Source-Route Bridging Commands

This chapter describes the function and displays the syntax of each source-route bridging command. For more information about defaults and usage guidelines, see the corresponding chapter of the *Router Products Command Reference* publication.

[no] access-expression {in | out} expression

Use the **access-expression** interface configuration command to define an access expression. Use the **no** form of this command to remove the access expression from the given interface. You use this command in conjunction with the **access-list** interface configuration command.

in | out Either in or out is specified to indicate whether the

access expression is applied to packets entering or

leaving this interface.

You can specify both an input and an output access expression for an interface, but only one of each.

expression Boolean access list expression, built as explained in

the "Usage Guidelines" section for this command in

the Router Products Command Reference

publication.

[no] access-list access-list-number {permit | deny} {type-code wild-mask | address mask}

Use the access-list global configuration command to configure the access list mechanism for filtering frames by protocol type or vendor code. Use the **no** form of this command to remove the single specified entry from the access list.

access-listnumber

Integer that identifies the access list. If the type-code and wild-mask arguments are included, this integer ranges from 200 through 299, indicating that filtering is by protocol type. If the address and mask arguments are included, this integer ranges from 700 through 799, indicating that filtering is by vendor code.

permit

Permits the frame.

deny

Denies the frame.

type-code

16-bit hexadecimal number written with a leading 0x; for example, 0x6000. Specify either a Link Service Access Point (LSAP) type code for 802-encapsulated packets or a SNAP type code for SNAP-encapsulated packets. (LSAP, sometimes called SAP, refers to the type codes found in the DSAP and SSAP fields of the 802 header.)

wild-mask

16-bit hexadecimal number whose ones bits correspond to bits in the type-code argument. The wild-mask indicates which bits in the type-code argument should be ignored when making a comparison. (A mask for a DSAP/SSAP pair should always be 0x0101 because these two bits are used for purposes other than identifying the SAP code.)

address

48-bit Token Ring address written in dotted triplet form. This field is used for filtering by vendor code.

mask

48-bit Token Ring address written in dotted triplet form. The ones bits in mask are the bits to be ignored in address. This field is used for filtering by

vendor code.

[no] bridge bridge-group protocol ibm

Use the **bridge protocol ibm** global configuration command to create a bridge group that runs the automatic spanning tree function. Use the **no** form of this command to cancel the previous assignment.

bridge-group

Number in the range 1 through 9 that you choose to refer to a particular set of bridged interfaces. Frames are bridged only among interfaces in the same group.

clear netbios-cache

Use the **clear netbios-cache** EXEC command to clear the entries of all dynamically learned NetBIOS names. This command will not remove statically defined name cache entries.

clear rif-cache

Use the **clear rif-cache** EXEC command to clear the entire RIF cache.

clear source-bridge

Use the **clear source-bridge** EXEC command to clear the source-bridge statistical counters.

clear sse

Use the **clear sse** privileged EXEC command to reinitialize the Silicon Switch Processor (SSP) on the Cisco 7000 series.

ethernet-transit-oui $\{standard \mid 90\text{-compatible} \mid cisco\}$ no ethernet-transit-oui

Use the **ethernet-transit-oui** interface configuration command to choose the Organizational Unique Identifier (OUI) code to be used in the encapsulation of Ethernet Type II frames across Token Ring backbone networks. Various versions of this OUI code are used by Ethernet/Token

Ring translational bridges. The **standard** keyword is used when 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 **no** form of this command to return the default OUI code.

standard (Optional) Standard OUI form.90-compatible (Optional) Default OUI form.cisco (Optional) Cisco's OUI form.

Inm alternate *number* no lnm alternate

Use the **Inm alternate** interface configuration command to specify the threshold reporting link number. In order for a LAN Reporting Manager (LRM) to change parameters, it must be attached to the reporting link with the lowest reporting link number, and that reporting link number must be lower than this threshold reporting link number. Use the **no** form of this command to restore the default of 0.

number Threshold reporting link number. It must be in the range 0 through 3. The default is 0.

[no] lnm crs

Use the **lnm crs** interface configuration command to monitor the current logical configuration of a Token Ring. Use the **no** form of this command to disable this function.

Inm loss-threshold *number* **no lnm loss-threshold**

Use the **Inm loss-threshold** interface configuration command to set the threshold at which the router sends a message informing all attached LNMs that it is dropping frames. Use the **no** form of this command to return to the default value.

number

A single number expressing the percentage loss rate in hundredths of a percent. The valid range is 0 through 9999. The default is 10 (.10 percent).

lnm password *number string* **no lnm password** *number*

Use the **Inm password** interface configuration command to set the password for the reporting link. Use the **no** form of this command to return the password to its default value of 00000000.

number Number of the reporting link to which to apply the

password. This value should be in the range 0

through 3.

string Password you enter at the keyboard. In order to

maintain compatibility with LNM, the parameter *string* should be a six- to eight-character string of the type listed in the "Usage Guidelines" section for this

command in the Router Product Command

Reference publication.

[no] lnm rem

Use the **Inm rem** interface configuration command to monitor errors reported by any station on the ring. Use the **no** form of this command to disable this function.

[no] lnm rps

Use the **Inm rps** interface configuration command to ensure that all stations on a ring are using a consistent set of reporting parameters. Use the **no** form of this command to disable this function.

[no] lnm snmp-only

Use the **lnm snmp-only** global configuration command to prevent any LNM stations from modifying parameters in the router. Use the **no** form of this command to allow modifications.

Inm softerr milliseconds no Inm softerr

Use the **lnm softerr** interface configuration command to set the time interval in which the router will accumulate error messages before sending them. Use the **no** form of this command to return to the default value.

milliseconds

Time interval in tens of milliseconds between error messages. The valid range is 0 through 65535. The default is 200 milliseconds (2 seconds).

mac-address ieee-address

Use the **mac-address** interface configuration command to set the MAC layer address of the Cisco Token Ring.

ieee-address

48-bit IEEE MAC address written as a dotted triplet of four-digit hexadecimal numbers.

[no] multiring {protocol-keyword | all | other}

Use the **multiring** interface configuration command to enable collection and use of RIF information. Use the **no** form of this command with the appropriate keyword to disable the use of RIF information for the protocol specified.

protocol-keyword Specifies a protocol. See this command in the

Router Products Command Reference publication for a list of supported values.

all Enables the multiring for *all* frames.

other Enables the multiring for *any* routed frame

not included in the previous list of supported

protocols.

[no] netbios access-list bytes name {permit | deny} offset pattern

Use the **netbios access-list bytes** global configuration command to define the offset and hexadecimal patterns with which to match byte offsets in NetBIOS packets. Use the **no** form of this command to remove an entire list or the entry specified with the *pattern* argument.

name Name of the access list being defined.

permit Permits the condition.deny Denies the condition.

offset Decimal number indicating the number of bytes into

the packet where the byte comparison should begin. An offset of zero points to the very beginning of the NetBIOS header. Therefore, the NetBIOS delimiter

string (0xffef), for example, begins at

offset 2.

pattern Hexadecimal string of digits representing a byte

pattern. The argument *pattern* must conform to certain conventions. These conventions are listed in the "Usage Guidelines" section for this command in

the Router Products Command Reference

publication.

Source-Route Bridging Commands

I

[no] netbios access-list host name {permit | deny} pattern

Use the **netbios access-list host** global configuration command to assign the name of the access list to a station or set of stations on the network. The NetBIOS station access list contains the station name to match, along with a permit or deny condition. Use the **no** form of this command to remove either an entire list or just a single entry from a list, depending upon the argument given for pattern.

Name of the access list being defined. name

Permits the condition. permit deny Denies the condition.

A set of characters. The characters can be the name pattern

of the station, or a combination of characters and pattern-matching symbols that establish a pattern for a set of NetBIOS station names. This combination can be especially useful when stations have names with the same characters, such as a prefix. For available pattern-matching symbols, see the table in the "Usage Guidelines" section of the Router Products Command Reference publication.

[no] netbios enable-name-cache

Use the netbios enable-name-cache interface configuration command to enable NetBIOS name caching. Use the no form of this command to disable the name-cache behavior.

[no] netbios input-access-filter bytes name

Use the netbios input-access-filter bytes interface configuration command to define a byte access list filter on incoming messages. The actual access filter byte offsets and patterns used are defined in one or more netbios-access-list bytes commands. Use the no form of this command with the appropriate name to remove the entire access list.

Name of a NetBIOS access filter previously defined name with one or more of the netbios access-list bytes

global configuration commands.

[no] netbios input-access-filter host name

Use the **netbios input-access-filter host** interface configuration command to define a station access list filter on incoming messages. The access lists of station names are defined in **netbios access-list host** commands. Use the **no** form of this command with the appropriate argument to remove the entire access list.

name Name of a NetBIOS access filter previously

defined with one or more of the netbios

access-list host global configuration commands.

netbios name-cache *mac-address netbios-name* { *interface-name* | **ring-group** *group-number* }

no netbios name-cache mac-address netbios-name

Use the **netbios name-cache** global configuration command to define a static NetBIOS name-cache entry, tying the server with the name *netbios-name* to the *mac-address*, and specifying that the server is accessible either locally via the *interface-name* specified, or remotely, via the **ring-group** *group-number* specified. Use the **no** form of this command to remove the entry.

mac-address The MAC address.

netbios-name Server name linked to the MAC address.

interface-name Name of the interface by which the server is

accessible locally.

ring-group Specifies that the link is accessible remotely.

group-number Number of the ring group by which the server is

accessible remotely. This ring group number must match the number you have specified with the **source-bridge ring-group** command. The

valid range is 1 through 4095.

netbios name-cache name-len length

Use the **netbios name-cache name-len** global configuration command to specify how many characters of the NetBIOS type name the name cache will validate.

length

The length of the NetBIOS type name. The default length is 15 characters. The range is 8 to 16 characters.

netbios name-cache proxy-datagram seconds

Use the **netbios name-cache proxy-datagram** global configuration command to enable the router to act as a proxy and send NetBIOS datagram type frames.

seconds

Time interval, in seconds, that the router forwards a route broadcast datagram type packet. The valid range is any number greater than 0.

netbios name-cache query-timeout seconds no netbios name-cache query-timeout

Use the **netbios name-cache query-timeout** global configuration command to specify the "dead" time, in seconds, that starts when a host sends any ADD_NAME_QUERY, ADD_GROUP_NAME, or STATUS_QUERY frame. During this dead time, the router drops any repeat, duplicate ADD_NAME_QUERY, ADD_GROUP_NAME, or STATUS_QUERY frame sent by the same host. This timeout is only effective at the time of the login negotiation process. Use the **no** form of this command to bring the time back to the default of 6 seconds.

seconds "Dead" time period in seconds. The default is 6 seconds.

netbios name-cache recognized-timeout seconds no netbios name-cache recognized-timeout

Use the **netbios name-cache recognized-timeout** global configuration command to specify the "dead" time, in seconds, that starts when a host sends any FIND_NAME or NAME_RECOGNIZED frame. During this dead time, the router drops any repeat, duplicate FIND_NAME or NAME_RECOGNIZED frame sent by the same host. This timeout is only effective at the time of the login negotiation process. Use the **no** form of this command to bring the time back to the default of 6 seconds.

seconds "Dead" time period in seconds. The default is 6 seconds.

[no] netbios name-cache timeout minutes

Use the **netbios name-cache timeout** global configuration command to enable NetBIOS name caching and to set the time that entries can remain in the NetBIOS name cache. Use the **no** form of this command to bring the time back to the default of 15 minutes.

minutes Time, in minutes, that entries can remain in the

NetBIOS name cache. Once the time expires, the entry will be deleted from the cache. The default is 15 minutes.

[no] netbios output-access-filter bytes name

Use the **netbios output-access-filter bytes** interface configuration command to define a byte access list filter on outgoing messages. Use the **no** form of this command to remove the entire access list.

name Name of a NetBIOS access filter previously defined with one or more of the **netbios access-list bytes**

global configuration commands.

[no] netbios output-access-filter host name

Use the **netbios output-access-filter host** interface configuration command to define a station access list filter on outgoing messages. Use the **no** form of this command to remove the entire access list.

name Name of a NetBIOS access filter previously

defined with one or more of the netbios

access-list host global configuration commands.

rif mac-address rif-string {interface-name | **ring-group** ring} **no rif** mac-address {interface-name | **ring-group** ring}

Use the **rif** global configuration command to enter static source-route information into the RIF cache. If a Token Ring host does not support the use of IEEE 802.2 TEST or XID datagrams as explorer packets, you might need to add static information to the RIF cache of the router/bridge. Use the **no** form of this command to remove an entry from the cache.

mac-address 12-digit hexadecimal string written as a dotted

triplet; for example, 0010.0a00.20a6.

rif-string Series of 4-digit hexadecimal numbers

separated by a period (.). This RIF string is inserted into the packets sent to the specified

MAC address.

interface-name Interface name (for example, tokenring0) that

indicates the origin of the RIF.

ring-group Specifies the origin of the RIF is a ring group.

ring Ring group number that indicates the origin of

the RIF. This ring group number must match the number you have specified with the **source-bridge ring-group** command. The

valid range is 1 through 4095.

rif timeout minutes no rif timeout

Use the **rif timeout** global configuration command to determine the number of minutes an inactive RIF entry is kept. RIF information is maintained in a cache whose entries are aged. Use the **no** form of this command to restore the default.

minutes

Number of minutes the RIF entry is kept. The value must be greater than 0. The default is 15 minutes.

rif validate-age seconds

Use the **rif validate-age** global configuration command to define the validation time when the router is acting as a proxy for the **netbios name-query** command or for explorer frames.

seconds

Interval, in seconds, at which a proxy is sent. The valid range is any number greater than 0. The default is 2 seconds.

[no] rif validate-enable

Use the **rif validate-enable** global configuration command to enable RIF validation for entries learned on an interface (Token Ring or FDDI). Use the **no** form of this command to disable the specification.

[no] rif validate-enable-age

Use the **no rif validate-enable-age** global configuration command to enable RIF validation for stations on a source-route bridge network that do not respond to an IEEE TEST command.

[no] rif validate-enable-route-cache

Use the **rif validate-enable-route-cache** global configuration command to enable synchronization of the RIF cache with the protocol route cache.

show controllers token

Use the **show controllers token** privileged EXEC command to display information about memory management, error counters, and the board itself. Depending on the board being used, the output can vary. This command also displays proprietary information. Thus, the information that **show controllers token** displays is of primary use to our technical personnel. Information that is useful to users can be obtained with the **show interfaces tokenring** command.

show interfaces tokenring [number]

Use the **show interfaces tokenring** privileged EXEC command to display information about the Token Ring interface and the state of source-route bridging.

number

I

(Optional) Interface number. If you do not provide a value for the *unit* argument, the command will display statistics for all Token Ring interfaces.

show lnm bridge

Use the **show lnm bridge** privileged EXEC command to display all currently configured bridges and all parameters that are related to the bridge as a whole, not to one of its interfaces.

show lnm config

Use the **show lnm config** privileged EXEC command to display the logical configuration of all bridges configured in a router. This information is needed to configure an LNM Management Station to communicate with a router. This is especially important when the router is configured as a multiport bridge, thus employing the concept of a virtual ring.

show lnm interface [interface]

Use the **show lnm interface** privileged EXEC command to display all LNM-related information about a specific interface, or about all interfaces.

interface (Optional) Number of a specific interface for which

LNM-related information is to be displayed.

show lnm ring [ring-number]

Use the **show lnm ring** privileged EXEC command to display all LNM information about a specific Token Ring, or about all Token Rings. If a specific interface is requested, it also displays a list of all currently active stations on that interface.

ring-number (Optional) Number of a specific Token Ring. It can be a value in the range 1 through 4095.

show lnm station [address]

Use the **show lnm station** privileged EXEC command to display LNM-related information about a specific station, or about all known stations on all rings. If a specific station is requested, it also displays a detailed list of that station's current MAC-level parameters.

address (Optional) Address of a specific LNM station.

show netbios-cache

Use the **show netbios-cache** privileged EXEC command to display a list of NetBIOS cache entries.

show rif

Use the **show rif** privileged EXEC command to display the current contents of the RIF cache.

show source-bridge

Use the **show source-bridge** privileged EXEC command to display the current source bridge configuration and miscellaneous statistics.

show span

Use the **show span** EXEC command to display the spanning-tree topology known to the router.

show sse summary

Use the show sse summary EXEC command to display a summary of Silicon Switch Processor (SSP) statistics:

source-bridge local-ring bridge-number target-ring no source-bridge

Use the **source-bridge** interface configuration command to configure an interface for source-route bridging. Use the **no** form of this command to disable source bridging on a particular interface.

local-ring	Ring number for this interface's Token Ring. It must be a decimal number between 1 and 4095 that uniquely identifies a network segment or ring within the bridged Token Ring network.
bridge-number	Number that uniquely identifies the bridge connecting the local and target rings. It must be a decimal number between 1 and 15.
target-ring	Decimal ring number of the destination ring on this router/bridge. It also must be unique within

the bridged Token Ring network. The target ring can also be a ring group.

[no] source-bridge enable-80d5

Use the **source-bridge enable-80d5** global configuration command to change the router's Token Ring to Ethernet translation behavior. Use the **no** form of this command to restore the default behavior.

[no] source-bridge explorer-fastswitch

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

source-bridge explorer-maxrate maxrate no source-bridge explorer-maxrate

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

maxrate Number in the range -1 through 1000.

[no] source-bridge explorerq-depth depth

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

depth The maximum number of incoming packets. The valid range is 1 through 500. The default is 30.

I

[no] source-bridge input-address-list access-list-number

Use the **source-bridge input-address-list** interface configuration command to assign an access list to a particular input interface for filtering the Token Ring or IEEE 802.2 source addresses. This command filters packets coming into the router. Use the **no** form of this command to remove the application of the access list.

access-list- Number of the access list. The value must be in the number range 700 through 799.

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

Use the **source-bridge input-lsap-list** interface configuration command to filter, on input, FDDI and IEEE 802-encapsulated packets which include the destination service access point (DSAP) and source service access point (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** interface configuration command.

number

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 200 through 299.

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

Use the **source-bridge input-type-list** interface configuration command to filter SNAP-encapsulated packets on input.

access-listnumber

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 200 through 299.

[no] source-bridge output-address-list access-list-number

Use the **source-bridge output-address-list** interface configuration command to assign an access list to a particular output interface packet for filtering the Token Ring or IEEE 802.2 source (rather than destination) addresses. This command filters packets sent out from the router. Use the **no** form of this command to remove the application of the access list.

access-list- Number of the access list. The value must be in the number range 700 through 799.

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

Use the **source-bridge output-lsap-list** interface configuration command to filter, on output, FDDI and IEEE 802-encapsulated packets which include the destination service access point (DSAP) and source service access point (SSAP) fields in their frame formats.

access-listnumber 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 200 through 299.

source-bridge output-type-list access-list-number

Use the **source-bridge output-type-list** interface configuration command to filter SNAP-encapsulated frames by type code on output.

access-listnumber 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 200 through 299.

[no] source-bridge proxy-explorer

Use the **source-bridge proxy-explorer** interface configuration command to configure the interface to respond to any explorer packets from a source node that meet the conditions described in the "Usage

Guidelines" section for this command in the *Router Products Command Reference* publication. Use the **no** form of this command to cancel responding to explorer packets with proxy explorers.

[no] source-bridge proxy-netbios-only

Use the **source-bridge proxy-netbios-only** global configuration command to enable proxy explorers for the NetBIOS name-caching function. Use the **no** form of this command to disable the NetBIOS name-caching function.

[no] source-bridge ring-group ring-group

Use the **source-bridge ring-group** global configuration command to define or remove a ring group from the router configuration. Use the **no** form of this command to cancel previous assignments.

ring-group Ring group number. The valid range is 1 through 4095.

[no] source-bridge route-cache

Use the **source-bridge route-cache** interface configuration command to enable fast switching. Use the **no** form of this command to disable fast switching.

[no] source-bridge route-cache cbus

Use the **source-bridge route-cache cbus** interface configuration command to enable autonomous switching. Use the **no** form of this command to disable autonomous switching.

[no] source-bridge route-cache sse

Use the **source-bridge route-cache sse** interface configuration command to enable Cisco's silicon switching engine (SSE) switching function. Use the **no** form of this command to disable SSE switching.

[no] source-bridge sap-80d5 dsap

Use the **source-bridge sap-80d5** global configuration command 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. This command allows you to set the translation on a per-DSAP basis. Use the **no** form of this command to disable this feature.

dsap Destination service access point (DSAP).

[no] source-bridge spanning bridge-group

Use the **source-bridge spanning** interface configuration command to enable the automatic spanning tree function for a specified group of bridged interfaces. Use the **no** form of this command to disable the previous assignment.

bridge-group

Number in the range 1 through 9 that you choose to refer to a particular group of bridged interfaces. This must be the same bridge-group number as assigned in the **bridge protocol ibm** command.

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

Use the **source-bridge spanning path-cost** interface configuration command to assign a path cost for a specified interface. Use the **no** form of this command to disable the previous assignment.

bridge-group Number in the range 1 through 9 that you choose

to refer to a particular group of bridged interfaces. This must be the same bridge-group number as assigned in the **bridge protocol ibm** command.

path-cost Path cost for the interface. The valid range is 0

through 65535.

source-bridge transparent ring-group pseudo-ring bridge-number tb-group [oui]

no source-bridge transparent ring-group pseudo-ring bridge-number tb-group

Use the **source-bridge transparent** global configuration command to establish bridging between transparent bridging and source-route bridging. Use the **no** form of this command to disable a previously established link between a source-bridge ring group and a transparent bridge group.

ring-group	Virtual ring group created by the source-bridge
001	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 1 through
	4007

4095.

pseudo-

tb-group

ring

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.

bridge- Bridge number of the bridge that leads to the number transparent bridging domain.

Number of the transparent bridge group that you want to tie into your source-route bridged domain.

oui (Optional) Organizational unique identifier.
 Possible values include: 90-compatible, standard, and cisco.