-bridge *source-ring-number* *bridge-number* *target-ring-number* [**conserve-ring**]

Syntax Description		
	<i>source-ring-number</i>	Ring number for the interface's Token Ring or FDDI ring. It must be a decimal number in the range from 1 to 4095 that uniquely identifies a network segment or ring within the bridged Token Ring or FDDI network
	<i>bridge-number</i>	Number that uniquely identifies the bridge connecting the source and target rings. It must be a decimal number in the range from 1 to 15.
	<i>target-ring-number</i>	Ring number of the destination ring on this router. It must be unique within the bridged Token Ring or FDDI network. The target ring can also be a ring group. Must be a decimal number.
	conserve-ring	(Optional) Keyword to enable SRB over Frame Relay. When this option is configured, the SRB software does not add the ring number associated with the Frame Relay PVC (the partner's virtual ring) to outbound explorer frames. This option is permitted for Frame Relay subinterfaces only.

Defaults SRB is disabled.

Command Modes Interface configuration

Command History	Release	Modification
	10.0	This command was introduced.
	11.3	This command was revised to enable SRB over Frame Relay.

Usage Guidelines The parser automatically displays the word "active" in the **source-bridge** command in configurations that have SRB enabled. You need not enter the **source-bridge** command with the **active** keyword.

Examples In the following example, Token Rings 129 and 130 are connected via a router:

```
interface tokenring 0
  source-bridge 129 1 130
!
interface tokenring 1
  source-bridge active 130 1 129
```

In the following example, an FDDI ring on one router is connected to a Token Ring on a second router across a data-link switching plus (DLSw+) link:

```
dlsw local-peer peer-id 132.11.11.2
dlsw remote-peer 0 tcp 132.11.11.3
!
interface fddi 0
  no ip address
  multiring all
  source-bridge active 26 1 10
!
dlsw local-peer peer-id 132.11.11.3
dlsw remote-peer 0 tcp 132.11.11.2
!
interface tokenring 0
  no ip address
  multiring all
  source-bridge active 25 1 10
```

In the following example, a router forwards frames from a locally attached Token Ring over the Frame Relay using SRB:

```
source-bridge ring-group 200
!
interface Serial0
  encapsulation frame-relay
!
interface Serial0.30 point-to-point
  frame-relay interface-dlci 30 ietf
  source-bridge 100 1 200 conserve-ring
  source-bridge spanning
!
interface TokenRing0
  source-bridge 600 1 200
```

Related Commands

Command	Description
encapsulation frame-relay	Enables Frame Relay encapsulation.
frame-relay interface-dlci	Assigns a DLCI to a specified Frame Relay subinterface on the router or access server.
source-bridge ring-group	Defines or removes a ring group from the configuration.
source-bridge transparent	Establishes bridging between transparent bridging and SRB.

source-bridge connection-timeout

To establish the interval of time between first attempt to open a connection until a timeout is declared, use the **source-bridge connection-timeout** command in global configuration mode. To disable this feature, use the **no** form of this command.

source-bridge connection-timeout *seconds*

no source-bridge connection-timeout *seconds*

Syntax Description	<i>seconds</i>	Interval of time, in seconds, before a connection attempt to a remote peer is aborted. The default is 10 seconds.
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Defaults	The default connection-timeout interval is 10 seconds.
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Command Modes	Global configuration
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Command History	Release	Modification
	10.3	This command was introduced.

Usage Guidelines	The source-bridge connection-timeout command is used for setting timeout intervals in a complex topology such as a large multihop WAN with virtual rings or satellite links. The timeout interval is used when a connection to a remote peer is attempted. If the timeout interval expires before a response is received, the connection attempt is aborted.
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Examples	The following example sets the connection timeout interval to 60 seconds: <pre>source-bridge connection-timeout 60</pre>
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Related Commands	Command	Description
	source-bridge ring-group	Defines or removes a ring group from the configuration.

source-bridge enable-80d5

To change the router's Token Ring to Ethernet translation behavior, use the **source-bridge enable-80d5** command in global configuration mode. To disable this function, use the **no** form of this command.

source-bridge enable-80d5

no source-bridge enable-80d5

Syntax Description This command has no arguments or keywords.

Defaults Disabled

Command Modes Global configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

The Cisco IOS software supports two types of Token Ring LLC2 to Ethernet conversion:

- Token Ring LLC2 to Ethernet 802.3 LLC2
- Token Ring LLC2 to Ethernet 0x80d5

Use this global configuration command to change the translation behavior. By default, the Cisco IOS software translates Token Ring LLC2 to Ethernet 802.3 LLC2. This command allows you to configure the software to translate Token Ring LLC2 frames into Ethernet 0x80d5 format frames.

This command is useful when you have a non-IBM device attached to an IBM network with devices that are using the nonstandard Token Ring LLC2 to Ethernet 80d5 translation. If you do not configure your router to enable 80d5 processing, the non-IBM and IBM devices will not be able to communicate.

The parameters specifying the current parameters for the processing of 0x80d5 frames are given at the end of the output of the **show span** command.



Note

The 80d5 frame processing option is available only with source-route translational bridging (SR/TLB). It is not available when source-route transparent bridging (SRT) is used.

Use the **show span** command to verify that 80d5 processing is enabled. If it is, the following line is displayed in the output:

```
Translation between LLC2 and Ethernet Type II 80d5 is enabled
```

Examples

The following example enables 0x80d5 processing, removes the translation for service access point (SAP) 08, and adds the translation for SAP 1c:

```
source-bridge enable-80d5
no source-bridge sap-80d5 08
source-bridge sap-80d5 1c
```

Related Commands

Command	Description
show span	Displays the spanning-tree topology known to the router.
source-bridge sap-80d5	Allows non-IBM hosts (attached to a router with 80d5 processing enabled) to use the standard Token Ring to Ethernet LLC2 translation instead of the nonstandard Token Ring to Ethernet 80d5 translation, and allows the translation to be set on a per-DSAP basis.

source-bridge explorer-dup-ARE-filter

To filter out duplicate explorers in networks with redundant topologies, use the **source-bridge explorer-dup-ARE-filter** command in global configuration mode. To disable this feature, use the **no** form of this command.

source-bridge explorer-dup-ARE-filter

no source-bridge explorer-dup-ARE-filter

Syntax Description This command has no arguments or keywords.

Defaults Duplicate explorer filtering is disabled.

Command Modes Global configuration

Command History	Release	Modification
	11.2	This command was introduced.

Examples The following example enables duplicate explorer filtering:
`source-bridge explorer-dup-ARE-filter`

source-bridge explorer-fastswitch

To enable explorer fast switching, use the **source-bridge explorer-fastswitch** command in global configuration mode. To disable explorer fast switching, use the **no** form of this command.

source-bridge explorer-fastswitch

no source-bridge explorer-fastswitch

Syntax Description This command has no arguments or keywords.

Defaults Fast switching is enabled.

Command Modes Global configuration

Command History	Release	Modification
	10.3	This command was introduced.

Usage Guidelines Use the **no** form of this command in conjunction with the **source-bridge explorerq-depth** and the **source-bridge explorer-maxrate** commands to optimize explorer processing.

Examples The following example enables explorer fast switching after it has been previously disabled:

```
source-bridge explorer-fastswitch
```

Related Commands	Command	Description
	source-bridge explorer-maxrate	Sets the maximum byte rate of explorers per ring.
	source-bridge explorerq-depth	Sets the maximum explorer queue depth.

source-bridge explorer-maxrate

To set the maximum byte rate of explorers per ring, use the **source-bridge explorer-maxrate** command in global configuration mode. To reset the default rate, use the **no** form of this command.

source-bridge explorer-maxrate *maxrate*

no source-bridge explorer-maxrate *maxrate*

Syntax Description	<i>maxrate</i>	Number in the range from 100 to 1000000000 (in bytes per second). The default maximum byte rate is 38400 bytes per second.
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Defaults The default maximum byte rate is 38400 bytes per second.

Command Modes Global configuration

Command History	Release	Modification
	10.3	This command was introduced.

Usage Guidelines Given the number of different explorer packet types and sizes and the bandwidth limits of the various interfaces, the bus data rate (as opposed to the packet rate) is the common denominator used to decide when to flush incoming explorers. The packets are dropped by the interface before any other processing.

Examples The following command sets the maximum byte rate of explorers on a ring:

```
source-bridge explorer-maxrate 100000
```

source-bridge explorerq-depth

To set the maximum explorer queue depth, use the **source-bridge explorerq-depth** command in global configuration mode. To reset the default value, use the **no** form of this command.

source-bridge explorerq-depth *depth*

no source-bridge explorerq-depth *depth*

Syntax Description	<i>depth</i>	The maximum number of incoming packets. The valid range is from 1 to 500. The default is 30 packets.
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Defaults	The default maximum depth is 30.
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Command Modes	Global configuration
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Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines

In this implementation, the maximum depth is set on a per-interface basis (default maximum depth is 30) therefore, each interface can have up to the maximum outstanding packets on the queue before explorers from that particular interface are dropped.

The **source-bridge explorerq-depth** command is used in a Token Ring and source-route bridging environment.

Examples

The following example sets the maximum explorer queue depth:

```
source-bridge explorerq-depth 100
```

Related Commands	Command	Description
	dls w explorerq-depth	Establishes queue depth for multiple queues that handle various types of explorer traffic.

source-bridge input-address-list

To apply an access list to an interface configured for source-route bridging, use the **source-bridge input-address-list** command in interface configuration mode. To remove the application of the access list, use the **no** form of this command.

source-bridge input-address-list *access-list-number*

no source-bridge input-address-list *access-list-number*

Syntax Description

<i>access-list-number</i>	Number of the access list. The value must be in the range from 700 to 799.
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Defaults

No access list is assigned.

Command Modes

Interface configuration

Command History

Release	Modification
10.3	This command was introduced.

Usage Guidelines

This command filters source-routed packets received from the router interface based upon the source MAC address.

Examples

The following example assigns access list 700 to Token Ring 0:

```
access-list 700 deny 1000.5A00.0000 8000.00FF.FFFF
access-list 700 permit 0000.0000.0000 FFFF.FFFF.FFFF
!
interface tokenring 0
 source-bridge input-address-list 700
```

Related Commands

Command	Description
access-list	Configures the access list mechanism for filtering frames by protocol type or vendor code.
source-bridge output-address-list	Applies an access list to an interface configured for SRB, and filters source-routed packets sent to the router interface based on the destination MAC address.

source-bridge input-lsap-list

To filter, on input, FDDI and IEEE 802-encapsulated packets that include the destination service access point (DSAP) and source service access point (SSAP) fields in their frame formats, use the **source-bridge input-lsap-list** command in interface configuration mode. To restore the default value, use the **no** form of this command.

source-bridge input-lsap-list *access-list-number*

no source-bridge input-lsap-list *access-list-number*

Syntax Description	<i>access-list-number</i>	Number of the access list. This access list is applied to all IEEE 802 or FDDI frames received on that interface prior to the source-routing process. Specify zero (0) to disable the filter. The value must be in the range from 200 to 299.
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Defaults	Disabled
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Command Modes	Interface configuration
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Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines	The access list specifying the type codes to be filtered is given by this variation of the source-bridge command in interface configuration mode.
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Examples	The following example specifies access list 203:
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```
interface tokenring 0
 source-bridge input-lsap-list 203
```

Related Commands	Command	Description
	access-list	Configures the access list mechanism for filtering frames by protocol type or vendor code.
	source-bridge output-lsap-list	Filters, on output, FDDI and IEEE 802-encapsulated packets that have DSAP and SSAP fields in their frame formats.

source-bridge input-type-list

To filter Subnetwork Access Protocol (SNAP)-encapsulated packets on input, use the **source-bridge input-type-list** command in interface configuration mode.

source-bridge input-type-list *access-list-number*

no source-bridge input-type-list *access-list-number*

Syntax Description	<i>access-list-number</i>	Number of the access list. This access list is applied to all SNAP frames received on that interface prior to the source-routing process. Specify zero (0) to disable the application of the access list on the bridge group. The value must be in the range from 200 to 299.
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Defaults	Disabled
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Command Modes	Interface configuration
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Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines	Use the access list command to specify type code when using the source-bridge input-type-list command.
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Examples The following example specifies access list 202:

```
access-list 202 deny 0x6000 0x0007
access-list 202 permit 0x0000 0xFFFF
!
interface tokenring 0
 source-bridge input-type-list 202
```

Related Commands	Command	Description
	access-list	Configures the access list mechanism for filtering frames by protocol type or vendor code.
	source-bridge output-type-list	Filters SNAP-encapsulated frames by type code on output.

source-bridge max-hops

To control the forwarding or blocking of all-route explorer frames received on an interface, use the **source-bridge max-hops** command in interface configuration mode. To reset the count to the maximum value, use the **no** form of this command.

source-bridge max-hops *count*

no source-bridge max-hops

Syntax Description	<i>count</i>	Determines the number of bridges an explorer packet can traverse. Typically, the maximum number of bridges for interoperability with IBM equipment is seven.
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Defaults The maximum number of bridge hops is seven.

Command Modes Interface configuration

Command History	Release	Modification
	11.2	This command was introduced.

Usage Guidelines Frames are forwarded only if the number of hops in the routing information field of the input frame plus hops appended by the router is fewer than or equal to the specified count. If the interface is connected to a destination interface, the router appends one hop. If the interface is tied to a virtual ring, the router appends two hops. This applies only to all-routes explorer frames on input to this interface.

Examples The following example limits the maximum number of source-route bridge hops to five:

```
source-bridge max-hops 5
```

Related Commands	Command	Description
	source-bridge	Configures an interface for SRB.
	source-bridge max-in-hops	Controls the forwarding or blocking of spanning-tree explorer frames received on an interface.
	source-bridge max-out-hops	Controls the forwarding or blocking of spanning-tree explorer frames sent from this interface.

source-bridge max-in-hops

To control the forwarding or blocking of spanning-tree explorer frames received on an interface, use the **source-bridge max-in-hops** command in interface configuration mode. To reset the count to the maximum value, use the **no** form of this command.

source-bridge max-in-hops *count*

no source-bridge max-in-hops

Syntax Description

<i>count</i>	Determines the number of bridges an explorer packet can traverse. Typically, the maximum number of bridges for interoperability with IBM equipment is seven.
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Defaults

The maximum number of bridge hops is seven.

Command Modes

Interface configuration

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

Frames are forwarded only if the number of hops in the routing information field of the input frame is fewer than or equal to the specified count. This applies only to spanning-tree explorer frames input to the specified interface.

Examples

The following example limits the maximum number of source-route bridge hops to three:

```
source-bridge max-in-hops 3
```

Related Commands

Command	Description
source-bridge	Configures an interface for SRB.
source-bridge max-hops	Controls the forwarding or blocking of all-route explorer frames received on an interface.
source-bridge max-out-hops	Controls the forwarding or blocking of spanning-tree explorer frames sent from this interface.

source-bridge max-out-hops

To control the forwarding or blocking of spanning-tree explorer frames sent from this interface, use the **source-bridge max-out-hops** command in interface configuration mode. To reset the count to the maximum value, use the **no** form of this command.

source-bridge max-out-hops *count*

no source-bridge max-out-hops

Syntax Description	<i>count</i>	Determines the number of bridges an explorer packet can traverse. Typically, the maximum number of bridges for interoperability with IBM equipment is seven.
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Defaults The maximum number of bridge hops is seven.

Command Modes Interface configuration

Command History	Release	Modification
	11.2	This command was introduced.

Usage Guidelines Frames are forwarded only if the number of hops in the routing information field of the frame (including the hops appended by the router) is fewer than or equal to the specified count. This applies only to spanning-tree explorer frames output from the specified interface.

Examples The following example limits the maximum number of source-route bridge hops to five:

```
source-bridge max-out-hops 5
```

Related Commands	Command	Description
	source-bridge	Configures an interface for SRB.
	source-bridge max-hops	Controls the forwarding or blocking of all-route explorer frames received on an interface.
	source-bridge max-in-hops	Controls the forwarding or blocking of spanning-tree explorer frames received on an interface.

source-bridge output-address-list

To apply an access list to an interface configured for source-route bridging, use the **source-bridge output-address-list** command in interface configuration mode. To remove the application of the access list, use the **no** form of this command.

source-bridge output-address-list *access-list-number*

no source-bridge output-address-list *access-list-number*

Syntax Description

<i>access-list-number</i>	Number of the access list. The value must be in the range from 700 to 799.
---------------------------	--

Defaults

No access list is assigned.

Command Modes

Interface configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

This command filters source-routed packets sent to the router interface based upon the destination MAC address.

Examples

To disallow the bridging of Token Ring packets of all IBM workstations on Token Ring 1, use this sample configuration. The software assumes that all such hosts have Token Ring addresses with the vendor code 1000.5A00.0000. The vendor portion of the MAC address is the first three bytes (left to right) of the address. The first line of the access list denies access to all IBM workstations, and the second line permits access to all other devices on the network. Then, the access list can be assigned to the input side of Token Ring 1.

```
access-list 700 deny 1000.5A00.0000 8000.00FF.FFFF
access-list 700 permit 0000.0000.0000 FFFF.FFFF.FFFF
interface tokenring 1
 source-bridge output-address-list 700
```

Related Commands

Command	Description
access-list	Configures the access list mechanism for filtering frames by protocol type or vendor code.
source-bridge input-address-list	Applies an access list to an interface configured for source-route bridging, and filters source-routed packets received from the router interface based on the source MAC address.

source-bridge output-lsap-list

To filter, on output, FDDI and IEEE 802-encapsulated packets that have destination service access point (DSAP) and source service access point (SSAP) fields in their frame formats, use the **source-bridge output-lsap-list** command in interface configuration mode.

source-bridge output-lsap-list *access-list-number*

no source-bridge output-lsap-list *access-list-number*

Syntax Description

<i>access-list-number</i>	Number of the access list. This access list is applied just before sending out a frame to an interface. Specify zero (0) to disable the filter. The value must be in the range from 200 to 299.
---------------------------	---

Defaults

No filters are applied.

Command Modes

Interface configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

The access list specifying the type codes to be filtered is given by this command.

Examples

The following example specifies access list 251:

```
access-list 251 permit 0xE0E0 0x0101
access-list 251 deny 0x0000 0xFFFF
!
interface tokenring 0
 source-bridge output-lsap-list 251
```

Related Commands

Command	Description
access-list	Configures the access list mechanism for filtering frames by protocol type or vendor code.
source-bridge input-lsap-list	Filters, on input, FDDI and IEEE 802-encapsulated packets that include the DSAP and SSAP fields in their frame formats. The access list specifying the type codes to be filtered is given by this variation of the source-bridge command in interface configuration mode.

source-bridge output-type-list

To filter Subnetwork Access Protocol (SNAP)-encapsulated frames by type code on output, use the **source-bridge output-type-list** command in interface configuration mode. To restore the default value, use the **no** form of this command.

source-bridge output-type-list *access-list-numbers*

no source-bridge output-type-list *access-list-numbers*

Syntax Description

<i>access-list-number</i>	Number of the access list. This access list is applied just before sending out a frame to an interface. Specify zero (0) to disable the application of the access list on the bridge group. The value must be in the range from 200 to 299.
---------------------------	---

Defaults

No filters are applied.

Command Modes

Interface configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

Input and output type code filtering on the same interface reduces performance and is not recommended. Access lists for Token Ring- and IEEE 802-encapsulated packets affect only source-route bridging functions. Such access lists do not interfere with protocols that are being routed. Use the access list specifying the types codes in this command.

Examples

The following example filters SNAP-encapsulated frames on output:

```
access-list 202 deny 0x6000 0x0007
access-list 202 permit 0x0000 0xFFFF
!
! apply interface configuration commands to interface tokenring 0
interface tokenring 0
! filter SNAP-encapsulated frames on output using access list 202
source-bridge output-type-list 202
```

Related Commands

Command	Description
access-list	Configures the access list mechanism for filtering frames by protocol type or vendor code.
source-bridge input-type-list	Filters SNAP-encapsulated packets on input.

source-bridge proxy-explorer

To configure the interface to respond to any explorer packets from a source node that meet the conditions described below, use the **source-bridge proxy-explorer** command in interface configuration mode. To cancel responding to explorer packets with proxy explorers, use the **no** form of this command.

source-bridge proxy-explorer

no source-bridge proxy-explorer

Syntax Description This command has no arguments or keywords.

Defaults Disabled

Command Modes Interface configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

The proxy explorer function allows the source-route bridge interface to respond to a source node on behalf of a particular destination node. The interface responds with proxy explorers. The following conditions must be met in order for the interface to respond to a source node with proxy explorers on behalf of a destination node:

- The destination node must be in the Routing Information Field (RIF) cache.
- The destination node must not be on the same ring as the source node.
- The explorer packet must be an IEEE 802.2 XID or TEST packet.
- The packet cannot be from the IBM Token Ring LAN Network Manager source service access point (SAP).

If all of the conditions are met, the source-route bridge interface will turn the packet around, append the appropriate RIF, and reply to the source node.

Use proxy explorers to limit the amount of explorer traffic propagating through the source-bridge network, especially across low-bandwidth serial lines. The proxy explorer is most useful for multiple connections to a single node.

Examples

The following example configures the router to use proxy explorers on Token Ring 0:

```
interface tokenring 0
 source-bridge proxy-explorer
```

source-bridge proxy-netbios-only

To enable proxy explorers for the NetBIOS name-caching function, use the **source-bridge proxy-netbios-only** command in global configuration mode. To disable the NetBIOS name-caching function, use the **no** form of this command.

source-bridge proxy-netbios-only

no source-bridge proxy-netbios-only

Syntax Description This command has no arguments or keywords.

Defaults Disabled

Command Modes Global configuration

Command History	Release	Modification
	10.0	This command was introduced.

Examples The following example configures the router to use proxy explorers:

```
source-bridge proxy-netbios-only
```

source-bridge ring-group

To define or remove a ring group from the configuration, use the **source-bridge ring-group** command in global configuration mode. To cancel previous assignments, use the **no** form of this command.

source-bridge ring-group *ring-group* [*virtual-mac-address*]

no source-bridge ring-group *ring-group* [*virtual-mac-address*]

Syntax Description

<i>ring-group</i>	Ring group number. The valid range is from 1 to 4095.
<i>virtual-mac-address</i>	(Optional) 12-digit hexadecimal string written as a dotted triple of four-digit hexadecimal numbers (for example, 0010.0a00.20a6).

Defaults

No ring group is defined.

Command Modes

Global configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

To configure a source-route bridge with more than two network interfaces, the *ring group* arrangement is used. A ring group is a collection of Token Ring interfaces in one or more routers that are collectively treated as a virtual ring. The ring group is denoted by a ring number that must be unique for the network. The ring group's number is used just like a physical ring number, showing up in any route descriptors contained in packets being bridged.

To configure a specific interface as part of a ring group, set its target ring number parameter to the ring group number specified in this command. Do not use the number 0; it is reserved to represent the local ring.

To avoid an address conflict on the virtual MAC address, use a locally administered address in the form 4000.xxxx.xxxx.

Examples

In the following example, multiple Token Rings are source-route bridged to one another through a single router. These Token Rings are all part of ring group seven.

```
! all token rings attached to this bridge/router are part of ring group 7
source-bridge ring-group 7
!
interface tokenring 0
 source-bridge 1000 1 7
!
interface tokenring 1
 source-bridge 1001 1 7
!
```

```
interface tokenring 2
  source-bridge 1002 1 7
!
interface tokenring 3
  source-bridge 1003 1 7
```

Related Commands

Command	Description
source-bridge	Configures an interface for SRB.

source-bridge route-cache cbus

To enable autonomous switching, use the **source-bridge route-cache cbus** command in interface configuration mode. To disable autonomous switching, use the **no** form of this command.

source-bridge route-cache cbus

no source-bridge route-cache cbus

Syntax Description This command has no arguments or keywords.

Defaults Disabled

Command Modes Interface configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

Autonomous switching in source-route bridging software is available for local source-route bridging between ciscoBus Token Ring cards in the same router. Autonomous switching provides higher switching rates than does fast switching between 4 to 16 MB Token Ring cards. Autonomous switching works for both two-port bridges and multiport bridges that use ciscoBus Token Ring cards.

In a virtual ring that includes both ciscoBus Token Ring and 4 to 16 MB Token Ring interfaces, frames that flow from one ciscoBus Token Ring interface to another are autonomously switched, and the remainder of the frames are fast switched. The switching that occurs on the ciscoBus Token Ring interface takes advantage of the high-speed ciscoBus controller processor.



Note

Using either NetBIOS byte offset access lists or the access-expression capability to logically combine the access filters disables the autonomous or fast switching of source-route bridging (SRB) frames.

Examples

The following example enables use of autonomous switching between two ciscoBus Token Ring interfaces:

```
interface token 0
  source-bridge 1 1 2
  source-bridge route-cache cbus
  !
interface token 1
  source-bridge 2 1 1
  source-bridge route-cache cbus
```

Related Commands

Command	Description
source-bridge	Configures an interface for SRB.

source-bridge route-cache sse

To enable the Cisco silicon switching engine (SSE) switching function, use the **source-bridge route-cache sse** command in interface configuration mode. To disable SSE switching, use the **no** form of this command.

source-bridge route-cache sse

no source-bridge route-cache sse

Syntax Description This command has no arguments or keywords.

Defaults Disabled

Command Modes Interface configuration

Command History

Release	Modification
10.0	This command was introduced.

Examples

The following example enables use of SSE switching between two 4 to 16 MB Token Ring interfaces:

```
interface token 0
 source-bridge 1 1 2
 source-bridge route-cache sse
!
interface token 1
 source-bridge 2 1 1
 source-bridge route-cache sse
```

Related Commands

Command	Description
source-bridge	Configures an interface for SRB.

source-bridge route-cache

To enable fast switching, use the **source-bridge route-cache** command in interface configuration mode. To disable fast switching, use the **no** form of this command.

source-bridge route-cache

no source-bridge route-cache

Syntax Description This command has no arguments or keywords.

Defaults Enabled

Command Modes Interface configuration

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines By default, fast-switching software is enabled in the source-route bridging software. Fast switching allows for faster implementations of local source-route bridging between 4 to 16 MB Token Ring cards in the same router. This feature also allows for faster implementations of local source-route bridging between two routers using the 4 to 16 MB Token Ring cards and the direct interface encapsulation.

Examples The following example disables use of fast switching between two 4 to 16 MB Token Ring interfaces:

```
interface token 0
 source-bridge 1 1 2
 no source-bridge route-cache
!
interface token 1
 source-bridge 2 1 1
 no source-bridge route-cache
```

Related Commands	Command	Description
	source-bridge	Configures an interface for SRB.

source-bridge sap-80d5

To allow non-IBM hosts (attached to a router with 80d5 processing enabled) to use the standard Token Ring to Ethernet LLC2 translation instead of the nonstandard Token Ring to Ethernet 80d5 translation, use the **source-bridge sap-80d5** command in global configuration mode. To disable this feature, use the **no** form of this command.

source-bridge sap-80d5 *dsap*

no source-bridge sap-80d5 *dsap*

Syntax Description	<i>dsap</i>	Destination service access point (DSAP).
Defaults	Enabled	
Command Modes	Global configuration	
Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines This command allows you to set the translation on a per-destination service access point (DSAP) basis. By default, the following DSAPs are enabled for 0x80d5 translation by specifying the **source-bridge enable-80d5** command:

- For Systems Network Architecture (SNA)—04, 08, 0C, 00
- For NetBIOS—F0

Any of these DSAPs can be disabled with the **no** form of this command.

The parameters specifying the current parameters for the processing of 0x80d5 frames are given at the end of the output of the **show span** command.



Note

The 80d5 frame processing option is available only with source-route translational bridging (SR/TLB). It is not available when source-route transparent bridging (SRT) is used.

Use the **show span** to verify that 80d5 processing is enabled for a particular DSAP. The following line is displayed in the output if 80d5 processing is enabled, listing each DSAP for which it is enabled:

```
Translation is enabled for the following DSAPs:
 04 0C 1C F0
```

Examples

The following example enables 0x80d5 processing, removes the translation for SAP 08, and adds the translation for SAP 1c:

```
source-bridge enable-80d5
no source-bridge sap-80d5 08
source-bridge sap-80d5 1c
```

Related Commands

Command	Description
show span	Displays the spanning-tree topology known to the router.
source-bridge enable-80d5	Changes the Token Ring of the router to Ethernet translation behavior.

source-bridge spanning (automatic)

To enable the automatic spanning-tree function for a specified group of bridged interfaces, use the automatic version of the **source-bridge spanning** command in interface configuration mode. To return to the default disabled state, use the **no** form of this command.

source-bridge spanning *bridge-group* [**path-cost** *path-cost*]

no source-bridge spanning *bridge-group* [**path-cost** *path-cost*]

Syntax Description

<i>bridge-group</i>	Number in the range from 1 to 9 that you choose to refer to a particular group of bridged interfaces. This must be the same number as assigned in the bridge protocol ibm command.
path-cost	(Optional) Assign a path cost for a specified interface.
<i>path-cost</i>	(Optional) Path cost for the interface. The valid range is from 0 to 65535.

Defaults

The automatic spanning-tree function is disabled. The default path cost is 16.

Command Modes

Interface configuration

Command History

Release	Modification
10.3	This command was introduced.

Usage Guidelines

To return an assigned path cost to the default path cost of 16, use the **no source-bridge spanning path-cost** command.

Examples

The following example adds Token Ring 0 to bridge group 1 and assigns a path cost of 12 to Token Ring 0:

```
interface tokenring 0
 source-bridge spanning 1 path-cost 12
```

Related Commands

Command	Description
bridge protocol ibm	Creates a bridge group that runs the automatic spanning-tree function.
show source-bridge	Displays the current source bridge configuration and miscellaneous statistics.

source-bridge spanning (manual)

To enable use of spanning explorers, use the **source-bridge spanning** command in interface configuration mode. To disable the use of spanning explorers, use the **no** form of this command.

source-bridge spanning

no source-bridge spanning

Syntax Description This command has no arguments or keywords.

Defaults Disabled

Command Modes Interface configuration

Command History	Release	Modification
	10.0	This command was introduced.

Usage Guidelines Only spanning explorers will be blocked; everything else will be forwarded. Use of the **source-bridge spanning** command is recommended. This command puts the interface into a forwarding or active state with respect to the spanning tree. Two types of explorer packets are used to collect Routing Information Field (RIF) information:

- All-rings, all-routes explorer packets follow all possible paths to a destination ring. In a worst-case scenario, the number of all-rings explorers generated may be exponentially large.
- Spanning or limited-route explorer packets follow a spanning tree when looking for paths, greatly reducing the number of explorer packets required. There is no dynamic spanning-tree algorithm to establish that spanning tree; it must be manually configured.

Examples The following example enables use of spanning explorers:

```
! Global configuration command establishing the ring group for the interface
! configuration commands
source-bridge ring-group 48
!
! commands that follow apply to interface token 0
interface tokenring 0
! configure interface tokenring 0 to use spanning explorers
source-bridge spanning
```

Related Commands	Command	Description
	source-bridge	Configures an interface for SRB.

source-bridge transparent fastswitch

To enable fast switching of packets between the source-route bridging (SRB) and transparent domains, use the **source-bridge transparent fastswitch** command in global configuration mode. To disable fast switching of packets, use the **no** form of this command.

source-bridge transparent *ring-group* **fastswitch**

no source-bridge transparent *ring-group* **fastswitch**

Syntax Description

<i>ring-group</i>	Virtual ring group created by the source-bridge ring-group command. This is the source-bridge virtual ring to associate with the transparent-bridge group. This ring group number must match the number you have specified with the source-bridge ring-group command. The valid range is from 1 to 4095.
fastswitch	Fast-switched source-route translational bridging (SR/TLB) enables the Cisco IOS software to process packets at the interrupt level.

Defaults

Fast-switched SR/TLB is enabled.

Command Modes

Global configuration

Command History

Release	Modification
11.2	This command was introduced.

Usage Guidelines

Because fast-switched SR/TLB is enabled by default when the router is configured for SR/TLB, there are no user-specified changes to the operation of the router, and the enabling command does not appear in the configuration.

The **no source-bridge transparent** *ring-group* **fastswitch** command is provided to disable fast-switched SR/TLB, causing the router to handle packets by process switching. When fast-switched SR/TLB is disabled, the **no** form of the command appears on a separate line of the configuration, immediately following the parent **source-bridge transparent** command.

If fast-switched SR/TLB has been disabled, it can be enabled using the **source-bridge transparent** *ring-group* **fastswitch** command, but the enabling form of the command will not appear in the configuration.

Examples

The following example disables fast-switched SR/TLB between a transparent-bridge network and a source-route network:

```
source-bridge ring-group 9
source-bridge transparent 9 6 2 2
no source-bridge transparent 9 fastswitch
!
```

```

interface tokenring 0
  source-bridge 5 2 9
!
interface token ring 1
  source bridge 4 2 9
!
interface ethernet 0
  bridge-group 2
!
interface ethernet 1
  bridge-group 2

bridge 2 protocol ieee

```

Related Commands

Command	Description
bridge-group	Assigns each network interface to a bridge group.
source-bridge	Configures an interface for SRB.
source-bridge ring-group	Defines or removes a ring group from the configuration.

source-bridge transparent

To establish bridging between transparent bridging and source-route bridging (SRB), use the **source-bridge transparent** command in global configuration mode. To disable a previously established link between a source-bridge ring group and a transparent-bridge group, use the **no** form of this command.

source-bridge transparent *ring-group pseudoring bridge-number tb-group [oui]*

no source-bridge transparent *ring-group pseudoring bridge-number tb-group*

Syntax Description

<i>ring-group</i>	Virtual ring group created by the source-bridge ring-group command. This is the source-bridge virtual ring to associate with the transparent-bridge group. This ring group number must match the number you have specified with the source-bridge ring-group command. The valid range is from 1 to 4095.
<i>pseudoring</i>	Ring number used to represent the transparent bridging domain to the source-route bridged domain. This number must be a unique number, not used by any other ring in your source-route bridged network.
<i>bridge-number</i>	Bridge number of the bridge that leads to the transparent bridging domain.
<i>tb-group</i>	Number of the transparent bridge group that you want to tie into your source-route bridged domain. The no form of this command disables this feature.
<i>oui</i>	(Optional) Organizational unique identifier. Values are the following: <ul style="list-style-type: none"> • 90-compatible • standard • cisco

Defaults

Not established

Command Modes

Global configuration

Command History

Release	Modification
10.0	This command was introduced.

Usage Guidelines

Before using this command, you must have completely configured your router using multiport source-bridging and transparent bridging.

Specify the **90-compatible** keyword *oui* when talking to Cisco routers. This OUI provides the most flexibility. Specify the **standard** keyword *oui* when talking to IBM 8209 bridges and other vendor equipment. This *oui* does not provide for as much flexibility as the other two choices. The **cisco** keyword *oui* is provided for compatibility with future equipment.

Do not use the **standard** keyword `oui` unless you are forced to interoperate with other vendor equipment, such as the IBM 8209, in providing Ethernet and Token Ring mixed media bridged connectivity. Use the **standard** keyword only when you are transferring data between IBM 8209 Ethernet/Token Ring bridges and routers running the source-route translational bridging (SR/TLB) software (to create a Token Ring backbone to connect Ethernets). Use of the **standard** keyword causes the OUI code in Token Ring frames to always be 0x000000. In the context of the **standard** keyword, an OUI of 0x000000 identifies the frame as an Ethernet Type II frame. If the OUI in Token Ring frame is 0x000000 SR/TLB will output an Ethernet Type II frame.

When 8209 compatibility is enabled with the **ethernet transit-oui standard** command, the SR/TLB chooses to translate all Token Ring Subnetwork Access Protocol (SNAP) frames into Ethernet Type II frames as described earlier in this chapter.

Examples

The following example establishes bridging between a transparent-bridge network and a source-route network:

```
source-bridge ring-group 9
source-bridge transparent 9 6 2 2
!
interface tokenring 0
 source-bridge 5 2 9
!
interface token ring 1
 source bridge 4 2 9
!
interface ethernet 0
 bridge-group 2
!
interface ethernet 1
 bridge-group 2

bridge 2 protocol ieee
```

Related Commands

Command	Description
bridge-group	Assigns each network interface to a bridge group.
ethernet transit-oui standard	Chooses Organizational Unique Identifier (OUI) code to encapsulate Ethernet Type II frames across Token Ring backbone networks.
source-bridge	Configures an interface for SRB.
source-bridge ring-group	Defines or removes a ring group from the configuration.

subscriber-policy

To define or modify the forward and filter decisions of the subscriber policy, use the **subscriber-policy** command in global configuration mode.

subscriber-policy *policy* [[**no** | **default**] *packet* [**permit** | **deny**]]

Syntax Description		
<i>policy</i>		Subscriber policy number in the range from 1 to 100.
no		(Optional) Turn off the permit for the packet (this is an equivalent of the deny keyword).
default		(Optional) Deny forwarding of the packet (this is an equivalent of the deny keyword).
<i>packet</i>		(Optional) One of the following packets: <ul style="list-style-type: none"> • arp • broadcast • cdp • multicast • st • unknown unicast
permit		(Optional) Permit forwarding of the packet.
deny		(Optional) Deny forwarding of the packet.

Defaults

Table 22 shows the default values that are applied if no forward or filter decisions have been specified for the subscriber policy:

Table 22 Packet Default Values

Packet	Upstream
ARP	Permit
Broadcast	Deny
CDP	Deny/Disable
Multicast	Permit
Spanning Tree Protocol	Deny/Disable
Unknown Unicast	Deny

Command Modes

Global configuration

Command History

Release	Modification
11.3	This command was introduced.

Usage Guidelines

As an alternative to the command syntax described, you can enter the **subscriber-policy** *policy* command, followed by the specific forward or filter decisions for each packet.

There is not a **no** form for this command.

Examples

The following example changes the Address Resolution Protocol (ARP) behavior and the multicast behavior from permit to deny:

```
subscriber-policy 3 arp deny
subscriber-policy 3 multicast deny
```

The following example changes the ARP behavior and the multicast behavior from permit to deny, using the alternative syntax shown in the usage guidelines section:

```
subscriber-policy 3
arp deny
multicast deny
```

Related Commands

Command	Description
bridge protocol	Defines the type of Spanning Tree Protocol.
bridge subscriber-policy	Binds a bridge group with a subscriber policy.
show subscriber-policy	Displays the details of a subscriber policy.

