Command Reference

This appendix describes the Content Switching Module (CSM) commands that are unique to server load-balancing (SLB) and Layer 3 switching.

The following commands allow you to set up and monitor SLB on the CSM:

Command	Submode Command
dfp, page A-6	agent, page A-7
	manager, page A-8
ft group, page A-9	failover, page A-10
	heartbeat-time, page A-11
	preempt, page A-12
	priority, page A-13
ip slb mode, page A-14	
map cookie, page A-16	match protocol http cookie, page A-17
map dns, page A-19	match protocol dns domain, page A-20
map header, page A-21	match protocol http header, page A-22
map retcode, page A-24	match protocol http retcode, page A-25
map url, page A-26	match protocol http url, page A-27
module csm, page A-29	
natpool, page A-30	
owner, page A-31	address, page A-32
	billing-info, page A-33
	contact-info, page A-34
	maxconns, page A-35

Command	Submode Command
policy, page A-36	client-group, page A-37
	cookie-map, page A-38
	header-map, page A-39
	reverse-sticky, page A-40
	reverse-sticky, page A-40
	set ip dscp, page A-42
	sticky-group, page A-43
	url-map, page A-44
probe, page A-45	address (dns), page A-47
	address (icmp), page A-48
	credentials, page A-49
	expect status, page A-50
	failed, page A-52
	header, page A-53
	interval, page A-54
	kal-ap-udp, page A-55
	name, page A-56
	open, page A-58
	port, page A-57
	receive, page A-59
	request, page A-60
	retries, page A-61
probe script, page A-62	script, page A-63
	failed, page A-64
	interval, page A-65
	open, page A-66
	receive, page A-67
	retries, page A-68
real, page A-69	inservice, page A-70
	maxconns, page A-71
	minconns, page A-72
	probe, page A-73
	redirect-vserver, page A-74
	weight, page A-75

Command	Submode Command
redirect-vserver, page A-76	advertise, page A-77
	client, page A-78
	idle, page A-79
	inservice, page A-80
	replicate csrp, page A-81
	ssl, page A-82
	virtual, page A-83
	vlan, page A-84
	webhost backup, page A-85
	webhost relocation, page A-86
script file, page A-87	
script task, page A-88	
serverfarm, page A-89	bindid, page A-90
	failaction purge, page A-91
	health, page A-92
	nat client, page A-93
	nat server, page A-94
	predictor, page A-95
	probe, page A-97
	retcode-map, page A-98
show module csm arp, page A-99	
show module csm conns, page A-100	
show module csm dfp, page A-101	
show module csm ft, page A-103	
show module csm map, page A-104	
show module csm memory, page A-106	
show module csm natpool, page A-107	
show module csm owner, page A-108	
show module csm policy, page A-109	
show module csm probe, page A-110	
show module csm probe script, page A-112	
show module csm real, page A-113	
show module csm real retcode, page A-115	
show module csm script, page A-116	
show module csm script task, page A-117	
show module csm serverfarm, page A-118	
show module csm static, page A-120	

Command	Submode Command
show module csm static server, page A-121	
show module csm stats, page A-122	
show module csm status, page A-124	
show module csm sticky, page A-125	
show module csm tech-script, page A-126	
show module csm tech-support, page A-127	
show module csm vlan, page A-130	
show module csm vserver redirect, page A-131	
show module csm xml stats, page A-133	
snmp enable traps slb ft, page A-134	
static, page A-135	real, page A-136
vlan, page A-139	alias, page A-140 gateway, page A-141 ip address, page A-142 route, page A-143
sticky, page A-158	

Command	Submode Command
vserver, page A-144	advertise, page A-145 client, page A-146 idle, page A-147 inservice, page A-148 owner, page A-149 parse-length, page A-150 pending, page A-151 persistent rebalance, page A-152 replicate csrp, page A-153 serverfarm, page A-154 slb-policy, page A-156 ssl-sticky, page A-157 sticky, page A-158 reverse-sticky, page A-160 url-hash, page A-161 virtual, page A-162 vlan, page A-164
xml-config, page A-165	client-group, page A-166 credentials, page A-167 inservice, page A-168 port, page A-169 vlan, page A-170

dfp

Use the **dfp** command to enter the DFP submode and configure DFP. Use the **no** form of this command to remove the DFP configuration.

dfp [**password** *password* [*timeout*]]

no dfp

Syntax Description

password	(Optional) Keyword to specify a password for MD5 authentication.
password	(Optional) Password value for MD5 authentication. This password must be the same on all DFP manager devices.
timeout	(Optional) Delay period, in seconds, during which both the old password and the new password are accepted; the range is from 0 to 65535.

Defaults

The default timeout value is 180 seconds.

Command Modes

Module CSM configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

The timeout option allows you to change the password without stopping messages between the DFP agent and its manager.

During a timeout, the agent sends packets with the old password (or null, if there is no old password), and receives packets with either the old or new password. After a timeout expires, the agent sends and receives packets with only the new password; received packets that use the old password are discarded.

If you are changing the password for an entire load-balanced environment, set a longer timeout. The extended timeout allows enough time for you to update the password on all agents and servers before the timeout expires. It also prevents mismatches between agents and servers that have the new password and agents and servers that have the old password.

Examples

This example shows how to initiate DFP agent configuration mode, configure DFP, set the password to *flounder*, and configure a 60-second timeout:

```
SLB-Switch(config-module-csm)# dfp password flounder 60
```

Related Commands

show module csm dfp

agent

Use the **agent** command in the SLB DFP submode to configure the DFP agent to which the CSM is going to communicate. Use the **no** form of this command to remove the agent configuration.

agent *ip-address port* [*keepalive-timeout* [*retry-count* [*retry-interval*]]]

no agent *ip-address port*

Syntax Description

ip-address	IP address of the DFP agent.
port	Port number of the DFP agent.
keepalive-timeout	(Optional) Time period in seconds between keepalive messages; the range is from 1 to 65535.
retry-count	(Optional) Number of consecutive connection attempts or invalid DFP reports received before tearing down the connections and marking the agent as failed; the range is from 0 to 65535.
retry-interval	(Optional) Interval between retries; the range is from 1 to 65535.

Defaults

The *keepalive-timeout* default is 0 (no keepalive message).

Retry count default is 0 seconds (the default allows infinite retries).

The *retry-interval* default is 180 seconds.

Command Modes

SLB DFP configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to initiate the DFP agent, configure a 350-second timeout, and configure the number of retries to 270:

```
SLB-Switch(config-slb-dfp)# agent 111.101.90.10 2 350 270
```

Related Commands

dfp
manager
show module csm dfp

manager

Use the **manager** command in SLB DFP submode to set the port where an external DFP can connect to the CSM. Use the **no** form of this command to remove the manager configuration.

manager *port*

no manager

Syntax Description

port	Port number.

Defaults

This command has no default settings.

Command Modes

SLB DFP configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

This command enables the CSM to listen to DFP connections from an external DFP manager.

Examples

This example shows how to set the DFP manager port:

```
SLB-Switch(config-slb-dfp)# manager 4
```

Related Commands

dfp
agent
show module csm dfp

ft group

Use the **ft group** command to enter the fault-tolerant configuration submode and configure fault tolerance. Use the **no** form of this command to remove the fault-tolerant configuration.

ft group *group-id* **vlan** *vlan-id*

no ft group

Syntax Description

group-id	ID of the fault-tolerant group. Both CSMs must have the same group ID. The range is from 1 to 254.
vlan	Keyword to specify a VLAN ID.
vlan-id	ID of the VLAN over which heartbeat messages are sent. Both CSMs must have the same VLAN ID. The range is from 2 to 4095.

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

A fault-tolerant group is comprised of two Catalyst 6500 series switches each containing a CSM configured for fault-tolerant operation. Each fault-tolerant group appears to network devices as a single device. A network may have more than one fault-tolerant group.

Examples

This example shows how to configure a fault-tolerant group named 123 on VLAN 5:

```
SLB-Switch(config-module-csm)# ft group 123 vlan 5
```

Related Commands

failover
heartbeat-time
preempt
priority
show module csm ft

failover

Use the **failover** command in the SLB fault-tolerant configuration submode to set the time for a standby CSM to wait before becoming an active CSM. Use the **no** form of this command to remove the failover configuration.

failover *failover-time*

no failover

Syntax Description

failover-time	Amount of time the CSM must wait after the last heartbeat message is received before assuming the other CSM is not operating; the range is from 1 to 65535.

Defaults

The default failover time is 3 seconds.

Command Modes

SLB fault-tolerant configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to set a failover period of 6 seconds:

```
SLB-Switch(config-slb-ft)# failover 6
```

Related Commands

ft group
show module csm ft

heartbeat-time

Use the **heartbeat-time** command in the SLB fault-tolerant configuration submode to set the time before heartbeat messages are transmitted by the CSM. Use the **no** form of this command to restore the default heartbeat interval.

heartbeat-time *heartbeat-time*

no heartbeat-time

Syntax Description

heartbeat-time	Time interval between heartbeat transmissions in seconds; the range is from 1 to 65535.

Defaults

The default heartbeat time is 1 second.

Command Modes

SLB fault-tolerant configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to set the heartbeat time to 2 seconds:

```
SLB-Switch(config-slb-ft)# heartbeat-time 2
```

Related Commands

ft group
show module csm ft

preempt

Use the **preempt** command in the SLB fault-tolerant configuration submode to allow a higher priority CSM to take control of a fault-tolerant group when it comes online. Use the **no** form of this command to restore the preempt default value.

preempt

no preempt

Syntax Description

This command has no arguments or keywords.

Defaults

The default value is that preempt is not specified.

Command Modes

SLB fault-tolerant configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

When you enable preempt, the higher priority CSM preempts the other CSM in the fault-tolerant group when the higher priority CSM comes online. When you enable no preempt, the current primary CSM remains the primary CSM when the next CSM comes online.

Note You must set both members of the fault-tolerant CSM pair to preempt for this feature to work.

Examples

This example shows how to set the fault-tolerance mode to preempt:

```
SLB-Switch(config-slb-ft)# preempt
```

Related Commands

ft group
priority
show module csm ft

priority

Use the priority command in the SLB fault-tolerant configuration submode to set the priority of the CSM. Use the **no** form of this command to restore the priority default value.

priority *value*

no priority

Syntax Description

value	Priority of a CSM; the range is from 1 to 254.

Defaults

The default priority value is 10.

Command Modes

SLB fault-tolerant configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

The CSM with the largest priority value is the primary CSM in the fault-tolerant pair when the modules are both operating.

Examples

This example shows how to set the priority value to 12:

```
SLB-Switch(config-slb-ft)# priority 12
```

Related Commands

ft group
preempt
show module csm ft

ip slb mode

Use the **ip slb mode** command to configure the switch to operate as a CSM load-balancing device instead of a Cisco IOS SLB load-balancing device. Use the **no** form of this command to remove the **mode** configuration.

ip slb mode {**csm** | **rp**}

no ip slb mode

Note Specifying the **no ip slb mode** command is the same as specifying the **rp** mode.

Syntax Description

csm	Keyword to select the CSM load-balancing mode that allows you to configure a single CSM only and prohibits the use of Cisco IOS SLB load-balancing on the Catalyst 6500 series switch.
rp	Keyword to select the route processor (Cisco IOS SLB) load-balancing mode and enable module CSM commands for configuring multiple CSMs.

Defaults

The default is the **rp** mode.

Command Modes

Global configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.
2.1(1)	This command now enables **module csm** commands for the **rp** mode.

Usage Guidelines

This command allows you to change from the Cisco IOS SLB load-balancing mode to the CSM load-balancing mode.

Note In **csm** mode, all **ip slb** commands apply to a CSM module; Cisco IOS SLB is not available. In **rp** mode (the default), **ip slb** commands apply to Cisco IOS SLB; the **module csm** commands are available to configure multiple CSMs.

Examples

This example shows how to configure the switch mode:

```
SLB-Switch(config)# ip slb mode csm
```

Related Commands module csm
show ip slb mode

map cookie

Use the **map cookie** command to create a cookie map and enter the cookie map configuration submode for specifying cookie match rules. Use the **no** form of this command to remove the cookie maps from the configuration.

map *cookie-map-name* **cookie**

no map *cookie-map-name*

Syntax Description

cookie-map-name	Cookie map instance; the character string is limited to 15 characters.
cookie	Keyword to enter the cookie map submode.

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to create a cookie map:

```
SLB-Switch(config-module-csm)# map upnready cookie
```

Related Commands

cookie-map (SLB policy configuration submode)
match protocol http cookie
show module csm map

match protocol http cookie

Use the **match protocol http cookie** command in SLB cookie map configuration submode to add cookies to a cookie map. Multiple match rules can be added to a cookie map. Use the **no** form of this command to remove the cookie map name from the cookie map.

match protocol http cookie *cookie-name* **cookie-value** *cookie-value-expression*

Syntax Descriptionn

cookie-name	Cookie name; the range is from 1 to 63 characters.
cookie-value	Keyword to specify a cookie value expression.
cookie-value-expression	Cookie value expression string; the range is from 1 to 255 characters.

Defaults

This command has no default settings.

Command Modes

SLB cookie map configuration submode.

Usage Guidelines

Cookie regular expressions are based on the UNIX filename specification. URL expressions are stored in a cookie map in the form *cookie-name* = *cookie-value-expression*. Cookie expressions allow spaces provided they are escaped or quoted. You must match all cookies in the cookie map.

"*" means zero or more characters

"?" means exactly one character—the [Ctrl + V] key combination must be entered

"\" means escaped character

Bracketed range (for example, [0–9]) means matching any single character from the range

A leading ^ in a range means do not match any in the range

".\a" means alert (ASCII 7)

".\b" means backspace (ASCII 8

".\f" means form-feed (ASCII 12)

".\n" means newline (ASCII 10)

".\r" means carriage return (ASCII 13)

".\t" means tab (ASCII 9)

".\v" means vertical tab (ASCII 11)

".\0" means null (ASCII 0)

".\\" means backslash

".\x##" means any ASCII character as specified in two-digit hexadecimal notation

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to add cookies to a cookie map:

```
SLB-Switch(config-slb-map-cookie)# match protocol http cookie albert cookie-value 4*
```

Related Commands

cookie-map (SLB policy configuration submode)
map cookie
show module csm map

map dns

Use the **map dns** command to enter the SLB DNS map mode and configure a DNS map. Use the **no** form of this command to remove the DNS map from the configuration.

map *dns-map-name* **dns**

no map *dns-map-name*

Syntax Description

dns-map-name	Name of an SLB dns map; the character string range is from 1 to 15 characters.

Defaults

This command has no default settings.

Command Modes

SLB DNS map configuration submode.

Command History

Release	Modification
3.1(1)	This command was introduced.

Usage Guidelines

Any match of a DNS regular expression in the DNS map results in a successful match. A maximum of 1023 DNS domains can be configured to a map.

Examples

This example shows how to group DNS domains:

```
SLB-Switch(config-module-csm)# map m1 dns
SLB-Switch(config-slb-map-url)# exit
SLB-Switch(config)
```

Related Commands

match protocol dns domain
show module csm map

match protocol dns domain

Use the **match protocol dns domain** command in the SLB DNS map configuration submode to add a DNS domain to a DNS map. Use the **no** form of this command to remove the DNS domain from the URL map.

match protocol dns domain *name*

no match protocol dns domain *name*

Syntax Description

name	Names the DNS domain being mapped..

Defaults

This command has no default settings.

Command Modes

SLB DNS map configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.
3.1(1)	HTTP method parsing support was introduced.

Examples

This example shows how to adds URL expressions to a URL map:

```
SLB-Switch(config-slb-map-url)# match protocol http url Host header-value XYZ
```

Related Commands

map dns
show module csm map

map header

Use the **map header** command to create a map group for specifying HTTP headers and enter the header map configuration submode. Use the **no** form of this command to remove the HTTP header group from the configuration.

map *name* **header**

no map *name*

Syntax Description

name	Map instance; the character string is from 1 to 15 characters.

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode.

Command History

Release	Modification
2.1(1)	This command was introduced.

Examples

This example shows how to group HTTP headers and associate them with a Content Switching policy:

```
SLB-Switch(config-module-csm)# map upnready header
SLB-Switch(config-slb-map-header)# match protocol http header Accept header-value *jpeg*
SLB-Switch(config-slb-map-header)# match protocol http header User-Agent header-value *NT*
SLB-Switch(config-slb-map-header)# match protocol http header Host header-value
www.myhome.com
SLB-Switch(config-slb-map-header)# exit
```

Related Commands

header-map (SLB policy configuration submode)
match protocol http header
show module csm map

match protocol http header

Use the **match protocol http header** command in SLB header map configuration submode to specify header fields and values for the CSM to search for when receiving a request. Multiple match rules can be added to a header map. Use the **no** form of this command to remove the header match rule from the header map.

match protocol http header *field* **header-value** *expression*

no match protocol http header *field*

Syntax Description

field	Literal name of the generic field in the HTTP header. The range is from 1 to 63 characters.
header-value	Keyword to specify the header value expression.
expression	Header value regular expression string to compare against the value in the specified field; the range is from 1 to 127 characters.

Defaults

This command has no default settings.

Command Modes

SLB header map configuration submode.

Usage Guidelines

There are predefined fields, for example Accept-Language, User-Agent, or Host.

Header regular expressions are based on the UNIX filename specification. URL expressions are stored in a header map in the form *header-name* = *expression*. Header expressions allow spaces provided that they are escaped or quoted. All headers in the header map must be matched.

"*" means zero or more characters

"?" means exactly one character—the [Ctrl + V] key combination must be entered

"\" means escaped character

Bracketed range (for example, [0–9]) means matching any single character from the range

A leading ^ in a range means don't match any in the range

".\a" means alert (ASCII 7)

".\b" means backspace (ASCII 8

".\f" means form-feed (ASCII 12)

".\n" means newline (ASCII 10)

".\r" means carriage return (ASCII 13)

".\t" means tab (ASCII 9)

".\v" means vertical tab (ASCII 11)

".\0" means null (ASCII 0)

".\\" means backslash

".\x##" means any ASCII character as specified in two-digit hexadecimal notation

Command History

Release	Modification
2.1(1)	This command was introduced.

Examples

This example shows how to specify header fields and values to search upon a request:

```
SLB-Switch(config-slb-map-header)# match protocol http header Host header-value XYZ
```

Related Commands

header-map (SLB policy configuration submode)
map header
show module csm map

map retcode

Use the **map retcode** command to enable return error code checking and enter the return error code map submode. Use the **no** form of this command to remove the return code error checking from the configuration.

map *name* **retcode**

no map *name*

Syntax Description

name	Return error code map instance; the character string is limited to 15 characters.
retcode	Keyword to enter the return error code map submode.

Defaults

This command has no default settings.

Command Modes

Global configuration submode.

Command History

Release	Modification
2.2(1)	This command was introduced.

Examples

This example shows how to enable return error code checking:

```
SLB-Switch(config-module-csm)# map upnready retcode
```

Related Commands

cookie-map (SLB policy configuration submode)
match protocol http cookie
show module csm map

match protocol http retcode

Use the **match protocol http retcode** command in SLB return code map configuration submode to specify return code thresholds, count and log return codes, and send syslog messages for return code events received from the servers. Use the **no** form of this command to remove the return code thresholds.

match protocol http retcode *min max* **action** {**count** | **log** | **remove**} *threshold* [**reset** *seconds*]

no match protocol http retcode *min max*

Syntax Description

min	Minimum number of return codes received before an action is taken.
max	Maximum number of return codes received before an action is taken.
action	Keyword to enable the header value expression.
count	Keyword to increment the statistics of the number of occurrences of return codes received.
log	Keyword to specify where syslog messages are sent when a threshold is reached.
remove	Keyword to specify where the syslog messages are sent when a threshold is reached and the server is removed from service.
threshold	The number of return occurrences before the log or remove action is taken.
reset	(Optional) Keyword to enable the header value expression.
seconds	Number of seconds to wait before the action can take place again.

Defaults

This command has no default settings.

Command Modes

SLB return code map configuration submode.

Usage Guidelines

The *threshold* and **reset** values are not configurable for the **count** action. These commands only are available for the **log** and **remove** actions.

Command History

Release	Modification
2.2(1)	This command was introduced.

Examples

This example shows how to specify return codes values to search for in an HTTP request:

```
SLB-Switch(config-slb-map-retcode)# match protocol http quigly retcode 30 50 action log
400 reset 30
```

Related Commands

map retcode (SLB policy configuration submode

map url

Use the **map url** command to enter the SLB URL map mode and configure a URL map. Use the **no** form of this command to remove the URL map from the configuration.

map *url-map-name* **url**

no map *url-map-name*

Syntax Description

url-map-name	Name of an SLB URL map; the character string range is from 1 to 15 characters.

Defaults

This command has no default settings.

Command Modes

SLB URL map configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

Any match of a URL regular expression in the URL map results in a successful match. A maximum of 1023 URLs can be configured to a map.

Examples

This example shows how to group URLs and associate them with a Content Switching policy:

```
SLB-Switch(config-module-csm)# map m1 url
SLB-Switch(config-slb-map-url)# match protocol http url /index.html
SLB-Switch(config-slb-map-url)# match protocol http url /stocks/csco/
SLB-Switch(config-slb-map-url)# match protocol http url *gif
SLB-Switch(config-slb-map-url)# match protocol http url /st*
SLB-Switch(config-slb-map-url)# exit
SLB-Switch(config)
```

Related Commands

match protocol http url
url-map (SLB policy configuration submode)
show module csm map

match protocol http url

Use the **match protocol http url** command in the SLB URL map configuration submode to add a URL regular expression to a URL map. Multiple match rules can be added to a URL map. Use the **no** form of this command to remove the URL regular expression from the URL map.

match protocol http [**method** *method-expression*] **url** *url-expression*

no match protocol http url [**method** *method-expression*] **url** *url-expressionn*

Syntax Description

method	(Optional) Keyword to specify the method in incoming HTTP requests.
method-expression	Specifies the method expression to match.
url	Keyword to specify the URL in incoming HTTP requests.
url-expression	Regular expression range; the range is from 1 to 255 characters.

Defaults

This command has no default settings.

Command Modes

SLB URL map configuration submode.

Usage Guidelines

URL regular expressions are based on the UNIX filename specification. URL expressions are stored in a cookie map in the form *urln*. URL expressions do not allow spaces and only one of the URLs in the map must be matched.

"*" means zero or more characters

"?" means exactly one character—the [Ctrl + V] key combination must be entered

"\" means escaped character

Bracketed range (for example, [0–9]) means matching any single character from the range

A leading ^ in a range means don't match any in the range

".\a" means alert (ASCII 7)

".\b" means backspace (ASCII 8

".\f" means form-feed (ASCII 12)

".\n" means newline (ASCII 10)

".\r" means carriage return (ASCII 13)

".\t" means tab (ASCII 9)

".\v" means vertical tab (ASCII 11)

".\0" means null (ASCII 0)

".\\" means backslash

".\x##" means any ASCII character as specified in two-digit hexadecimal notation

The method expression may be either one of the standard HTTP 1.1 method names (OPTIONS, GET, HEAD, POST, PUT, DELETE, TRACE, or CONNECT) or a string you specify that must be matched exactly (PROTOPLASM).

Command History

Release	Modification
1.1(1)	This command was introduced.
3.1(1)	HTTP method parsing support was introduced.

Examples

This example shows how to adds URL expressions to a URL map:

```
SLB-Switch(config-slb-map-url)# match protocol http url Host header-value XYZ
```

Related Commands

map url
url-map (SLB policy configuration submode)
show module csm map

module csm

Use the **module csm** command to allow the association of load-balancing commands to a specific CSM module and enter the CSM module configuration submode for the specified slot. Use the **no** form of this command to remove the **module csm** configuration.

Note The **module ContentSwitching Module** *slot* command is the full syntax; the **module csm** *slot* command is a valid shortcut.

module csm *slot-number*

no module csm *slot-number*

Syntax Description

slot-number	Slot number where the CSM resides.

Defaults

This command has no default settings.

Command Modes

Global configuration submode.

Command History

Release	Modification
2.1(1)	This command was introduced.

Usage Guidelines

If you want to use the new multiple module configuration, you must change the **ip slb mode** command to **rp**. An existing CSM configuration is migrated to the new configuration when you change the mode from **csm** to **rp**. A prompt appears requesting a slot number. Migrating from a multiple module configuration to a single module configuration is supported. Migrating the Cisco IOS SLB configuration to the CSM configuration is not supported.

Examples

This example shows how to configure a CSM:

```
SLB-Switch(config)# module csm 5
SLB-Switch(config-module-csm)# vserver VS1
```

Related Commands

ip slb mode

natpool

Use the **natpool** command in module CSM configuration submode to configure NAT and create a client address pool. Use the **no** form of this command to remove a **natpool** configuration.

natpool *pool-name start-ip end-ip* {**netmask** *netmask* | **prefix-length** *leading_1_bits*}

no natpool *pool-name*

Syntax Description

pool-name	Name of a client address pool; the character string is from 1 to 15 characters.
start-ip	Starting IP address that defines the range of addresses in the address pool.
end-ip	Ending IP address that defines the range of addresses in the address pool.
netmask	(Optional) Keyword to specify the subnet mask.
netmask	(Optional) Mask for the associated IP subnet.
prefix-length	(Optional) Keyword to specify the subnet mask.
leading_1_bits	(Optional) Mask for the associated IP subnet.

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

If you want to use client NAT, you must create at least one client address pool.

A maximum of 255 NAT pool addresses are available for any CSM.

Examples

This example shows how to configure a pool of addresses with the name **web-clients**, an IP address range from 128.3.0.1 through 128.3.0.254, and a subnet mask of 255.255.0.0:

```
SLB-Switch(config-module-csm)# natpool web-clients 128.3.0.1 128.3.0.254 netmask
255.255.0.0
```

Related Commands

nat client (SLB serverfarm configuration submode)
show module csm natpool

owner

Use the **owner** command in module CSM configuration submode to configure an owner object. Use the **no** form of this command to remove an **owner** configuration.

owner *name*

no owner

Syntax Description

name	Name of the object owner.

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode.

Command History

Release	Modification
3.1(1)	This command was introduced.

Usage Guidelines

You can define more than one virtual server with the same virtual IP address (VIP) and set the VIP connection watermark level to apply to a single VIP, which may correspond to multiple virtual servers. With the **owner** command, any virtual server has either zero or one owners. A particular owner can be associated with multiple virtual servers (typically, but not necessarily, with the same VIP). The VIP connection watermark applies to a specific owner. Once the sum of the number of open connections to all virtual servers in a particular owner reaches the VIP connection watermark level for that owner, new connections to any of these virtual servers are rejected by the CSM.

Examples

This example shows how to configure an owner object:

```
SLB-Switch(config-module-csm)# owner sequel
```

Related Commands

address
billing-info
contact-info
maxconns

address

Use the **address** command in the owner configuration submode to configure the address information for an owner object. Use the **no** form of this command to remove the address from the configuration.

address *street-address-information*

no address

Syntax Description

street-address-information	The owner's street address.

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to configure an owner object:

```
SLB-Switch(config-owner)# address 125 marmalade street
```

Related Commands

owner
billing-info
contact-info

billing-info

Use the **billing-info** command in the owner configuration submode to configure billing information for an owner object. Use the **no** form of this command to remove an billing information from the configuration.

billing-info *billing-address-information*

no billing-info

Syntax Description

billing-info	Keyword to specify the owner's billing address.
billing-address-information	The owner's billing address.

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to configure an owner object:

```
SLB-Switch(config-owner)# billing-info 300 cordera avenue
```

Related Commands

owner
address
contact-info

contact-info

Use the **contact-info** command in owner configuration submode to configure an email address for an owner object. Use the **no** form of this command to remove the contact information from the **owner** configuration.

contact-info *string*

no contact-info

Syntax Description

string	The owner's information.

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to configure an owner object:

```
SLB-Switch(config-owner)# contact-info shaggy@angel.net
```

Related Commands

owner
address
billing-info

maxconns

Use the **maxconns** command in owner configuration submode to configure the maximum number of connections allowed for an owner object. Use the **no** form of this command to remove the maximum connections from the **owner** configuration.

maxconns *number*

no email-address

Syntax Description

number	The number of maximum connections to the owner object.

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to configure an owner object:

```
SLB-Switch(config-owner)# maxconns 300
```

Related Commands

owner
address
billing-info
contact-info

policy

Use the **policy** command to configure policies, associate attributes to a policy, and enter the policy configuration submode. In this submode, you can configure the policy attributes. The policy is associated with a virtual server in virtual server submode. Use the **no** form of this command to remove a **policy**.

policy *policy-name*

no policy *policy-name*

Syntax Description

policy-name	Name of an slb-policy instance; the character string is limited to 15 characters.

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

Policies establish rules for balancing connections to servers. They can contain URL maps, cookie maps, header maps, client groups, sticky groups, DSCP values, and server farms. The order in which policies are linked to a virtual server determines the precedence of the policy. When two or more policies match a requested URL, the policy with the highest precedence is selected.

You can create up to 12287 SLB policies for a given CSM module.

Note All policies should be configured with a server farm.

Examples

This example shows how to configure a policy named policy_content:

```
SLB-Switch(config-module-csm)# policy policy_content
SLB-Switch(config-slb-policy)# serverfarm new_serverfarm
SLB-Switch(config-slb-policy)# url-map url_map_1
SLB-Switch(config-slb-policy)# exit
```

Related Commands

slb-policy (SLB virtual server configuration submode)
show module csm owner

client-group

Use the **client-group** command in SLB policy configuration submode to associate an access list with the policy. Use the **no** form of this command to remove access list from the policy.

client-group {*1-99* | *std-access-list-name*}

no client-group

Syntax Description

1-99	Standard IP access list number.
std-access-list-name	Standard access list name.

Defaults

This command has no default settings.

Command Modes

SLB policy configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

Only client groups created with the **ip access-list standard** command can be associated with an SLB policy. Only one client-group can be associated with a given SLB policy.

Examples

This example shows how to configure a client group:

```
SLB-Switch(config-slb-policy)# client-group 44
SLB-Switch(config-slb-policy)# exit
```

Related Commands

policy
ip access-list standard
show module csm owner

cookie-map

Use the **cookie-map** command in SLB policy configuration submode to associate a list of cookies with a policy. Use the **no** form of this command to remove a cookie map.

cookie-map *cookie-map-name*

no cookie-map

Syntax Description

cookie-map-name	Name of the cookie list associated with a policy.

Defaults

This command has no default settings.

Command Modes

SLB policy configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

Only one cookie map can be associated with a policy. Cookie maps are configured using the **map cookie** command. The cookie map name must match the name specified in the **map cookie** command.

Examples

This example shows how to configure a cookie-based SLB policy named policy_content:

```
SLB-Switch(config-module-csm)# policy policy_content
SLB-Switch(config-slb-policy)# serverfarm new_serverfarm
SLB-Switch(config-slb-policy)# cookie-map cookie-map-1
SLB-Switch(config-slb-policy)# exit
SLB-Switch(config)
```

Related Commands

policy
map cookie
show module csm owner

header-map

Use the **header-map** command in SLB policy configuration submode to specify the HTTP header criteria to include in a policy. Use the **no** form of this command to remove a header map.

Note If any HTTP header information is matched, the policy rule is satisfied.

header-map *name*

no header-map

Syntax Description

name	Name of the previously configured HTTP header expression group.

Defaults

This command has no default settings.

Command Modes

SLB policy configuration submode.

Command History

Release	Modification
2.1(1)	This command was introduced.

Usage Guidelines

Only one header map can be associated with a policy. The header map name must match the name specified in the **map header** command on page A-18.

Examples

This example shows how to configure a header-based policy named policy_content:

```
SLB-Switch(config-module-csm)# policy policy_content
SLB-Switch(config-slb-policy)# serverfarm new_serverfarm
SLB-Switch(config-slb-policy)# header-map header-map-1
SLB-Switch(config-slb-policy)# exit
```

Related Commands

policy
map header
show module csm owner

reverse-sticky

Use the **reverse-sticky** command to ensure that the CSM switches connections in the opposite direction back to the original source. Use the **no** form of this command to remove the reverse-sticky option from the policy or the default-policy of a virtual server.

reverse-sticky *group-id*

no reverse-sticky

Syntax Description

group-id	Number identifying the sticky group to which the virtual server belongs; the range is from 0 to 255.

Defaults

The default is **no reverse-sticky**. Sticky connections are not tracked.
The group ID default is 0. The sticky feature is not used for other virtual servers.
The network default is 255.255.255.255.

Command Modes

SLB virtual server configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.
3.1(1)	The **IP reverse-sticky** command is introduced.

Examples

This example shows how to set the IP reverse-sticky feature:

```
SLB-Switch(config-module-csm)# vserver PUBLIC_HTTP
SLB-Switch(config-slb-vserver)# reverse-sticky 60
```

Related Commands

sticky
sticky-group (SLB policy submode)
show module csm sticky
show module csm vserver redirect

serverfarm

Use the **serverfarm** command in the SLB policy configuration submode to associate a server farm with a policy. Use the **no** form of this command to remove the server farm from the policy.

serverfarm *primary-serverfarm* [**backup** *sorry-serverfarm* [**sticky**]]

no serverfarm

Syntax Description

primary-serverfarm	Character string used to identify the server farm.
backup	(Optional) Keyword set the name of a backup serverfarm.
sorry-serverfarm	(Optional) Backup serverfarm name.
sticky	(Optional) Keyword to associate the backup serverfarm with a virtual server.

Defaults

This command has no default settings.

Command Modes

SLB policy configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.
3.1(1)	The sorry server (backup server) option was added to this command.

Usage Guidelines

Use the **serverfarm** command to configure the server farm. Only one server farm can be configured per policy. The server farm name must match the name specified in the **serverfarm** module CSM configuration submode command. By default, the sticky option does not apply to the backup serverfarm. To remove the backup serverfarm, you can either use the serverfarm command without the backup option or use the **no serverfarm** command.

Examples

This example shows how to associate a server farm named central with a policy:

```
SLB-Switch(config-module-csm)# policy policy
SLB-Switch(config-slb-policy)# serverfarm central backup domino sticky
```

Related Commands

policy
reverse-sticky (module CSM configuration submode)
show module csm owner

set ip dscp

Use the **set ip dscp** command in the SLB policy configuration submode to mark packets that match the policy with a DSCP value. Use the **no** form of this command to stop marking packets.

set ip dscp *dscp-value*

no set ip dscp

Syntax Description

dscp-value	The range is from 0 to 63.

Defaults

The default is that the CSM does not store DSCP values.

Command Modes

SLB policy configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to mark packets to match a policy named policy_content:

```
SLB-Switch(config-module-csm)# policy policy_content
SLB-Switch(config-slb-policy)# set ip dscp 22
```

Related Commands

policy
show module csm owner

sticky-group

Use the **sticky-group** command in the SLB policy configuration submode to associate a sticky group and the sticky group attributes to the policy. Use the **no** form of this command to remove the sticky group from the policy.

sticky-group *group-id*

no sticky-group

Syntax Description

group-id	ID of the sticky group to be associated with a policy.

Defaults

The default is 0, which means that no connections are sticky.

Command Modes

SLB policy configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

The *group-id* must match the ID specified in the **sticky** command; the range is from 1 to 255.

Examples

This example shows how to configure a sticky group:

```
SLB-Switch(config-module-csm)# policy policy1
SLB-Switch(config-slb-policy)# sticky-group 5
```

Related Commands

policy
sticky
show module csm owner
show module csm sticky

url-map

Use the **url-map** command in SLB policy configuration submode to associate a list of URLs with the policy. Use the **no** form of this command to remove the URL map from the policy.

url-map *url-map-name*

no url-map

Syntax Description

url-map-name	Name of the URL list to be associated with a policy.

Defaults

The default is no URL map.

Command Modes

SLB policy configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

Only one URL map can be associated with a policy. URL maps are configured using the **map url** command.

Examples

This example shows how to associate a list of URLs with a policy named assembly:

```
SLB-Switch(config-module-csm)# policy policy
SLB-Switch(config-slb-policy)# url-map assembly
```

Related Commands

policy
map url
show module csm owner

probe

Use the **probe** command to configure a probe and probe type for health monitoring and to enter the probe configuration submode. Use the **no** form of this command to remove a probe from the configuration.

probe *probe-name* {**http** | **icmp** | **telnet** | **tcp** | **ftp** | **smtp** | **dns** | **kal-ap-upd**}

no probe *probe-name*

Syntax Description

probe-name	Name of the probe; the character string is limited to 15 characters.
http	Keyword to create an HTTP probe with a default configuration.
icmp	Keyword to create an ICMP probe with a default configuration.
telnet	Keyword to create a Telnet probe with a default configuration.
tcp	Keyword to create a TCP probe with a default configuration.
ftp	Keyword to create an FTP probe with a default configuration.
smtp	Keyword to create an SMTP probe with a default configuration.
dns	Keyword to create a DNS probe with a default configuration.
kal-ap-udp	Keyword to create a GSLB target probe.

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

A probe can be assigned to a server farm in serverfarm submode.

When configuring kal-ap-udp type probes, the **port** submode command is not used to specify the destination UDP port to query. Use theCSM environment variable GSLB_KALAP_UDP_PORT instead. The default is port 5002.

Also, to specify probe frequency and the number of retries for KAL-AP, ICMP, HTTP and DNS probes when associated with a GSLB serverfarm environment, the following variables must be used instead of the probe submode commands:

```
GSLB_KALAP_PROBE_FREQ           10
GSLB_KALAP_PROBE_RETRIES        3
GSLB_ICMP_PROBE_FREQ            10
GSLB_ICMP_PROBE_RETRIES         3
GSLB_HTTP_PROBE_FREQ            10
GSLB_HTTP_PROBE_RETRIES         2
GSLB_DNS_PROBE_FREQ             10
GSLB_DNS_PROBE_RETRIES          3
```

Examples

This example shows how to configure an HTTP probe named TREADER:

```
SLB-Switch(config-module-csm)# probe TREADER http
```

Related Commands

probe (SLB serverfarm configuration submode)
show module csm probe

address (dns)

Use the **address** command in SLB DNS probe configuration submode to specify an IP address of the real server used by DNS to resolve requests. Use the **no** form of this command to remove the address.

address *ip-address*

no address *ip-address*

Syntax Description

ip-address	Real server IP address.

Defaults

This command has no default settings.

Command Modes

SLB DNS probe configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

Multiple addresses can be configured for a DNS probe.

Examples

This example shows how to configure an IP address of the DNS server:

```
SLB-Switch(config-slb-probe-dns)# address 101.23.45.36
```

Related Commands

probe
address (icmp)
show module csm probe

address (icmp)

Use the **address** command in SLB ICMP probe configuration submode to specify a destination IP address for health monitoring. Use the **no** form of this command to remove the address.

address *ip-address*

no address

Syntax Description

ip-address	Real server IP address.

Defaults

This command has no default settings.

Command Modes

SLB ICMP probe configuration submode.

Command History

Release	Modification
2.1(1)	This command was introduced.

Usage Guidelines

One address can be configured for an ICMP probe.

Examples

This example shows how to configure an IP address of the real server:

```
SLB-Switch(config-slb-probe-icmp)# address 101.23.45.36
```

Related Commands

probe
address (dns)
show module csm probe

credentials

Use the **credentials** command in the SLB HTTP probe configuration submode to configure basic authentication values for an HTTP probe. Use the **no** form of this command to remove the credentials configuration.

credentials *username* [*password*]

no credentials

Syntax Description

username	Name that appears in the HTTP header.
password	(Optional) Password that appears in the HTTP header.

Defaults

This command has no default settings.

Command Modes

SLB HTTP probe configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

This command is for HTTP probes.

Examples

This example shows how to configure authentication for an HTTP probe:

```
SLB-Switch(config-slb-probe-http)# credentials seamless abercrombie
```

Related Commands

probe
show module csm probe

expect status

Use the **expect status** command in the SLB HTTP/FTP/Telnet/SMTP probe configuration submode to configure a status code for the probe. Use the **no** form of this command to remove the status code from the configuration.

expect status *min-number* [*max-number*]

no expect status *min-number* [*max-number*]

Syntax Description

min-number	Single status code if *max-number* is not specified.
max-number	(Optional) Maximum status code in a range.

Defaults

The default range is 0 to 999 (any response from the server is valid). Both min-number and max-number can be any number between 0 and 999, as long as max-number is not lower than min-number.

For example:

`expect status 5` is the same as **`expect status 5 5`**

`expect status 0` specifies a range of 0 to 4

`expect status 900 999` specifies a range of 900 to 999.

You can specify many expected status ranges.

Command Modes

SLB HTTP/FTP/Telnet/SMTP probe configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

This command is for HTTP, FTP, Telnet, and SMTP probes. You can specify multiple status code ranges with this command by entering one command at a time. If you specify the *max-number* value, this number is used as the minimum status code of a range. If you specify no maximum number, this command uses a single number (*min-number*). If you specify both *min-number* and *max-number* values, this command uses the range between the numbers.

Note When you remove the expect status, you cannot set the range of numbers to 0 or as a range of numbers that includes the values you set for the expect status. The expect status state becomes invalid and does not restore the default range of 0 through 999. To remove the expect status, remove each set of numbers using the **no expect status** command. For example, enter the **no expect status 0 3** command and then enter the **no expect status 34 99** command.

Examples

This example shows how to configure an HTTP probe with multiple status code ranges:

```
SLB-Switch(config-slb-probe-http)# expect status 34 99
SLB-Switch(config-slb-probe-http)# expect status 0 33
SLB-Switch(config-slb-probe-http)#
```

Related Commands

probe
show module csm probe

failed

Use the **failed** command in the SLB probe configuration submode to set the time to wait before probing a failed server. Use the **no** form of this command to reset the time to wait before probing a failed server to default.

failed *failed-interval*

no failed

Syntax Description

failed-interval	Time in seconds before retrying a failed server; the range is from 2 to 65535.

Defaults

The default value for the failed interval is 300 seconds.

Command Modes

SLB probe configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

This command is used for all probe types.

Examples

This example shows how to configure a failed server probe for 200 seconds:

```
SLB-Switch(config-slb-probe-http)# failed 200
```

Related Commands

probe
show module csm probe

header

Use the **header** command in the SLB HTTP probe configuration submode to configure a header field for the HTTP probe. Use the **no** form of this command to remove the credentials configuration.

header *field-name* [*field-value*]

no header *field-name*

Syntax Description

field-name	Name for the header being defined.
field-value	(Optional) Content for the header.

Defaults

This command has no default settings.

Command Modes

SLB HTTP probe configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

You can configure multiple headers for each HTTP probe. The length of the *field-name* value plus the length of the *field-value* value plus 4 (for ":", space, and CRLF) cannot exceed 255 characters. This command is for HTTP probes.

Examples

This example shows how to configure a header field for the HTTP probe:

```
SLB-Switch(config-slb-probe-http)# header abacadabra
```

Related Commands

probe
show module csm probe

interval

Use the **interval** command in the SLB probe configuration submode to set the time interval between probes. Use the **no** form of this command to reset the time interval between probes to default.

interval *seconds*

no interval

Syntax Description

seconds	Number of seconds to wait between probes from the end of the previous probe to the beginning of the next probe; the range is from 2 to 65535.

Defaults

The default value for the interval between probes is 120 seconds.

Command Modes

SLB probe configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

This command is used for all probe types.

Examples

This example shows how to configure a probe interval of 150 seconds:

```
SLB-Switch(config-slb-probe-http)# interval 150
```

Related Commands

probe
show module csm probe

kal-ap-udp

Use the **kal-ap-udp** command in the SLB probe configuration submode to set a probe for a Global Server Load Balancing (GSLB) target for load information. Use the **no** form of this command to remove the GSLB probe.

kal-ap-udp *seconds*

no kal-ap-udp

Syntax Description

seconds	Number of seconds to wait between probes from the end of the previous probe to the beginning of the next probe; the range is from 2 to 65535.

Defaults

The default value for the interval between probes is 120 seconds.

Command Modes

SLB probe configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

This command is used for all probe types.

Examples

This example shows how to configure a probe interval of 150 seconds:

```
SLB-Switch(config-slb-probe-http)# interval 150
```

Related Commands

probe
show module csm probe

name

Use the **name** command in the SLB DNS probe configuration submode to configure a domain name for the DNS probe. Use the **no** form of this command to remove the name from the configuration.

name *domain-name*

no name

Syntax Description

domain-name	Domain name that the probe sends to the DNS server.

Defaults

This command has no default settings.

Command Modes

SLB DNS probe configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to specify the probe name that is resolved by the DNS server:

```
SLB-Switch(config-slb-probe-dns)# name astro
```

Related Commands

probe
show module csm probe

port

Use the **port** command in the SLB probe configuration submode to configure an optional port for the DNS probe. Use the **no** form of this command to remove the port from the configuration.

port *port-number*

no port

Syntax Description

port-number	Sets the port number.

Defaults

The default value for the port number is 0.

Command Modes

This command is available in all SLB probe configuration submodes except ICMP.

Command History

Release	Modification
3.1(1)	This command was introduced.

Usage Guidelines

When the port of a health probe is specified as 0, the health probe uses the configured port number from the real server (if a real server is configured) or the configured port number from the virtual server (if a virtual server is configured and no port is configured for the real server). The default port value is 0. For the ICMP probes, where there is no port number, the port value is ignored. The **port** command is available for all probe types except ICMP.

Examples

This example shows how to specify the port for the DNS server:

```
SLB-Switch(config-slb-probe-dns)# port 63
```

Related Commands

probe
show module csm probe

open

Use the **open** command in the SLB HTTP/TCP/FTP/Telnet/SMTP probe configuration submode to set the time to wait for a TCP connection. Use the **no** form of this command to reset the time to wait for a TCP connection to default.

open *open-timeout*

no open

Syntax Description

open-timeout	Maximum number of seconds to wait for the TCP connection; the range is from 1 to 65535.

Defaults

The default value for the open timeout is 10 seconds.

Command Modes

SLB HTTP/TCP/FTP/Telnet/SMTP probe configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

This command is not used for any non-TCP probes, for example, ICMP or DNS.

Note There are two different timeout values: open and receive. The open timeout specifies how many seconds to wait for the connection to open (that is, how many seconds to wait for SYN ACK after sending SYN). The receive timeout specifies how many seconds to wait for data to be received (that is, how many seconds to wait for an HTTP reply after sending a GET/HHEAD request). Because TCP probes close as soon as they open without sending any data, the receive timeout is not used.

Examples

This example shows how to configure a time to wait for a TCP connection of 5 seconds:

```
SLB-Switch(config-slb-probe-http)# open 5
```

Related Commands

probe
show module csm probe

receive

Use the **receive** command in the SLB probe configuration submode to set the time to wait for a reply from a server. Use the **no** form of this command to reset the time to wait for a reply from a server to default.

receive *receive-timeout*

no receive

Syntax Description

receive-timeout	Number of seconds to wait for reply from a server; the range is from 1 to 65535.

Defaults

The default value for a receive timeout is 10 seconds.

Command Modes

SLB probe configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

This command is available for all probe types, except TCP.

Note There are two different timeout values: open and receive. The open timeout specifies how many seconds to wait for the connection to open (that is, how many seconds to wait for SYN ACK after sending SYN). The receive timeout specifies how many seconds to wait for data to be received (that is, how many seconds to wait for an HTTP reply after sending a GET/HHEAD request). Because TCP probes close as soon as they open without sending any data, the receive timeout is not used.

Examples

This example shows how to configures a time to wait for a reply from a server to 5 seconds:

```
SLB-Switch(config-slb-probe-http)# receive 5
```

Related Commands

probe
show module csm probe

request

Use the **request** command in the SLB HTTP probe configuration submode to configure the request method used by the HTTP probe. Use the **no** form of this command to remove the request method from the configuration.

request [**method** {**get** | **head**}] [**url** *path*]

no request [**method** {**get** | **head**}] [**url** *path*]

Syntax Description

method	(Optional) Keyword to configure a method for the probe request.
get	(Optional) Keyword to direct the server to get this page.
head	(Optional) Keyword to direct the server to get only the header for this page.
url	(Optional) Keyword to direct the server to get the URL for this page.
path	(Optional) A character string up to 255 characters specifying the URL path.

Defaults

The default path is /.
The default method is **get**.

Command Modes

SLB HTTP probe configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

The CSM supports only the **get** and **head** request methods. It does not support **post** and other methods. This command is for HTTP probes.

Examples

This example shows how to configure a request method for the probe configuration:

```
SLB-Switch(config-slb-probe-http)# request method head
```

Related Commands

probe
show module csm probe

retries

Use the **retries** command in the SLB probe configuration submode to set the number of failed probes that are allowed before marking the server failed. Use the **no** form of this command to reset the number of failed probes allowed before marking a server as failed to default.

retries *retry-count*

no retries

Syntax Description

retry-count	Number of probes to wait before marking a server as failed; the range is from 0 to 65535.

Defaults

The default value for retries is 3.

Command Modes

SLB probe configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

This command is used for all probe types.

Note Set retries to 2 or more. If retries are set to 1, a single dropped probe packet will bring down the server. A setting of 0 places no limit on the number of probes that are sent. Retries are sent until the system reboots.

Examples

This example shows how to configure a retry count of 3:

```
SLB-Switch(config-slb-probe-http)# retries 3
```

Related Commands

probe
show module csm probe

probe script

Use the **probe** *probe-name* **script** command to create a script probe and enter the probe script configuration submode. Use the **no** form of this command to remove the probe from the configuration.

probe *probe_name* **script**

no probe *probe_name* **script**

Syntax Description

probe_name	Names the probe script
script	Keyword that specifies the creation of a probe script.

Defaults

This command has no default settings.

Command Modes

SLB probe script configuration submode.

Usage Guidelines

This command enters a probe sub-mode that is similar to the existing CSM health probe sub-modes (such as HTTP, TCP, DNS, and SMTP). The script probe sub-mode contains the existing probe sub-mode commands **failed**, **interval**, **open**, **receive**, and **retries**.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to create a script probe:

```
SLB-Switch(config-module-csm)# ip slb script file tftp://192.168.10.102/csmScripts
SLB-Switch(config-probe-script)# script echoProbe.tcl
SLB-Switch(config-probe-script)# interval 10
SLB-Switch(config-probe-script)# retries 1
SLB-Switch(config-probe-script)# failed 30
```

Related Commands

probe
script, page A-63
failed, page A-64
interval, page A-65
open, page A-66
receive, page A-67
retries, page A-68
show module csm probe

script

Use the **script** *script-name* [**arg1** [**arg2...**]] command to create a script probe. Use the **no** form of this command to remove the probe from the configuration.

script *script_name* [**arg1** [**arg2...**]]

no script *script_name* [**arg1** [**arg2...**]]

Syntax Description

script-name	Names the probe script
arg1, arg2	Keyword that specifies ???

Defaults

This command has no default settings.

Command Modes

SLB probe script configuration submode.

Usage Guidelines

This command enters a probe sub-mode that is similar to the existing CSM health probe sub-modes (such as HTTP, TCP, DNS, and SMTP). The script probe sub-mode contains the existing probe sub-mode commands failed, interval, open, receive, and retries.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to create a script probe:

```
SLB-Switch(config-module-csm)# ip slb script file tftp://192.168.10.102/csmScripts
SLB-Switch(config-probe-script# script echoProbe.tcl
SLB-Switch(config-probe-script# interal 10
SLB-Switch(config-probe-script# retries 1
SLB-Switch(config-probe-script# failed 30
```

Related Commands

probe
failed, page A-64
interval, page A-65
open, page A-66
receive, page A-67
retries, page A-68
show module csm probe

failed

Use the **failed** command in the SLB probe scirpt configuration submode to set the time to wait before probing a failed server. Use the **no** form of this command to reset the time to wait before probing a failed server to default.

failed *failed-interval*

no failed

Syntax Description

failed-interval	Time in seconds before retrying a failed server; the range is from 2 to 65535.

Defaults

The default value for the failed interval is 300 seconds.

Command Modes

SLB probe script configuration submode.

Command History

Release	Modification
3.1(1)	This command was introduced.

Usage Guidelines

This command is used for all probe types.

Examples

This example shows how to configure a failed server probe for 200 seconds:

```
SLB-Switch(config-slb-probe-http)# failed 200
```

Related Commands

probe
script, page A-63
interval, page A-65
open, page A-66
receive, page A-67
retries, page A-68
show module csm probe

interval

Use the **interval** command in the SLB probe script configuration submode to set the time interval between probes. Use the **no** form of this command to reset the time interval between probes to default.

interval *seconds*

no interval

Syntax Description

seconds	Number of seconds to wait between probes from the end of the previous probe to the beginning of the next probe; the range is from 2 to 65535.

Defaults

The default value for the interval between probes is 120 seconds.

Command Modes

SLB probe script configuration submode.

Command History

Release	Modification
3.1(1)	This command was introduced.

Usage Guidelines

This command is used for all probe types.

Examples

This example shows how to configure a probe interval of 150 seconds:

```
SLB-Switch(config-slb-probe-http)# interval 150
```

Related Commands

probe
script, page A-63
failed, page A-64
open, page A-66
receive, page A-67
retries, page A-68
show module csm probe

open

Use the **open** command in the SLB probe script configuration submode to set the time to wait for a reply from a server. Use the **no** form of this command to reset the time to wait for a reply from a server to default.

open *open-timeout*

no open

Syntax Description

open-timeout	Number of seconds to wait for reply from a server; the range is from 1 to 65535.

Defaults

The default value for a receive timeout is 10 seconds.

Command Modes

SLB probe script configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

This command is available for all probe types, except TCP.

Note There are two different timeout values: open and receive. The open timeout specifies how many seconds to wait for the connection to open (that is, how many seconds to wait for SYN ACK after sending SYN). The receive timeout specifies how many seconds to wait for data to be received (that is, how many seconds to wait for an HTTP reply after sending a GET/HHEAD request). Because TCP probes close as soon as they open without sending any data, the receive timeout is not used.

Examples

This example shows how to configures a time to wait for a reply from a server to 5 seconds:

```
SLB-Switch(config-slb-probe-http)# open 5
```

Related Commands

probe
script, page A-63
failed, page A-64
interval, page A-65
receive, page A-67
retries, page A-68
show module csm probe

receive

Use the **receive** command in the SLB probe configuration submode to set the time to wait for a reply from a server. Use the **no** form of this command to reset the time to wait for a reply from a server to default.

receive *receive-timeout*

no receive

Syntax Description

receive-timeout	Number of seconds to wait for reply from a server; the range is from 1 to 65535.

Defaults

The default value for a receive timeout is 10 seconds.

Command Modes

SLB probe configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

This command is available for all probe types, except TCP.

Note There are two different timeout values: open and receive. The open timeout specifies how many seconds to wait for the connection to open (that is, how many seconds to wait for SYN ACK after sending SYN). The receive timeout specifies how many seconds to wait for data to be received (that is, how many seconds to wait for an HTTP reply after sending a GET/HHEAD request). Because TCP probes close as soon as they open without sending any data, the receive timeout is not used.

Examples

This example shows how to configures a time to wait for a reply from a server to 5 seconds:

```
SLB-Switch(config-slb-probe-http)# receive 5
```

Related Commands

probe
script, page A-63
failed, page A-64
interval, page A-65
open, page A-66
retries, page A-68
show module csm probe

retries

Use the **retries** command in the SLB probe script configuration submode to set the number of failed probes that are allowed before marking the server failed. Use the **no** form of this command to reset the number of failed probes allowed before marking a server as failed to default.

retries *retry-count*

no retries

Syntax Description

retry-count	Number of probes to wait before marking a server as failed; the range is from 0 to 65535.

Defaults

The default value for retries is 3.

Command Modes

SLB probe script configuration submode.

Command History

Release	Modification
3.1(1)	This command was introduced.

Usage Guidelines

This command is used for all probe types.

Note Set retries to 2 or more. If retries are set to 1, a single dropped probe packet will bring down the server. A setting of 0 places no limit on the number of probes that are sent. Retries are sent until the system reboots.

Examples

This example shows how to configure a retry count of 3:

```
SLB-Switch(config-slb-probe-script)# retries 3
```

Related Commands

probe
script, page A-63
failed, page A-64
interval, page A-65
open, page A-66
receive, page A-67
show module csm probe

real

Use the **real** command in the SLB serverfarm configuration submode to identify a real server that is a member of the server farm and enter the real server configuration submode. Use the **no** form of this command to remove the real server from the configuration.

real *ip-address* [*port*]

no real *ip-address* [*port*]

Syntax Description

ip-address	Real server IP address.
port	(Optional) Port translation for the real server; the range is from 1 to 65535.

Defaults

The default is no port translation for the real server.

Command Modes

SLB serverfarm configuration submode.

Usage Guidelines

Use this command to identify a real server that is a member of the server farm and enter the real server configuration submode.

Note The IP address that you supply provides a load-balancing target for the CSM. This target can be any IP addressable object. For example, the IP addressable object may be a real server, a firewall, or an alias IP address of another CSM.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to identify a real server and enter the real server submode:

```
SLB-Switch(config-slb-sfarm)# real 102.43.55.60
SLB-Switch(config-slb-real)#
```

Related Commands

serverfarm
show module csm real
show module csm serverfarm

inservice

Use the **inservice** command in the SLB real server configuration submode to enable the real servers. Use the **no** form of this command to remove a real server from service.

inservice

no inservice

Syntax Description

This command has no arguments or keywords.

Defaults

The default for a real server is **no inservice**.

Command Modes

SLB real server configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to enable a real server:

```
SLB-Switch(config-slb-sfarm)# real 10.2.2.1
SLB-Switch(config-slb-real)# inservice
```

Related Commands

real (SLB serverfarm submode)
show module csm real

maxconns

Use the **maxconns** command in the SLB real server configuration submode to limit the number of active connections to the real server. Use the **no** form of this command to change the maximum number of connections to its default value.

maxconns *max-conns*

no maxconns

Syntax Description

max-conns	Maximum number of active connections on the real server at any one point in time; the range is from 1 to 4294967295.

Defaults

The default value is the maximum value or infinite (not monitored).

Command Modes

SLB real server configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

When you specify **minconns**, you must also specify the **maxconns** command.

Examples

This example shows how to limit the connections to a real server:

```
SLB-Switch(config-slb-sfarm)# real 10.2.2.1
SLB-Switch(config-slb-real)# maxconns 4000
```

Related Commands

minconns (real server submode)
real (serverfarm submode)
show module csm real

minconns

Use the **minconns** command in the SLB real server configuration submode to establish a minimum connection threshold for the real server. Use the **no** form of this command to change the minimum number of connections to the default value.

minconns *min-cons*

no minconns

Syntax Description

min-cons	Minimum number of connections allowed on the real server; the range is from 0 to 4294967295.

Defaults

The default value is **no minconns**.

Command Modes

SLB real server configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

When the **maxconns** threshold is exceeded, the CSM stops sending connections until the number of connections falls below the **minconns** threshold. This value must be lower than the maximum number of connections configured by the **maxconns** command. When you specify **minconns**, you must also specify the **maxconns** command.

Examples

This example shows how to establish a minimum connection threshold for a server:

```
SLB-Switch(config-slb-sfarm)# real 102.2.2.1
SLB-Switch(config-slb-real)# minconns 4000
```

Related Commands

maxconns (real server submode)
real (serverfarm submode)
show module csm real

probe

Use the **probe** command in the SLB real server configuration submode to configure a probe for the real server. Use the **no** form of this command to remove the probe from the configuration.

probe *probe-name* **tag** *string*

no probe

Syntax Description

probe-name	Names the probe.
tag	Keyword to specify a tag for the probe.
string	Specifies a string to identify the probe.

Defaults

This command has no default values.

Command Modes

SLB real server configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to configurre a probe for a server:

```
SLB-Switch(config-slb-sfarm)# real 102.2.2.1
SLB-Switch(config-slb-real)# probe mission tag 12345678
```

Related Commands

real (serverfarm submode)
show module csm real

redirect-vserver

Use the **redirect-vserver** command in the SLB real server configuration submode to configure a real server to receive traffic redirected by a redirect virtual server. Use the **no** form of this command to specify that traffic is not redirected to the real server.

redirect-vserver *name*

no redirect-vserver

Syntax Description

name	Name of the virtual server that has its requests redirected.

Defaults

The default is **no redirect-vserver**.

Command Modes

SLB real server configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Usage Guidelines

Mapping real servers to redirect virtual servers provides persistence for clients to real servers across TCP sessions. Before using this command, you must create the redirect virtual server in serverfarm submode with the **redirect-vserver** command.

Examples

This example shows how to map a real server to a virtual server:

```
SLB-Switch(config-slb-sfarm)#   real 10.2.2.1
SLB-Switch(config-slb-real)# redirect-vserver timely
```

Related Commands

real (SLB serverfarm configuration submode)
redirect-vserver (SLB serverfarm configuration submode)
show module csm real
show module csm vserver redirect

weight

Use the **weight** command in the SLB real server configuration submode to configure the capacity of the real servers in relation to the other real servers in the server farm. Use the **no** form of this command to change the server's weight to its default capacity.

weight *weighting-value*

no weight

Syntax Description

weighting-value	Value to use for the server farm predictor algorithm; the range is from 1 to 100.

Defaults

The weighting value default is 8.

Command Modes

SLB real server configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to configure the weight of a real server:

```
SLB-Switch(config-slb-sfarm)#   real 10.2.2.1
SLB-Switch(config-slb-real)# weight 8
```

Related Commands

predictor (SLB serverfarm submode)
real (SLB serverfarm submode)
show module csm real

redirect-vserver

Use the **redirect-vserver** command to specify the name of a virtual server to receive traffic redirected by the server farm and enter redirect virtual server configuration submode. Use the **no** form of this command to remove the redirect virtual server.

redirect-vserver *name*

no redirect-vserver *name*

Syntax Description

name	Name of the virtual server to receive traffic redirected by the server farm; the virtual server name can be no longer than 15 characters.

Defaults

This command has no default settings.

Command Modes

SLB serverfarm configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to name the virtual server:

```
SLB-Switch(config-slb-sfarm)#    redirect-vserver quantico
```

Related Commands

real (SLB serverfarm submode)
redirect-vserver (SLB real server submode)
serverfarm
show module csm serverfarm
show module csm vserver redirect

advertise

Use the **advertise** command in the SLB redirect virtual server configuration mode to allow the CSM to advertise the IP address of the virtual server as host-route. Use the **no** form of this command to stop advertising the host-route for this virtual server.

advertise [**active**]

no advertise

Syntax Description

active	(Optional) Keyword to allow the CSM to advertise the IP address of the virtual server as host-route.

Defaults

The default for network mask is 255.255.255.255 if the network mask is not specified.

Command Modes

SLB redirect virtual server configuration submode.

Usage Guidelines

Without the active option, the CSM always advertises the virtual server IP address whether or not there is any active real server attached to this virtual server.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to restrict a client from using the redirect virtual server:

```
SLB-Switch(config-slb-redirect-vs)# advertise 10.5.2.1 exclude
```

Related Commands

vserver
show module csm vserver redirect

client

Use the **client** command in the SLB redirect virtual server configuration mode to restrict which clients are allowed to use the redirect virtual server. Use the **no** form of this command to remove the client definition from the configuration.

client *ip-address* [*network-mask*] [**exclude**]

no client *ip-address* [*network-mask*]

Syntax Description

ip-address	Client's IP address.
network-mask	(Optional) Client's IP mask.
exclude	(Optional) Keyword to specify that the IP address is disallowed.

Defaults

The default for network mask is 255.255.255.255 if the network mask is not specified.

Command Modes

SLB redirect virtual server configuration submode.

Usage Guidelines

The network mask is applied to the source IP address of incoming connections and the result must match the IP address before the client is allowed to use the virtual server. If you do not specify exclude, the IP address and network mask combination is allowed.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to restrict a client from using the redirect virtual server:

```
SLB-Switch(config-slb-redirect-vs)# client 10.5.2.1 exclude
```

Related Commands

client-group (SLB policy submode)
vserver
show module csm vserver redirect

idle

Use the **idle** command in the SLB redirect virtual server configuration submode to specify the connection idle timer duration. Use the **no** form of this command to disable the idle timer.

idle *duration*

no idle

Syntax Description

duration	SLB connection idle timer in seconds; the range is from 4 to 65535.

Defaults

The default is 3600.

Command Modes

SLB redirect virtual server configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to specify the connection idle timer duration:

```
SLB-Switch(config-slb-redirect-vs)# idle 7
```

Related Commands

redirect-vserver (SLB serverfarm submode)
show module csm vserver redirect

inservice

Use the **inservice** command in the SLB redirect virtual server configuration submode to enable the real server for use by the CSM. If this command is not specified, the virtual server is defined but not used. Use the **no** form of this command to disable the virtual server.

inservice

no inservice

Syntax Description

This command has no arguments or keywords.

Defaults

The default is **no inservice**.

Command Modes

SLB redirect virtual server configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to enable a redirect virtual server for use by the CSM:

```
SLB-Switch(config-slb-redirect-vs)# inservice
```

Related Commands

redirect-vserver (SLB serverfarm submode)
show module csm vserver redirect

replicate csrp

Use the **replicate csrp** command in the SLB redirect virtual server configuration submode to enable connection redundancy. Use the **no** form of this command to remove connection redundancy.

replicate csrp

no replicate csrp

Syntax Description

This command has no keywords or arguments.

Defaults

The default is **no replicate csrp**.

Command Modes

SLB virtual server configuration submode.

Command History

Release	Modification
2.1(1)	This command was introduced.

Examples

This example shows how to enable connection redundancy:

```
SLB-Switch(config-slb-redirect-vs)# replicate csrp
```

Related Commands

vserver
show module csm vserver redirect

ssl

Use the **ssl** command in the SLB redirect virtual server configuration submode to redirect an HTTP request to either HTTPS (SSL)_ or the FTP service. Use the **no** form of this command to reset the redirect of an HTTP request to an HTTP service.

ssl {**https** | **ftp** | *ssl-port-number*}

no ssl

Syntax Description

ssl-port-number	SSL port number; the range is from 1 to 65535.

Defaults

The default is **no ssl** forwarding.

Command Modes

SLB redirect virtual server configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to enable SSL forwarding:

```
SLB-Switch(config-slb-redirect-vs)# ssl 443
```

Related Commands

redirect-vserver (SLB serverfarm submode)
show module csm vserver redirect

virtual

Use the **virtual** command in SLB redirect virtual server configuration submode to specify the virtual server's IP address, the protocol used for traffic, and the port the protocol is using. Use the **no** form of this command to reset the virtual server to its defaults.

virtual *v_ipaddress* **tcp** *port*

no virtual *v_ipaddress*

Syntax Description

v_ipaddress	Redirect virtual server's IP address.
tcp	Keyword to specify the protocol used for redirect virtual server traffic.
port	Port number used by the protocol.

Defaults

The default IP address is 0.0.0.0, which prevents packet forwarding.

Command Modes

SLB redirect virtual server configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to specify the virtual server's IP address, the protocol for redirect virtual server traffic, and the port number used by the protocol:

```
SLB-Switch(config-slb-redirect)# virtual 130.32.44.50 tcp 80
```

Related Commands

redirect-vserver (SLB serverfarm submode)
show module csm vserver redirect

vlan

Use the **vlan** command in the SLB redirect virtual server submode to define which source VLANs can be accessed on the redirect virtual server. Use the **no** form of this command to remove the VLAN.

vlan {*vlan-number* | **all**}

no vlan

Syntax Description

vlan-number	VLAN the virtual server may access.
all	(Optional) Keyword to specify all VLANs are accessed by the virtual server.

Defaults

The default is all VLANs.

Command Modes

SLB virtual server configuration submode.

Command History

Release	Modification
2.1(1)	This command was introduced.

Examples

This example shows how to specify a VLAN for redirect virtual server access:

```
SLB-Switch(config-slb-redirect-vs)# vlan 5
```

Related Commands

sticky
sticky-group (SLB policy submode)
show module csm sticky
show module csm vserver redirect

webhost backup

Use the **webhost backup** command in SLB redirect virtual server configuration submode to specify a backup string sent in response to HTTP requests. Use the **no** form of this command to disable the backup string.

webhost backup *backup-string* [**301** | **302**]

webhost backup

Syntax Description

backup-string	String sent in response to redirected HTTP requests; the maximum length is 127 characters.
301	(Optional) Keyword to specify the HTTP status code: "The requested resource has been assigned a new permanent URL."
302	(Optional) Keyword to specify the HTTP status code: "The requested resource resides temporarily under a different URL."

Defaults

The default status code is 302.

Command Modes

SLB redirect virtual server configuration submode.

Usage Guidelines

This command is used in situations where the redirect virtual server has no available real servers. **301** or **302** is used to specify the redirect code. The backup string may include a %p at the end to indicate inclusion of the path in the HTTP redirect location statement field.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to specify a backup string that is sent in response to HTTP requests:

```
SLB-Switch(config-slb-redirect-vs)# webhost backup www.mybackup.com%p 301
```

Related Commands

redirect-vserver (SLB serverfarm submode)
show module csm vserver redirect

webhost relocation

Use the **webhost relocation** command in the SLB redirect virtual server configuration submode to specify a relocation string sent in response to HTTP requests. Use the **no** form of this command to disable the relocation string.

webhost relocation *relocation string* [**301** | **302**]

no webhost relocation

Syntax Description

relocation string	String sent in response to redirected HTTP requests; the maximum length is 127 characters.
301	(Optional) Keyword to specify the HTTP status code: "The requested resource has been assigned a new permanent URL."
302	(Optional) Keyword to specify the HTTP status code: "The requested resource resides temporarily under a different URL."

Defaults

The default status code is 302.

Command Modes

SLB redirect virtual server configuration submode.

Usage Guidelines

The backup string may include a %p at the end to indicate inclusion of the path in the HTTP redirect location statement field.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to specify a relocation string that is sent in response to HTTP requests:

```
SLB-Switch(config-slb-redirect-vs)# webhost relocation www.myhome1.com%p 301
```

Related Commands

redirect-vserver (SLB serverfarm submode)
show module csm vserver redirect

script file

Use the **script file** command to load scripts into a script file. Use the **no** form of this command to remove the script file command from the configuration.

script file *file-url*

no script file

Syntax Description

file-url	Sets the standard Cisco IOS file name, such as *bootflash:webprobe.tcl*.

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode.

Usage Guidelines

The file-url is a standard Cisco IOS file name such as *bootflash:webprobe.tcl*.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to load scripts into a script file:

```
SLB-Switch(config-module-csm)# script file file-url
```

Related Commands

show module csm script

script task

Use the **script task** command to run a standalone task. Use the **no** form of this command to remove the standalone task from the configuration.

script task *script-index script-name* [**arg1** [**arg2**…]]

no script task *script-index*

Syntax Description

script-index	Used to identify a specific running script. The *script-index* is an integer between 1 and 100.
script-name	Identifies the script by name.
arg1, arg2	(Optoinal) Arguments can be any string to a particular script.

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to run a standalone script:

```
SLB-Switch(config-module-csm)# script task 30 filerun
```

Related Commands

show module csm script

serverfarm

Use the **serverfarm** command to identify a server farm and enter the serverfarm configuration submode. Use the **no** form of this command to remove the server farm from the configuration.

serverfarm *serverfarm-name*

no serverfarm *serverfarm-name*

Syntax Description

serverfarm-name	Character string used to identify the server farm; the character string is limited to 15 characters.

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode.

Usage Guidelines

Use this command to enter the server farm configuration submode to configure the load-balancing algorithm (predictor), a set of real servers, and the attributes (NAT, probe, and bindings) of the real servers.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to identify a server farm named PUBLIC and change the CLI to server farm configuration mode:

```
SLB-Switch(config-module-csm)#    serverfarm PUBLIC
```

Related Commands

reverse-sticky (SLB policy configuration submode)
serverfarm (SLB virtual server configurations submode)
show module csm serverfarm

bindid

Use the **bindid** command in the SLB serverfarm configuration submode to assign a unique ID to allow the DFP agent to differentiate a real server in one server farm versus another server farm. Use the **no** form of this command to disable the bindid.

bindid [*bind-id*]

no bindid

Syntax Description

bind-id	(Optional) Identification number for each binding; the range is from 0 to 65533.

Defaults

The default is 0.

Command Modes

SLB serverfarm configuration submode.

Usage Guidelines

The single real server is represented as multiple instances of itself, each having a different bind identification. DFP uses this identification to identify a given weight for each instance of the real server.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to bind a server to multiple virtual servers:

```
SLB-Switch(config-slb-sfarm)# bindid 7
```

Related Commands

dfp
serverfarm
show module csm serverfarm

failaction purge

Use the **failaction purge** command in the SLB serverfarm configuration submode to set the behavior of connections to real servers that have failed. Use the **no** form of this command to disable the behavior of connections to real servers that have failed.

failaction purge

no failaction purge

Syntax Description

This command has no arguments or keywords.

Defaults

The default is **no failaction purge**.

Command Modes

SLB serverfarm configuration submode.

Usage Guidelines

With this command enabled, connections to a real server in the server farm are purged when the real server goes down. This feature is required for VPN load balancing.

Command History

Release	Modification
2.1(1)	This command was introduced.

Examples

This example shows how to set the behavior of connections to real servers that have failed:

```
SLB-Switch(config-slb-sfarm)# failaction purge
```

Related Commands

dfp
serverfarm
show module csm serverfarm

health

Use the **health** command in the SLB serverfarm configuration submode to set the retry attempts to real servers that have failed. Use the **no** form of this command to disable the retries or the time to wait for connections to real servers that have failed.

health retries *count* **failed** *seconds*

no health

Syntax Description

retries	Keyword to specify the number of tries to attempt to failed real servers.
count	Number of probes to wait before marking a server as failed; the range is from 0 to 65534.
failed	Keyword to specify the time to wait to attempt retries to the real servers.
seconds	Time in seconds before retrying a failed server; the range is from 0 to 65535.

Defaults

There are no default settings.

Command Modes

SLB serverfarm configuration submode.

Command History

Release	Modification
2.2(1)	This command was introduced.

Examples

This example shows how to set the behavior of connections to real servers that have failed:

```
SLB-Switch(config-slb-sfarm)# health retries 20 failed 200
```

Related Commands

dfp
serverfarm
show module csm serverfarm

nat client

Use the **nat client** command in SLB serverfarm configuration submode to specify a set of client NAT pool addresses that should be used to perform the NAT function on clients connecting to this server farm. Use the **no** form of this command to remove the NAT pool from the configuration.

nat client *client-pool-name*

no nat client

Syntax Description

client-pool-name	Client pool name.

Defaults

This command has no default settings.

Command Modes

SLB serverfarm configuration submode.

Usage Guidelines

Use this command to enable client NAT. If client NAT is configured, the client address and port number in load-balanced packets are replaced with an IP address and port number from the specified client NAT pool. This client pool name must match the pool name entered from a previous **natpool** command.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to specify NAT on the client:

```
SLB-Switch(config-slb-sfarm)# nat client whishers
```

Related Commands

natpool
serverfarm
nat server
predictor
show module csm serverfarm

nat server

Use the **nat server** command in SLB serverfarm configuration submode to specify NAT to servers in this server farm. Use the **no** form of this command to disable server NAT.

nat server

no nat server

Syntax Description

This command has no arguments or keywords.

Defaults

Server NAT is enabled by default.

Command Modes

SLB server farm configuration submode.

Usage Guidelines

Use this command to enable server NAT. If server NAT is configured, the server address and port number in load-balanced packets are replaced with an IP address and port number of one of the real servers in the server farm.

Note The **nat server** command has no effect when **predictor forward** is configured, because no servers can be configured.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to specify NAT on the server:

```
SLB-Switch(config-slb-sfarm)# nat server
```

Related Commands

serverfarm
nat client
predictor
show module csm serverfarm

predictor

Use the **predictor** command in the SLB serverfarm configuration submode to specify the load-balancing algorithm for the server farm. Use the **no** form of this command to remove the load-balancing algorithm.

predictor {**roundrobin | leastconns | hash url | hash address** [**source | destination**] [*ip-netmask*] **| forward**}]

no predictor

Syntax Description

roundrobin	Keyword to select the next servers in the list of real servers.
leastconns	Keyword to select the server with the least number of connections.
hash url	Keyword to select the server using a hash value based on the URL.
hash address	Keyword to select the server using a hash value based on the source and destination IP addresses.
source	Keyword to select the server using a hash value based on the source IP address.
destination	Keyword to select the server using a hash value based on the destination IP address.
ip-netmask	(Optional) Bits in the IP address to use for the hash. If not specified, 255.255.255.255 is assumed.
forward	Keyword to tell the CSM to forward traffic in accordance with its internal routing tables.

Defaults

The default algorithm is round robin.

Command Modes

SLB serverfarm configuration submode.

Usage Guidelines

Use this command to define the load-balancing algorithm used in choosing a real server in the server farm. If you do not specify the **predictor** command, the default algorithm is **roundrobin**. Using the **no** form of this command changes the predictor algorithm to the default algorithm.

Note The **nat server** command has no effect when **predictor forward** is configured, because no servers can be configured.

The portion of the URL to hash is based on the expressions configured for the virtual server submode command **url-hash**.

No real servers are needed. The server farm is actually a route forwarding policy with no real servers associated with it.

Command History

Release	Modification
1.1(1)	This command was introduced.
2.1(1)	Changed the **ip-hash** to the **hash address source** keyword and added new keyword types of **hash address**, **hash address destination**, **hash url**, and **forward**. In addition, the **http-redirect** command is now hidden.

Examples

This example shows how to specify the load-balancing algorithm for the server farm:

```
SLB-Switch(config-module-csm)# serverfarm PUBLIC
SLB-Switch(config-slb-sfarm)# predictor leastconns
```

Related Commands

nat client
nat server
maxconns
minconns
serverfarm
show module csm serverfarm
serverfarm (SLB virtual server configuration submode)

probe

Use the **probe** command in the SLB serverfarm configuration submode to associate a probe with a server farm. Use the **no** form of this command to disable a specific probe.

probe *probe-name*

no probe *probe-name*

Syntax Description

probe-name	Probe name associated with the server farm.

Defaults

This command has no default settings.

Command Modes

SLB serverfarm configuration submode.

Usage Guidelines

Each server farm can be associated with multiple probes of the same or different protocols. Protocols supported by the CSM include HTTP, ICMP, TCP, FTP, SMTP, Telnet, and DNS.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to associate a probe with a server farm:

```
SLB-Switch(config-slb-sfarm)# probe general
```

Related Commands

probe (Module CSM configuration submode)
serverfarm
show module csm probe
show module csm serverfarm

retcode-map

Use the **retcode-map** command in the SLB serverfarm configuration submode to assign a return code map to a server farm. Use the **no** form of this command to disable a specific probe.

retcode-map *retcodemap_name*

no retcode-map

Syntax Description

retcodemap_name	Return code map name associated with the server farm.

Defaults

This command has no default settings.

Command Modes

SLB serverfarm configuration submode.

Command History

Release	Modification
2.2(1)	This command was introduced.

Examples

This example shows how to associate a probe with a server farm:

```
SLB-Switch(config-slb-sfarm)# retcode-map return_stats
```

Related Commands

map retcode (Module CSM configuration submode)
serverfarm
show module csm serverfarm

show module csm arp

Use the **show module csm** *slot* **arp** command to display the CSM ARP cache.

show module csm *slot* **arp**

Syntax Description

slot	Slot where the CSM resides.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC.

Command History

Release	Modification
1.1(1)	This command was introduced as **show ip slb arp**.
2.1(1)	This command was changed to **show module csm** *slot* (for **ip slb mode rp** only).

Examples

This example shows how to display the CSM ARP cache:

```
SLB-Switch# show module csm 4 arp

Internet Address  Physical Interface  VLAN      Type       Status
------------------------------------------------------------------
 10.10.3.100      00-01-64-F9-1A-02   0         VSERVER    local
 10.10.3.1        00-D0-02-58-B0-00   11        GATEWAY    up(0 misses)
 10.10.3.2        00-30-F2-71-6E-10   11/12     --SLB--    local
 10.10.3.10       00-D0-B7-82-38-97   12        REAL       up(0 misses)
 10.10.3.20       00-D0-B7-82-38-97   12        REAL       up(0 misses)
 10.10.3.30       00-D0-B7-82-38-97   12        REAL       up(0 misses)
 10.10.3.40       00-00-00-00-00-00   12        REAL       down(1 misses)
```

show module csm conns

Use the **show module csm** *slot* **conns** command to display active connections.

show module csm *slot* **conns** [**vserver** *virtserver-name*] [**client** *ip-address*] [**detail**]

Syntax Description

slot	Slot where the CSM resides.
vserver	(Optional) Keyword to specify the connections associated with a particular virtual server.
virtserver-name	(Optional) Name of the virtual server to be monitored.
client	(Optional) Keyword to specify the connections associated with a particular client IP address.
ip-address	(Optional) IP address of the client to be monitored.
detail	(Optional) Keyword to specify detailed connection information.

Defaults

If no options are specified, the command displays output for all active connections.

Command Modes

Privileged EXEC.

Command History

Release	Modification
1.1(1)	This command was introduced as **show ip slb conns**.
2.1(1)	This command was changed to **show module csm** *slot* (for **ip slb mode rp** only).

Examples

This example shows how to display active connection data:

```
SLB-Switch# show module csm 4 conns
prot vlan source               destination          state
------------------------------------------------------------------------
In  TCP  11   100.100.100.2:1754    10.10.3.100:80        ESTAB
Out TCP  12   100.100.100.2:1754    10.10.3.20:80         ESTAB

In  TCP  11   100.100.100.2:1755    10.10.3.100:80        ESTAB
Out TCP  12   100.100.100.2:1755    10.10.3.10:80         ESTAB

SLB-Switch# show module csm 4 conns detail

    prot vlan source               destination          state
------------------------------------------------------------------------
In  TCP  11   100.100.100.2:1754    10.10.3.100:80        ESTAB
Out TCP  12   100.100.100.2:1754    10.10.3.20:80         ESTAB
    vs = WEB_VIP, ftp = No, csrp = False

In  TCP  11   100.100.100.2:1755    10.10.3.100:80        ESTAB
Out TCP  12   100.100.100.2:1755    10.10.3.10:80         ESTAB
    vs = WEB_VIP, ftp = No, csrp = False
```

show module csm dfp

Use the **show module csm** *slot* **dfp** command to display DFP agent and manager information, such as passwords, timeouts, retry counts, and weights.

show module csm *slot* **dfp** [**agent** [**detail** | *ip-address port*] | **manager** [*ip_addr*] | **detail** | **weights**]

Syntax Description

slot	Slot where the CSM resides.
agent	(Optional) Keyword to specify information about a DFP agent.
detail	(Optional) Keyword to specify all data available.
ip_address	(Optional) Agent IP address.
port	(Optional) Agent port number.
manager	(Optional) Keyword to specify the agent and manager connection state and statistics, and the load and health metric sent to DFP manager.
ip_addr	(Optional) IP address of reported weights.
detail	(Optional) Keyword to specify all data available.
weights	(Optional) Keyword to specify information about weights assigned to real servers for load balancing.

Defaults

If no options are specified, the command displays summary information.

Command Modes

Privileged EXEC.

Command History

Release	Modification
1.1(1)	This command was introduced as **show ip slb dfp**.
2.1(1)	Added the virtual server weight display information to report to the DFP manager. This command was changed to **show module csm** *slot* (for **ip slb mode rp** only).

Examples

This example shows all available DFP data:

```
SLB-Switch# show module csm 4 dfp detail
```

This example shows information about weights:

```
SLB-Switch# show module csm 4 dfp weights
```

This example, with no options specified, shows summary information:

```
SLB-Switch# show module csm 4 dfp
```

Related Commands

dfp
agent (SLB DFP configuration submode)
manager (SLB DFP configuration submode)

show module csm ft

Use the **show module csm** *slot* **ft** command to display statistics and counters for the CSM fault-tolerant pair.

show module csm *slot* **ft** [**detail**]

Syntax Description

detail	(Optional) Keyword to display more detailed information.

Defaults

No values are displayed.

Command Modes

Privileged EXEC.

Command History

Release	Modification
1.1(1)	This command was introduced as **show ip slb ft**.
2.1(1)	This command was changed to **show module csm** *slot* (for **ip slb mode rp** only).

Examples

This example shows how to display the statistics and counters for the CSM fault-tolerant pair:

```
SLB-Switch# show module csm 4 ft
FT group 2, vlan 30
 This box is active
 priority 10, heartbeat 1, failover 3, preemption is off
```

Related Commands

ft group

show module csm map

Use the **show module csm** *slot* **map** command to display information about URL maps.

show module csm *slot* **map** [**url | cookie | header | retcode**] [**name** *map-name*] [**detail**]

Syntax Description

slot	Slot where the CSM resides.
url	(Optional) Keyword to specify only the URL map configuration.
cookie	(Optional) Keyword to specify only the cookie map configuration.
header	(Optional) Keyword to specify only the header map configuration.
retcode	(Optional) Keyword to specify only the return code map configuration.
name	(Optional) Keyword to specify the named map.
map-name	Map name to display.
detail	(Optional) Keyword to specify all data available.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC.

Command History

Release	Modification
1.1(1)	This command was introduced as **show ip slb map**.
2.1(1)	This command was changed to **show module csm** *slot* (for **ip slb mode rp** only). The header option is added for displaying only header maps.
2.2(1)	This command was changed to include the **retcode** option.

Examples

This example shows how to display URL maps associated with a Content Switching policy:

```
SLB-Switch# show module csm 4 map url
URL map UHASH_UMAP
 COOKIE map UHASH_CMAP1
 COOKIE map UHASH_CMAP2

6k#show ip slb map detail
 URL map UHASH_UMAP rules:
  *aabb*

 COOKIE map UHASH_CMAP1 rules:
  name:foo  value:*asdgjasgdkjsdkgjsasdgsg*

 COOKIE map UHASH_CMAP2 rules:
  name:bar  value:*asdgjasgdkjsdkgjsasdgsg*
```

This example shows how to display return code maps:

```
SLB-Switch#show module csm 5 map retcode detail
 RETCODE map HTTPCODES rules:
  return codes:401 to 401  action:log     threshold:5  reset:120
  return codes:402 to 415  action:count   threshold:0  reset:0
  return codes:500 to 500  action:remove  threshold:3  reset:0
  return codes:503 to 503  action:remove  threshold:3  reset:0
```

Related Commands

map cookie
map header
map url

show module csm memory

Use the **show module csm** *slot* **memory** command to display information about memory use.

show module csm *slot* **memory** [**vserver** *vserver-name*] [**detail**]

Syntax Description

slot	Slot where the CSM resides.
vserver	(Optional) Keyword to specify the virtual server configuration.
vserver-name	(Optional) Option to restrict output to the named virtual server.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC.

Command History

Release	Modification
1.1(1)	This command was introduced as **show ip slb memory**.
2.1(1)	This command was changed to **show module csm** *slot* (for **ip slb mode rp** only). The **detail** keyword no longer has an effect and is hidden or deprecated.

Examples

This example shows how to display the memory usage of virtual servers:

```
SLB-Switch# show module csm 4 memory
slb vserver      total bytes  memory by type
-------------------------------------------------------------------------
WEB_VIP          0             0          0
FTP_VIP          0             0          0
Total(s):                     0          0
Out of Maximum:               261424     261344
```

Related Commands

parse-length (SLB virtual server configuration submode)

show module csm natpool

Use the **show module csm** *slot* **natpool** command to display NAT configurations.

show module csm *slot* **natpool** [**name** *pool-name*] [**detail**]

Syntax Description

slot	Slot where the CSM resides.
name	(Optional) Keyword to display a specific NAT pool.
pool-name	(Optional) NAT pool name string to display.
detail	(Optional) Keyword to list the interval ranges currently allocated in the client NAT pool.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC.

Command History

Release	Modification
1.1(1)	This command was introduced as **show ip slb natpool**.
2.1(1)	This command was changed to **show module csm** *slot* (for **ip slb mode rp** only).

Examples

This example shows how to display results of the default **show module csm** *slot* **natpool** command:

```
SLB-Switch# show module csm 4 natpool
nat client B  1.1(1).6  1.1(1).8  Netmask 255.255.255.0
       nat client A  1.1(1).1  1.1(1).5  Netmask 255.255.255.0
```

This example shows how to display results of the **show module csm** *slot* **natpool** command with the **detail** variable:

```
SLB-Switch# show module csm 4 natpool detail
nat client A  1.1(1).1  1.1(1).5  Netmask 255.255.255.0
     Start NAT        Last NAT         Count     ALLOC/FREE
     ------------------------------------------------------
     1.1(1).1:11001    1.1(1).1:16333    0005333   ALLOC
     1.1(1).1:16334    1.1(1).1:19000    0002667   ALLOC
     1.1(1).1:19001    1.1(1).5:65535    0264675   FREE
```

Related Commands

natpool

show module csm owner

Use the **show module csm** *slot* **owner** command to display the current connections count for the specified owner objects.

show module csm *slot* **owner** [**name** *owner-name*] [**detail**]

Syntax Description

slot	Slot where the CSM resides.
owner	Keyword to display a specific owner object.
name	(Optional) Keyword to display a specific owner object.
owner-name	(Optional) Owner object name string to display.
detail	(Optional) Keyword to list the virtual servers in an owner group with the vserver's state and current connections count.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC.

Command History

Release	Modification
3.1(1)	This command was introduced.

Usage Guidelines

Detailed information about an owner object lists the virtual servers in that group with each virtual server's state and current connections count.

The MAXCONNS state is displayed for a virtual server when the current connections counter is equal to the configured **maxconns** value. Counters for the number of connections dropped due to the virtual server being in this state are added. The **show module csm** *slot* **stats** and **show module csm** *slot* **vserver detail** command output displays these counters on a global and per-virtual server basis, respectively.

Examples

This example shows how to display results of the default **show module csm** *slot* **owner** command:

```
SLB-Switch# show module csm 4 owner
```

This example shows how to display results of the **show module csm** *slot* **owner** command with the **detail** variable:

```
SLB-Switch# show module csm 4 owner detail
```

Related Commands

owner
owner

show module csm policy

Use the **show module csm** *slot* **policy** command to display a policy configuration.

show module csm *slot* **policy** [**name** *policy-name*]

Syntax Description

slot	Slot where the CSM resides.
name	(Optional) Keyword to display a specific policy.
policy-name	(Optional) Policy name string to display.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC.

Command History

Release	Modification
1.1(1)	This command was introduced as **show ip slb policy**.
2.1(1)	This command was changed to **show module csm** *slot* (for **ip slb mode rp** only).

Examples

This example shows how to display a policy configuration:

```
SLB-Switch# show module csm 4 policy
policy:              PC1_UHASH_T1
sticky group:        20
serverfarm:          SF_UHASH_T1

policy:              PC1_UHASH_T2
sticky group:        30
serverfarm:          SF_UHASH_T2

policy:              PC1_UHASH_T3
url map:             UHASH_UMAP
serverfarm:          SF_UHASH_T3

policy:              PC1_UHASH_T4
cookie map:          UHASH_CMAP1
serverfarm:          SF_UHASH_T4

policy:              PC2_UHASH_T4
cookie map:          UHASH_CMAP2
serverfarm:          SF_UHASH_T4
SLB-Switch#
```

Related Commands

policy

show module csm probe

Use the **show module csm** *slot* **probe** command to display HTTP or ping probe data.

show module csm *slot* **probe** [**http | icmp | telnet | tcp | ftp | smtp | dns**] [**name** *probe_name*] [**detail**]

Syntax Description

slot	Slot where the CSM resides.
http	(Optional) Keyword to display information about the HTTP configuration.
icmp	(Optional) Keyword to display information about the ICMP configuration.
telnet	(Optional) Keyword to display information about the Telnet configuration.
tcp	(Optional) Keyword to display information about the TCP configuration.
ftp	(Optional) Keyword to display information about the FTP configuration.
smtp	(Optional) Keyword to display information about the SMTP configuration.
dns	(Optional) Keyword to display information about the DNS configuration.
name	(Optional) Keyword to display information about the specific probe named.
probe_name	(Optional) Probe name to display.
detail	(Optional) Keyword to display detailed information.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC.

Command History

Release	Modification
1.1(1)	This command was introduced as **show ip slb probe**.
2.1(1)	This command was changed to **show module csm** *slot* (for **ip slb mode rp** only).

Examples

This example shows how to display probe data:

```
SLB-Switch# show module csm 4 probe
probe            type      interval  retries  failed  open   receive
-------------------------------------------------------------------
PB_ICMP1         icmp      60        1        5              10
PB_HTTP1         http      60        1        10      10     10
PB_TCP1          tcp       60        1        10      10     10
```

```
PB_FTP1          ftp       60        1         10       10       10
PB_TELNET1       telnet    60        1         10       10       10
PB_SMTP1         smtp      60        1         10       10       10
```

Related Commands

probe

show module csm probe script

Use the **show module csm** *slot* **probe script [name** *probe -name*] **[detail]** command to display probe script data.

show module csm *slot* **probe script [name** *probe -name*] **[detail]**

Syntax Description

slot	Slot where the CSM resides.
name	(Optional) Keyword to display information about the specific probe named.
probe_name	(Optional) Probe name to display.
detail	(Optional) Keyword to display detailed information.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to display probe data:

```
SLB-Switch# show module csm 4 probe script detail
```

Related Commands

probe

probe script, page A-62

show module csm real

Use the **show module csm** *slot* **real** command to display information about real servers.

show module csm *slot* **real** [**sfarm** s*farm-name*] [**detail**]

Syntax Description

slot	Slot where the CSM resides.
sfarm	(Optional) Keyword to displays real servers for only a single serverfarm.
sfarm-name	(Optional) Name of the server farm to restrict output.
detail	(Optional) Keyword to display detailed information.

Defaults

If no options are specified, the command displays information about all real servers.

Command Modes

Privileged EXEC.

Command History

Release	Modification
1.1(1)	This command was introduced as **show ip slb real**.
2.1(1)	This command was changed to **show module csm** *slot* (for **ip slb mode rp** only).

Examples

This example shows Cisco IOS SLB real server data:

```
SLB-Switch# show module csm 4 real
real                 server farm      weight  state          conns
-------------------------------------------------------------------
10.10.3.10           FARM1            20      OPERATIONAL    0
10.10.3.20           FARM1            16      OUTOFSERVICE   0
10.10.3.30           FARM1            10      OPERATIONAL    0
10.10.3.40           FARM1            10      FAILED         0
SLB-Switch# show mod csm 5 real detail
10.1.0.102, FARM1, state = OPERATIONAL
  Inband health:remaining retries = 3
  conns = 0, maxconns = 4294967295, minconns = 0
  weight = 8, weight(admin) = 8, metric = 0, remainder = 0
  total conns established = 0, total conn failures = 0
10.1.0.101, FARM1, state = OPERATIONAL
  Inband health:remaining retries = 3
  conns = 0, maxconns = 4294967295, minconns = 0
  weight = 8, weight(admin) = 8, metric = 0, remainder = 0
  total conns established = 0, total conn failures = 0
10.1.0.101, FARM2, state = OPERATIONAL
  conns = 2, maxconns = 4294967295, minconns = 0
  weight = 8, weight(admin) = 8, metric = 0, remainder = 2
  total conns established = 7, total conn failures = 0
```

Table A-1 describes the fields in the display.

Table A-1 show module csm real Command Field Information

Field	Description
real	Information about each real server is displayed on a separate line.
server farm	Name of the server farm associated to the real server.
weight	Weight assigned dynamically to the real server. The weight identifies the capacity of the real server compared to other real servers in the server farm.
state	Current state of the real server: OUTOFSERVICE—Removed from the load-balancing predictor lists. FAILED—Removed from use by the predictor algorithms that start the retry timer. OPERATIONAL—Functioning properly. MAXCONNS DFP_THROTTLED PROBE_FAILED PROBE_TESTING TESTING—Queued for assignment. READY_TO_TEST—Device functioning and ready to test.
conns	Number of connections currently open.
remaining retries	Number of retries remaining showing the inband health of a real server.
minconns	Minimum connections configured to the real server. maxconns If minconns and maxconns are changed from their default values, they enable the connection watermarks feature. No more than the maxconns connections are active on this real server. When the server has reached its maximum, the CSM stops sending new connections until the number of active connections drops below the minconns value.
maxconns	Maximum connections configured to the real server.
weight(admin)	Weight you configured and assigned to the real server which identifies the capacity of the real server compared to other real servers in the server farm. **Note** When using DFP (Dynamic Feedback Protocol), then the dynamic weight can be different from the admin weight.
metric	Health metric sent to the DFP manager.
remainder	Remaining number of connections.
total conns established	Total connections that have been set up since the last reset of the counters with the **clear mod csm 6 counters** command.
total conn failures	Total connections that have failed.

Related Commands **real** (SLB serverfarm configuration submode)

show module csm real retcode

Use the **show module csm** *slot* **real retcode** command to display information about the return code configuration.

show module csm *slot* **real retcode** [**sfarm** s*farm-name*] [**detail**]

Syntax Description

slot	Slot where the CSM resides.
sfarm	(Optional) Keyword to displays real servers for only a single server farm.
sfarm-name	(Optional) Name of the server farm to restrict output.
detail	(Optional) Keyword to display detailed information.

Defaults

If no options are specified, the command displays information about all real servers.

Command Modes

Privileged EXEC.

Command History

Release	Modification
2.2.1	This command was introduced.

Examples

This example shows Cisco IOS SLB real server return code data:

```
SLB-Switch# show module csm 5 real retcode
10.1.0.101, FARM2, state = OPERATIONAL
  retcode-map = HTTPCODES
  retcode  action  count      reset-seconds  reset-count
  ------------------------------------------------------
  401      log     3          0              1
  404      count   62         0              0
  500      remove  1          0              0
```

Related Commands

real (SLB serverfarm configuration submode)

show module csm script

Use the **show module csm** *slot* **script** command to display the contents of all loaded scripts.

show module csm *slot* **script** [**name** *full_file_URL*] [**code**]

Syntax Description

slot	Slot where the CSM resides.
script	Keyword to display script information.
name	(Optional) Keyword to display information about a particular script.
full_file_URL	(Optional) Name of the script.
code	(Optional) Keyword to display the contents of the script.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to display script file contents:

```
SLB-Switch# show module csm slot script [name script-name] [code]
```

Related Commands

script file

show module csm script task

Use the **show module csm** *slot* **script task** command to display all loaded scripts.

show module csm slot **script task [index** *script-index*] **[detail]**

Syntax Description

slot	Slot where the CSM resides.
script task	Keyword to display script task information.
index	(Optional) Keyword to display information about a particular script.
script-index	(Optional)
detail	(Optional) Keyword to display the contents of the script.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to display A running script:

```
SLB-Switch# show module csm slot script
```

Related Commands

script file
script task
show module csm script

show module csm serverfarm

Use the **show module csm** *slot* **serverfarm** command to display information about a server farm.

show module csm *slot* **serverfarms** [**name** *serverfarm-name*] [**detail**]

Syntax Description

slot	Slot where the CSM resides.
name	(Optional) Keyword to display information about a particular server farm.
serverfarm-name	(Optional) Name of the server farm.
detail	(Optional) Keyword to display detailed server farm information.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC.

Command History

Release	Modification
1.1(1)	This command was introduced as **show ip slb serverfarm**.
2.1(1)	This command was changed to **show module csm** *slot* (for **ip slb mode rp** only).

Examples

This example shows how to display server farm data:

```
SLB-Switch# show module csm 4 serverfarm
server farm      predictor    nat   reals   redirect  bind id
-------------------------------------------------------------
FARM1            RoundRobin   S     4       0         0
VIDEO_FARM       RoundRobin   S     5       0         0
AUDIO_FARM       RoundRobin   S     2       0         0
FTP              RoundRobin   S     3       0         0
```

Table A-2 describes the fields in the display.

Table A-2 show module csm serverfarms Command Field Information

Field	Description
server farm	Name of the server farm about which information is being displayed. Information about each server farm is displayed on a separate line.
predictor	Type of load-balancing algorithm) used by the server farm.
nat	Shows whether server and client NAT is enabled.
reals	Number of real servers configured in the server farm.

Table A-2 show module csm serverfarms Command Field Information (continued)

Field	Description
redirect	Number of redirect virtual servers configured in the server farm.
bind id	Bind ID configured on the server farm.

This example shows how to display only the details for one server farm:

```
SLB-Switch# show mod csm 5 serverfarm detail
FARM1, predictor = RoundRobin, nat = SERVER, CLIENT(CLNAT1)
 virtuals inservice:4, reals = 2, bind id = 0, fail action = none
 inband health config:retries = 3, failed interval = 200
 retcode map = <none>
 Real servers:
 10.1.0.102, weight = 8, OPERATIONAL, conns = 0
 10.1.0.101, weight = 8, OPERATIONAL, conns = 0
 Total connections = 0

FARM2, predictor = RoundRobin, nat = SERVER, CLIENT(CLNAT1)
 virtuals inservice:2, reals = 1, bind id = 0, fail action = none
 inband health config:<none>
 retcode map = HTTPCODES
 Real servers:
 10.1.0.101, weight = 8, OPERATIONAL, conns = 2
 Total connections = 2
```

Related Commands

serverfarm

show module csm static

Use the **show module csm** *slot* **static** command to display information about server NAT configurations.

show module csm *slot* **static** [**drop** | **nat** {*ip-address* | **virtual**}]

Syntax Description

slot	Slot where the CSM resides.
drop	(Optional) Keyword to display information about real servers configured to drop connections.
nat	(Optional) Keyword to display information about real servers configured to NAT.
ip-address	(Optional) IP address to which to NAT.
virtual	(Optional) Keyword to display information about real servers configured to NAT virtual server IP addresses.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC.

Command History

Release	Modification
1.1(1)	This command was introduced as **show ip slb static**.
2.1(1)	This command was changed to **show module csm** *slot* (for **ip slb mode rp** only).

Examples

This example shows how to display static data:

```
SLB-Switch# show module csm 4 static nat
```

Related Commands

static
real (SLB static NAT configuration submode)

show module csm static server

Use the **show module csm** *slot* **static server** command to display information about actual servers that are having NAT performed.

show module csm *slot* **static server** [*ip-address*] [**drop | nat** {*ip-address* | **virtual**} | **pass-through**]

Syntax Description

slot	Slot where the CSM resides.
ip-address	(Optional) Option to limit output to a specified server address.
drop	(Optional) Keyword to display information about real servers configured to drop connections.
nat	(Optional) Keyword to display information about real servers configured to NAT.
ip-address	(Optional) IP address to NAT.
virtual	(Optional) Keyword to display information about servers configured to NAT virtual server addresses.
pass-through	(Optional) Keyword to display detailed information about real servers with no NAT configured.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC.

Command History

Release	Modification
1.1(1)	This command was introduced as **show ip slb static server**.
2.1(1)	This command was changed to **show module csm** *slot* (for **ip slb mode rp** only).

Examples

This example shows how to display static server data:

```
SLB-Switch# show module csm 4 static server

Server           NAT Type
-----------------------------------------------
10.10.3.10       NAT to 100.100.100.100
10.10.3.20       No NAT
10.10.3.30       NAT to 100.100.100.100
10.10.3.40       No NAT
Cat6k-1#
```

Related Commands

static
real (SLB static NAT configuration submode)

show module csm stats

Use the **show module csm** *slot* **stats** command to display SLB statistics.

show module csm *slot* **stats**

Syntax Description

slot	Slot where the CSM resides.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC.

Command History

Release	Modification
1.1(1)	This command was introduced as **show ip slb stats**.
2.1(1)	This command was changed to **show module csm** *slot* (for **ip slb mode rp** only).

Examples

This example shows how to display SLB statistics:

```
SLB-Switch# show module csm 4 stats
Connections Created:       180
Connections Destroyed:     180
Connections Current:       0
Connections Timed-Out:     0
Connections Failed:        0
L4 Load-Balanced Decisions:180
L4 Rejected Connections:   0
L7 Load-Balanced Decisions:0
L7 Rejected Connections:
      Total:0, Parser:0,
      Reached max parse len:0, Cookie out of mem:0,
      Cfg version mismatch:0, Bad SSL2 format:0
L4/L7 Rejected Connections:
      No policy:0, No policy match 0,
      No real:0, ACL denied 0,
      Server initiated:0
Checksum Failures: IP:0, TCP:0
Redirect Connections:0,  Redirect Dropped:0
FTP Connections:           0
MAC Frames:
      Tx:Unicast:1506, Multicast:0, Broadcast:50898,
          Underflow Errors:0
      Rx:Unicast:2385, Multicast:6148349, Broadcast:53916,
          Overflow Errors:0, CRC Errors:0
```

Table A-3 describes the fields in the display.

Table A-3 show module csm stats Command Field Information

Field	Description
Connections Created	Number of connections that have been created since the last time counters were cleared.
Connections Destroyed	Number of connections that have been destroyed since the last time counters were cleared.
Connections Current	Number of current connections.
Connections Timed-Out	Connections can be timed out because of one of the following reasons: • Indicates the number of connections that have been idle for too long. At least one of the 2 flow directions had no traffic for longer than the idle timeout configured). • The connections have not been properly established (TCP connection setup not completed,
Connections Failed	Number of connections that have failed because of server did not reply in the pending timeout period, or it replied with a reset.
Server Initiated Connections	Number of connections inititiated by the server, created, current, and failed. Failed server initiated connections occur because a connection is not possible (server unreachable).
L4 Load-Balanced Decisions	Indicates the number of Layer 4 load-balanced decisions that were attempted.
L4 Rejected Connections	Indicates that no real servers are available.
L7 Load-Balanced Decisions	Indicates the number of Layer 7 load-balanced decisions that were attempted.
L7 Rejected Connections	
Checksum Failures	
Redirect Connections	
Redirect Dropped	
FTP Connections	
MAC Frames	

show module csm status

Use the **show module csm** *slot* **status** command to display if the CSM is online. If the CSM is online, this command shows the CSM chassis slot location and indicates if the configuration download is complete.

show module csm *slot* **status**

Syntax Description

slot	Slot where the CSM resides.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC.

Command History

Release	Modification
1.1(1)	This command was introduced as **show ip slb status**.
2.1(1)	This command was changed to **show module csm** *slot* (for **ip slb mode rp** only).

Examples

This example shows how to display CSM status:

```
SLB-Switch# show module csm 4 status
SLB Module is online in slot 4.
Configuration Download state:COMPLETE, SUCCESS
```

show module csm sticky

Use the **show module csm** *slot* **sticky** command to display the sticky database.

show module csm *slot* **sticky** [**groups** | **client** *ip_address*]

Syntax Description

slot	Slot where the CSM resides.
groups	(Optional) Keyword to display all of the sticky group configurations.
client	(Optional) Keyword to display the sticky database entries associated with a particular client IP address.
ip_address	(Optional) IP address of the client.

Defaults

If no options are specified, the command displays information about all clients.

Command Modes

Privileged EXEC.

Command History

Release	Modification
1.1(1)	This command was introduced as **show ip slb sticky**.
2.1(1)	This command was changed to **show module csm** *slot* (for **ip slb mode rp** only.

Usage Guidelines

This command only displays the database of clients using IP stickiness; it does not show cookie or SSL.

Examples

This example shows how to display the sticky database:

```
SLB-Switch# show module csm 4 sticky groups
Group  Timeout  Type
------------------------------------------------------------
20     100      netmask 255.255.255.255
30     100      cookie foo
```

Related Commands

sticky
sticky (SLB virtual server configuration submode)

show module csm tech-script

Use the **show module csm** *slot* **tech-script** command to display the status of a script.

show module csm *slot* **tech-script**

Syntax Description

slot	Slot where the CSM resides.

Defaults

If no options are specified, the command displays all information.

Command Modes

Privileged EXEC.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to display the technical support information for the CSM:

```
SLB-Switch# show module csm 4 tech-script
```

show module csm tech-support

Use the **show module csm** *slot* **tech-support** command to display technical support information for the CSM.

show module csm *slot* **tech-support** [**all** | **processor** *num* | **redirect** | **slowpath** | **probe** | **fpga** | **core-dump**]

Syntax Description

slot	Slot where the CSM resides.
all	(Optional) Keyword to display all of the available statistics.
processor	(Optional) Keyword to display the IXP statistics for the IXP identified by *num*.
num	(Optional) IXP number.
redirect	(Optional) Keyword to display all of the HTTP redirect statistics
slowpath	(Optional) Keyword to display all of the slowpath statistics.
probe	(Optional) Keyword to display all of the probe statistics.
fpga	(Optional) Keyword to display all of the FPGA statistics.
core_dump	(Optional) Keyword to display all of the most recent statistics for the process (IXP or Power PC) that experienced a core dump.

Defaults

If no options are specified, the command displays all information.

Command Modes

Privileged EXEC.

Command History

Release	Modification
1.1(1)	This command was introduced as **show ip slb tech-support.**
2.1(1)	This command was changed to **show module csm** *slot* (for **ip slb mode rp** only).

Examples

This example shows how to display the technical support information for the CSM:

```
SLB-Switch# show module csm 4 tech-support ?
  all         All tech output
  core-dump   Most recent core dump
  fpga        FPGA info output
  ft          Fault Tolerance info output
  probe       Probe info output
  processor   Processor info output
  redirect    HTTP redirect info output
  slowpath    Slowpath info output

SLB-Switch# show module csm 4 tech-support processor 2
------------------------------------------------------------
---------------------- TCP Statistics ----------------------
------------------------------------------------------------
```

```
     Aborted rx                              3350436013  66840864
     New sessions rx                         180         0
     Total Packets rx                        16940       0
     Total Packets tx                        0           0
     Packets Passthrough                     697         0
     Packets Dropped                         0           0
     Persistent OOO Packets Dropped          0           0
     Persistent Fastpath Tx                  0           0
     Total Persistent Requests               0           0
     Persistent Same Real                    0           0
     Persistent New Real                     0           0

     Data Packets rx                         877         0
     L4 Data Packets rx                      877         0
     L7 Data Packets rx                      0           0
     Slowpath Packets rx                     7851        0
     Relinquish Requests rx                  8031        0

     TCP xsum failures                       0           0

     Session Mismatch                        0           0
     Session Reused while valid              0           0
     Unexpected Opcode rx                    0           0
     Unsupported Proto                       0           0
     Session Queue Overflow                  0           0
     Control->Term Queue Overflow            0           0
     t_fifo Overflow                         0           0

     L7 Analysis Request Sent                0           0
     L7 Successful LB decisions              0           0
     L7 Need More Data decisions             0           0
     L7 Unsuccessful LB decisons             0           0
     L4 Analysis Request Sent                180         0
     L4 Successful LB decisions              180         0
     L4 Unsuccessful LB decisons             0           0

Transmit:
       SYN                                   0           0
       SYN/ACK                               0           0
       ACK                                   0           0
       RST/ACK                               0           0
       data                                  0           0
     Retransmissions:                        0           0
Receive:
       SYN                                   180         0
       SYN/ACK                               0           0
       ACK                                   340         0
       FIN                                   0           0
       FIN/ACK                               340         0
       RST                                   17          0
       RST/ACK                               0           0
       data                                  0           0

Session Redundancy Standby:
     Rx Fake SYN                             0           0
     Rx Repeat Fake SYN                      0           0
     Rx Fake Reset                           0           0
     Fake SYN Sent to NAT                    0           0
     Tx Port Sync                            0           0
     Encap Not Found                         0           0
     Fake SYN, TCP State Invalid             0           0

Session Redundancy Active:
     L4 Requests Sent                        0           0
```

```
L7 Requests Sent                          0           0
Persistent Requests Sent                  0           0
Rx Fake SYN                               0           0
Fake SYN Sent to NAT                      0           0

Session's torn down                       180         0
Rx Close session                          1           0
Slowpath(low  pri) buffer allocs          7843        0
Slowpath(high pri) buffer allocs          8           0
Small buffer allocs                       180         0
Medium buffer allocs                      0           0
Large buffer allocs                       0           0
Session table allocs                      180         0

Slowpath(low  pri) buffer alloc failures  0           0
Slowpath(high pri) buffer alloc failures  0           0
Small buffer allocs failures              0           0
Medium buffer allocs failures             0           0
Large buffer allocs failures              0           0
Session table allocs failures             0           0

Outstanding slowpath(low  pri) buffers    0           0
Outstanding slowpath(high pri) buffers    0           0
Outstanding small buffers                 0           0
Outstanding medium buffers                0           0
Outstanding large buffers                 0           0
Outstanding sessions                      0           0
```

show module csm vlan

Use the **show module csm** *slot* **vlan** command to display the list of VLANs.

show module csm *slot* **vlan** [**client** | **server** | **ft**] [**id** *vlan-id*] [**detail**]

Syntax Description

slot	Slot where the CSM resides.
client	(Optional) Keyword to display only the client VLAN configuration.
server	(Optional) Keyword to display only the server VLAN configuration.
ft	(Optional) Keyword to display only the fault-tolerant configuration.
id	(Optional) Keyword to display the VLAN.
vlan-id	(Optional) Keyword to display the specified VLAN.
detail	(Optional) Keyword to display the map configuration details.

Defaults

If no options are specified, the command displays information about all VLANs.

Command Modes

Privileged EXEC.

Command History

Release	Modification
1.1(1)	This command was introduced as **show ip slb vlan**.
2.1(1)	This command was changed to **show module csm** *slot* (for **ip slb mode rp** only).

Examples

This example shows how to display the VLAN configurations:

```
SLB-Switch# show module csm 4 vlan

vlan   IP address       IP mask          type
-------------------------------------------------
11     10.10.4.2        255.255.255.0    CLIENT
12     10.10.3.1        255.255.255.0    SERVER
30     0.0.0.0          0.0.0.0          FT
SLB-Switch#
SLB-Switch#
SLB-Switch# sh mod csm 4 vlan detail
vlan   IP address       IP mask          type
-------------------------------------------------
11     10.10.4.2        255.255.255.0    CLIENT
  GATEWAYS
  10.10.4.1
12     10.10.3.1        255.255.255.0    SERVER
30     0.0.0.0          0.0.0.0          FT
```

Related Commands

vlan - Module CSM configuration submode.

show module csm vserver redirect

Use the **show module csm** *slot* **vserver redirect** command to display the list of virtual servers.

show module csm *slot* **vserver redirect**

Syntax Description

slot	Slot where the CSM resides.

Defaults

If no options are specified, the command displays information about all clients.

Command Modes

Privileged EXEC.

Command History

Release	Modification
1.1(1)	This command was introduced as **show ip slb vserver redirect**.
2.1(1)	This command was changed to **show module csm** *slot* (for **ip slb mode rp** only).

Examples

This example shows how to display the CSM virtual servers:

```
SLB-Switch# show module csm 4 vserver

slb vserver      prot  virtual                 vlan  state         conns
-------------------------------------------------------------------------
FTP_VIP          TCP   10.10.3.100/32:21       ALL   OUTOFSERVICE  0
WEB_VIP          TCP   10.10.4.100/32:80       ALL   OPERATIONAL   0
SLB-Switch#
SLB-Switch#
SLB-Switch# sh mod csm 4 vserver detail
FTP_VIP, state = OUTOFSERVICE, v_index = 3
  virtual = 10.10.3.100/32:21, TCP, service = NONE, advertise = FALSE
  idle = 3600, replicate csrp = none, vlan = ALL
  max parse len = 600, persist rebalance = TRUE
  conns = 0, total conns = 0
  Policy           Tot Conn     Client pkts  Server pkts
  ------------------------------------------------------
  (default)        0            0            0

WEB_VIP, state = OPERATIONAL, v_index = 4
  virtual = 10.10.4.100/32:80, TCP, service = NONE, advertise = FALSE
  idle = 3600, replicate csrp = none, vlan = ALL
  max parse len = 600, persist rebalance = TRUE
  conns = 0, total conns = 140
  Default policy:
    server farm = FARM1
    sticky:timer = 0, subnet = 0.0.0.0, group id = 0
  Policy           Tot Conn     Client pkts  Server pkts
  ------------------------------------------------------
  (default)        140          672          404
```

Related Commands

vserver

show module csm xml stats

Use the **show module csm xml stats** command to display a list of XML statistics.

show module csm xml stats

Defaults

If no options are specified, the command displays information about all clients.

Command Modes

Privileged EXEC.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to display the CSM XML statistics:

```
SLB-Switch# show module csm 4 xml stats
XML config:inservice, port = 80, vlan = <all>, client list = <none>
   connection stats:
     current = 0, total = 5
     failed = 2, security failed = 2
   requests:total = 5, failed = 2
```

snmp enable traps slb ft

Use the **snmp enable traps slb ft** command to enable or disable fault-tolerant traps. Use the **no** form of this command to disable fault-tolerant traps.

snmp enable traps slb ft

no snmp enable traps slb ft

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode.

Command History

Release	Modification
3.1(1)	This command was introduced.

Usage Guidelines

A fault-tolerant trap allows the CSM e to send an SNMP trap when the CSM transitions from standby to active after detecting a failure in its fault tolerant peer.

Examples

This example shows how to enable fault tolerant traps:

```
SLB-Switch(config-module-csm)# snmp enable traps slb ft
```

static

Use the **static** command to configure the server NAT behavior and enter the NAT configuration submode. This command configures the CSM to support connections initiated by real servers. Both client NAT and server NAT can exist in the same configuration. Use the **no** form of this command to remove NAT from the CSM configuration.

static {**drop** | **nat** {**virtual** | *ip-address*}}

no static {**drop** | **nat** {**virtual** | *ip-address*}}

Syntax Description

drop	Keyword to drop connections from servers specified in static submode.
virtual	Keyword specifying that the configuration is for NAT.
nat	Keyword to use the server's Virtual IP (VIP) to NAT its source IP address.
ip-address	IP address to be used for NAT.

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to configure the CSM to support connections initiated by the real servers:

```
SLB-Switch(config-module-csm)# static nat virtual
```

Related Commands

show module csm static

real

Use the **real** command in SLB static NAT configuration submode to specify the address for a real server or the subnet mask for multiple real servers performing server NAT. Use the **no** form of this command to remove the address of a real server or the subnet mask of multiple real servers so they are no longer performing NAT.

real *real-ip-address* [*real-netmask*]

no real *real-ip-address* [*real-netmask*]

Syntax Description

real-ip-address	Real server IP address performing NAT.
real-netmask	(Optional) Range of real servers performing NAT. If not specified, the default is 255.255.255.255 (a single real server).

Defaults

This command has no default settings.

Command Modes

SLB static NAT configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to specify the address for a real server:

```
SLB-Switch(config-slb-static)# real 10.0.0.0 255.0.0.0
```

Related Commands

static
show module csm static

sticky

Use the **sticky** command to ensure that connections from the same client that match the same SLB policy use the same real server on subsequent connections. Use the **no** form of this command to remove a sticky group.

sticky *sticky-group-id* {**netmask** *netmask* | **cookie** *name* | **ssl**} [**timeout** *sticky-time*]

no sticky s*ticky-group-id*

Syntax Description

sticky-group-id	ID to identify the sticky group instance; the range is from 1 to 255.
netmask	Keyword to specify the network mask for IP stickiness.
netmask	Network mask number.
cookie	Keyword to specify cookie stickiness.
name	Name of the cookie attached to the *sticky-group-i*d.
ssl	Keyword to specify SSL stickiness.
timeout	(Optional) Keyword to specify the sticky duration.
sticky-time	(Optional) Sticky timer duration in minutes; the range is from 0 to 65535.

Defaults

The sticky time default value is 1440 minutes (24 hours).

Command Modes

Module CSM configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.
2.1(1)	Changed the default timeout from 0 to 1440.

Usage Guidelines

Specifying a netmask permits sticky connections based on the masked client IP address.

Use the sticky time option to ensure that connections from the same client that match the same SLB policy use the same real server. If you specify a nonzero value, the last real server that was used for a connection from a client is remembered for *sticky-time* minutes after the end of the client's latest connection. New connections from the client to the virtual server initiated before the sticky time expires and that match SLB policy are balanced to the same real server that was used for the previous connection. A sticky time of 0 means sticky connections are not tracked.

Examples

This example shows how to create an IP sticky group:

```
SLB-Switch(config-module-csm)# sticky 5 netmask 255.255.255.255 timeout 20
```

Related Commands

sticky-group (SLB policy submode)
sticky (SLB vserver submode)
show module csm sticky

vlan

Use the **vlan** command to create a client or server VLAN and assign it a VLAN ID and enter the VLAN submode. Use the **no** form of this command to remove the VLAN from the configuration.

vlan *vlan-id* {**client** | **server**}

no vlan *vlan-id*

Syntax Description

vlan-id	Number of the VLAN; the range is from 2 to 4095.
client	Keyword to specify a client-side VLAN.
server	Keyword to specify a server-side VLAN.

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode.

Usage Guidelines

A database entry should exist for the given VLAN ID.

Command History

Release	Modification
1.1(1)	This command was introduced.
2.1(1)	VLAN type fault-tolerance is deprecated and hidden.

Examples

This example shows how to create a server VLAN and assign it a VLAN ID:

```
SLB-Switch(config-module-csm)# vlan 2 server
```

Related Commands

vlan (SLB vserver submode)
show module csm vlan

alias

Use the **alias** command in the SLB VLAN configuration submode to assign multiple IP addresses to the CSM. Use the **no** form of this command to remove an alias IP addresses from the configuration.

alias *ip-address netmask*

no alias *ip-address netmask*

Syntax Description

ip-address	Alias IP address; a maximum of 255 addresses are allowed per VLAN.
netmask	Network mask.

Defaults

This command has no default settings.

Command Modes

SLB VLAN configuration submode.

Usage Guidelines

This command allows you to place the CSM on a different IP network than real servers without using a router.

Command History

Release	Modification
1.1(1)	This command was introduced for server VLANs.
2.1(1)	This command is now available for both client and server VLANs.

Examples

This example shows how to assign multiple IP addresses to the CSM:

```
SLB-Switch(config-slb-vlan-server)# alias 130.21.34.56 255.255.255.0
SLB-Switch(config-slb-vlan-server)# alias 130.22.35.57 255.255.255.0
SLB-Switch(config-slb-vlan-server)# alias 130.23.36.58 255.255.255.0
SLB-Switch(config-slb-vlan-server)# alias 130.24.37.59 255.255.255.0
SLB-Switch(config-slb-vlan-server)# alias 130.25.38.60 255.255.255.0
```

Related Commands

vlan
show module csm vlan

gateway

Use the **gateway** command in the SLB VLAN configuration mode to configure a gateway IP address. Use the **no** form of this command to remove the gateway from the configuration.

gateway *ip-address*

no gateway *ip-address*

Syntax Description

ip-address	IP address of the client-side gateway.

Defaults

This command has no default settings.

Command Modes

SLB VLAN configuration submode.

Usage Guidelines

You can configure up to seven gateways per VLAN with a total of up to 255 gateways for the entire system. A gateway must be in the same network as specified in the **ip address** SLB VLAN command.

Command History

Release	Modification
1.1(1)	This command was introduced for client VLANs.
2.1(1)	This command is now available for both client and server VLANs.

Examples

This example shows how to configure a client-side gateway IP address:

```
SLB-Switch(config-slb-vlan-client)# gateway 130.21.34.56
```

Related Commands

ip address (SLB VLAN configuration submode)
vlan
show module csm vlan

ip address

Use the **ip address** command in the SLB VLAN configuration submode to assign an IP address to the CSM that is used for probes and ARP requests on a VLAN. Use the **no** form of this command to remove the CSM IP address and disable probes and ARP requests from the configuration.

ip address *ip-address netmask*

no ip address

Syntax Description

ip-address	IP address for the CSM; only one management IP address is allowed per VLAN.
netmask	Network mask.

Defaults

This command has no default settings.

Command Modes

SLB VLAN configuration submode.

Usage Guidelines

This command is applicable for both server and client VLANs. Up to 255 unique VLAN IP addresses are allowed per module.

Command History

Release	Modification
1.1(1)	This command was introduced.
2.2.1	Increases maximum number of unique VLAN IP addresses per system form 32 to 255.

Examples

This example shows how to assign an IP address to the CSM:

```
SLB-Switch(config-slb-vlan-client)# ip address 130.21.34.56 255.255.255.0
```

Related Commands

vlan
show module csm vlan

route

Use the **route** command in the SLB VLAN configuration submode to configure networks that are one Layer 3 hop away from the CSM. Use the **no** form of this command to remove the subnet or gateway IP address from the configuration.

route *ip-address netmask* **gateway** *gw-ip-address*

no route *ip-address netmask* **gateway** *gw-ip-address*

Syntax Description

ip-address	Subnet IP address.
netmask	Network mask.
gateway	Keyword to specify that the gateway is configured.
gw-ip-address	Gateway IP address.

Defaults

This command has no default settings.

Command Modes

SLB VLAN configuration submode.

Usage Guidelines

You specify the Layer 3 network's subnet address and the gateway IP address to reach the next-hop router. The gateway address must be in the same network as specified in the **ip address** SLB VLAN command.

Command History

Release	Modification
1.1(1)	This command was introduced for server VLANs.
2.1(1)	This command is now available for both client and server VLANs.

Examples

This example shows how to configure a network to the CSM:

```
SLB-Switch(config-slb-vlan-server)# route 130.21.34.56 255.255.255.0 gateway 120.22.36.40
```

Related Commands

ip address (SLB VLAN configuration submode)
vlan
show module csm vlan

vserver

Use the **vserver** command to identify a virtual server and enter the virtual server configuration submode. Use the **no** form of this command to remove a virtual server from the configuration.

vserver *virtserver-name*

no vserver *virtserver-name*

Syntax Description

virtserver-name	Character string used to identify the virtual server; the character string is limited to 15 characters.

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to identify a virtual server named PUBLIC_HTTP and change the CLI to virtual server configuration mode:

```
SLB-Switch(config-module-csm)#    vserver PUBLIC_HTTP
```

Related Commands

redirect-vserver (SLB serverfarm submode)
show module csm vserver redirect

advertise

Use the **advertise** command in the SLB t virtual server configuration mode to allow the CSM to advertise the IP address of the virtual server as host-route. Use the **no** form of this command to stop advertising the host-route for this virtual server.

advertise [**active**]

no advertise

Syntax Description

active	(Optional) Keyword to allow the CSM to advertise the IP address of the virtual server as host-route.

Defaults

The default for network mask is 255.255.255.255 if the network mask is not specified.

Command Modes

SLB virtual server configuration submode.

Usage Guidelines

Without the active option, the CSM always advertises the virtual server IP address whether or not there is any active real server attached to this virtual server.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to restrict a client from using the virtual server:

```
SLB-Switch(config-slb-redirect-vs)# advertise 10.5.2.1 exclude
```

Related Commands

redirect-vserver
show module csm vserver redirect

client

Use the **client** command in the SLB virtual server configuration mode to restrict which clients are allowed to use the virtual server. Use the **no** form of this command to remove the client definition from the configuration.

client *ip-address* [*network-mask*] [**exclude**]

no client *ip-address* [*network-mask*]

Syntax Description

ip-address	Client's IP address.
network-mask	(Optional) Client's IP mask.
exclude	(Optional) Keyword to specify that the IP address is disallowed.

Defaults

The default for network mask is 255.255.255.255 if the network mask is not specified.

Command Modes

SLB virtual server configuration submode.

Usage Guidelines

The network mask is applied to the source IP address of incoming connections and the result must match the IP address before the client is allowed to use the virtual server. If exclude is not specified, the IP address and network mask combination is allowed.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to restrict a client from using the virtual server:

```
SLB-Switch(config-slb-vserver)# client 10.5.2.1 exclude
```

Related Commands

client-group (SLB policy submode)
ip access-list standard
vserver
show module csm vserver redirect

idle

Use the **idle** command in the SLB virtual server configuration submode to control the amount of time the CSM maintains connection information in the absence of packet activity. Use the **no** form of this command to change the idle timer to its default value.

idle *duration*

no idle

Syntax Description

duration	Idle connection timer duration in seconds; the range is from 4 to 65535.

Defaults

The default is 3600.

Command Modes

SLB virtual server configuration submode.

Usage Guidelines

If you do not specify a duration value, the default value is applied.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to specify an idle timer duration of 4000:

```
SLB-Switch(config-slb-vserver)# idle 4000
```

Related Commands

vserver
show module csm vserver redirect

inservice

Use the **inservice** command in the SLB virtual server configuration submode to enable the virtual server for load balancing. Use the **no** form of this command to remove the virtual server from service.

inservice

no inservice

Syntax Description

This command has no keywords or arguments.

Defaults

The default is **no inservice**.

Command Modes

SLB virtual server configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to enable a virtual server for load balancing:

```
SLB-Switch(config-slb-vserver)# inservice
```

Related Commands

vserver
show module csm vserver redirect

owner

Use the **owner** command in the SLB virtual server submode to define an owner that may access the virtual server. Use the **no** form of this command to remove the owner.

owner *owner-name* ***maxconns*** *number*

no maxconns

Syntax Description

owner-name	Name of the owner object.
maxconns	Keyword to set the maximum number of connections for this owner.
number	Maximum number of connections.

Defaults

This command has no default settings.

Command Modes

SLB virtual server configuration submode.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to specify an owner for virtual server access:

```
SLB-Switch(config-slb-vserver)# owner madrigal maxconns 1000
```

Related Commands

vserver

parse-length

Use the **parse-length** command in the SLB virtual server configuration submode to set the maximum number of bytes to parse for URLs and cookies. Use the **no** form of this command to restore the default.

parse-length *bytes*

no parse-length

Syntax Description

bytes	Number of bytes; the range is from 1 to 4000.

Defaults

The default is 600.

Command Modes

SLB virtual server configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to set the number of bytes to parse for URLs and cookies:

```
SLB-Switch(config-slb-vserver)# parse-length 1000
```

Related Commands

vserver
show module csm vserver redirect

pending

Use the **pending** command in the SLB virtual server configuration submode to set the pending connection timeout. Use the **no** form of this command to restore the default.

pending *timeout*

no pending

Syntax Description

timeout	Seconds to wait before a connection is considered unreachable. Range is from 1 to 65535.

Defaults

The default pending timeout is 30 seconds.

Command Modes

SLB virtual server configuration submode.

Usage Guidelines

This command is used to prevent denial of service (DOS) attacks. The pending connection timeout sets the response time for terminating connections if a switch becomes flooded with traffic. The pending connections are configurable on a per virtual server basis.

Command History

Release	Modification
2.2(1)	This command was introduced.

Examples

This example shows how to set the number to wait for a connection to be made to the server:

```
SLB-Switch(config-slb-vserver)# pending 300
```

Related Commands

vserver
show module csm vserver redirect

persistent rebalance

Use the **persistent rebalance** command in the SLB virtual server configuration submode to enable or disable HTTP 1.1 persistence for connections in the virtual server. Use the **no** form of this command to disable persistence.

persistent rebalance

no persistent rebalance

Syntax Description

This command has no keywords or arguments.

Defaults

The default is **persistent rebalance**.

Command Modes

SLB virtual server configuration submode.

Command History

Release	Modification
2.1(1)	This command was introduced.

Examples

This example shows how to enable the HTTP 1.1 persistence:

```
SLB-Switch(config-slb-vserver)# persistent rebalance
```

Related Commands

vserver
show module csm vserver redirect

replicate csrp

Use the **replicate csrp** command in the SLB virtual server configuration submode to enable connection redundancy. Use the **no** form of this command to disable connection redundancy.

replicate csrp {**sticky** | **connection**}

no replicate csrp {**sticky** | **connection**}

Syntax Description

sticky	Replicate the sticky database to the backup CSM.
connection	Replicate connections to the backup CSM.

Defaults

The default is disabled.

Command Modes

SLB virtual server configuration submode.

Usage Guidelines

Sticky and connection replication can be enabled or disabled separately. For replication to occur, you must enable SLB fault tolerance with the **ft group** command.

Command History

Release	Modification
2.1(1)	This command was introduced.

Examples

This example shows how to enable connection redundancy:

```
SLB-Switch(config-slb-vserver)# replicate csrp connection
```

Related Commands

ft group
vserver
show module csm vserver redirect

serverfarm

Use the **serverfarm** command in SLB virtual server configuration submode to associate a server farm with a virtual server. Use the **no** form of this command to remove a server farm association from the virtual server.

serverfarm *primary-serverfarm* [**backup** *sorry-serverfarm* [**sticky**]]

no serverfarm

Syntax Description

primary-sf	Character string used to identify the server farm.
backup	(Optional) Keyword set the name of a backup serverfarm.
sorry-sf	(Optional) Backup serverfarm name.
sticky	(Optional) Keyword to associate the backup serverfarm with a virtual server.

Defaults

This command has no default settings.

Command Modes

SLB virtual server configuration submode.

Usage Guidelines

The server farm name must match the server farm name specified in a previous module CSM submode **serverfarm** command.

The backup serverfarm can be associated with a policy. A primary serverfarm must be associated with that policy to allow the backup serverfarm to function properly. The backup serverfarm can have a different predictor option than the primary server. When the sticky option is used for a policy, then stickiness can apply to real servers in the backup serverfarm. Once a connection has been balanced to a server in the backup serverfarm, subsequent connections from the same client can be stuck to the same server even when the real servers in the primary serverfarm come back to the operational state. You may allow the sticky attribute when applying the backup serverfarm to a policy.

By default, the sticky option does not apply to the backup serverfarm. To remove the backup serverfarm, you can either use the serverfarm command without the backup option or use the **no serverfarm** command.

Command History

Release	Modification
1.1(1)	This command was introduced.
3.1(1)	The sorry server (backup server) option was added to this command.

Examples

This example shows how to associate a server farm with a virtual server named PUBLIC_HTTP:

```
SLB-Switch(config-slb-vserver)# serverfarm PUBLIC_HTTP back-up seveneleven sticky
```

Related Commands

serverfarm (Module CSM submode)
reverse-sticky (SLB policy submode)
show module csm vserver redirect
vserver

slb-policy

Use the **slb-policy** command in the SLB virtual server configuration submode to associate a load-balancing policy with a virtual server. Use the **no** form of this command to remove a policy from a virtual server.

slb-policy *policy-name*

no slb-policy *policy-name*

Syntax Description

policy-name	Policy associated with a virtual server.

Defaults

This command has no default settings.

Command Modes

SLB virtual server configuration submode.

Usage Guidelines

Multiple load-balancing policies can be associated with a virtual server. URLs in incoming requests are parsed and matched against policies defined in the same order in which they are defined with this command. The policy name must match the name specified in a previous **policy** command.

Note The order of the policy association is important; you should enter the highest priority policy first.

Command History

Release	Modification
1.1(1)	This command was introduced.

Examples

This example shows how to associate a policy with a virtual server.:

```
SLB-Switch(config-slb-vserver)# slb-policy COOKIE-POLICY1
```

Related Commands

vserver
policy
show module csm owner
show module csm vserver redirect

ssl-sticky

Use the **ssl-sticky** command in the SLB virtual server configuration submode to allow SSL sticky operation. Use the **no** form of this command to remove the SSL sticky feature.

ssl-sticky offset *X* **length** *Y*

no ssl-sticky

Syntax Description

offset	Keyword to specify the SSL ID offset.
X	Sets the offset value.
length	Keyword to specify the SSL ID length.
Y	Sets the length.

Defaults

The default is **offset 0** and **length 32**.

Command Modes

SLB virtual server configuration submode.

Usage Guidelines

This feature allows you to stick an incoming SSL connection based only on this special section of the SSL ID specified by the offset and length values. The **ssl-sticky** command was added to ensure that the CSM always load balances an incoming SSL connection to the SSL Termination Engine that generated that SSL ID.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to associate a policy with a virtual server.:

```
SLB-Switch(config-slb-vserver)# ssl-sticky offset 0 length 32
```

Related Commands

vserver
policy
show module csm owner
show module csm vserver redirect

sticky

Use the **sticky** command to ensure that connections from the same client use the same real server. Use the **no** form of this command to change the sticky timer to its default value and remove the sticky option from the virtual server.

sticky *duration* [***group*** *group-id*] [**netmask** *ip-netmask*] [**source** | **destination** | **both**]

no sticky

Syntax Description

duration	Sticky timer duration in minutes; the range is from 1 to 65535.
group	(Optional) Keyword to place the virtual server in a sticky group for connection coupling.
group-id	(Optional) Number identifying the sticky group to which the virtual server belongs; the range is from 0 to 255.
netmask	(Optional) Keyword to specify which part of the address should be used for stickiness.
ip-netmask	(Optional) Network that allows clients to be stuck to the same server.
source	(Optional) Keyword to specify the source portion of the IP address.
destination	(Optional) Destination portion of the IP address.
both	(Optional) Specifies that both the source and destination portions of the IP address are used.

Defaults

The default is **no sticky**. Sticky connections are not tracked.
The group ID default is 0. The sticky feature is not used for other virtual servers.
The network default is 255.255.255.255.

Command Modes

SLB virtual server configuration submode.

Usage Guidelines

The last real server that was used for a connection from a client is stored for the *duration* value after the end of the client's latest connection. If a new connection from the client to the virtual server is initiated during that time, the same real server that was used for the previous connection is chosen for the new connection.

A nonzero sticky group ID must correspond to a sticky group previously created using the **sticky** command. Virtual servers in the same sticky group share sticky state information.

Command History

Release	Modification
1.1(1)	This command was introduced.
3.1(1)	The IP reverse-sticky optional parameters are introduced.

Examples

This example shows how to set the sticky timer duration and places the virtual server in a sticky group for connection coupling:

```
SLB-Switch(config-module-csm)# vserver PUBLIC_HTTP
SLB-Switch(config-slb-vserver)# sticky 60 group 3
```

Related Commands

sticky
sticky-group (SLB policy submode)
reverse-sticky
url-hash
show module csm sticky
show module csm vserver redirect

reverse-sticky

Use the **reverse-sticky** command to ensure that the CSM switches connections in the opposite direction back to the original source. Use the **no** form of this command to remove the reverse-sticky option from the policy or the default-policy of a virtual server.

reverse-sticky *group-id*

no reverse-sticky

Syntax Description

group-id	Number identifying the sticky group to which the virtual server belongs; the range is from 0 to 255.

Defaults

The default is **no reverse-sticky**. Sticky connections are not tracked.
The group ID default is 0. The sticky feature is not used for other virtual servers.
The network default is 255.255.255.255.

Command Modes

SLB virtual server configuration submode.

Command History

Release	Modification
1.1(1)	This command was introduced.
3.1(1)	The **IP reverse-sticky** command is introduced.

Examples

This example shows how to set the IP reverse-sticky feature:

```
SLB-Switch(config-module-csm)# vserver PUBLIC_HTTP
SLB-Switch(config-slb-vserver)# reverse-sticky 60
```

Related Commands

sticky
sticky-group (SLB policy submode)
show module csm sticky
show module csm vserver redirect

url-hash

Use the **url-hash** command in the SLB virtual server configuration submode to set the beginning and ending pattern of a URL to parse URLs for the URL hash load-balancing algorithm. Use the **no** form of this command to remove the hashing from service.

url-hash {**begin-pattern** | **end-pattern**} *pattern*

no url-hash

Syntax Description

begin-pattern	Keyword to specify the beginning of the URL to parse.
end-pattern	Keyword to specify the ending of the URL to parse.
pattern	Pattern string to parse.

Defaults

The default is **no url-hash**.

Command Modes

SLB virtual server configuration submode.

Usage Guidelines

The beginning and ending patterns apply to the URL hashing algorithm that is set using the **predictor** command in the SLB serverfarm submode.

Command History

Release	Modification
2.1(1)	This command was introduced.

Examples

This example shows how to specify a URL pattern to parse:

```
SLB-Switch(config-slb-vserver)# url hash begin pattern lslkjfsj
```

Related Commands

predictor (SLB serverfarm configuration submode)
vserver
show module csm vserver redirect

virtual

Use the **virtual** command in the SLB virtual server configuration submode to configure virtual server attributes. Use the **no** form of this command to set the virtual server's IP address to 0.0.0.0 and its port number to zero.

virtual *ip-address* [*ip-mask*] *protocol port-number* [**service ftp | rtsp**] [**unidirectional**]

no virtual *ip-address*

Syntax Description

ip-address	IP address for the virtual server.
ip-mask	(Optional) Mask for the IP address to allow connections to an entire network.
protocol	Load-balancing protocol, either TCP, UDP, any, or a number from to 255.
port-number	(Optional) Decimal TCP/UDP port number (0-65535) or port name.
service ftp	(Optional) Keyword to combine connections associated with the same service so that all related connections from the same client use the same real server. FTP data connections are combined with the control session that created them. If you want to configure FTP services, these keywords are required.
service rtsp	(Optional) Keyword to combine connections to the Real Time Streaming Protocol (RTSP) TCP port 554.
unidirectional	(Optional) Sets the data flow to unidirectional.

Defaults

The default IP mask is 255.255.255.255.

Command Modes

SLB virtual server configuration submode.

Usage Guidelines

Clients connecting to the server farm represented by the virtual server use this address to access the server farm. This service option is allowed only if a port number is specified. A port of 0 (or **any**) means that this virtual server handles all ports not specified for handling by another virtual server with the same IP address. The port is used only for TCP or UDP load balancing.

The following TCP port names can be used in place of a number:

XOT—X25 over TCP (1998)

dns—Domain Name Service (53)

ftp—File Transfer Protocol (21)

https—HTTP over Secure Sockets Layer (443)

matip-a—Mapping of Airline Traffic over IP, Type A (350)

nntp—Network News Transport Protocol (119)

pop2—Post Office Protocol v2 (109)

pop3—Post Office Protocol v3 (110)

smtp—Simple Mail Transport Protocol (25)

telnet—Telnet (23)

www—World Wide Web—Hypertext Transfer Protocol (80)

any—Allows traffic for any port, or the same as specifying a 0.

Command History

Release	Modification
1.1(1)	This command was introduced.
2.1(1)	*ip-netmask*, UDP/arbitrary protocol introduced.
2.2.1	RTSP support introduced.
3.1(1)	Added the idle timeout for unidirectional flows feature.

Examples

This example shows how to create a virtual server and assign it an IP address, protocol, and port:

```
SLB-Switch(config-slb-vserver)# virtual 102.35.44.79 tcp 1 unidirectional
```

Related Commands

vserver
show module csm vserver redirect

vlan

Use the **vlan** command in the SLB virtual server submode to define which source VLANs may access the virtual server. Use the **no** form of this command to remove the VLAN.

vlan *vlan-number*

no vlan

Syntax Description

vlan-number	VLAN that the virtual server may access.

Defaults

The default is all VLANs.

Command Modes

SLB virtual server configuration submode.

Usage Guidelines

The VLAN must correspond to an SLB VLAN previously created with the **vlan** command.

Command History

Release	Modification
2.1(1)	This command was introduced.

Examples

This example shows how to specify a VLAN for virtual server access:

```
SLB-Switch(config-slb-vserver)# vlan 5
```

Related Commands

show module csm vserver redirect
show module csm vlan
vlan

xml-config

Use the **xml-config** command to enable XML for a CSM module, and enter the XML configuration submode. Use the **no** form of this command to remove the XML configuration.

xml-config

no xml-config

Defaults

This command has no default settings.

Command Modes

Module CSM configuration submode.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to display the XML configuration:

```
SLB-Switch(config-module-csm)# xml-config
SLB-Switch(config-slb-xml)#
```

Related Commands

client-group
vlan
client-group
credentials

client-group

Use the **client-group** command in the SLB XML submode to allow only connections sourced from an IP address matching the client group. Use the **no** form of this command to remove the owner.

client-group [*1-99* | *name*]

no client-group

Syntax Description

1-99	(Optional) Client group number.
name	(Optional) Name of the client group.

Defaults

The default is **no client-group**.

Command Modes

SLB XML configuration submode.

Usage Guidelines

When a client group is specified, only connections sourced from an IP address matching that client group are accepted by the CSM XML configuration interface. If no client group is specified, then no source IP address check is performed. Only one client-group may be specified.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to specify a client group:

```
SLB-Switch(config-slb-xml)# client-group domino
```

Related Commands

client-group

credentials

Use the **credentials** command in the SLB XML submode to define one or more username and password combinations. Use the **no** form of this command to remove the credentials.

credentials *user-name password*

no credentials *user-name*

Syntax Description

user-name	Name of the credentials user.
password	Password for the credentials user.

Defaults

This command has no default settings.

Command Modes

SLB XML configuration submode.

Usage Guidelines

When one or more credentials commands are specified, the CSM HTTP server authenticates user access.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to specify the user and password credentials for access:

```
SLB-Switch(config-slb-xml)# credentials savis XXXXX
```

Related Commands

client-group

inservice

Use the **inservice** command in the SLB XML submode to enable XML for use by the CSM. If this command is not specified, XML is not used. Use the **no** form of this command to disable XML.

inservice

no inservice

Defaults

This command has no default settings.

Command Modes

SLB XML configuration submode.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to enable XML:

```
SLB-Switch(config-slb-xml)# inservice
```

Related Commands

xml-config

port

Use the **port** command in the SLB XML submode to specify the TCP port on which the CSM HTTP server listens. Use the **no** form of this command to remove the port.

port *port-number*

no port

Syntax Description

port-number	Sets the CSM port.

Defaults

The default is port 80

Command Modes

SLB XML configuration submode.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to specify the TCP port for the server:

```
SLB-Switch(config-slb-xml)# port 80
```

Related Commands

client-group

vlan

Use the **vlan** command in the SLB XML submode to restrict the CSM HTTP server to accept connections only from the specified VLAN. Use the **no** form of this command to specify that all vlans are accepted.

vlan *id*

no vlan

Syntax Description

id	VLAN name.

Defaults

The default is **no vlan**.

Command Modes

SLB XML configuration submode.

Command History

Release	Modification
3.1(1)	This command was introduced.

Examples

This example shows how to specify an owner for virtual server access:

```
SLB-Switch(config-slb-xml)# vlan 9
```

Related Commands

client-group